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FINAL
IMPLEMENTATION OF 2018 WORK PLAN SUMMARY REPORT

TANNERY 2018 WORK
Rockford, Michigan

January 11, 2019

File No. 16.0062355.02

PREPARED FOR:

Wolverine World Wide, Inc.
Rockford, Michigan

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January 11, 2019
File No. 16.0062335.02

Mr. Jeffrey Kimble, On-Scene Coordinator
U.S. Environmental Protection Agency - Region 5
9311 Groh Road
Grosse Ile, MI 48135

Re: Implementation of 2018 Work Plan - Summary Report
Wolverine World Wide Tannery 2017-2018 Work
Rockford, Michigan

Dear Mr. Kimble:

On behalf of Wolverine World Wide, Inc. (Wolverine), Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA), has prepared this Final Summary Report for the implementation of the Extent of Contamination Study Removal Work Plan (RWP) dated June 18, 2018 for the former Wolverine Tannery in Rockford, Michigan. The RWP and this resulting Summary Report were prepared in response to the EPA Region 5 Unilateral Administrative Order for Removal Actions[1] (UAO) effective February 1, 2018, associated with the Former Wolverine Tannery and House Street Disposal Area. The Draft Summary Report was submitted on October 26, 2018 and was revised based on your comments dated November 30, 2018.

If you need additional information, please contact Mark Westra at 616.258.7201.

Very truly yours,

Rose & Westra, a Division of GZA GeoEnvironmental, Inc.

Leslie M. Nelson, P.E.
Senior Project Manager

Mark A. Westra
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Steven Lamb, P.G., C.G.W.P.
Quality Assurance

Attachment: Final Summary Report
J:\62000\623xx\62335.02 - WWW Tannery 2017_2018 Work\002 - Implementation of 2018 Work Plan\0-Summary Report\62335.02_FINAL Summary Report.docx

1. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. V-W-18-C-004.

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1.0 INTRODUCTION

On behalf of Wolverine World Wide, Inc. (Wolverine), Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA), prepared this Extent of Contamination Study Summary Report (Summary Report) in response to EPA's UAO effective February 1, 2018, associated with the Former Wolverine Tannery and House Street Disposal Site. This Summary Report responds to the required actions to be implemented in Section XI (Work to be Performed), Paragraph 18 a. through 18 g. of the UAO related to the Former Wolverine Tannery in Rockford, Michigan ("Site"). The UAO does not cover poly and perfluorinated alkyl substances (PFAS), but they are included in this investigation and report because they were requested by EPA and as a courtesy to the State of Michigan.

1.1 OVERVIEW

In the UAO dated January 10, 2018, the EPA alleges Wolverine is a liable party under Section 107(a) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 USC § 9607(a), and hazardous substances as defined by CERCLA are at the former Tannery. This Summary Report has been prepared to document the investigation implemented under the Extent of Contamination Study Removal Work Plan (RWP) approved by EPA on June 18, 2018 and compile the findings.

1.2 PROJECT OBJECTIVES

The purpose of the RWP was to:

- Conduct the Extent of Contamination Study to determine vertical and horizontal limits of constituents of concern (on-Site) for soil, sediment, and groundwater;
- Further evaluate groundwater and surface water interactions (potential mass flux/transport velocity); and
- Evaluate the potential for volatile organic compound (VOC) vapor intrusion into buildings.

The data collected under the RWP and summarized in this Summary Report includes: (1) supplemental samples collected in the vicinity of identified potential sources on-Site (biased sampling locations); and (2) data collected to identify other potential sources on-Site (random sampling locations).

2.0 DESCRIPTION OF SITE AND VICINITY

For the purposes of this assessment, the "Site" includes areas where investigations were completed under the RWP. The Site consists of the 14.5 acres encompassing the former Wolverine Tannery property between Main Street and the Rogue River, north of Courtland Street, in Rockford, Michigan (**Figure 1**). The Site is divided by Rum Creek which flows from east to west through the central portion of the Site and discharges into the Rogue River.

The Site is fairly flat with an approximate elevation of 700 feet. Topography at the Site slopes slightly toward the Rogue River from Main Street to the White Pine Trail along the western Site boundary. There is an approximate elevation change of 10 feet between Main Street to the east of the Site and the Rogue River to the west. Topography west of the Rogue River rises more steeply than that on the eastern (Site) side of the River.

One building, a Wolverine retail store, and associated parking are located on the northern portion of the Site. There is an asphalt parking lot north of the building and the area west of the building is covered by asphalt and gravel. South of the building is a grass-covered area that extends south of Rum Creek to the southern property boundary near Courtland Street. The former Tannery buildings extended from the existing on-Site building to the south over Rum Creek. The concrete floors and roadways from these buildings are still present over Rum Creek from Main Street to the west for approximately 250 feet. This section of Rum Creek has been constrained by the construction activities associated with the former Tannery buildings. Along the entire west side of the former Tannery property is the White Pine Trail, which is open for public recreational use. In the southwest corner of the Site is a parking lot and boat ramp area that is used by the public for Rogue River access.

Storm water east of the existing building flows to the curbing along Main Street where it is collected in storm sewer catch basins. Surface water in the asphalt and gravel lot west of the building is collected in storm sewer catch basins that discharge to Rum Creek. Storm water in the grass-covered area on the south side of the Site flows to the west and either infiltrates or eventually discharges into the Rogue River.

A municipal storm and sanitary sewer line cross the property in a north-south orientation and continues in both directions. The natural gas service for the building enters the property from Main Street and enters the building near the southwest corner (see **Figure 2**). A communication line and water line are located in the right-of-way along Main Street; that water service line for the building enters on the east side of the building. There is an overhead electric line the crosses in an east-west orientation north of the existing building. The electric service enters the building near the northwest corner. The Site features are shown on **Figure 2.**

The properties surrounding the Site are a mixture of commercial and residential land use. Properties to the south and east are primarily used for commercial purposes, and properties to the north and northeast are primarily residential. The Rogue River abuts the Site to the west. The area south of the building to Rum Creek is surrounded by a chain-link fence to restrict access to this area. There is also a chain-link fence along the length of White Pine Trail, which runs along the western side of the Site. The areas south of Rum Creek and north of the building are not permanently fenced, but temporary fencing which was installed prior to this investigation remains. There is a driveway on the north side of the building that leads to the asphalt parking lot and the west side of the building; there is not driveway access to the grass-covered area south of Rum Creek.

3.0 SITE HISTORY

The Site was first developed in the 1800s, with an ice house, lumber yard and associated coal storage located north of Courtland Street and west of Main Street. A shoe factory was constructed north of Rum Creek circa 1903, and the Tannery was constructed south of Rum Creek circa 1908. Both buildings were expanded throughout the years, with the Tannery expanding to the south and west onto formerly residential land and the lumber/coal yard, respectively. The Tannery operated until 2009 and was decommissioned and demolished during 2010 and 2011. The former shoe factory building remains on-Site and is currently a retail store.

Prior to tanning, salted hides were fleshed, trimmed, washed, and the hair removed (using lime and sodium hydrosulfide). The tanning process itself included removing lime used for hair removal (i.e., bating); pickling; trivalent chromium tanning; and splitting the hides. The hides were then shaved and skived to remove the grain and create a plush texture. Following tanning, the hides were dyed, “fat-liquored” (i.e., adding oil back to the leather), and dried. The hides were finished using solvent-borne finishes initially; later processes involved use of water-borne finishes. In the late 1950’s Wolverine began using Scotchgard™ (manufactured by 3M Company)

as a water and stain repellent for leather in their manufacturing process, specifically for the Hush Puppies brand. 3M Company used perfluoroalkyl and polyfluoroalkyl substances (PFAS) as the active ingredients in Scotchgard™.

A separate sanitary sewer line was likely constructed when the Tannery began operating to convey its wastewater. Prior to the late 1940s, Wolverine screened tannery-related wastewater prior to discharging to the separate sewer line. In the late 1940s and early 1950s, Wolverine constructed a wastewater treatment plant on the peninsula south of Rum Creek and west of the Tannery building. It appears the peninsula was raised and expanded via filling (circa mid-1900s). In compliance with requirements of applicable regulatory authorities, the wastewater treatment plant was expanded and reconstructed over the years and was decommissioned and demolished during 2011 and 2012 (i.e., following demolition of tannery-related structures).

During the demolition in 2010 and 2011, Wolverine collected samples from monitoring wells and five piezometers under consultation with the EPA and Michigan Department of Environmental Quality (MDEQ). In late 2011 and early 2012, Wolverine and MDEQ collected additional samples from the Site and the Rogue River during a Preliminary Assessment under CERCLA. Certain hazardous substances as defined in CERCLA exceeding applicable State action levels were detected in certain samples collected from soils, surface water, shallow groundwater (above the clay layer), and sediment samples. Compounds in the samples included VOCs, semi-volatile organic compounds (SVOCs), and inorganic compounds.

During that time, compounds potentially associated with the former Tannery operations were detected in near-surface soil samples collected from the vicinity of the White Pine Trail along the Rogue River on the western side of the Tannery property, surficial soils at the western part of the Tannery property and the banks of the Rogue River, groundwater at the former Tannery, and sediment samples adjacent to the Tannery property.

4.0 REGIONAL SETTING

4.1 CLIMATE, HYDROLOGY, AND WETLANDS

In 2016, R&W/GZA compiled regional climate and streamflow information for the Site. The 2016 climate data report for Grand Rapids, Michigan, downloaded from National Oceanic and Atmospheric Administration, indicates that the mean annual precipitation for the 80-year record period is approximately 36 inches.

From 1989 to 2016, the average annual streamflow rate measured at the U.S. Geological Survey (USGS) Gauging Station No. 04118500, located south of the Site at the dam at Rockford, Michigan, is approximately 260 cubic feet per second (cfs), and the average baseflow rate is approximately 210 cfs. Based on the State-wide GIS data for the estimated annual groundwater recharge (Groundwater Inventory and Mapping Project, 2005) downloaded from the Michigan Geographic Data Library, groundwater recharge at the Site is approximately 11 inches.

National Wetland Inventory for Kent County GIS data (U.S. Fish & Wildlife Service, 1994) downloaded from Michigan Geographic Data Library shows wetlands along the Rogue River. There are areas of freshwater emergent wetlands on the islands within the Rogue River south of the former waste water treatment plant area and to the north of the Site. Further north of the Site, the wetlands along the Rogue River are predominantly mapped as freshwater forested/shrub wetlands.

4.2 GEOLOGY

Regional Geology

According to Apple and Reeves (2007), the overburden geology near the Site includes glacial outwash deposits primarily consisting of coarse to fine sand with gravel overlying silt and clay. Both the Rogue River and Grand River flow through postglacial alluvium. Bedrock consisting of the Mississippian-aged sandstone (Marshall formation), shale (Michigan formation), and the Bayport limestone as well as the Pennsylvanian-aged Saginaw Formation underlay Kent County. The regional dip is northeasterly toward the center of the Michigan basin. Portions of the bedrock in Kent County are overlain by the Jurassic "Red Beds", poorly consolidated or unconsolidated clay, mudstone, siltstone, sandstone, shale, and gypsum (MDEQ – Geologic Survey Division, 1987). These "Red Beds" are of low permeability and are generally considered a confining unit for groundwater flow.

Based on the Hydrogeologic Atlas of Michigan (Western Michigan University, Department of Geology, 1981), the top of bedrock elevation ranges from 500 to 550 feet near the City of Rockford. Ground surface elevation at the Site area ranges from 695 to 705 feet, based on Kent County LiDAR data. As such, the thickness of overburden soil at the Site is estimated to range from 145 feet to 205 feet.

Site Geology

Local overburden includes fill and shallow sand-dominated alluvial deposits overlying a relatively thick sequence of alternating sand and silt/clay deposits which has been generally encountered between depths of 10 to 20 feet. Peat was also encountered in borings drilled at the Site. Gravel has been encountered within the deeper alternating sand and silt/clay deposits. Bedrock has not been encountered in borings drilled to date, with a maximum boring depth of approximately 80 feet below ground surface (bgs).

Fill that includes sand and gravel along with ash, brick, cinders, and other debris is commonly encountered overlying the native deposits. There is also a layer of sand fill over portions of the Site that was imported following building demolition in order to facilitate site drainage.

See **Figure 3** for generalized geologic cross sections of the site vicinity based on investigations completed between 2011 and 2018.

4.3 HYDROGEOLOGY

MDEQ Wellogic data indicates the regional groundwater flow pattern generally follows the topography and groundwater discharges to the Rogue River and the Grand River. Based on evaluation of the calculated hydraulic head values from water level data collected from Site monitoring wells and surface water stations, the direction of groundwater flow within the upper portion of the saturated zone is generally from east-to-west, with the Rogue River and Rum Creek representing the primary Site groundwater discharge zones. Vertical hydraulic gradients above the interbedded sand and silt/clay deposits are generally neutral, with limited local upward flow associated with groundwater discharge to the Rogue River.

Between June and October 2018, the Rum Creek stream flow data suggest that groundwater discharge to the creek was minimal between gauging locations RC-1 and RC-2. These 2018 data are consistent with historical Rum Creek flow measurements collected during prior site work. The observed limited groundwater discharge to Rum Creek is consistent with shallow low conductivity silt and clay observed beneath the Site as well as anthropogenic changes to the hydrogeology such as sheet piling along Rum Creek. Two additional wells were installed across Main Street from the Site, in the parking lots on the east side of the road. These wells will be utilized to increase understanding of shallow groundwater flow at the Site.

Surface water flow downstream of RC-1 could not be measured due to the apparent controlling effect of the Rogue River elevation on surface water levels within the western portion of Rum Creek as observed throughout the 2018 field season. August 2018 groundwater hydraulic head data (**Figure 4)** suggests that on the northwestern portion of the Site, groundwater is discharging to Rum Creek. However, at times the groundwater flow near Rum Creek may reverse due to the Rogue River water elevation controlling the Rum Creek discharge.

Based on our understanding of Site hydrostratigraphy, R&W/GZA anticipates overall shallow groundwater flow beneath the Site north of Rum Creek is largely westward with discharge to the Rogue River and limited discharge to Rum Creek as described above. Groundwater potentiometric contours for the upper approximately 10 feet of the saturated zone are depicted on **Figure 4.** Water level gauging within multilevel well clusters (MW-301A through D; MW-303A through E; MW-309A through D; and MW-310A through C) preliminarily indicate a vertically downward hydraulic gradient from the alluvial sand deposits to the silt and clay deposits. While the presence of silt and clay deposits will restrict downward vertical groundwater flow, results of recent PFAS sampling and analysis indicating the presence of PFAS within the deeper wells in these well clusters are consistent with the downward vertical gradient and flow. The presence of the downward vertical gradient may be due to the presence of the Rockford Dam downstream of the Site.

Hydraulic conductivities measured via slug testing within Site monitoring wells screened above the low-permeability unit range from less than 0.1 feet per day to greater than 10 feet per day.

5.0 INVESTIGATION METHODOLOGY

The following sections summarize the media sampling activities conducted during RWP implementation.

5.1 SOILS AND SURFICIAL DEPOSITS

A total of 126 soil borings (biased, non-biased, groundwater monitoring well locations, and borings for visual observation only) were advanced during the investigation activities as outlined in the RWP. **Figure 5** depicts soil boring locations. Several exceptions from the RWP, which were discussed with EPA and agreed upon prior to implementation, are noted below:

- Six additional soil borings (TA-SB-83 through TA-SB-88) were advanced during the White Pine Trail investigation including five soil borings (TA-SB-84 through TA-SB-88) advanced for visual observation and field screening, but not sampled for laboratory analysis. Two borings (TA-SB-84 and TA-SB-85) advanced for visual observation were located between borings TA-SB-70 and TA-SB-75 and three borings (TA-SB-86 through TA-SB-88) were located west of the parking lot north of the existing building. These borings provide further delineation of leather scraps encountered in the other borings. Soil boring TA-SB-83 was advanced to the north of boring TA-SB-61 and samples were collected and submitted for laboratory analysis.

- Boring TA-SB-MA-05 in the former maintenance area was advanced and field screened; however, no soil samples were collected for laboratory analysis. During soil sampling activities, multiple borings were advanced to attempt collection of soil samples from this boring, but material was not recovered from the 4- to 8-foot depth interval. Concrete was encountered in this area during soil boring advancement, resulting in drilling refusal. Soil samples were collected from the other four soil borings in this area (TA-SB-MA-01, TA-SB-MA-02, TA-SB-MA-03 and TA-SB-MA-04) and the material in this boring was similar to the other four borings.

- Soil borings TA-SB-01 and TA-GW-03 were proposed at locations that were within approximately 5 feet of each other. The area is near the south bank of Rum Creek and includes utilities and piping associated with

the former waste water treatment plant. These soil boring locations were combined into one boring location and soil samples for laboratory analysis were submitted from only one location and labeled as TA-SB-01; monitoring well TA-GW-03 was installed in this boring.

- The boring for soil gas probe TA-SG-04 was not installed at the proposed location because groundwater was encountered at 3 to 4 feet bgs. This soil gas probe was moved 80 to 90 feet east into the courtyard area of the existing building at the approximate location of the former fuel oil storage area.

- One additional monitoring well (TA-GW-09) was installed near TA-SB-66 northwest of the existing building. This monitoring well was installed where leather scrap was encountered in the subsurface.

Some soil boring locations were adjusted due to structural and utility impediments; however, the soil boring location adjustments were within approximately 5 to 10 feet of the proposed location, and the adjustments were approved by EPA or their contractor in the field.

Prior to the investigative activities, R&W/GZA located the proposed boring locations using a Trimble R1 GPS unit. A wood stake was placed at each location labeled with the designated boring ID. Most of the soil borings at the Site were advanced using direct-push drilling techniques. The soil boring plan was implemented by advancing one boring for classification and field screening using XRF and photoionization detector (PID). Companion borings were advanced at the same location for soil sample collection once the sample intervals were determined based on the XRF and PID screening.

The soil borings were advanced and soil cores were collected using a 4- or 5-foot long, 2-inch diameter Macro-core® sampler equipped with an acetate liner. A new acetate liner was used in the Macro-core® sampler for each depth interval. The Macro-core® sampler was decontaminated between borings and the drive shoe on the end of the sampler was decontaminated between soil core collection at each depth interval.

Following retrieval of the Macro-core® sampler, the acetate liner was removed, polyvinyl chloride (PVC) caps were placed on each end of the acetate liner, and a label was placed on each acetate liner to indicate the boring number, the depth interval, and collection date. The acetate liners from each boring were transported to a central location in the parking lot behind the existing building for visual observations, lithologic description, photographs of the soil core, field screening with a PID and XRF, and/or soil sample collection. Soil cores not processed upon arrival were placed in a sample refrigerator until they were processed. The cores were placed in the refrigerator in a vertical position. The soil cores were processed within 24 hours of collection.

Where concrete or other impediments were encountered, soil borings were advanced using hollow-stem augers with 2- or 3-inch, steel, split-spoon samples advanced in 2-foot intervals in accordance with Standard Operation Procedures (SOPs) provided in the Quality Assurance Protection Plan (QAPP). The borings advanced using split-spoon sampling technique were: TA-GW-01 through TA-GW-09, TA-SB-23, TA-SB-58, TA-SB-27, TA-SB-07, and TA-SB-MW-04. For these borings, visual observations, photographs, lithologic description, and PID field screening were completed at the boring location. A portion of the sample was collected in a Ziploc® bag and transported to the processing location west of the existing building for XRF screening.

The soil samples were field screened with a MiniRae 3000 PID equipped with a 10.7eV lamp. The instrument was calibrated prior to its use at the beginning of each day, and the calibration was checked at the end of each day. The soil samples were field screened with a Delta Premium DP-6000 XRF. The instrument was field calibrated prior to use each day and the standards were analyzed throughout the day to check the calibration. Field

screening was completed on 1-foot intervals throughout the depth of the boring. The PID measurements were recorded on the boring log and the XRF measurements were recorded in an electronic database.

After soils were classified from the original borehole, companion boreholes were advanced in close proximity (approximately 3 to 4 feet) to the original boring to collect sufficient soil volume for analysis. In order to maintain consistency with the original borehole classification, soil from the target 1-foot sample interval(s) in the companion boreholes was compared to the original borehole's classification. If the classification was not consistent, then another borehole was advanced closer to the original location. The soil samples from the selected 1-foot sample interval(s) in these borings were collected directly from the split-spoon sampler and placed in the appropriate laboratory-supplied sample containers.

5.2 GROUNDWATER

5.2.1 Monitoring Well Installation

Nine groundwater monitoring wells were installed per the RWP. Soil samples for visual observation, lithologic description, field screening, and laboratory analysis were collected from the boreholes as described above. Eight of the monitoring wells were installed at locations identified in the RWP. TA-GW-09 was installed at the request of the EPA northwest of the existing building, near White Pine Trail, to evaluate the groundwater conditions because leather scraps were encountered in nearby soil borings.

The groundwater monitoring wells were installed in the upper fill and native material and ranged in depth from 7 to 9.5 feet bgs. Groundwater was encountered during drilling at depth ranging from 3 to 8 feet bgs. The locations of onsite monitoring wells are shown on **Figure 6**.

Each monitoring well was constructed of factory-slotted, 0.010-inch, 5-foot long PVC screen, and flush-threaded well casing. The annular space surrounding the well screen was filled with sand filter pack to a level approximately 1-foot above the top of the well screen. Bentonite chips were placed above the filter pack to a depth of approximately 1-foot bgs. A steel protective casing with a concrete pad was installed at each well location. Monitoring wells TA-GW-01, TA-GW-3, TA-GW-04, TA-GW-06, TA-GW-07, TA-GW-08, and TA-GW-09 were installed as above-grade completions and monitoring wells TA-GW-02 and TA-GW-05 were installed as flush-mount completions. A locking expansion cap was placed in the top of the PVC casing.

Following installation, the newly installed wells were developed to remove sediment from the sand filter pack and well casing. The height of the water column in each well was measured and the well purge volume was calculated as the volume of five well casing volumes. The calculated purge volumes ranged from approximately 2 to 5 gallons depending on the height of the water column.

The wells were developed using a 12-volt Mini-Typhoon® submersible pump equipped with dedicated tubing for each well. The pump was decontaminated between wells using a water and Alconox® wash with a water rinse. The wells were developed until the water was as sediment free as possible. The actual purge volumes ranged from 5 to 45 gallons. The development water was containerized in clean 55-gallon drums and staged prior to proper disposal. The tubing and other disposable materials used during the well development were placed in a separate drum and stored in a central location on-Site.

5.2.2 Groundwater Sampling

The first round of groundwater sampling was conducted from August 7 and August 15, 2018, for 56 existing and newly installed wells. The second round of groundwater sampling was performed between October 16 and November 1, 2018 for the same monitoring wells. The objective of the groundwater sampling was to provide data to evaluate water quality in the newly installed wells relative to historic spatial and temporal concentration trends.

Monitoring well sampling was completed in accordance with the RWP, the Site Field Sampling Plan (FSP), and the QAPP using low-flow techniques. Purge water and water submitted for laboratory analysis was obtained using a GeoTech Peristaltic Pump. The purge water was collected in 5-gallon buckets and transferred to 55-gallon drums in a central location on-Site. Turbidity was monitored by collecting water for turbidity analysis before entering a flow-through cell. Additional field parameters were monitored using a Multi-Probe Water Meter YSI that was situated in a flow-through cell. Once the field parameters stabilized within the limits specified in the SOP, a groundwater sample was collected from each well for laboratory analysis. The groundwater sample was collected by disconnecting the tubing from the flow-through cell and collecting the sample directly from the tubing.

The sampling protocol described above was modified for four wells (TA-GW-09, TA-MW-304A, TA-MW-302A, and TA-P-5) during the first round of groundwater sampling. Sampling protocol modifications were made for four wells (TA-GW-02, TA-MW-302, TA-MW-302A, and TA-P-5) during the second round of groundwater sampling. For these wells, the pump and equipment were set up as described above. During the initial start of pumping, the water level decreased, and the pump flow rate was adjusted to attempt to stabilize the water level in the well. Due to the low groundwater recharge to the well, the pump flow rate could not be adjusted to a rate low enough to stabilize the water level prior to the water level reaching the bottom of the tubing. The purging of these wells was discontinued at that time and the water level in the well was allowed to recover for approximately 24 hours. The sample tubing was left in the well so that it could be used to collect a groundwater sample. Groundwater samples were collected from these wells by pumping directly from the well into the sample containers. Prior to filling the sample bottles, a volume of water equal to the water in the tubing was allowed to discharge into a 5-gallon bucket to ensure that sediment was not being pumped from the well casing into the sample containers. Due to the sample volume required for the analyses, multiple sampling iterations were needed at these wells to fill all sample containers. The order for filling the sample bottles was modified at the request of the EPA so that the VOC sample containers were filled at the end of the sampling instead of at the beginning of the sample collection as specified in the QAPP. During sample collection, if the water level dropped to the bottom of the tubing, sample collection was discontinued, the water level was allowed to recover, and sample containers were filled during subsequent pumping.

As described in the FSP and QAPP, groundwater samples were collected in laboratory-supplied sample containers labeled with the well ID, sample, time and date, and laboratory analysis. The samples were packed in coolers with ice and shipped to the laboratory under chain-of custody control via overnight express shipping.

5.3 SURFACE WATER

5.3.1 Surface Water Sampling

Surface water samples were collected at a total of seven locations along the Rogue River and Rum Creek in accordance with the RWP and as shown on **Figure 7**. The surface water samples were collected proximate to companion sediment sample locations. The surface water locations and the corresponding sediment sample locations are presented in Table 5.3.1

Table 5.3.1 Co-located Surface Water and Sediment Locations

Surface Water Sample Location	Sediment Sample Location
TA-SW-01	TA-SED-T9-3
TA-SW-02	TA-SED-T7-2
TA-SW-03	TA-SED-T6-3
TA-SW-04	TA-SED-RC-1
TA-SW-05	TA-SED-T4-3
TA-SW-06	TA-SED-RC-2
TA-SW-07	TA-SED-T3-3

The surface water sampling was specified by EPA to be conducted during times of normal to low stream flow. The first surface water sampling event was conducted between July 24 and 26, 2018. The flow on the Rogue River at the USGS gauging station near Rockford (USGS 04118500) during this time was approximately 130 to 150 cfs; the 62-year average for this time period is approximately 130 cfs. The RWP specified that a second surface water sampling event would be performed at least one month following the first event. The discharge of the Rogue River at USGS gauging station 04118500, during the period from August 24 through October 19, 2018, was significantly higher than the 62-year average discharge for this time period. These documented flow observations created abnormally high flow conditions that were not consistent with the first sampling round and it was considered that the data would not be comparable, which is why the second sampling event was delayed until October 24 through 26, 2018. The second surface water sampling event was conducted between October 24 and October 26, 2018. The flow on the Rogue River at the USGS gauging station near Rockford during this time was approximately 227 to 242 cfs; the 62-year average for this time period is approximately 170 to 180 cfs. EPA approved sampling at this time.

The surface water samples were collected within 15 feet of the shore in accordance with the FSP and QAPP using a peristaltic pump equipped with dedicated polyethylene tubing. The tubing was typically attached to a PVC pipe so that it could be maintained in approximately the center of the water column at each sampling location. If the stream required personnel entry into the water body, the sample was collected from an up-stream position relative to the personnel to reduce the potential for influence of disturbed sediment on the sample. The coordinates of each surface water sampling location were recorded using a Trimble R1 GPS unit.

As described in the FSP and QAPP, surface water samples were collected in laboratory-supplied sample containers labeled with the location ID, sample, time and date, and laboratory analysis. The samples were packed in coolers with ice and shipped to the laboratory under chain-of custody control via overnight express shipping.

5.3.2 Stream Flow and Level Gauging

Gauging stations were established in both Rum Creek and the Rogue River to collect water level data for assessing groundwater-surface water interaction. Rum Creek flow gauging stations were also utilized to provide data to evaluate the discharge of groundwater to surface water along Rum Creek which transects the Site. Surface water flow gauging station TA-RC-1 is located east of Main Street and flow gauging station TA-RC-2 is located approximately in the center of the site west of the concrete floors and structures over Rum Creek. TA-RC-2 was moved from the location proposed in the RWP to east of the confluence with the Rogue River because the water level in Rum Creek near the confluence is controlled by the water level in the Rogue River. In addition, the stream bed in this section is a wide, narrow, flat-bottom channel which are not desirable attributes for stream gauging. The water velocity in this reach slows due to the water level in the Rogue River causing sediment to be deposited which causes a shifting streambed. Rum Creek at TA-RC-1 is a narrow, deeper, natural stream with rocks along the bottom.

Staff gauges were installed in the Rogue River at three locations. TA-RR-1 is located near the northern property boundary, TA-RR-2 is located south of the confluence of Rum Creek and Rogue River, and TA-RR-3 is located near the boat ramp at the southern end of the property. A staff gauge could not be located on the Rockford Dam to measure the water level of the pool behind the dam; therefore, the water level at TA-RR-3 also represents the water level of the pool behind Rockford Dam.

Each gauge location has a transducer in a piezometer that records the water level. In addition, near TA-RC-2, there is a transducer that is exposed to the atmosphere to record the barometric pressure. At each gauging station in Rum Creek, periodic stream discharge measurements were collected using the USGS cross-sectional area method (refer to the QAPP). The discharge measurements are then plotted on a graph versus the concurrently measured stream stage resulting in a rating curve. Subsequent stream stage measurements from the transducer at the gauging station were entered into the formula for the rating curve to calculate an estimated discharge for each stage measurement. The discharge for the Rogue River is measured by the USGS at a location downstream from the Rockford Dam.

Discharge measurements for Rum Creek were used to develop a rating curve for RC-1 (See **Appendix E**). Data indicates that during the times when R&W/GZA was collecting discharge measurements, the flow velocity and stream height within Rum Creek were low. The stream discharge was observed to be within the measurement error of the equipment resulting in flow estimates with higher relative error as compared to the Rogue River. As of the date of this report, discharge measurements were collected at water depths ranging from approximately 0.8 to 1.25 feet and the discharge of Rum Creek ranged from approximately 3 to 18.4 cfs. The transducer recorded measurements every two hours and operated continuously from installation on July 16, 2018 until November 9, 2018 when the equipment was removed from the river for the winter. Data were downloaded approximately on a biweekly basis. Appendix E provides a summary of the Rum Creek flow information.

5.4 SEDIMENT SAMPLING

Sediment samples were collected from the Rogue River and Rum Creek to supplement the historical sediment sample results and to provide for an evaluation of the sediment quality adjacent to the Site. Sample locations were selected in depositional areas within the Rogue River and Rum Creek and in areas that are typically accessible to, and used by, the public in the approximate areas shown in the RWP. Sediment samples were collected from a total of 38 locations within the Rogue River and Rum Creek and a total of 99 samples were submitted for laboratory analysis; this includes the samples along 10 transects of the Rogue River, in Rum Creek, in the high use areas requested by EPA, and from four islands located within Rogue River. The sediment samples were collected in accordance with the RWP. The locations of each sediment transect are shown on **Figure 8**.

Rogue River and Rum Creek Sediment Cores

R&W/GZA contracted Affiliated Researchers (Affiliated) to locate the transects, collect bathymetric survey data, such as water depth and water elevation from each transect, estimate the sediment thickness at locations along each transect, and obtain sediment cores from the selected locations along the transect for collection of sediment samples for laboratory analysis. R&W/GZA provided coordinates for the proposed transect identified in the RWP and Affiliated located the transects using a Trimble R10 RTK-GPS that was connected to a Trimble SPS855 RTK-GPS base station. The accuracy of this surveying system was <0.05 feet both horizontally and vertically. Affiliated performed Quality Assurance/Quality Control (QA/QC) checks of the GPS survey system at the beginning and end of each day.

Affiliated used a 20-foot pontoon boat to access the river from the boat ramp north of Rockford Dam. The pontoon boat was equipped with a 15-foot vertical tri-frame hoist over a removable 2- by 3-foot deck opening in the pontoon floor. The sediment cores were collected using a Rossfelder P-3 underwater Vibracore system for

collecting the sediment cores. This system has a power rating of 5,500 pounds of force and was configured to accept 3-inch polycarbonate core tubes.

Prior to collection of the sediment cores, manual sounding-pole methods were used to determine the water depth and sediment thickness at several locations along each transect. These sounding-pole measurements were evaluated by R&W/GZA and EPA to select the locations for sediment core collection. At each sample location, the water surface elevation was measured. Sediment core samples were collected by advancing 8-foot lengths of 3-inch diameter polycarbonate core-tubes using the Rossfelder P-3 Vibracore system. The polycarbonate core-tubes were decontaminated using an Alconox® wash and a water rinse at a central location behind the existing building. Upon retrieval of the core-tube, the bottom of the tube was sealed with a PVC cap and screw clamp. Depending on the amount of recovery, the excess core-tube at the top was removed by cutting with a steel hand-saw and the top was capped with a PVC cap and screw clamp. A water head was maintained in the top of the core-tube following retrieval. The top cap was marked with the number of the boring. The core-tubes were stored on the pontoon boat in a vertical rack that was lined with plastic sheeting. The core-tubes were transferred to R&W/GZA on-shore and then transferred in a vertical position to a central location on-Site for processing. For sediment cores that arrived at the central processing area and could not be processed upon arrival, observations of the sediment cores were made by R&W/GZA and EPA to determine the sample intervals, the sample intervals were recorded on the sediment core field log, the cores were cut with a steel saw into sections and caps were placed on the cut ends so that the cores would be placed in a sample refrigerator for storage until processing. The cores were placed vertically in the refrigerator. The sediment cores were processed within 24 hours of collection.

Transects 1, 4, 9 and 10, and in Rum Creek were not accessible by the pontoon boat because of the shallow water. Affiliated collected the sediment cores at these locations using a 14-foot aluminum boat or by wading. The sediment cores on Transects 4, 9, 10, the boat ramp, Rum Creek Access area, and in Rum Creek were obtained using a Vibracore-Mini system and the sediment cores on Transect 1 were hand-driven. The sediment core-tubes for these samples were 3-inch diameter polycarbonate tubes. The processes and procedures for the sediment cores from these areas followed the same protocol as described above.

The location of Transect 1 was moved to a location downstream of the proposed location because the proposed location was not a depositional environment. Transect 1 was moved approximately 300 feet to the south in an area where fine-grained sediment had been deposited. At this location, only two sediment samples were collected, one from the east bank and one from the west bank. The area in the center of the channel consisted of rocks and gravel and did not contain fine-grained sediment.

Three sediment cores were collected along the other transects with the exception of Transect 7 and 10 which only had two sediment sample locations. Transect 7 is located immediately north of the confluence of the Rogue River and Rum Creek and Transect 10 is located north of the site in an area where the channel is narrow, and the water is shallow along the east side of the river. Based on the sounding-pole information in these areas, the material was primarily sand and silt, therefore, R&W/GZA and the EPA decided to sample only two locations because of the limited fine-grained depositional sediment. For these transects, a sample collected from the island along the transect was substituted for one of the sediment samples.

The transect line for Transect 9 is v-shaped because of the shallow water present along this transect. The sample collected in the center along this transect is near the point of the island in this area and was the closest location that could be reached by boat. The sample collected on the east side of the river, TA-SED-T9-3, along this transect was advanced in a location where the public can access the river. Only one sample was collected at this location.

Rogue River Island and High Use Area Sampling

Sediment samples were collected from the islands within the Rogue River along Transects 4, 7, 9 and 10, and the "high use" boat ramp area on the east end of the Rockford Dam. These sediment samples were collected from hand-auger borings advanced by R&W/GZA. The samples from each boring were field characterized and field screened with a PID in 1-foot intervals. Based on the visual lithologic observations, sample intervals were selected and samples were collected.

Sediment Core Processing

Prior to processing the sediment cores for subsample (aliquot) collection for laboratory analysis, R&W/GZA and EPA determined the selected laboratory sample intervals based on the position of the depositional intervals visually observed through the polycarbonate tube. The sediment cores were visually logged for grain size and composition, field screened with a PID, and sampled for laboratory analysis in 1-foot intervals. The number of samples submitted to the laboratory from each core was determined based on the length of core recovered at each sampling location. Generally, if the core was less than 3-foot long, two laboratory samples were collected and, if the core was greater than 3 feet in length, three laboratory samples were collected. In certain cores, additional samples were collected based on the observable depositional layers.

The sediment cores were processed in accordance with the QAPP. If the sediment was fine-grained material, the core-tube was placed on a stainless-steel piston that was used to extrude the core by pushing the piston by hand up the tube (see the QAPP). If the sediment was coarse-grained material, such as sand, the piston could not be advanced by hand, therefore, the core-tube was cut with a steel saw approximately 2 inches above and below the sample; the excess material above and below the sample interval were discarded during the sample collection process. Following processing, the samples were collected using clean, stainless-steel spoons in accordance with the QAPP. The non-disposable equipment used during the sampling was decontaminated using an Alconox® wash and a water rinse; the disposable equipment was placed in 55-gallon drums and stored in a central location on-Site.

Hand-Auger Boring Sediment Sample Processing

Certain sediment locations (i.e., those on some of the islands and more accessible areas) were sampled using hand augers. The hand-auger borings were first advanced to identify the depth and composition of the sediment. Following advancement of the hand-auger boring, R&W/GZA and the EPA selected laboratory sample intervals, and the samples were collected in 1-foot increments directly from the hand-auger bucket in accordance with the hand-auger sampling SOP in the QAPP. The hand auger was decontaminated between borings using an Alconox® wash and a water rinse.

5.5 SOIL GAS

The objective of the soil gas sampling was to assess the potential for vapor intrusion into future structures or off-site vapor migration due to historical solvent use at the Tannery. Nine soil gas sampling points were installed around the perimeter of the Site and a tenth was installed in the center of the Site as described in the RWP (shown on **Figure 9.)** While installing the monitoring points, soil samples were collected to visually characterize the material and to measure the groundwater depth. If indications of groundwater were not visually observed in the samples recovered from the boring, the boring remained open so that groundwater could accumulate in the boring. Due to the shallow water table, only one vapor monitoring point was placed at each location, generally at a depth of 3 to 5 feet bgs. Soil gas sampling points were constructed in accordance with the QAPP, and the monitoring point was completed with a flush-mount, 8-inch well box and a concrete apron at the surface.

The first round of soil gas sampling was performed August 7 and August 8, 2018. The second round of soil gas sampling was performed November 7 and November 8, 2018 at nine locations. The tenth point (TA-SG-06) had a blockage in the line and was replaced and resampled in December 2018.

In August 2018, soil gas samples were collected in accordance with the QAPP using 2.7-liter SUMMA® canisters connected to the top of the monitoring point using disposable polyethylene tubing and a laboratory-supplied flow controller. The optional helium leak testing was not conducted during the first monitoring round. Each sample was collected over a period of approximately one hour until the vacuum in the canister was approximately -5 to -10 mm of Hg. The valve on the SUMMA® canister was closed, disconnected from the tubing and placed in a container for shipping under chain-of-custody protocol to the laboratory.

During the second round of monitoring, soil gas samples were collected in accordance with the QAPP, including conducting the optional helium leak testing procedures of the laboratory-supplied flow controllers and soil gas lines via a shroud prior to sample collection. Using disposable polyethylene tubing, the laboratory-supplied regulator was connected to the vapor lines and a port on the constructed shroud. After connection of the regulator within the shroud, the vapor line was opened and a 2-inch deep trench was dug around the shroud; the shroud was then sealed to the ground surface using bentonite. A low-flow air pump (Apex Casella) was connected to the port on the outlet of the regulator, and the port was opened. Prior to filling the sealed shroud with laboratory-supplied helium, an initial background helium reading of the vapor monitoring line was collected using an IonScience Gas Check helium detector. After initial readings were collected, the shroud was filled with helium and the low -flow air pump was utilized to purge five well volumes of soil gas. Following the purge, the IonScience Gas Check helium detector was used to measure the concentration of helium within both the sealed shroud and the soil gas vapor line. The helium leak test was successful if the concentration of helium within the soil gas vapor line was less than 10% of the helium concentration within the shroud.

After a successful helium leak test, the shroud was removed and soil gas samples were collected using 2.7-liter SUMMA® canisters connected to the top of the monitoring point via the disposable polyethylene tubing and the laboratory-supplied flow controller. Each sample was collected as described above and shipped under chain-of-custody protocol to the laboratory.

During the second round of sampling, the following exceptions were noted:

- Soil gas sampling was initially proposed to start on November 6, 2018; however due to a significant rain event occurring on that day, the start of sampling was delayed until November 7, 2018.
- No soil gas samples were collected from TA-SG-06 due to a blockage in the soil gas line. After 15 minutes of sample collection, no changes occurred to vacuum pressure in the flow controller regulator value. The set up was checked to ensure that the soil gas vapor line was open, and a MiniRea 3000 PID was used to confirm that there was a blockage in the line. This sample location was reinstalled and resampled in December 2018.

5.6 ADDITIONAL PROCEDURES FOR SAMPLING FOR PERFLUORINATED ALKALI SUBSTANCES

Samples collected from soil, sediment, groundwater, and surface water were analyzed for constituents identified in the RWP as well as for PFAS. Because of the potential presence of PFAS in common consumer products and in equipment typically used to collect samples and the low detection limits associated with laboratory PFAS analysis, special handling and care was taken when collecting samples for PFAS analysis. The following section provides a brief summary of sample collection procedures. A detailed PFAS Sampling SOP was provided in Appendix B of the project QAPP and the PFAS QAPP submitted to MDEQ and approved on December 5, 2018.

During sample collection, two R&W/GZA staff were part of the sampling effort: one individual was responsible for handling and labelling the sample bottles and physically collecting the sample (referred to as “Clean Hands”). The

other individual was responsible for purging (if necessary), disposing of purge water, and handling non-dedicated equipment (referred to as "Dirty Hands"). The typical sampling procedures were as follows:

1. Clean Hands put on a new pair of gloves and labeled the bottles with information for the lab.
2. Clean Hands then placed the bottleware back in the Ziploc® bag provided by the laboratory.
3. After donning a new pair of nitrile gloves, Clean Hands collected the aliquot for PFAS prior to collecting aliquots for other analytes; thereby avoiding contact with any other type of sample container, bottles or packaging materials that may have PFAS-related content. Clean Hands removed the bottles (one at a time) from the plastic bag, remove the cap and obtain the sample. Gloves were removed after each sample and clean gloves were donned for subsequent PFAS samples.
4. Sample bottle caps were not placed on any surface and contact with the inside of the sample bottle or its cap including with sample ports, spigots, and tubes was avoided.
5. Once the sample was collected, capped and labeled, the sample bottle(s) were placed in the laboratory-provided Ziploc® bag and placed in a PFAS sample-dedicated cooler packed only with double-bagged ice.

Field equipment that contained Teflon® and other fluoropolymer-containing materials, chemical ice packs, waterproof/treated paper or field books, recycled paper, plastic clipboards or binders, Sharpies and markers, Post-It® and adhesives, synthetic waterproof/resistant and/or stain resistant materials, coated Tyvek®, UV-resistant, stain-resistant, or insect-resistant clothing, fabric softener, cosmetics, scented personal care products, fast food, and pre-packaged food were not used at or near PFAS sampling locations. A list of prohibited and allowable items is provided in Appendix B of the project QAPP.

6.0 SITE SAMPLING RESULTS

The following sections summarize the analytical results from soil, groundwater, surface water, sediment, and soil gas sampling at the Site. For the purposes of this discussion, a summary of the detected compounds has been developed for each compound type (i.e., VOCs, SVOCs, metals, PFAS, and other compounds) under each medium. The following are the values used to evaluate the results:

- For soil, the most restrictive of MDEQ Part 201 Generic Soil Cleanup Criteria for Residential Land Use, the MDEQ Volatilization to Indoor Air Pathway (VIAP), or MDEQ Toxics Steering Group's Recommendations for Interim Action Screening Levels (RIASL) are used. The EPA Regional Removal Management Levels (RMLs) are provided on the tables and discussed in the text for reference. If state-wide default background levels are available and greater than the risk-based generic cleanup criteria, then the state-wide default background levels are used as the generic cleanup criteria.

- For groundwater, the most restrictive of MDEQ Part 201 Generic Groundwater Cleanup Criteria for Residential Land Uses, the MDEQ VIAP, or the MDEQ Toxics Steering Group RIASL are used. The EPA RMLs are provided on the tables and discussed in the text for reference.

- For surface water, the most restrictive of Part 57 Final Chronic Value (FCV), Wildlife Value, Human Health Drinking Water values, and Human Health Non-Drinking Water values are used.

- For Sediment, the most restrictive of EPA Region V, Resource Conservation and Recovery Act (RCRA) Ecological Screening Levels (ESLs) and EPA's Sediment Quality Guideline Threshold Effect Concentrations are used.

- For soil gas, MDEQ's August 2017 Media-Specific Volatilization to Indoor Air Interim Action Screening Levels for residential land use are used.

These criteria include Michigan's generic residential cleanup criteria (GRCC) for selected exposure pathways. They are provided for reference only, not to imply they will be the basis of any future removal, remediation, or closure actions. Note that groundwater on Site is not used as a source of drinking water.

See **Table 5** through **Table 9** for summaries of the analytical data for each compound in each sample. Isoconcentration maps for selected constituents for each medium are presented on **Figures 10** through **13**. These constituents were selected based on a combination of factors, including known use and/or source of the constituent at the Site, extent and magnitude of the constituent in a particular media, and presence of concentrations greater than the EPA RMLs if applicable.

Compounds that were detected were generally consistent with the those from previous investigations from 2011 to 2017 with DEQ oversight.

6.1 SOIL AND SURFICIAL DEPOSITS

In addition to the 126 soil borings installed at the Site, four sediment cores were collected from "islands" in the Rogue River and compared to both soil and sediment screening levels. Soils were logged at 1-foot intervals and descriptions documented on soil boring logs (**Appendix A**) as described in Section 5. **Figure 5** displays the soil boring locations, and **Figure 3** depicts the geological cross sections at the Site.

6.1.1 Visual Observations

Historical borings and explorations performed during this investigation indicate glacial deposits (see **Section 4**) exist beneath the Site with fill near the former buildings and surrounding areas. Certain borings along the northern portion of the White Pine Trail encountered leather scrap and/or rubber pieces at depths between 2 and 8 feet bgs, and occasional leather scrap and wood debris were encountered in several of the grid-based sample locations north of Rum Creek as well as west of the retail building. Leather scrap was observed in the river bank north of Rum Creek where soil borings were not conducted, but south of the northern-most boring. These observations concur with findings from past site investigations that indicate there is some fill containing leather pieces or scrap. Leather scrap is not wide-spread at the Site but appears limited to the area north of Rum Creek and west of the retail building (see **Figure 10S**). In general, the leather scrap is intermixed with granular material and does not appear to be in a continuous layer across the Site.

Soil borings in the western portion of the Site along the White Pine Trail extending from the boat ramp near the southern property boundary to the south end of the retail building in the north contained a mixture of native material and fill. Historical reports indicate that fill was imported to the Site as part of construction of the waste water treatment plant in the mid-1900s and following the demolition of the Tannery in 2011; however, anthropogenic material within the fill in the western portion of the Site appeared limited to brick and concrete fragments as well as leather scraps, cinders, and sawdust in limited areas at the northwestern portion of the property, north of Rum Creek.

On August 2, during installation of one soil boring, TA-SB-03, a rotten egg odor (commonly associated with hydrogen sulfide) was noted. Drilling was discontinued until the odor dissipated. A headspace reading was done on the borehole at the ground surface using a hydrogen sulfide meter; the reading was 2.5 parts per million. EPA also used a pH test strip to evaluate the pH and noted a pH of 10 using that method. This reading could not be replicated using a pH meter and water in contact with the soil. The pH in groundwater across the Site ranged from 6.2 to 7.55 during the August 2018 sampling event.

6.1.2 Chemical Testing Data

Table 1 summarizes the field screening data for the soil samples submitted for laboratory analysis during July and August 2018 including PID screening and XRF screening for selected metals. Analytical results for compounds that were measured above screening levels for each soil sample during July and August 2018 are provided in **Tables 5A** through **5F**, and generalized findings are provided in the following sections. Isoconcentration maps for selected constituents are presented on **Figures 10A** through **10R**.

6.1.2.1 VOCs

The following table summarizes the VOC compounds measured in site soils. Analytical results for VOCs are provided in **Table 5A**.

Table 6.1.1. Summary of VOCs Exceeding Screening Values in Soil

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Screening Value (ppb)	Screening Value Name
1,1,1-Trichloroethane (TCA)	225	17	8	8,000	450	RIASL
1,1,2,2-Tetrachloroethane	225	1	1	84	64	GSIP
1,1,2-Trichloroethane	225	2	1	250	100	DWP
1,1-Dichloroethane	225	12	12	11,000	2.6	RIASL
1,1-Dichloroethylene	225	4	4	490	12	RIASL
1,2-Dichloroethane	225	1	1	170	100	DWP
Benzene	225	17	17	550	1.7	RIASL
Chloroform	225	2	2	100	0.26	RIASL
Chloromethane (Methyl chloride)	225	1	1	76	6.9	RIASL
cis-1,2-Dichloroethylene	225	3	3	95	2.1	RIASL
Ethylbenzene	225	21	21	990	12	RIASL
Methylene Chloride	225	26	4	260	100	DWP
Tetrachloroethylene (PCE)	225	3	3	510	6.2	RIASL
Toluene	225	50	1	3,900	3700	RIASL
trans-1,2-Dichloroethylene	225	1	1	150	39	RIASL
Trichloroethylene (TCE)	225	2	2	1,000	0.33	RIASL
Xylenes (Total)	225	55	18	3,600	980	GSIP

Where available and applicable (i.e., it was the most restrictive), sample results were compared to the volatilization to indoor air screening levels (VIAC and RIASL) published by the MDEQ in August 2017. Soil gas sampling (see Section 6.5) did not indicate that volatilization to indoor air at the soil gas sampling locations adjacent to the site building is occurring; therefore, the following discussion includes comparison of analytical data to additional soil criteria (i.e., drinking water protection, groundwater-surface water interface, and residential soil).

PCE and TCE were detected in three and two samples, respectively, but only TCE was found at concentrations greater than its most restrictive Part 201 Generic Residential criterion. 1,1,1-TCA was detected in 17 samples, but only 8 samples had concentrations greater than its most restrictive criterion. Benzene, ethylbenzene, and (total) xylene isomers were detected in 17, 21, and 55 samples, respectively. Compounds detected at concentrations greater than their respective criterion were 17 for benzene, 21 for ethyl benzene, and 18 for total xylenes, and these were observed at varying depths generally away from the site perimeter.

The analytical data did not identify samples with VOC concentrations greater than the EPA Regional RMLs.

Isoconcentration maps for selected VOCs are provided on **Figures 10A** and **10B**.

6.1.2.2 SVOCs

The following table summarizes the SVOC compounds detected in soil. Analytical results for SVOCs are provided in **Table 5B**. Isoconcentrations for selected SVOCs are presented on **Figures 10C** through **10F.**

Table 6.1.2. Summary of SVOCs Exceeding Screening Values in Soil

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
1,4-Dichlorobenzene	225	1	1	85	23	RIASL
2-Methylnaphthalene	225	95	3	13,000	4,200	GSIP
Acenaphthene	225	71	2	51,000	8,700	GSIP
Acenaphthylene	225	60	1	6,400	5,900	DWP
Anthracene	225	128	2	97,000	41,000	DWP
Benzo(a)anthracene	225	163	5	96,000	20,000	DCC
Benzo(a)pyrene	225	157	31	82,000	2,000	DCC
Benzo(b)fluoranthene	225	155	7	110,000	20,000	DCC
bis(2-Chloroethyl)ether	225	1	1	280	100	DWP, GSIP
Carbazole	225	50	7	34,000	1,100	GSIP
Dibenzofuran	225	43	5	55,000	1,700	GSIP
Fluoranthene	225	170	21	290,000	5,500	GSIP
Fluorene	225	89	4	83,000	5,300	GSIP
Indeno(1,2,3-c,d)pyrene	225	140	1	29,000	20,000	DCC
Naphthalene	225	117	26	55,000	730	GSIP
Phenanthrene	225	162	34	320,000	2,100	GSIP

The SVOC detection frequency was higher than the VOCs; however, the frequency of detections greater than screening values was relatively low, with only three compounds detected above their screening values in more than 22 (10%) of samples, and only phenanthrene was detected above the screening values in 34 (15%) of samples. Spatial distribution of selected SVOCs are provided on **Figures 10C** through **10E**

The analytical data identified samples with two SVOCs exceeding the RMLs: benzo(b)fluoranthene and benzo(a)pyrene as shown below. These data are depicted on **Figure 10D** and **Figure 10E.**

Constituent	RML	Samples exceeding RML	
Benzo(b)fluoranthene	110,000	TA-SB-53 (5 -6)	
Benzo(a)pyrene	11,000	TA-SB-18 (2-3) TA-SB-47 (3-4) TA-SB-53 (5-6) TA-SB-59(2-3)	TA-SB-64 (4-5) TA-SB-66(2-3) TA-SB-76 (1-2) TA-SB-82 (0-1)

6.1.2.3 Metals

The following table summarizes the metals measured in site soil. Analytical results for metals are provided in **Table 5C**. Isoconcentration maps for selected constituents are provided as **Figures 10G** through **10L**.

Table 6.1.3. Summary of Metals Exceeding Screening Values in Soil

Element	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
Aluminum	225	225	26	18,000,000	1,000	DWP
Antimony	225	72	23	17,000	1,200	GSIP
Arsenic	225	225	90	63,000	4,600	DWP
Barium	225	225	1	1,200,000	66,0000	GSIP
Boron	225	106	47	150,000	10,000	DWP
Cadmium	225	203	10	11,000	3,000	GSIP
Hexavalent Chromium	225	66	25	91,000	3,300	GSIP
Trivalent Chromium[1]	225	225	0	110,018,000	330,000,000	PSIC
Cobalt	225	219	23	47,000	800	DWP
Copper	225	223	19	550,000	10,0000	GSIP
Iron	225	225	104	120,000,000	6,000	DWP
Lead	225	225	11	11,000,000	400,000	DCC
Magnesium	225	224	76	50,000,000	8,000,000	DWP
Mercury	225	147	76	18,000	0.027	RIASL
Molybdenum	225	84	36	12,000	1500	DWP
Selenium	225	66	65	7,000	400	GSIP
Silver	225	42	6	3,200	100	GSIP
Vanadium	225	215	2	110,000	72,000	DWP
Zinc	225	225	44	6,500,000	230,000	GSIP

Notes: 1. Analysis was for total chromium while the criterion is for trivalent chromium. Trivalent chromium was calculated as the difference between total chromium and hexavalent chromium.

The metals measured at concentrations above screening levels were observed in varying depths. Total chromium appears to have the highest concentrations at localized areas within the footprint of the historical tannery building, with the highest concentrations at TA-SB-23 and TA-SB-27 south of Rum Creek along the eastern property boundary. The highest concentrations of arsenic, however, are along the western portion of the Site and the railroad right-of-way. It appears that the areas immediately west of the retail store and parking areas have lower concentrations of arsenic than the western portion of the Site and soils at the western end of Rum Creek.

Vanadium measured at concentrations above criteria was observed in localized areas in the east-central portion of the Site within the footprint of the historical tannery building.

The hexavalent chromium concentration in soil from boring TA-TB-65 (in the northwest portion of the Site) was higher than other locations. More leather scrap was also present in the fill at this location than at other borings.

Samples that contained individual total metal concentrations that exceeded 20 times the respective Toxicity Characteristic Leaching Procedure (TCLP) concentration were also analyzed for TCLP metals (see **Table 5F**). Of the TCLP analyses completed, only chromium at TA-SB-23 at 6 to 7 feet bgs (18,000 µg/L) and lead at TA-AOC-H-03 at 2 to 2.5 feet bgs (14,000 µg/L) exceeded their RCRA threshold concentrations of 5,000 µg/L. See **Table 5F** for tabulated TCLP results.

The analytical data identified samples with three metals exceeding the RMLs as shown below. The concentrations of metals exceeding the RMLs are provided below and are depicted on **Figures 10G** through **10L**.

Constituent	RML	Samples exceeding RML	
Hexavalent Chromium	30,000 ppb	TA-SB-02 (2-3) TA-SB-65 (1-2) TA-SB-65 (4-5)	TA-SB-66 (2-3) TA-SB-76 (1-2) TA-SB-AOC-H-01 (2-3)
Lead	400,000 ppb	TA-SB-01 (2-3) TA-SB-02 (2-3) TA-SB-31 (7-8) TA-SB-37 (6-7) TA-SB-40 (6-7)	TA-SB-59 (2-3) TA-SB-65 (1-2) DUP TA-SB-68 (3-4) TA-SB-69 (2-3) TA-SB-76 (1-2) TA-SB-AOC-H-03 (2-2.5)
Mercury	33,000 ppb	TA-SB-36 (2-3)	

6.1.2.4 General Chemistry

Of the general chemistry analytes, only chloride, (total and available) cyanide, phosphorus, and sulfate were measured above their most restrictive criteria. The following table summarizes the general chemistry analytes, their maximum concentration, and frequency of detection in soil samples at the Site. **Figures 10M through 10R** depicts the spatial distribution of exceedances of the most restrictive soil criterion for metals at the Site. Analytical results for general chemistry analytes are provided in **Table 5D**.

Table 6.1.4. Summary of General Chemistry Analytes Exceeding Criteria in Soil

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
Chloride (soluble)	225	196	18	2,700,000	500,000	DCC
Cyanide - Total	225	76	37	3600	100	GSIP
Cyanide – Available	225	147	0	840	N/A	N/A
Phosphorus	225	225	225	1,000,000	20,000	GSIP
Sulfate (soluble)	225	153	4	16,000,000	5,000,000	DWP
Unionized Ammonia	225	154	65	32,470	580	GSIP

Chloride, total cyanide and available cyanide occur at a high frequency in soil which is consistent with the known historical use of salt in the tanning process and historical total cyanide testing. Note occasional discrepancies where available cyanide measurements exceed total cyanide measurements (see **Table 5D**) have been noted as a potential laboratory issue which were assessed during the data validation process and applicable qualifiers were applied to the data.

The lack of correlation in detection frequencies between total and available cyanide in soil and groundwater (see **Section 6.2.2.3**) suggests that while there may be areas with higher concentrations of cyanide on the Site, there are limited areas where these elevated concentrations appear to be contributing to concentrations in groundwater. Chloride, however, was detected frequently in soil, as well as groundwater, likely due to its high solubility (and its weak affinity to soil particles).

Method 365.1 measures total phosphorus which includes orthophosphate, hydrolyzable phosphate, and organic phosphate. The EPA RML for phosphorus is for white/yellow phosphorus and is not applicable to total phosphorus measurements.

Unionized ammonia concentrations in soil are greatest in the central portion of the Site from the historical tannery building north to approximately the current retail store westward toward the Rogue River (**Figure 10P**). The areas

with high concentrations of unionized ammonia north and south of Rum Creek do not appear to closely correlate with concentrations of other compounds analyzed in soil.

6.1.2.5 Per- and Polyfluorinated Alkali Substances

The following table summarizes the PFAS compounds measured in site soil. **Figure 10Q** depicts the spatial distribution of exceedances of the most restrictive soil criterion for PFOS at the Site. Concentrations of total PFAS are depicted on **Figure 10R.** Complete analytical results for PFAS are provided in **Table 5E**.

Table 6.1.5. Summary of PFAS Exceeding Criteria in Soil

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
Perfluorooctanesulfonate (PFOS)	225	177	177	4,400	0.22	GSIP
Perfluoro-n-octanoic acid (PFOA)	225	81	1	360	350	GSIP
Notes: 1. Criterion for PFOA and PFOS are based on footnote X of MDEQ Part 201 "Table 2, Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels"						

The PFOS concentrations above the most restrictive criterion were observed at varying depths with little lateral and spatial differentiation. Excepting the comparatively higher concentrations near TA-SB-81 and TA-GW-01 (in the west-central portion of the Site), the PFOS exceedances near the historical tannery building are generally between 14 and 140 µg/kg. Samples along the western portion of the Site, however, exhibited concentrations above 140 µg/kg. See **Figures 10G** and **10R**.

6.2 GROUNDWATER

Groundwater analytical results are presented in **Table 6A** through **Table 6E**. **Table 6F** summarizes the field screening measurements collected during the groundwater sampling. Isoconcentration maps for selected constituents are presented on **Figures 11A** through **11J**.

6.2.1 VOCs and SVOCs

For the VOCs and SVOCs analyzed at the Site, only vinyl chloride exceeded its Residential Drinking Water Criterion. 1,1-Dichloroethane and trichloroethylene exceeded the RIASL. The following table summarizes the VOC and SVOC exceedances for 2018 samples. Analytical results for VOCs and SVOCs are provided in **Table 6A** and **Table 6B**.

Table 6.2.1. Summary of VOCs and SVOCs Exceeding Screening Values in Groundwater

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
1,1-Dichloroethane	112	19	3	9.5	4.7	RIASL
Trichloroethylene	112	2	2	0.74	0.073	RIASL
Vinyl Chloride	112	8	8	4.9	1	GSI
Phenanthrene	112	5	1	2.4	2	GSI

1,1-Dichloroethane was measured above the RIASL at two monitoring wells: TA-MW-305B (August 2018) and TA-MW-305C (August and October 2018); the concentrations detected were less than the Residential Drinking Water Criterion. These two wells are screened from 15.9 to 20.6 and from 21.3 to 26.0 feet bgs, respectively. Water levels in these wells were generally less than 6 feet bgs at the time of sampling.

Trichloroethylene was measured above the RIASL at two monitoring wells during August 2018: TA-MW-2 and TA-MW-309B, but TCE was not detected in these wells in October 2018. The August concentrations were less than the Residential Drinking Water Criterion. These two wells are screened from 2.9 to 7.8 and 12.1 to 17.1 feet bgs, respectively. Water levels in these wells were generally less than 8 feet bgs at the time of sampling.

Vinyl chloride was measured above applicable screening levels at four monitoring wells (TA-GW-04, TA-MW-04, TA-MW-305B, and TA-MW-305C) located immediately south of Rum Creek during both groundwater sampling events within three separate screened depth intervals ranging from 4.0 feet to 24.8 feet bgs. TA-GW-04 exceeded the RIASL while the remaining wells exceeded the Residential Drinking Water Criterion. An isoconcentration map depicting vinyl chloride is provided as **Figure 11A**.

The phenanthrene concentration in monitoring well (TA-GW-06) exceeded its GSI criteria during October 2018. TA-GW-06 is situated on the west-central portion of the Site south of Rum Creek, east of the White Pine Trail, and north of MW-2. Monitoring well TA-GW-06 is screened from 2 to 7 feet bgs.

The analytical data identified samples with one VOC (vinyl chloride) exceeding its RML during at least one of the two sampling events.

Constituent	RML	Samples exceeding RML
Vinyl Chloride	1.9 ppb	TA-MW-4 TA-MW-305B TA-MW-305C

6.2.2 Metals

The following table summarizes the metals measured in site groundwater during 2018 field activities. **Figures 11A through 11F** depict the spatial distribution of exceedances of the most restrictive groundwater criteria for selected metals at the Site. Analytical results for metals are provided in **Table 6C**.

Table 6.2.2. Summary of Metals Exceeding Criteria in Groundwater

Element	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
Aluminum	112	47	19	500	50	DWC
Antimony	112	16	1	3.3	2	GSI
Arsenic	112	72	16	140	10	DWC, GSI
Boron	112	112	17	1,300	500	DWC
Cadmium	112	13	1	4.7	2.5	GSI
Trivalent Chromium[1]	113	68	9	5,600	100	DWC
Hexavalent Chromium	114	12	4	40	11	GSI
Copper	112	34	3	40	18	GSI
Iron	112	112	98	42,000	300	DWC
Lead	112	24	6	12	4	DWC
Mercury	112	1	1	0.29	0.0013	GSI
Vanadium	112	15	8	94	4.5	DWC
Zinc	112	75	5	1,300	230	GSI

Notes: 1. Analysis was for total chromium while the criterion is for trivalent chromium. Trivalent chromium was calculated as the difference between total chromium and hexavalent chromium.

Metals concentrations greater than criteria were observed in monitoring wells throughout the Site. In general, elevated metals concentrations were on the western side of the Site proximate to the Rogue River and generally correlated with areas of elevated metal concentrations in soil. An isoconcentration map for arsenic is provided as **Figure 11B**.

Hexavalent chromium detections exceeding criteria were observed in groundwater on the southern portion of the Site south of TA-P-5 and TA-GW-01 and north of TA-MW-301A and TA-MW-310A (**Figure 11C**). Lead and mercury concentrations are lowest on the portions of the site north, east, and south of the area bounded by TA-TMW-110, TA-MW-308C, TA-MW-306, TA-TMW-105, and approximately TA-GW-06 as depicted on **Figures 11D** and **11E**. The portion of the Site south of TA-TMW-103 to the west and TA-MW-303C to the east contains lower concentrations of vanadium and zinc relative to the remainder of the Site (**Figures 11F** and **11G**).

Three metals had concentrations exceeding the RMLs during at least one of the two 2018 sampling events. The concentrations of arsenic and hexavalent chromium exceeding the RMLs are provided below and are depicted on **Figures 11B** and **11C**. Additionally, iron exceeded the RML of 42,000 ppb, a drinking water-based limit, at monitoring well TA-MW-303B in the October sampling event.

Constituent	RML	Samples exceeding RML	
Arsenic	5.2 ppb	TA-GW-06	TA-MW-309A
		TA-MW-1	TA-MW-309B
		TA-MW-302A	TA-MW-309C *
		TA-MW-302B	TA-TMW-102
		TA-MW-303C	TA-TMW-105
		TA-MW-304A	TA-MW-110
		TA-MW-308A	TA-P-1
			TA-P-5
Hexavalent Chromium	3.5 ppb	TA-GW-05	TA-P-1
		TA-MW-4	TA-P-5
		TA-MW-301D	TA-TMW-101
		TA-MW-304A	TA-TMW-102
		TA-MW-307B	TA-TMW-104
		TA-MW-310A	TA-TMW-108

6.2.3 General Chemistry

Of the general chemistry analytes, concentrations of chloride, sulfate, and phosphorus were detected greater than criteria. The following table summarizes the general chemistry analytes that were detected above their applicable criteria, their maximum concentration, and frequency of detection in groundwater samples at the Site. Analytical results for general chemistry are provided in **Table 6D**.

Table 6.2.3. Summary of General Chemistry Analytes Exceeding Criteria in Groundwater

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
Acetic Acid	113	1	1	28,000	4,200	DWC
Chloride	113	113	84	9,700,000	50,000	GSI
Phosphorus	112	107	11	3,600	1,000	GSI
Sulfate	113	99	26	1,400,000	250,000	DWC
Unionized Ammonia	70	66	32	24,800	29	GSI
Notes: *Unionized ammonia is calculated based on the total ammonia concentrations, pH (8.0) and temperature (20°C). This calculation is based on Footnote CC of the Part 201 Rule Package referenced in Table 6D of this report						

Chloride concentrations greater than criteria were observed in wells of varying screen depths. Chloride concentrations are lowest in the south-central portion of the Site near TA-P-5, TA-TMW-104, TA-GW-7, and TA-MW-301D. The northern and southern portions of the Site as well as the far western portion of the Site on the rounded peninsula south of Rum Creek had measured chloride concentrations greater than the drinking water criterion (**Figure 11H**).

Sulfate concentrations greater than criteria were observed in wells of varying screen depths across the majority of the Site; however, approximately two-thirds of the wells with increased sulfate concentrations have well bottom depths of greater than 20 feet bgs. The highest concentrations of sulfate were at monitoring wells TA-MW-301D (1,100,000 µg/l), which is located at the western edge of the rounded peninsula, and TA-MW-303E (1,300,000 µg/l) located near the southwestern corner of the Site.

Phosphorus concentrations were higher within wells with screens extending less than 11 feet bgs. The wells clustered along the southern edge of Rum Creek and along the edge of the rounded peninsula south of Rum Creek tended to have higher phosphorus concentrations; however, elevated sulfate and chloride were not observed in the same wells.

Unionized ammonia concentrations greater than criteria were observed in wells of varying screen depths across the majority of the Site. Unionized ammonia concentrations were higher within wells with screens extending less than 20 feet bgs and the highest concentrations were within wells with screens extending less than 10 feet bgs.

Acetic acid above the drinking water criterion was observed at well TA-MW-305B during October 2018. Due to matrix interference, the remaining samples collected in 2018 were below the laboratory reporting limit of 25,000, which exceeds both the drinking water and GSI criteria for this constituent.

Cyanide exceeded the RML of 4.4 ppb, a drinking water-based limit, in the following locations during at least one of the two sampling events in 2018:

Constituent	RML	Samples exceeding RML
Cyanide	4.4 ppb	TA-MW-301D TA-MW-304A TA- MW-308C TA-TMW-102 TA-P-5

The remaining samples collected from monitoring wells in 2018 did not contain cyanide above the laboratory RL; however, the RL for these samples is 10 ppb, which is above the RML value of 4.4 ppb.

6.2.4 Per- and Polyfluorinated Alkyl Substances

The following table summarizes the detections, maximum concentration, and frequency of detection in groundwater samples at the Site for the two PFAS analytes for which there is a groundwater criterion. **Figure 11D** depicts the spatial distribution of exceedances of the most restrictive groundwater criterion for PFAS at the Site. Analytical results for PFAS are provided in **Table 6E**.

Table 6.2.4. Summary of PFAS Analytes Exceeding Criteria in Groundwater

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
PFOS	112	108	101	320	0.011	GSI
PFOA	112	107	102	99	0.070	DWC
Combined PFOA + PFOS	112	108	102	419	0.07	DWC

Five monitoring wells (TA-MW-301D, TA-MW-303D, TA-MW-303E, TA-MW-308B, and TA-MW-308C) had measured PFOS concentrations lower than the remainder of Site wells. These wells also have relatively deeper screen intervals. In general, PFOS concentrations increase from north to south across the Site, with higher concentrations at the TA-MW-301 and TA-MW-303 series wells on the southwestern portion of the rounded

peninsula south of Rum Creek (**Figure 11I)**. The highest concentrations of PFOS do not appear to correlate with maximum concentrations of other constituents in groundwater.

Similar to PFOS, PFOA concentrations are generally higher on the southern half of the Site, with higher concentrations at the TA-MW-301 and TA-MW-303 series wells and from TA-MW-4 south to TA-GW-4.

Excepting near the TA-MW-303 series wells, Total PFAS concentrations in groundwater do not correlate well spatially with elevated concentrations in soil (**Figure 10R and Figure 11J**).

6.3 SURFACE WATER

During 2018, two rounds of five surface water samples each were collected from the Rogue River and two rounds of two samples each were collected from Rum Creek and submitted for laboratory analysis (14 total samples).

Surface water samples were collected on July 24 and 25, 2018 and on October 24 through 26, 2018. The following table summarizes conditions during the sampling periods.

Date	Weather on Day of Sampling	Precipitation within past 3 days	Flow at Rockford Dam
7/24/2018	Cloudy, no precipitation	1.1 inches	148 cfs
7/25/018	Clear, no precipitation	0.08 inches	148 cfs
10/24/2018	Clear, no precipitation	0 inches	272 cfs
10/25/2018	Clear, no precipitation	0 inches	265 cfs
10/26/2018	Cloudy, no precipitation	0 inches	261 cfs

Surface water sampling locations TA-SW-01 and TA-SW-05 are in areas of minimal flow with a surface layer of green plant/algae growth. The remaining surface water sampling locations are in open flowing areas with relatively swift water flow and no surficial plant growth.

Table 7A through **Table 7E** summarize the analytical results for the surface water samples collected during 2018. **Table 7F** summarizes the field screening data collected during the surface water sampling. As described in **Section 6.0,** the detected compounds were compared to the most restrictive Michigan Part 57 value. In most instances, this was the Part 57 FCV as shown in **Table 7A** through **Table 7E.**

6.3.1 VOCs and SVOCs

Acetone, methylene chloride, and *bis*(2-ethylhexyl)phthalate (DEHP) were the only VOCs and SVOCs detected in surface water samples collected in the Rogue River. Neither VOCs nor SVOCs were measured greater than applicable surface water criteria; however, the laboratory reporting limits for DEHP in two samples collected in August (TA-SW-01 and TA-SW-05) were higher than the most restrictive criterion. The reporting limits were not elevated in October, and DEHP was not detected. The measurements in all of the samples were similar and did not indicate a trend between upstream and downstream samples.

For the VOCs and SVOCs analyzed in surface water samples collected from Rum Creek, acetone was detected at both sampling locations in August and one sample location in October. The concentrations were less than applicable surface water criteria, and measurements in both samples were similar.

Analytical results for VOCs and SVOCs in surface water are provided in **Table 7A** and **Table 7B**, respectively.

6.3.2 Metals

Metals were not measured above criteria in surface water samples from the Rogue River and Rum Creek.

For the metals analyzed in the Rogue River surface water samples collected at the Site during 2018, aluminum, arsenic, barium, boron, total chromium, iron, lead, magnesium, sodium, titanium, and zinc were detected at concentrations below the applicable regulatory criteria. Additionally, the sample collected from TA-SW-01 in October 2018 contained hexavalent chromium below the applicable regulatory criterion

Aluminum, barium, boron, iron, magnesium, nickel, sodium, titanium, and zinc were detected within at least one of the two surface water samples collected from Rum Creek at concentrations below the applicable regulatory criteria.

Analytical results for metals in surface water are provided in **Table 7C**.

6.3.3 General Chemistry

The following table summarizes the detected general chemistry analytes, their maximum concentrations, and frequency of detection in surface water samples. Analytical results for general chemistry in surface water are provided in **Table 7D.**

Table 6.3.1. Summary of General Chemistry Analytes Exceeding Criteria in Surface Water

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
Hardness (total)	14	14	0	290,000	Not Established	N/A
Chloride	14	14	0	42,000	Not Established	N/A
Nitrate-Nitrite (as N)	14	14	0	1,400	Not Established	N/A
Nitrogen, Ammonia (As N)	14	10	0	410	Not Established	N/A
Phosphorous (Total)	14	14	0	160	1,000	GSI
Sulfate	14	14	0	46,000	Not Established	N/A
Unionized Ammonia*	14	7	0	11	29	FCV
Notes: *Unionized ammonia is calculated based on the total ammonia concentrations, pH (8.0) and temperature (20°C). This calculation is based on Footnote CC of the Part 201 Rule Package referenced in Table 7D of this report.						

Michigan has established applicable surface water criteria for unionized ammonia and (total) phosphorus. Unionized ammonia was calculated to be present 7 out of the 14 samples collected but did not exceed the criterion of 29 ppb. Total and available cyanide were not detected in surface water samples collected from the Rogue River or Rum Creek.

The general chemistry concentrations were relatively consistent between the upgradient and downgradient sampling locations in both Rum Creek and the Rogue River with the exception of higher sulfate, hardness, nitrate-nitrate, and unionized ammonia concentrations at TA-SW-02 (just upstream of Rum Creek), TA-SW-03 (just downstream of Rum Creek), and TA-SW-07 (near the boat ramp downstream of the Site).

6.3.4 Per- and Polyfluorinated Alkali Substances

The following table summarizes the detections for the two PFAS for which there are surface water criteria, maximum concentration, and frequency of detection in the surface water samples collected during the summer 2018 field activities. **Figure 12B** depicts the spatial distribution of exceedances of the most restrictive surface water criterion for PFOS at the Site. Analytical results for PFAS in surface water are provided in **Table 7E** and **Figures 12A** and **12B** depict the PFOS and Total PFAS concentrations at the sampling locations.

Table 6.3.2. Summary of PFAS Analytes in Surface Water

Compound	Total Samples	Number of Detections	Number of Exceedances	Maximum Conc. (ppb)	Criterion (ppb)	Criterion Name
Perfluoro-n-octanoic acid (PFOA)	14	14	0	0.39	0.42	HNV
Perfluorooctanesulfonate (PFOS)	14	14	11	1.2	0.011	HNV
Total PFAS	14	14	0	2.02	N/A	Not Established

PFOS concentrations greater than its criterion was observed at the two Rum Creek surface water sampling locations (TA-SW-04 and TA-SW-06), and each of the Rogue River surface water sampling locations during at least one of the two sampling events. The surface water exceedances for PFOS roughly correlate with detected concentrations of PFOS in the sediment samples.

6.4 SEDIMENT

6.4.1 Visual Observations

Sediment profiling was conducted. Results of the profiling indicated that the Rogue River's main channel is situated along the west bank as it passes by the Former Tannery property. Depositional areas with up to 6 feet of sediment were observed along the east bank adjacent to the Former Tannery property. Three additional depositional islands are located west of the property generally on the eastern side of the River.

Sediment sample cores were generally retrieved intact and consisted of sandy silt with gravel and organic matter. Sediment core logs are included in **Appendix B**. The backwater from the Rockford Dam extends upstream along the Former Tannery property and the depositional areas associated with this backwater appeared to extend upstream at least 400 feet to sediment transect T3 and the boat ramp. Sediment samples were dried and sieved to determine grain size. Grain size results are provided in **Appendix F** and generally correlate with the observations logged in the field. Samples collected at the shallower depths and from depositional areas tend to be silty sand while gravel-sized particles are more common in the deeper samples.

In nine sediment sample locations, hair-like fibers were noted in the sediment at various depths, south of Rum Creek adjacent to and downstream of the Site. Additionally, in nine sediment sample locations located upstream and adjacent to the Site, at depths greater than 2.5 feet, sawdust or wood chips were noted.

6.4.2 Chemical Testing Data

As discussed in **Section 4,** samples were collected from each location and at least two samples per core were submitted for laboratory analysis. The following sections summarize areas where analytes historically associated with activities at the Tannery were detected above the EPA Region 5 ESLs. The EPA Region 5 ESLs were selected for screening purposes only because Michigan has not established enforceable criteria for sediment. The ESLs

were developed by EPA Region 5 in order to assess potential risk to aquatic organisms due to exposure to compounds in sediment.

For each analyte group (i.e., VOCs, SVOCs, metals, PFAS, and other compounds), a subset of the detected compounds were selected for discussion purposes to represent the overall distribution of compounds in sediment. These compounds were selected based on their ESLs, detection frequency, and/or historical onsite presence. **Tables 8A** through **8F** summarize compounds measured above ESLs in each sediment sample during July and August 2018, and generalized findings are provided in the following sections. Analytical laboratory reports are provided as **Appendix F.**

6.4.2.1 VOCs

The following table summarizes the VOC compounds measured in sediment at concentrations greater than their screening criteria. Analytical results for VOCs are provided in **Table 8A**.

Table 6.4.1. VOCs Above the Screening Values in Sediment

Compound	Total Samples	Number of Detections	Number of Samples Greater than ESL	Maximum Conc. (ppb)	ESL (ppb)
2-Butanone (MEK)	100	36	36	1,200	42.4
Acetone	100	64	64	2,900	9.9
Carbon disulfide	100	39	39	400	23.9
Methylene Chloride	100	54	5	260	159

The shallow sediment (i.e., less than 1 foot below the sediment surface) contained a limited number of VOCs, and the highest concentration of each compound was in the sediment above ordinary high-water level deposited on the "island" in the Rogue River at transect T4. Acetone was detected in surface sediment throughout the sampling area while carbon disulfide, MEK, and methylene chloride extents were more limited. The deeper sediment (i.e., greater than 1 foot below the sediment surface) contained the same VOCs as the shallow sediment. Transect T4 contained the highest concentrations of carbon disulfide, methylene chloride, and acetone, while the Boat Ramp contained higher acetone and MEK concentrations. Overall the VOCs with elevated concentrations in deeper sediment in the Rogue River are limited in area similar to the observations in shallow sediment.

The sediment samples collected from Rum Creek had a similar magnitude of VOC detections as those in the Rogue River. Constituents found at concentrations greater than the ESLs at sample RC-1 were comparable to those in Rogue River samples TA-SED-T3-3 and TA-SED-T4-3 located south of the confluence with Rum Creek as well as TA-SED-T7-ISLAND located upstream of the confluence with Rum Creek. MEK, acetone, and carbon disulfide were not detected above criteria in either soil or groundwater.

6.4.2.2 SVOCs

The following table summarizes the SVOC compounds measured at concentrations greater than their screening levels in sediment. **Figure 13A through 13C** depict the spatial distribution of selected compounds measured greater than the EPA Region 5 ESLs for SVOCs at the Site. Analytical results for SVOCs are provided in **Table 8B**.

Table 6.4.2. SVOCs Above the Screening Values in Sediment

Compound	Total Samples	Number of Detections	Number of Samples Greater than Screening Level	Maximum Conc. (ppb)	Screening Value (ppb)	Screening Value
2-Methylnaphthalene	100	3	3	64	20.2	ESL
4-Methylphenol	100	3	3	87	20.2	ESL
Acenaphthene	100	10	10	930	6.71	ESL
Acenaphthylene	100	2	2	53	5.87	ESL
Anthracene	100	30	17	490	57.2	ESL
Benzo[a]anthracene	100	68	26	1200	108	ESL
Benzo[a]pyrene	100	61	20	1300	150	ESL
Benzo[g,h,i]perylene	100	33	7	540	170	ESL
Benzo[k]fluoranthene	100	49	9	620	240	ESL
Chrysene	100	58	18	1400	166	TEC
Fluoranthene	100	79	17	3900	423	ESL
Fluorene	100	14	4	290	77.4	ESL
Indeno[1,2,3-cd]pyrene	100	36	7	550	200	ESL
Naphthalene	100	14	4	1000	176	ESL
Phenanthrene	100	67	20	2600	204	ESL

The SVOCs detected at concentrations greater than ESLs in the Rogue River sediment are typical of those associated with urban sediment[2] and the majority (66%) are consistent with those in the suspected fill soil in the central and western portions of the Site. The presence of SVOCs within depositional areas along the east bank upstream of the dam and near the backwater at the boat ramp is consistent with deposition from nonpoint sources contributing sediment from the drainage basin. The general consistency of detections and elevated concentrations both laterally and vertically suggests that the depositional source material contained similar SVOC concentrations over time.

The Rum Creek sediment samples contained comparably higher SVOC concentrations; however, Rum Creek received flow from the roadways and other impervious surfaces within the City of Rockford. Elevated SVOCs are common in deposits associated with urban storm water drainage; and, therefore, a portion of the SVOC-containing sediment load to the Rogue River from Rum Creek can likely to be attributed to the urban depositional environment behind the double box culvert that conveys Rum Creek from downtown Rockford to the Site. There was limited spatial correlation between SVOCs in onsite soil and sediment: SVOCs measured above criteria were observed along the western portion of the Site, with some near the western end of Rum Creek. There was no apparent spatial correlation between SVOCs in onsite groundwater and sediment as SVOCs were not measured above the criteria in groundwater.

6.4.2.3 Metals

The following table summarizes the metals measured in site sediment. **Figures 13C through 13I** depict the spatial distribution of exceedances of the most restrictive of the EPA Region 5 ESLs or the EPA Consensus-Based Threshold Effect Concentration (TEC) for metals in samples collected from sediment in the Rogue River and Rum Creek. Analytical results for metals are provided in **Table 8C**.

[2] Metre, Peter C., Barbara J. Mahler, and Edward T. Furlong. Urban Sprawl Leaves Its PAH Signature. *Environmental Science & Technology* 2000 34 (19), 4064-4070 DOI: 10.1021/es991007n

Table 6.4.3. Summary of Metals Above the Screening Values in Sediment

Element	Total Samples	Number of Detections	Number of Samples Greater Than Screening Level	Maximum Conc. (ppb)	Screening Value (ppb)	Screening Level
Arsenic	100	100	11	100,000	9,790	ESL
Cadmium	100	93	3	1,700	990	ESL
Chromium	100	100	23	2,800,000	43,400	TEC
Copper	100	100	2	81,000	31,600	ESL
Lead	100	100	9	110,000	35,800	ESL
Mercury	100	62	20	30,000	174	ESL
Vanadium	100	98	98	32,000	12	ESL
Zinc	100	100	7	460,000	121,000	ESL

The shallow sediment (i.e., less than 1 foot below the sediment surface) in the Rogue River contained a limited number of metals, and the highest concentration of each was located in the depositional area nearest to the east bank at transect T4. Vanadium concentrations were greater than the ESLs in surface sediment throughout the sampling area. Other metals exceeded their respective screening levels along certain portions of the areas sampled:

Element	Samples with Metals above Screening Values 0 to 1 foot below the sediment surface
Cadmium	TA-SED-T4-3 (0-1)
Chromium	TA-SED-T4-2 (0-1) TA-SED-T4-3 (0-1)
Copper	TA-SED-T4-3 (0-1)
Lead	TA-SED-T4-2 (0-1) TA-SED-T4-3 (0-1) TA-SED-9-3(0-1)
Mercury	TA-SED-T4-3 (0-1) TA-SED-9-3(0-1)
Zinc	TA-SED-T4-2 (0-1) TA-SED-T4-3 (0-1) TA-SED-T7-2 (0-1) TA-SED-9-3(0-1)

The deeper sediment (i.e., greater than 1 foot below the sediment surface) in the Rogue River contained a wider variety of metals than those observed in the shallow sediment. Vanadium was above the ESL in the sediment samples collected with the exception of TA-SED-T3-2 (1.7-2.7). Transect T4 contained the highest concentrations of the metals with the exception of arsenic and mercury, which were found at highest concentrations at transect T3. Overall, the elevated metals concentrations in deeper sediment in the Rogue River encompass a larger areal extent than shallow sediment. The table below summarizes the locations of deeper sediments with compounds above their respective screening level.

Compound	Samples with Metals above Screening Values greater than 1 foot below the sediment surface	
Arsenic	TA-SED-T2-3 (2-3) TA-SED-T3-2 (1.7-2.7) TA-SED-T3-3 (2-3) TA-SED-T4-2 (2-3)	TA-SED-T4-3 (1-1.7) TA-SED-T4-ISLAND (4-5) TA-SED-T6-3 (3.8-4.8)
Cadmium	TA-SED-T4-3 (1-1.7)	
Total Chromium	TA-SED-T2-1 (2-3) TA-SED-T2-2 (4-5) TA-SED-T2-3 (2-3) TA-SED-T3-2 (1.7-2.7) TA-SED-T3-2 (4-5) TA-SED-T3-2 (6.2-7.2) TA-SED-T3-3 (2-3) TA-SED-T4-1 (2.5-3.5)	TA-SED-T4-2 (1-2) TA-SED-T4-2 (2-3) TA-SED-T4-3 (1-1.7) TA-SED-T4-ISLAND (4-5) TA-SED-T5-2 (1.7-2.7) TA-SED-T5-2 (3.7-4.7) TA-SED-T5-3 (4-5) TA-SED-T6-3 (3.8-4.8)
Copper	TA-SED-T4-3 (1-1.7)	
Lead	TA-SED-T3-2 (1.7-2.7) TA-SED-T4-3 (1-1.7) TA-SED-T4-ISLAND (4-5)	
Mercury	TA-SED-T2-2 (4-5) TA-SED-T2-3 (2-3) TA-SED-T3-2 (1.7-2.7) TA-SED-T3-2 (4-5) TA-SED-T3-3 (2-3) TA-SED-T4-2 (1-2) TA-SED-T4-2 (2-3) TA-SED-T4-3 (1-1.7)	TA-SED-T4-ISLAND (4-5) TA-SED-T6-3 (3.8-4.8) TA-SED-T7-1 (2-3) TA-SED-T9-1 (2-3) TA-SED-T9-2 (2-3) TA-SED-T9-ISLAND (4-5) TA-SED-T10-3 (1-2)
Zinc	TA-SED-T4-3 (1-1.7)	

The Rum Creek sediment samples within the stream channel contained higher concentrations of metals in the deeper (i.e., greater than 1 foot below sediment surface) samples, which is consistent with stream down-cutting through potentially impacted fill material (see **Section 6.1**). The shallow in-channel samples, however, contained concentrations of metals more consistent with urban stream deposits[3] and did not generally exceed the ESLs. Sample TA-SED-RC-ACCESS contained the highest metals concentrations of the samples collected in and near Rum Creek. This sample is located at approximately the same location as surface water sample TA-SW-03 which is approximately 75 feet south of Rum Creek within the Rogue River. There is an opening in the vegetation in this area that allows the public using the White Pine Trail to access the Rogue River; vegetation along the Rogue River on the west side of the Site limits public access to the Rogue River at most locations. These sample results are consistent with the sampling in the depositional area downstream from the confluence of the Rogue River and Rum Creek.

6.4.2.4 Acid Volatile Sulfide – Simultaneously Extracted Metals

Acid Volatile Sulfide (AVS) and Simultaneously Extracted Metals (SEM) data were collected to assess potential toxicity of metals to organisms living in the Rogue River Sediment. An SEM:AVS ratio of less than 1 suggests the sediment metals are not bioavailable, while a ratio of greater than 1 suggests the metals are bioavailable.

[3] Bain, Daniel J.; Yesilonis,Ian D.; Pouyat, Richard V. 2012. Metal concentrations in urban riparian sediments along an urbanization gradient. Biogeochemistry. 107: 67-79.

92% of the samples analyzed for AVS-SEM had detectable AVS. Ten sediment samples contained SEM:AVS ratios of greater than 1 as summarized below. AVS-SEM data are provided in **Table 5D**, and the results greater than 1 are depicted on **Figure 13D**.

Table 6.4.4. Summary of AVS-SEM Results Greater than 1 in Sediment

Sample Location	Sample Depth (ft)	SEM:AVS Ratio
TA-SED-T10-ISLAND	0 - 1	1.1
TA-SED-T10-ISLAND	4 - 5	3.0
TA-SED-T2-3	2 - 3	1.2
TA-SED-T3-2	1.7 - 2.7	4.3
TA-SED-T3-2	4 - 5	1.4
TA-SED-T4-2	2 - 3	1.4
TA-SED-T5-2	3.7 - 4.7	1.9
TA-SED-T6-3	3.8 - 4.8	1.3
TA-SED-RC ACCESS	0 - 1	3.6
TA-SED-RC-1	0 - 1	1.2

6.4.2.5 General Chemistry

Of the general chemistry analytes, only total cyanide has an EPA Region 5 ESL. The following table summarizes total cyanide information as well as the general chemistry analytes that were also identified as above their lowest respective screening value or criterion in soil or groundwater, their maximum concentration, and frequency of detection in sediment samples at the Site. **Figure 13K** depicts the spatial distribution of total cyanide the sediment samples. Analytical results for general chemistry analytes are provided in **Table 8E**.

Table 6.4.5. Summary of General Chemistry Analytes in Sediment

Compound	Total Samples	Number of Detections	Number of Samples Greater Than Screening Level	Maximum Conc. (ppb)	Screening Value (ppb)	Screening Level
Chloride (soluble)	100	99	N/A	2,000,000	Not Established	N/A
Cyanide - Total	100	96	12	600	0.1	ESL
Cyanide, Available	100	27	N/A	980	Not Established	N/A
Sulfate (soluble)	100	98	N/A	4,400,000	Not Established	N/A
Sulfide (Acid Soluble)	100	24	N/A	930,000	Not Established	N/A

Seven locations in both the Rogue River and Rum Creek contained total cyanide above its ESL. Generally, the concentrations higher in the Rogue River samples than in the Rum Creek samples. The highest concentration was identified in TA-SED-T9-Island, a depositional island in the northern portion of the sampling area.

6.4.2.6 PFAS

For PFAS, the MDEQ Part 201 Generic Soil Criteria Protective of Groundwater Surface Water Interface (GSI) were used as a screening criterion in sediment. The GSI was used for reference only, and it is not legally applicable to sediment. PFOS was the only PFAS measured above this screening value having concentrations ranging from not-detected to 170 µg/kg in sample TA-SED-T4-3 (0-1). PFOS was more frequently found in the shallow (i.e., <1 feet) samples and intermediate (i.e., 1 to 3 feet) samples with many of the deeper samples (i.e., >4 feet) not containing detectable concentrations of PFOS. Concentrations were generally consistent between the Rogue River and

Rum Creek. Analytical results are provided in **Table 8F** and isoconcentration maps are provided as **Figures 13L** and **13M**.

6.5 SOIL GAS

Soil gas results were compared to the Residential Recommended Interim Action Screening Level, published in August 2017. The majority of the analytes were not detected in the soil gas samples. Only TCE was found above a screening level at location TA-SG-06 at a concentration of 69.9 ug/m^3, which slightly exceeds the screening level of 67 ug/m^3. Trichloroethene was not detected in any of the other soil gas samples collected during August 2018 nor was it detected above MDEQ Part 201 criteria in soil or groundwater at the Site. Analytical results are provided in **Table 9**.

7.0 QA/QC

Investigative QA/QC procedures are outlined in the project QAPP approved by EPA in May 2018 and subsequently revised. All data has or will be validated according to performance requirements and the QA/QC limits in Table D.1.1 of Revision 2 of the QAPP. In addition, R&W/GZA consulted the general guidance in the EPA Contract Laboratory Program National Functional Guidance for Organic and Inorganic Superfund Data Review and relevant analytical methods to assess data usability. Data validation methodology is described in Appendix F.1 (non-PFAS analyses) and **Appendix F.2** (PFAS analyses).

In GZA's opinion, the field and laboratory quality control results indicate that the sampling and analyses performed in generating the data under the RWP were generally consistent with the analytical methods and the QAPP requirements. Analytical deficiencies relative to the QAPP requirements have been identified and noted as a result of the data validation. The deficiencies are noted in detail in **Appendix F.1**. Where appropriate, data were qualified based on GZA's review.

In summary, the project data are acceptable and suitable for site characterization purposes and consequently can be used for decision-making purposes, except the rejected results as discussed in **Appendix F.1**. The limitations identified by the applied qualifiers should be considered when using the data.

Validation memoranda for PFAS data are presented in **Appendix F.2**.

8.0 REFERENCES

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Tables

Table 1. Soil Boring Summary and Field Screening Data
Former Wolvering Tannery
Rockford, Michigan

Location ID	Total Boring Depth (ft)	Lab Sample S1 (ft)	Lab Sample S2 (ft)	Lab Sample S3 (ft)	Start Date	End Date	Date Samples Sent to Lab	PID Reading for Samples Analyzed			XRF Results for Samples Analyzed											
											As			Cr			Hg			Pb		
								S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
TA-SB-01	10	(2-3)	(7-8)	na	24-Jul-18	2-Aug-18	2-Aug-18	1.1	2.4	na	56	24	na	712	393	na	<LOD	<LOD	na	1429	595	na
TA-SB-02	16	(2-3)	(7-8)	na	24-Jul-18	2-Aug-18	2-Aug-18	1.9	2.3	na	<LOD	3.1	na	404	46	na	<LOD	<LOD	na	1304	22.6	na
TA-SB-03	13	(6-7)	(12-13)	na	25-Jul-18	2-Aug-18	2-Aug-18	6.5	19.1	na	3.5	4	na	82	1623	na	<LOD	<LOD	na	40.5	24.5	na
TA-SB-04	15	(7-8)	(12-13)	na	24-Jul-18	2-Aug-18	2-Aug-18	4.5	10.4	na	<LOD	3.7	na	46	48	na	<LOD	<LOD	na	7.8	23.2	na
TA-SB-05	15	(2-3)	(7-8)	na	24-Jul-18	3-Aug-18	3-Aug-18	2.9	3.5	na	4.9	6.9	na	54	107	na	<LOD	<LOD	na	40.4	17.4	na
TA-SB-06	8	(2-3)	(7-8)	na	25-Jul-18	2-Aug-18	2-Aug-18	1.5	2.4	na	4.3	4.6	na	34	106	na	<LOD	<LOD	na	37.3	53.9	na
TA-SB-07	10	(3-4)	(9-10)	na	26-Jul-18	2-Aug-18	7-Aug-18	25.9	37.3	na	<LOD	5.6	na	185	1730	na	<LOD	<LOD	na	189.4	50	na
TA-SB-08	15	(3-4)	(7-8)	na	24-Jul-18	2-Aug-18	2-Aug-18	14.8	5.4	na	27.9	19.3	na	78	369	na	<LOD	<LOD	na	200	41.1	na
TA-SB-09	16	(2-3)	(6-7)	na	25-Jul-18	2-Aug-18	2-Aug-18	3.6	17.5	na	<LOD	<LOD	na	21	21	na	<LOD	<LOD	na	7.9	10.3	na
TA-SB-10	8	(1-2)	(4-5)	na	24-Jul-18	31-Jul-18	31-Jul-18	2.2	1.4	na	<LOD	2.9	na	45	19	na	<LOD	<LOD	na	66.9	7.8	na
TA-SB-11	8	(1-2)	(6-7)	na	24-Jul-18	31-Jul-18	31-Jul-18	1.9	2.1	na	3.9	2	na	78	19	na	<LOD	<LOD	na	28.8	10.7	na
TA-SB-12	8	(0-1)	(1-2)	(4-5)	24-Jul-18	31-Jul-18	31-Jul-18	1.9	2.5	2.2	25.3	2.5	2.1	1,151	21	41	<LOD	<LOD	<LOD	198	5.9	9.8
TA-SB-13	8	(1-2)	(6-7)	na	24-Jul-18	31-Jul-18	31-Jul-18	1.7	1.6	na	<LOD	8.6	na	32	66	na	<LOD	<LOD	na	14.5	13.3	na
TA-SB-14	8	(5-6)	(7-8)	na	11-Jul-18	31-Jul-18	31-Jul-18	1.5	0.9	na	<LOD	<LOD	na	39	25	na	<LOD	<LOD	na	10.5	9.8	na
TA-SB-15	8	(2-3)	(7-8)	na	24-Jul-18	31-Jul-18	31-Jul-18	2.0	2.3	na	<LOD	5.2	na	24	27	na	<LOD	<LOD	na	8.5	10.7	na
TA-SB-16	8	(2-3)	(6-7)	na	13-Jul-18	13-Jul-18	26-Jul-18	6.9	na	na	3.7	2.9	na	38	50	na	<LOD	<LOD	na	10.5	16.5	na
TA-SB-17	12	(1-2)	(7-8)	na	11-Jul-18	11-Jul-18	26-Jul-18	1.2	1.6	na	<LOD	2.8	na	81	59	na	<LOD	<LOD	na	31.7	14.9	na
TA-SB-18	10	(2-3)	(6-7)	na	11-Jul-18	11-Jul-18	26-Jul-18	1.3	2.7	na	<LOD	<LOD	na	38	37	na	<LOD	<LOD	na	13.3	8.7	na
TA-SB-19	12	(3-4)	(7-8)	na	13-Jul-18	13-Jul-18	26-Jul-18	7.0	7.1	na	<LOD	2.4	na	21	22	na	<LOD	<LOD	na	9.8	7.9	na
TA-SB-20	8	(5-6)	(7-8)	na	11-Jul-18	11-Jul-18	27-Jul-18	13.9	13.2	na	13.1	6	na	3295	93	na	<LOD	<LOD	na	150.9	19.3	na
TA-SB-21	15	(6-7)	(9-10)	na	11-Jul-18	31-Jul-18	31-Jul-18	0.4	0.5	na	2.8	4.3	na	33	34	na	<LOD	<LOD	na	9.2	6.6	na
TA-SB-22	15	(2-3)	(8-9)	na	26-Jul-18	31-Jul-18	31-Jul-18	4.1	3.8	na	<LOD	<LOD	na	28	17	na	<LOD	<LOD	na	9.7	8.2	na
TA-SB-23	17	(6-7)	(9-10)	na	6-Aug-18	8-Aug-18	8-Aug-18	3.4	NM	na	31.8	71.9	na	91337	102630	na	7.9	<LOD	na	61.8	41.2	na
TA-SB-24	8	(0-1)	(5-6)	na	17-Jul-18	27-Jul-18	27-Jul-18	2.1	2.5	na	<LOD	<LOD	na	4483	211	na	<LOD	14.7	na	21.5	27.5	na
TA-SB-25	10	(1-2)	(7-8)	na	19-Jul-18	23-Jul-18	27-Jul-18	1.3	2.4	na	4	<LOD	na	198	18	na	<LOD	<LOD	na	20.5	5.4	na
TA-SB-26	15	(5-6)	(8-9)	na	20-Jul-18	31-Jul-18	31-Jul-18	1.8	1.0	na	7.9	<LOD	na	538	42	na	3	<LOD	na	22.6	12.2	na
TA-SB-27	15	(1-2)	(8-9)	na	20-Jul-18	30-Jul-18	7-Aug-18	0.8	2.1	na	<LOD	NA	na	16	NA	na	<LOD	NA	na	6.3	NA	na
TA-SB-28	10	(2-3)	(6-7)	na	19-Jul-18	27-Jul-18	27-Jul-18	2.4	3.6	na	1.8	<LOD	na	26	30	na	<LOD	<LOD	na	7.8	7.5	na
TA-SB-29	12	(2-3)	(9-10)	na	23-Jul-18	30-Jul-18	30-Jul-18	1.6	1.8	na	<LOD	<LOD	na	26	29	na	<LOD	<LOD	na	5.3	8.2	na
TA-SB-30	15	(2-3)	(13-14)	na	20-Jul-18	31-Jul-18	30-Jul-18	1.2	129.5	na	5.7	<LOD	na	117	53	na	<LOD	<LOD	na	68	9.2	na
TA-SB-31	15	(2-3)	(7-8)	na	24-Jul-18	27-Jul-18	27-Jul-18	6.1	13.6	na	20.2	40	na	158	259	na	<LOD	<LOD	na	194	317	na
TA-SB-32	20	(2-3)	(9-10)	na	24-Jul-18	27-Jul-18	27-Jul-18	10.6	4.2	na	2.3	4.7	na	23	72	na	<LOD	3.8	na	8.3	17.6	na
TA-SB-33	10	(1-2)	(7-8)	na	19-Jul-18	26-Jul-18	27-Jul-18	2.0	2.5	na	33.8	71	na	733	4579	na	7.4	21	na	153	41	na
TA-SB-34	8	(3-4)	(6-7)	na	19-Jul-18	27-Jul-18	27-Jul-18	4.4	3.0	na	100	24	na	819	385	na	30	4.2	na	250	146	na
TA-SB-35	8	(2-3)	(6-7)	na	17-Jul-18	26-Jul-18	26-Jul-18	1.2	1.7	na	<LOD	8.2	na	295	432	na	6.8	<LOD	na	2561	18.8	na
TA-SB-36	8	(2-3)	(5-6)	na	17-Jul-18	26-Jul-18	26-Jul-18	2.1	3.4	na	12	5.3	na	711	142	na	<LOD	<LOD	na	428	32.7	na
TA-SB-37	8	(1-2)	(6-7)	na	18-Jul-18	27-Jul-18	27-Jul-18	1.2	1.3	na	24	33	na	82	295	na	<LOD	4.8	na	572	420	na
TA-SB-38	8	(0.5-1.5)	(6-7)	na	17-Jul-18	26-Jul-18	26-Jul-18	NA	2.7	na	8.4	10.7	na	1366	662	na	<LOD	4.5	na	104.4	27.7	na
TA-SB-39	8	(1-2)	(6-7)	na	18-Jul-18	26-Jul-18	26-Jul-18	2.3	3.6	na	3.9	9.1	na	76	184	na	<LOD	3.1	na	25.1	31.9	na
TA-SB-40	8	(2-3)	(6-7)	na	19-Jul-18	27-Jul-18	27-Jul-18	2.3	3.4	na	28	52	na	272		na	4.2	5	na	373	1035	na
TA-SB-41	8	(2-3)	(5-6)	na	19-Jul-18	30-Jul-18	30-Jul-18	4.5	5.6	na	3.5	5.5	na	25	49	na	<LOD	3.2	na	33.3	15.2	na
TA-SB-42	8	(1-2)	(6-7)	na	19-Jul-18	30-Jul-18	30-Jul-18	3.7	2.0	na	<LOD	<LOD	na	25	18	na	<LOD	<LOD	na	8.5	5.2	na
TA-SB-43	10	(1-2)	(7-8)	na	16-Jul-18	16-Jul-18	19-Jul-18	1.9	2.8	na	<LOD	<LOD	na	60	83	na	<LOD	<LOD	na	131	99.3	na
TA-SB-44	8	(1-2)	(7-8)	na	19-Jul-18	30-Jul-18	30-Jul-18	3.7	3.8	na	6.7	<LOD	na	64	22	na	<LOD	<LOD	na	85.3	8	na
TA-SB-45	15	(2-3)	(6-7)	na	23-Jul-18	31-Jul-18	31-Jul-18	357.0	5.2	na	<LOD	2.7	na	75	46	na	<LOD	<LOD	na	434	11.3	na

Table 1. Soil Boring Summary and Field Screening Data
Former Wolvering Tannery
Rockford, Michigan

Location ID	Total Boring Depth (ft)	Lab Sample S1 (ft)	Lab Sample S2 (ft)	Lab Sample S3 (ft)	Start Date	End Date	Date Samples Sent to Lab	PID Reading for Samples Analyzed			XRF Results for Samples Analyzed											
											As			Cr			Hg			Pb		
								S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
TA-SB-46	10	(8-9)	(9-10)	na	19-Jul-18	27-Jul-18	27-Jul-18	NA	NA	na	1.9	5.8	na	24	40	na	<LOD	<LOD	na	6.3	8.1	na
TA-SB-47	8	(3-4)	(5-6)	na	23-Jul-18	30-Jul-18	30-Jul-18	1.6	1.2	na	6.6	<LOD	na	91	52	na	<LOD	<LOD	na	113	17.1	na
TA-SB-48	12	(1-2)	(10-11)	na	23-Jul-18	27-Jul-18	27-Jul-18	1.3	1.3	na	<LOD	<LOD	na	32	21	na	<LOD	<LOD	na	24.9	5.9	na
TA-SB-49	12	(3-4)	(7-8)	na	19-Jul-18	30-Jul-18	30-Jul-18	1.3	1.8	na	<LOD	1.6	na	24	13	na	<LOD	<LOD	na	7.8	3.6	na
TA-SB-50	8	(2-3)	(7-8)	na	19-Jul-18	31-Jul-18	31-Jul-18	0.6	1.0	na	2.9	<LOD	na	24	22	na	<LOD	<LOD	na	14.2	8.1	na
TA-SB-51	12	(2-3)	(6-7)	na	23-Jul-18	30-Jul-18	30-Jul-18	1.4	1.3	na	2.5	6.8	na	28	30	na	<LOD	<LOD	na	8.4	5	na
TA-SB-52	12	(1-2)	(6-7)	na	23-Jul-18	30-Jul-18	30-Jul-18	1.8	2.3	na	8.1	18.1	na	87	59	na	<LOD	<LOD	na	81.3	10.4	na
TA-SB-53	10	(0-1)	(7-8)	(5-6)	16-Jul-18	16-Jul-18	19-Jul-18	0.9	0.1	1.2	19.3	6.7	4.7	195	165	157	4.8	3.4	3.6	101.8	43.7	29.3
TA-SB-54	10	(0-1)	(3-4)	na	16-Jul-18	16-Jul-18	18-Jul-18	1.1	1.2	na	14.9	<LOD	na	51	21	na	4.4	<LOD	na	215	7	na
TA-SB-55	10	(1-2)	(5-6)	na	16-Jul-18	16-Jul-18	18-Jul-18	0.5	0.5	na	14.2	<LOD	na	49	37	na	<LOD	<LOD	na	120	19.5	na
TA-SB-56	10	(1-2)	NA	na	16-Jul-18	18-Jul-18	1-Aug-18	2.0	NA	na	17	NA	na	47	NA	na	<LOD	NA	na	388	NA	na
TA-SB-57	8	(2-3)	(6-7)	na	19-Jul-18	30-Jul-18	30-Jul-18	3.6	3.2	na	2.5	5.8	na	25	22	na	<LOD	<LOD	na	12.3	10	na
TA-SB-58	15	(7-8)	(12-13)	na	19-Jul-18	6-Aug-18	7-Aug-18	8.9	8.2	na	4	3	na	35	36	na	<LOD	<LOD	na	56.5	7	na
TA-SB-59	16	(2-3)	(11-12)	na	24-Jul-18	25-Jul-18	27-Jul-18	0.7	6.8	na	16	3.9	na	901	21	na	6.2	<LOD	na	330	5.2	na
TA-SB-60	10	(7-8)	(8-9)	na	16-Jul-18	18-Jul-18	18-Jul-18	1.1	2.4	na	97	5.5	na	35	34	na	<LOD	<LOD	na	1407	136.1	na
TA-SB-61	8	(5-6)	(7-8)	na	11-Jul-18	17-Jul-18	17-Jul-18	12.1	12.8	na	<LOD	3.6	na	1189	47	na	<LOD	<LOD	na	136.5	17	na
TA-SB-62	8	(3-4)	(5-6)	na	11-Jul-18	17-Jul-18	17-Jul-18	1.1	10.4	na	6	<LOD	na	265	141	na	<LOD	<LOD	na	46.8	59.6	na
TA-SB-63	8	(1-2)	(7-8)	na	11-Jul-18	17-Jul-18	17-Jul-18	10.0	9.8	na	<LOD	<LOD	na	90	647	na	<LOD	<LOD	na	36.2	15.6	na
TA-SB-64	4.5	(0-1)	(4-5)	na	11-Jul-18	19-Jul-18	19-Jul-18	18.9	14.2	na	2.6	6.4	na	38	327	na	<LOD	<LOD	na	11.6	94	na
TA-SB-65	7	(1-2)	(4-5)	na	10-Jul-18	26-Jul-18	18-Jul-18	3.8	2.0	na	3.5	10.9	na	1024	3253	na	<LOD	<LOD	na	44.3	147.3	na
TA-SB-66	3	(0-1)	(2-3)	na	10-Jul-18	27-Jul-18	27-Jul-18	5.6	5.5	na	9.1	39	na	365	1620	na	<LOD	<LOD	na	63.3	308	na
TA-SB-67	8	(0-1)	(5-6)	na	10-Jul-18	23-Jul-18	23-Jul-18	3.3	2.5	na	4.4	<LOD	na	93	41	na	3.2	<LOD	na	38.7	12.7	na
TA-SB-68	3.8	(1-2)	(3-4)	na	9-Jul-18	9-Jul-18	10-Jul-18	2.1	29.3	na	13.7	11.8	na	223	367	na	<LOD	<LOD	na	117.8	28.1	na
TA-SB-69	5	(2-3)	(4-5)	na	10-Jul-18	10-Jul-18	10-Jul-18	0.1	na	na	20.7	na	na	1041	na	na	8.6	na	na	102.2	na	na
TA-SB-70	12	(0-1)	(5-6)	na	12-Jul-18	17-Jul-18	17-Jul-18	10.3	20.6	na	8.8	18.3	na	944	74	na	<LOD	5.3	na	69	129.9	na
TA-SB-70(HA)	5	NA	NA	na	9-Jul-18	9-Jul-18	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TA-SB-71	8	(1-2)	(3-4)	na	10-Jul-18	20-Jul-18	20-Jul-18	0.7	1.0	na	13.2	2.3	na	72	42	na	<LOD	<LOD	na	139	12.8	na
TA-SB-72	8	(1-2)	(3-4)	na	10-Jul-18	20-Jul-18	20-Jul-18	0.9	0.6	na	6.6	3.7	na	258	172	na	<LOD	<LOD	na	168	21	na
TA-SB-73	8	(1-2)	(6-7)	na	11-Jul-18	20-Jul-18	20-Jul-18	1.3	1.4	na	6.9	3.1	na	139	46	na	4.3	<LOD	na	51.2	10.8	na
TA-SB-74	8	(1-2)	(5-6)	na	11-Jul-18	20-Jul-18	20-Jul-18	0.8	0.5	na	13.6	2.3	na	354	32.3	na	2.7	<LOD	na	52.5	10	na
TA-SB-75	12	(5-6)	(7-8)	na	11-Jul-18	18-Jul-18	18-Jul-18	2.5	3.8	na	39.9	5.7	na	1310	318	na	10.6	<LOD	na	204	25.6	na
TA-SB-76	12	(1-2)	(7-8)	na	12-Jul-18	16-Jul-18	18-Jul-18	6.6	2.2	na	15.6	<LOD	na	716	2040	na	8.9	<LOD	na	175	1025	na
TA-SB-77	12	(2-3)	(5-6)	na	12-Jul-18	17-Jul-18	17-Jul-18	10.8	9.0	na	47.2	2.9	na	366	39	na	19.5	<LOD	na	66.8	12.6	na
TA-SB-78	12	(5-6)	(6-7)	na	12-Jul-18	16-Jul-18	16-Jul-18	15.1	13.8	na	36.8	99	na	1158	1479	na	3.1	<LOD	na	44.8	32	na
TA-SB-79	12	(2-3)	(4-5)	na	12-Jul-18	16-Jul-18	16-Jul-18	11.8	9.5	na	<LOD	29.7	na	799	910	na	<LOD	2.9	na	3219	81.9	na
TA-SB-80	8	(2-3)	(3-4)	na	13-Jul-18	16-Jul-18	16-Jul-18	NA	NA	na	10.4	15.5	na	664	646	na	<LOD	4.1	na	58.5	34	na
TA-SB-81	12	(4-5)	(5-6)	na	12-Jul-18	16-Jul-18	16-Jul-18	2.4	5.6	na	11.1	24.1	na	230	641	na	<LOD	8.5	na	47.9	34.5	na
TA-SB-82	8	(0-1)	(6-7)	na	13-Jul-18	19-Jul-18	19-Jul-18	2.8	2.6	na	7.8	24	na	216	886	na	<LOD	9.5	na	84.5	48.2	na
TA-SB-83	8	(1-2)	(4-5)	na	13-Jul-18	17-Jul-18	17-Jul-18	1.3	1.3	na	19	3.6	na	37	67	na	<LOD	<LOD	na	673	15.4	na
TA-SB-84	8	na	na	na	13-Jul-18	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TA-SB-85	8	na	na	na	13-Jul-18	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TA-SB-86	10	na	na	na	17-Jul-18	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TA-SB-87	10	na	na	na	17-Jul-18	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TA-SB-88	10	na	na	na	17-Jul-18	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 1. Soil Boring Summary and Field Screening Data
Former Wolvering Tannery
Rockford, Michigan

Location ID	Total Boring Depth (ft)	Lab Sample S1 (ft)	Lab Sample S2 (ft)	Lab Sample S3 (ft)	Start Date	End Date	Date Samples Sent to Lab	PID Reading for Samples Analyzed			XRF Results for Samples Analyzed											
											As			Cr			Hg			Pb		
								S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
TA-SB-AOC-B-01	2	(2-3)	(7-8)	na	12-Jul-18	18-Jul-18	1-Aug-18	2.0	1.5	na	2.8	<LOD	na	42	28	na	<LOD	<LOD	na	10.7	10.1	na
TA-SB-AOC-B-02	8	(2-3)	(4-5)	na	12-Jul-18	12-Jul-18	1-Aug-18	22.7	23.4	na	<LOD	<LOD	na	111	29	na	<LOD	<LOD	na	16.8	11.6	na
TA-SB-AOC-C-01	12	(2-3)	(11-12)	na	23-Jul-18	23-Jul-18	23-Jul-18	26.9	1.8	na	7.3	2.4	na	109	586	na	<LOD	<LOD	na	24.7	11	na
TA-SB-AOC-C-02	12	(2-3)	(9-10)	na	23-Jul-18	23-Jul-18	2-Aug-18	205.6	2.5	na	2.4	3.1	na	3288	1397	na	<LOD	<LOD	na	13.9	9.6	na
TA-SB-AOC-D-01	3.3	(2-3)	(8-9)	na	12-Jul-18	18-Jul-18	1-Aug-18	0.6	1.0	na	3.4	2.4	na	26	45	na	<LOD	<LOD	na	8.1	6.3	na
TA-SB-AOC-D-02	8	(2-3)	(6-7)	na	12-Jul-18	12-Jul-18	1-Aug-18	11.5	16.4	na	<LOD	2.7	na	42	29	na	<LOD	<LOD	na	13.1	11.8	na
TA-SB-AOC-E-01	16	(3-4)	(10-11)	na	24-Jul-18	1-Aug-18	1-Aug-18	1.8	1.9	na	<LOD	<LOD	na	641	30	na	6.2	3.4	na	436	8.2	na
TA-SB-AOC-E-02	16	(5-6)	(10-11)	na	24-Jul-18	1-Aug-18	1-Aug-18	0.9	1.2	na	<LOD	14.7	na	11	74	na	<LOD	3.2	na	5.4	19.4	na
TA-SB-AOC-G-01	8	(1-2)	(5-6)	na	11-Jul-18	23-Jul-18	23-Jul-18	1.1	1.2	na	19.7	5.3	na	402	68	na	10.2	<LOD	na	151	36.8	na
TA-SB-AOC-G-02	8	(1-2)	(6-7)	na	11-Jul-18	23-Jul-18	23-Jul-18	0.9	1.1	na	22.2	4.3	na	975	132	na	9.9	<LOD	na	160	29.2	na
TA-SB-AOC-H-01	8	(2-3)	(4-5)	na	9-Jul-18	10-Jul-18	10-Jul-18	0.4	0.3	na	9.2	2.4	na	205	129	na	2.6	<LOD	na	37.2	17.2	na
TA-SB-AOC-H-02	12	(2-3)	(6-7)	na	9-Jul-18	10-Jul-18	10-Jul-18	ND	0.2	na	18.3	<LOD	na	233	48	na	3.5	<LOD	na	93.8	10.9	na
TA-SB-AOC-H-03	5.58	(2-2.5)	(5-6)	na	9-Jul-18	10-Jul-18	10-Jul-18	3.7	1.3	na	513	3.9	na	9371	118	na	2.5	<LOD	na	14739	41.2	na
TA-SB-AOC-J-01	8	(2-3)	(5-6)	na	12-Jul-18	1-Aug-18	1-Aug-18	14.9	13.2	na	4.4	5	na	35	40	na	<LOD	<LOD	na	57.4	10	na
TA-SB-AOC-J-02	8	(9-10)	(13-14)	na	12-Jul-18	1-Aug-18	1-Aug-18	0.6	1.4	na	<LOD	5.5	na	263	41	na	<LOD	<LOD	na	8.9	10.5	na
TA-SB-MA-01	16	(7-8)	(11-12)	na	25-Jul-18	1-Aug-18	1-Aug-18	1.7	1.8	na	6.3	33.8	na	690	41	na	<LOD	<LOD	na	54.9	11.3	na
TA-SB-MA-02	16	(7-8)	(11-12)	na	25-Jul-18	1-Aug-18	1-Aug-18	0.9	3.5	na	32	3.5	na	5850	24	na	<LOD	<LOD	na	283	8.6	na
TA-SB-MA-03	16	(11-12)	(13-14)	na	25-Jul-18	2-Aug-18	2-Aug-18	6.1	2.4	na	10.3	6.6	na	39	34	na	<LOD	<LOD	na	7.9	9.6	na
TA-SB-MA-04	15	(8-9)	(10-11)	na	6-Aug-18	8-Aug-18	8-Aug-18	5.9	6.4	na	209	125.7	na	1126	571	na	<LOD	<LOD	na	19	27	na
TA-SB-MA-05	16	na	na	na	25-Jul-18	25-Jul-18	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TA-SB-GW01	8	(2-3)	(6-7)	na	25-Jun-18	28-Jun-18	28-Jun-18	0.7	NM	na	3.8	NM	na	433	NM	na	<LOD	NM	na	41.1	NM	na
TA-SB-GW02	12	(1-2)	(4-5)	na	27-Jun-18	29-Jun-18	29-Jun-18	0.3	0.1	na	11.4	9.1	na	58	60	na	<LOD	<LOD	na	40.9	23.1	na
TA-SB-GW03	10	(2-3)	(7-8)	na	24-Jul-18	2-Aug-18	2-Aug-18	1.1	2.4	na	56	24	na	712	393	na	<LOD	<LOD	na	1429	595	na
TA-SB-GW04	10	(1-2)	(5-6)	na	26-Jun-18	29-Jun-18	8-Aug-18	0.3	0.3	na	19.1	3.4	na	528	84	na	1.2	<LOD	na	149	16.4	na
TA-SB-GW05	8	(1-2)	(4-5)	na	28-Jun-18	2-Jul-18	2-Jul-18	0.2	0.1	na	15.1	7.9	na	155	207	na	4.1	1.2	na	69.1	49.9	na
TA-SB-GW06	8	(2-3)	(4-5)	na	26-Jun-18	29-Jun-18	29-Jun-18	2.5	5.0	na	24.7	13.7	na	1350	371	na	<LOD	<LOD	na	210	156	na
TA-SB-GW07	8	(4-5)	(6-7)	na	26-Jun-18	28-Jun-18	28-Jun-18	0.2	0.2	na	1.9	6.6	na	34	46	na	<LOD	<LOD	na	10.3	14.3	na
TA-SB-GW08	8	(2-3)	(5-6)	na	26-Jun-18	29-Jun-18	29-Jun-18	0.5	0.5	na	<LOD	<LOD	na	33	18	na	<LOD	<LOD	na	45.4	118.4	na
TA-SB-GW09	9	na	na	na	7-Aug-18	7-Aug-18	7-Aug-18	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 2
Monitoring Well Installation Summary
Former Tannery
Rockford, Kent County, Michigan

Well ID	Borehole Depth (ft bgs)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Screened Interval (ft)	Filter Pack Interval (bgs)	Screen Length
GW-1	8	1.0	7.0	1.0-7.0	0.75-8	5.0
GW-2	12	4.5	9.5	4.5-9.5	2.5-10	5.0
GW-3	10	4.0	9.0	4.0-9.0	3.0-10.0	5.0
GW-4	10	4.5	9.5	4.5-9.5	3.0-10.0	5.0
GW-5	8	2.0	7.0	2.0-7.0	1.5-8.0	5.0
GW-6	8	2.0	7.0	2.0-7.0	1.0-8.0	5.0
GW-7	8	2.0	7.0	2.0-7.0	1.0-8.0	5.0
GW-8	8	2.0	7.0	2.0-7.0	1.0-8.0	5.0
GW-9	9	4.0	9.0	4.0-9.0	3.0-9.0	5.0

Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

6/29/18 @ 9:00 - DJT gaging at RC1

Water Level: 0.94 **Total flow (gpm):** 2413.72

Station	Depth	Area	Velocity (ft/sec)		Discharge (cfs)	Wetted Surface	Adjusted Distance
							0
13	0	0	0		0.0000		13
13.5	0.15	0.1125	0.14		0.0158	0.5220	13.5
14	0.3	0.15	0.49		0.0735	0.5220	14.0
14.5	0.55	0.275	0.6		0.1650	0.5590	14.5
15	0.55	0.275	0.75		0.2063	0.5000	15.0
15.5	0.59	0.295	0.77		0.2272	0.5016	15.5
16	0.62	0.31	0.75		0.2325	0.5009	16.0
16.5	0.63	0.315	0.81		0.2552	0.5001	16.5
17	0.61	0.305	0.81		0.2471	0.5004	17.0
17.5	0.68	0.34	0.83		0.2822	0.5049	17.5
18	0.72	0.36	0.92		0.3312	0.5016	18.0
18.5	0.76	0.38	0.89		0.3382	0.5016	18.5
19	0.78	0.39	0.83		0.3237	0.5004	19.0
19.5	0.79	0.395	0.86		0.3397	0.5001	19.5
20	0.7	0.35	0.94		0.3290	0.5080	20.0
20.5	0.83	0.415	0.83		0.3445	0.5166	20.5
21	0.8	0.4	0.89		0.3560	0.5009	21.0
21.5	0.77	0.385	0.95		0.3658	0.5009	21.5
22	0.86	0.43	0.93		0.3999	0.5080	22.0
22.5	0.81	0.405	0.86		0.3483	0.5025	22.5
23	0.71	0.355	0.34		0.1207	0.5099	23.0
23.5	0.31	0.2325	0.33		0.0767	0.6403	23.5
24	0	0	0		0.0000	0.5883	24.0
24.5	0	0	0		0.0000	0.5000	24.5
25	0	0	0		0.0000	0.5000	25.0
Average:	0.59		0.67	**Total:**	5.3782	12.3901	**River Width (ft):** 12.0

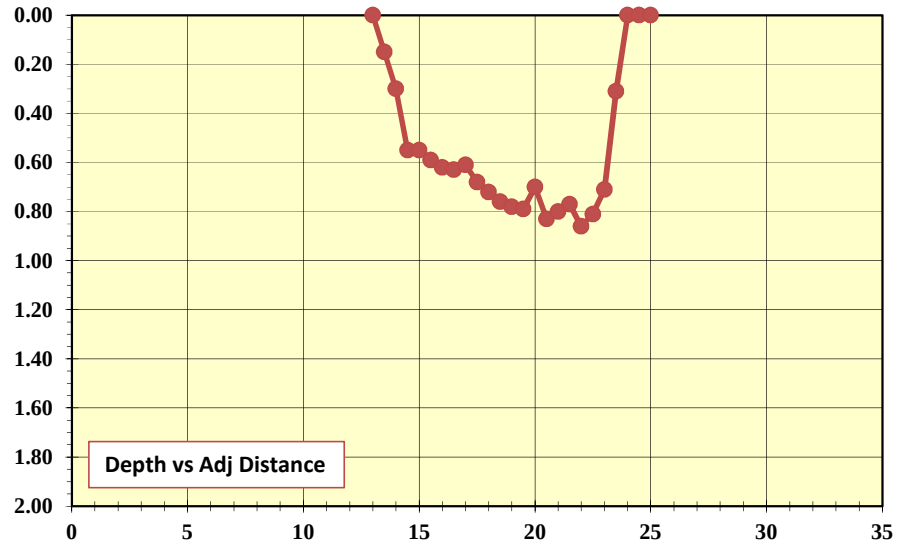


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

7/17/18 @ 10:20 - DJT gaging at RC1

Water Level: 0.89 **Total flow (gpm):** 1637.49

Station	Depth	Area	Velocity (ft/sec)		Discharge (cfs)	Wetted Surface	Adjusted Distance **0**
11.5	0	0	0		0.0000		11.5
12	0.32	0.24	0.13		0.0312	0.5936	12.0
12.5	0.29	0.145	0.4		0.0580	0.5009	12.5
13	0.19	0.095	0.55		0.0523	0.5099	13.0
13.5	0.47	0.235	0.59		0.1387	0.5731	13.5
14	0.52	0.26	0.55		0.1430	0.5025	14.0
14.5	0.55	0.275	0.68		0.1870	0.5009	14.5
15	0.55	0.275	0.68		0.1870	0.5000	15.0
15.5	0.58	0.29	0.71		0.2059	0.5009	15.5
16	0.62	0.31	0.68		0.2108	0.5016	16.0
16.5	0.72	0.36	0.77		0.2772	0.5099	16.5
17	0.72	0.36	0.72		0.2592	0.5000	17.0
17.5	0.75	0.375	0.65		0.2438	0.5009	17.5
18	0.79	0.395	0.82		0.3239	0.5016	18.0
18.5	0.8	0.4	0.63		0.2520	0.5001	18.5
19	0.65	0.325	0.83		0.2698	0.5220	19.0
19.5	0.7	0.35	0.75		0.2625	0.5025	19.5
20	0.7	0.35	0.73		0.2555	0.5000	20.0
20.5	0.7	0.35	0.46		0.1610	0.5000	20.5
21	0.45	0.225	0.51		0.1148	0.5590	21.0
21.5	0.25	0.125	0.05		0.0063	0.5385	21.5
22	0.15	0.1125	0.08		0.0090	0.5099	22.0
22.5	0.12	0.06	0		0.0000	0.5009	22.5
23	0.2	0.09	0		0.0000	0.5064	23.0
23.2	0	0	0		0.0000	0.2828	23.2
Average:	0.51		0.52	**Total:**	3.6486	12.1179	**River Width (ft):** 11.7

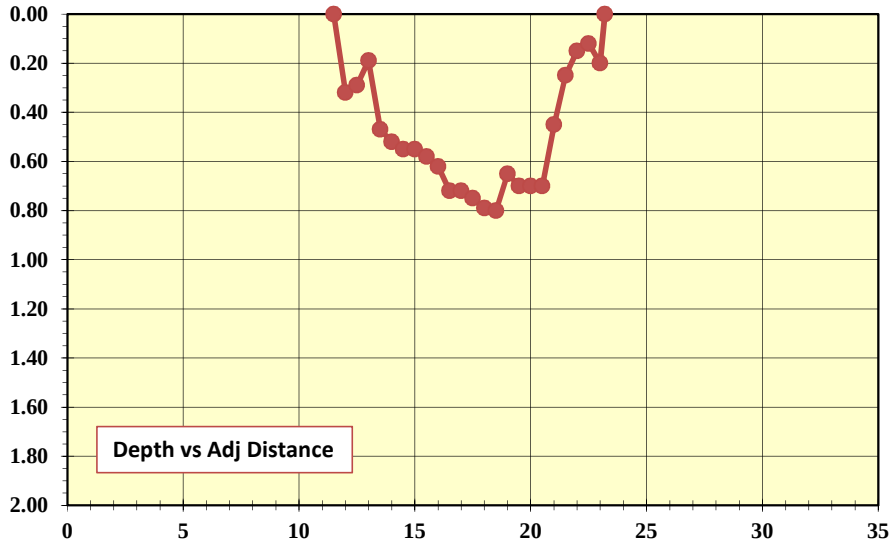


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

7/25/18 @ 16:30 - BW gaging at RC1

Water Level: 0.88 **Total flow (gpm):** 1772.09

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
10	0	0	0	0.0000		10
10.5	0.05	0.0375	0.02	0.0008	0.5025	10.5
11	0.2	0.1	0.04	0.0040	0.5220	11
11.5	0.21	0.105	0.23	0.0242	0.5001	11.5
12	0.18	0.09	0.65	0.0585	0.5009	12
12.5	0.45	0.225	0.52	0.1170	0.5682	12.5
13	0.5	0.25	0.6	0.1500	0.5025	13
13.5	0.55	0.275	0.64	0.1760	0.5025	13.5
14	0.55	0.275	0.66	0.1815	0.5000	14
14.5	0.55	0.275	0.7	0.1925	0.5000	14.5
15	0.6	0.3	0.65	0.1950	0.5025	15
15.5	0.62	0.31	0.78	0.2418	0.5004	15.5
16	0.7	0.35	0.67	0.2345	0.5064	16
16.5	0.72	0.36	0.84	0.3024	0.5004	16.5
17	0.75	0.375	0.86	0.3225	0.5009	17
17.5	0.75	0.375	0.86	0.3225	0.5000	17.5
18	0.8	0.4	0.71	0.2840	0.5025	18
18.5	0.6	0.3	0.81	0.2430	0.5385	18.5
19	0.7	0.35	0.81	0.2835	0.5099	19
19.5	0.7	0.35	0.7	0.2450	0.5000	19.5
20	0.68	0.34	0.66	0.2244	0.5004	20
20.5	0.65	0.65	0.2	0.1300	0.5009	20.5
21	0.2	0.1	0.17	0.0170	0.6727	21
21.5	0.15	0.075	-0.03	-0.0023	0.5025	21.5
22	0.05	0.0375	0.02	0.0008	0.5099	22
22.5	0	0	0	0.0000	0.5025	22.5
Average:	0.50		0.53	**Total:** 3.9485	12.3466	**River Width (ft):** 12.5

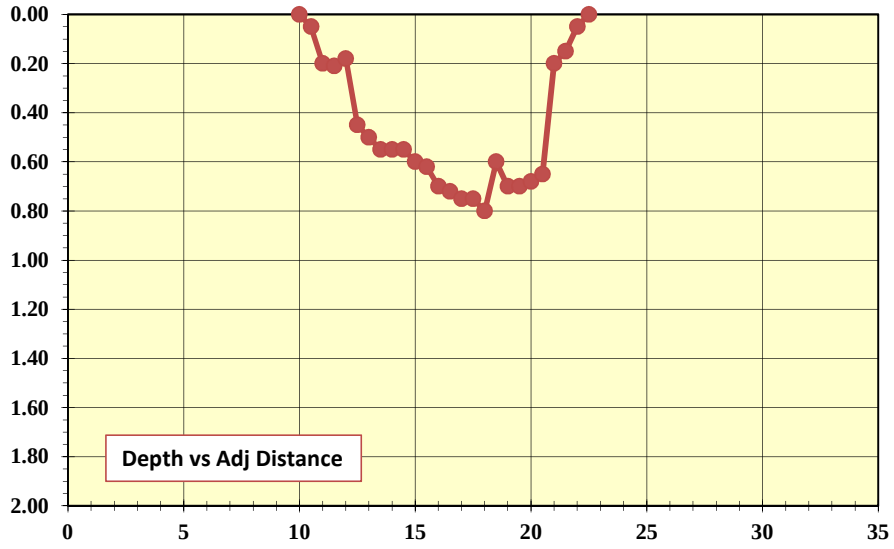


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

8/23/18 @ 8:30 - JM gaging at RC1

Water Level: 0.88 **Total flow (gpm):** 1777.36

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
10.1	0	0	0	0.0000		10.1
10.6	0.25	0.1875	0.02	0.0038	0.5590	10.6
11.1	0.3	0.15	0.16	0.0240	0.5025	11.1
11.6	0.4	0.2	0.36	0.0720	0.5099	11.6
12.1	0.45	0.225	0.52	0.1170	0.5025	12.1
12.6	0.45	0.225	0.56	0.1260	0.5000	12.6
13.1	0.5	0.25	0.6	0.1500	0.5025	13.1
13.6	0.5	0.25	0.61	0.1525	0.5000	13.6
14.1	0.55	0.275	0.62	0.1705	0.5025	14.1
14.6	0.55	0.275	0.6	0.1650	0.5000	14.6
15.1	0.6	0.3	0.58	0.1740	0.5025	15.1
15.6	0.65	0.325	0.75	0.2438	0.5025	15.6
16.1	0.75	0.375	0.71	0.2663	0.5099	16.1
16.6	0.75	0.375	0.86	0.3225	0.5000	16.6
17.1	0.75	0.375	0.86	0.3225	0.5000	17.1
17.6	0.8	0.4	0.88	0.3520	0.5025	17.6
18.1	0.8	0.4	0.71	0.2840	0.5000	18.1
18.6	0.75	0.375	0.82	0.3075	0.5025	18.6
19.1	0.75	0.375	0.82	0.3075	0.5000	19.1
19.6	0.7	0.35	0.73	0.2555	0.5025	19.6
20.1	0.65	0.325	0.22	0.0715	0.5025	20.1
20.6	0.65	0.65	0.11	0.0715	0.5000	20.6
21.1	0.2	0.1	0.01	0.0010	0.6727	21.1
21.6	0.2	0.09	0	0.0000	0.5000	21.6
22	0.1	0.04	0	0.0000	0.4123	22
22.4	0	0	0	0.0000	0.4123	22.4
Average:	0.54		0.50	**Total:** 3.9603	12.6011	**River Width (ft):** 12.3

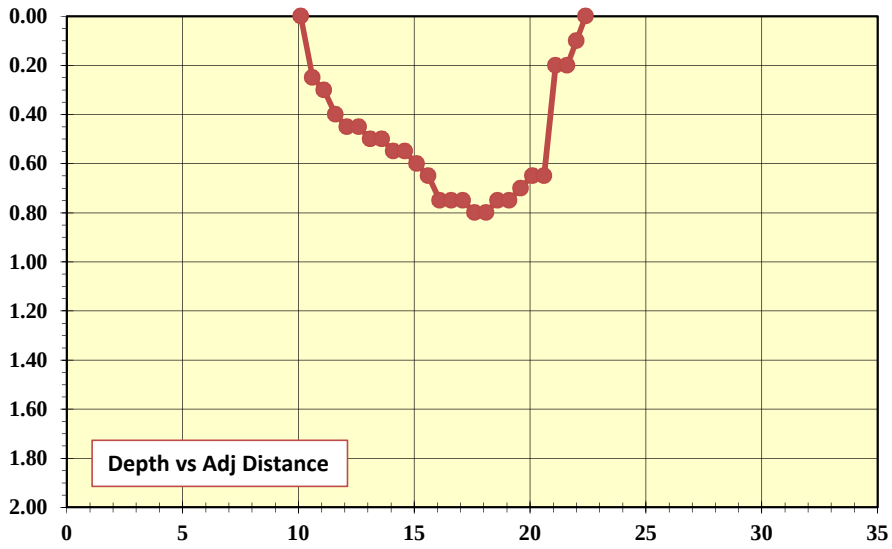


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

8/25/18 @ 12:00 - BW gaging at RC1

Water Level: 0.9 **Total flow (gpm):** 1914.31

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
10.2	0	0	0	0.0000		10.2
10.8	0.25	0.225	0.02	0.0045	0.6500	10.8
11.4	0.3	0.18	0.25	0.0450	0.6021	11.4
12	0.2	0.12	0.73	0.0876	0.6083	12
12.6	0.5	0.3	0.65	0.1950	0.6708	12.6
13.2	0.5	0.3	0.67	0.2010	0.6000	13.2
13.8	0.55	0.33	0.58	0.1914	0.6021	13.8
14.4	0.55	0.33	0.66	0.2178	0.6000	14.4
15	0.6	0.36	0.73	0.2628	0.6021	15
15.6	0.65	0.39	0.84	0.3276	0.6021	15.6
16.2	0.7	0.42	0.78	0.3276	0.6021	16.2
16.8	0.7	0.42	0.85	0.3570	0.6000	16.8
17.4	0.8	0.48	0.91	0.4368	0.6083	17.4
18	0.8	0.48	0.85	0.4080	0.6000	18
18.6	0.65	0.39	0.79	0.3081	0.6185	18.6
19.2	0.7	0.42	0.76	0.3192	0.6021	19.2
19.8	0.7	0.42	0.86	0.3612	0.6000	19.8
20.4	0.6	0.36	0.42	0.1512	0.6083	20.4
21	0.6	0.36	0.18	0.0648	0.6000	21
21.6	0.25	0.15	0.01	0.0015	0.6946	21.6
22.2	0.15	0.135	-0.02	-0.0027	0.6083	22.2
22.8	0	0	0	0.0000	0.6185	22.8
Average:	0.54		0.58	**Total:** 4.2654	12.8980	**River Width (ft):** 12.6

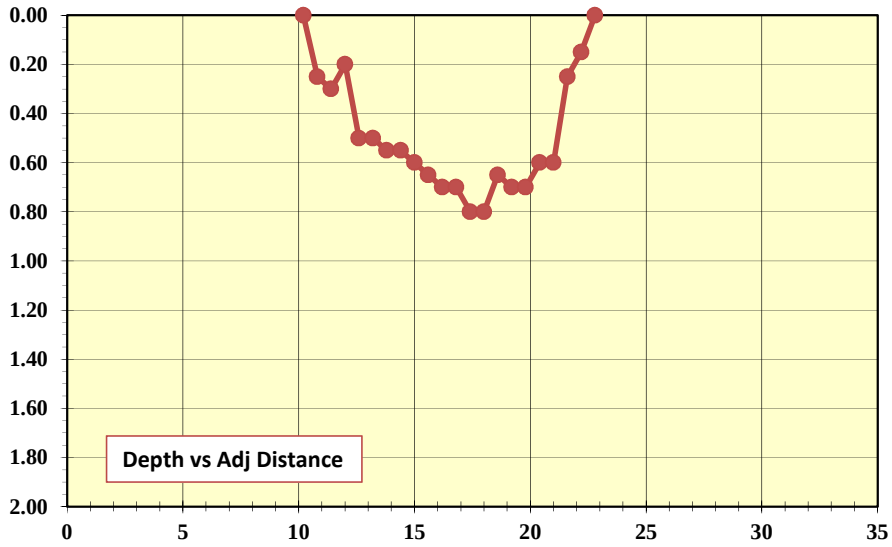


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

8/27/18 @ 16:00 - BW gaging at RC1

Water Level: 1.1 **Total flow (gpm):** 4693.42

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
10.1	0	0	0	0.0000		10.1
10.7	0.2	0.18	0.34	0.0612	0.6325	10.7
11.3	0.45	0.27	0.33	0.0891	0.6500	11.3
11.9	0.45	0.27	1	0.2700	0.6000	11.9
12.5	0.65	0.39	1.35	0.5265	0.6325	12.5
13.1	0.7	0.42	1.24	0.5208	0.6021	13.1
13.7	0.75	0.45	1.36	0.6120	0.6021	13.7
14.3	0.8	0.48	1.53	0.7344	0.6021	14.3
14.9	0.8	0.48	1.48	0.7104	0.6000	14.9
15.5	0.9	0.54	1.34	0.7236	0.6083	15.5
16.1	0.9	0.54	1.33	0.7182	0.6000	16.1
16.7	0.9	0.54	1.51	0.8154	0.6000	16.7
17.3	0.95	0.57	1.43	0.8151	0.6021	17.3
17.9	1	0.6	1.37	0.8220	0.6021	17.9
18.5	1.05	0.63	1.48	0.9324	0.6021	18.5
19.1	1.05	0.63	1.42	0.8946	0.6000	19.1
19.7	0.9	0.54	1.26	0.6804	0.6185	19.7
20.3	0.9	0.54	0.73	0.3942	0.6000	20.3
20.9	0.8	0.48	0.22	0.1056	0.6083	20.9
21.5	0.5	0.3	0.16	0.0480	0.6708	21.5
22.1	0.3	0.27	-0.06	-0.0162	0.6325	22.1
22.7	0	0	0	0.0000	0.6708	22.7
Average:	0.75		1.04	**Total:** 10.4577	12.9365	**River Width (ft):** 12.6

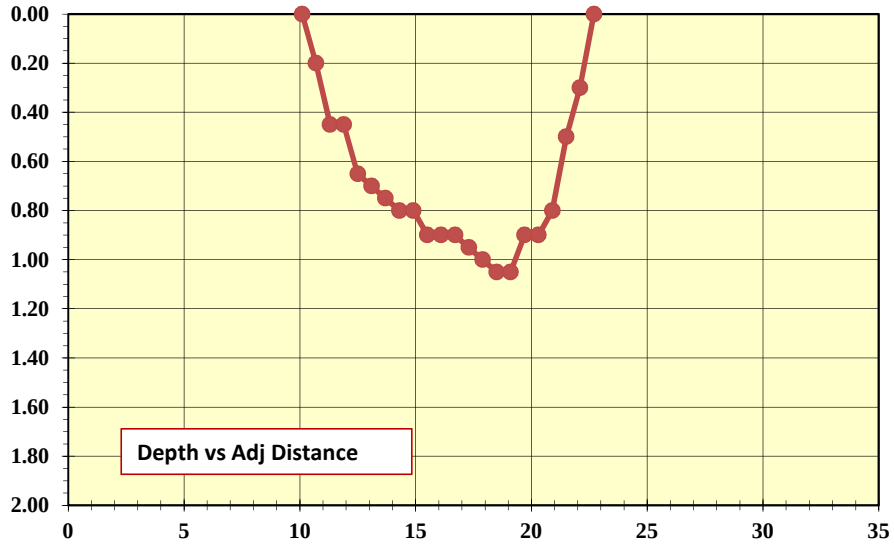


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

9/20/18 @ 17:00 - BW gaging at RC1

Water Level: 1.04 **Total flow (gpm):** 3761.98

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
8.06	0	0	0	0.0000		8.06
8.69	0.3	0.284	0.17	0.0482	0.6978	8.69
9.32	0.45	0.284	0.49	0.1389	0.6476	9.32
9.95	0.5	0.315	0.51	0.1607	0.6320	9.95
10.58	0.45	0.284	0.68	0.1928	0.6320	10.58
11.21	0.45	0.284	0.78	0.2211	0.6300	11.21
11.84	0.65	0.410	0.93	0.3808	0.6610	11.84
12.47	0.7	0.441	1.09	0.4807	0.6320	12.47
13.1	0.8	0.504	1.05	0.5292	0.6379	13.1
13.73	0.8	0.504	1.04	0.5242	0.6300	13.73
14.36	0.85	0.536	1.06	0.5676	0.6320	14.36
14.99	0.9	0.567	0.92	0.5216	0.6320	14.99
15.62	0.9	0.567	1.4	0.7938	0.6300	15.62
16.25	0.9	0.567	1.47	0.8335	0.6300	16.25
16.88	0.9	0.567	1.45	0.8222	0.6300	16.88
17.51	0.9	0.567	1.31	0.7428	0.6300	17.51
18.14	0.9	0.567	1.1	0.6237	0.6300	18.14
18.77	0.85	0.536	1.05	0.5623	0.6320	18.77
19.4	0.75	0.473	0.48	0.2268	0.6379	19.4
20.03	0.4	0.252	0.19	0.0479	0.7207	20.03
20.66	0.4	0.252	-0.06	-0.0151	0.6300	20.66
21.29	0.25	0.236	-0.09	-0.0213	0.6476	21.29
21.92	0	0	0	0.0000	0.6778	21.92
Average:	0.67		0.81	**Total:** 8.3823	14.1601	**River Width (ft):** 13.9

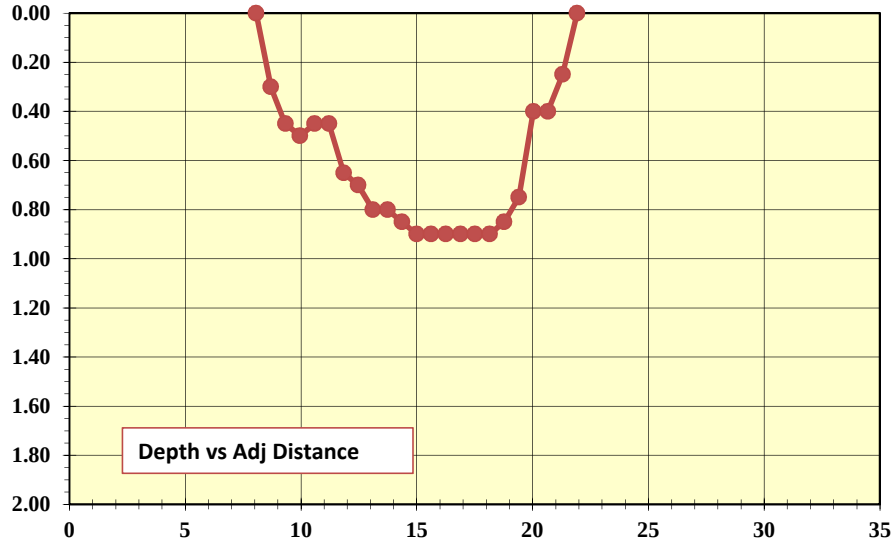


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

9/27/18 @ 15:45 - VL gaging at RC1

Water Level: 0.94 **Total flow (gpm):** 2265.62

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance **0**
8.74	0	0	0	0.0000		8.74
9	0.2	0.114	0.29	0.0331	0.3280	9
9.62	0.3	0.186	0.26	0.0484	0.6280	9.62
10.24	0.35	0.217	0.46	0.0998	0.6220	10.24
10.86	0.3	0.186	0.47	0.0874	0.6220	10.86
11.48	0.5	0.310	0.66	0.2046	0.6515	11.48
12.1	0.55	0.341	0.76	0.2592	0.6220	12.1
12.72	0.65	0.403	0.74	0.2982	0.6280	12.72
13.34	0.65	0.403	0.71	0.2861	0.6200	13.34
13.96	0.7	0.434	0.77	0.3342	0.6220	13.96
14.58	0.7	0.434	0.94	0.4080	0.6200	14.58
15.2	0.7	0.434	0.93	0.4036	0.6200	15.2
15.82	0.7	0.434	1.04	0.4514	0.6200	15.82
16.44	0.7	0.434	1.18	0.5121	0.6200	16.44
17.06	0.8	0.496	1.15	0.5704	0.6280	17.06
17.68	0.8	0.496	0.87	0.4315	0.6200	17.68
18.3	0.8	0.496	0.71	0.3522	0.6200	18.3
18.92	0.7	0.434	0.48	0.2083	0.6280	18.92
19.54	0.65	0.403	0.17	0.0685	0.6220	19.54
20.16	0.3	0.186	-0.001	-0.0002	0.7120	20.16
20.78	0.3	0.171	-0.05	-0.0086	0.6200	20.78
21.04	0	0	0	0.0000	0.3970	21.04
Average:	0.57		0.63	**Total:** 5.0482	12.6706	**River Width (ft):** 12.3

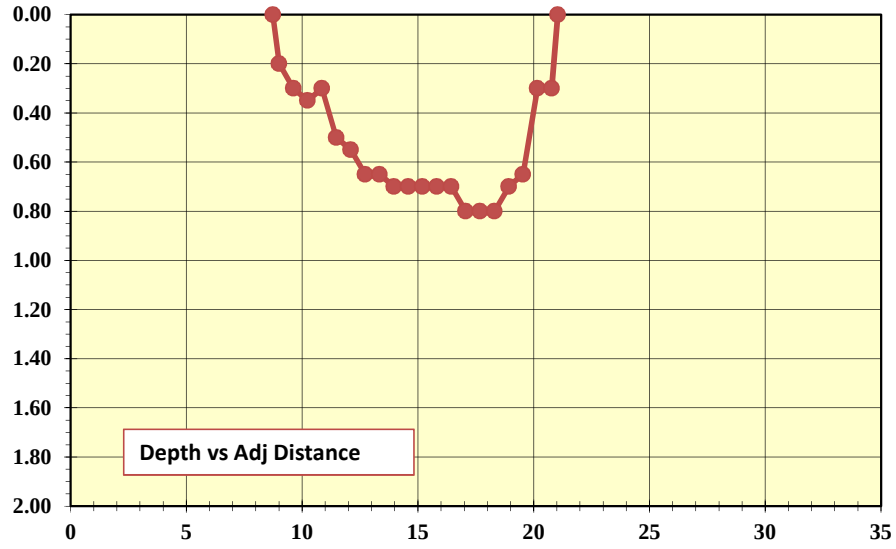


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

10/1/18 @ 15:30 - VL and JS gaging at RC1

Water Level: 1.18 **Total flow (gpm):** 8244.09

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
8.39	0	0	0	0.0000		8.39
9	0.6	0.549	0.88	0.4831	0.8556	9
9.61	0.7	0.427	1.12	0.4782	0.6181	9.61
10.22	0.7	0.434	1.34	0.5816	0.6100	10.22
10.83	0.8	0.496	1.26	0.6250	0.6181	10.83
11.44	0.85	0.527	1.28	0.6746	0.6120	11.44
12.05	0.95	0.589	1.56	0.9188	0.6181	12.05
12.66	0.95	0.589	1.83	1.0779	0.6100	12.66
13.27	1.05	0.651	1.72	1.1197	0.6181	13.27
13.88	1.05	0.651	1.72	1.1197	0.6100	13.88
14.49	1.1	0.682	1.21	0.8252	0.6120	14.49
15.1	1.2	0.744	1.68	1.2499	0.6181	15.1
15.71	1.2	0.744	1.88	1.3987	0.6100	15.71
16.32	1.25	0.775	2.14	1.6585	0.6120	16.32
16.93	1.25	0.775	2.16	1.6740	0.6100	16.93
17.54	1.2	0.744	2.09	1.5550	0.6120	17.54
18.15	1.15	0.713	1.63	1.1622	0.6120	18.15
18.76	1.1	0.682	1.46	0.9957	0.6120	18.76
19.37	1.05	0.651	0.88	0.5729	0.6120	19.37
19.98	0.6	0.372	0.42	0.1562	0.7580	19.98
20.59	0.6	0.342	0.07	0.0239	0.6100	20.59
21.2	0.5	0.4575	0.04	0.0183	0.6181	21.2
21.81	0	0	0	0.0000	0.7887	21.81
Average:	0.95		1.35	**Total:** 18.3692	14.0556	**River Width (ft):** 12.2

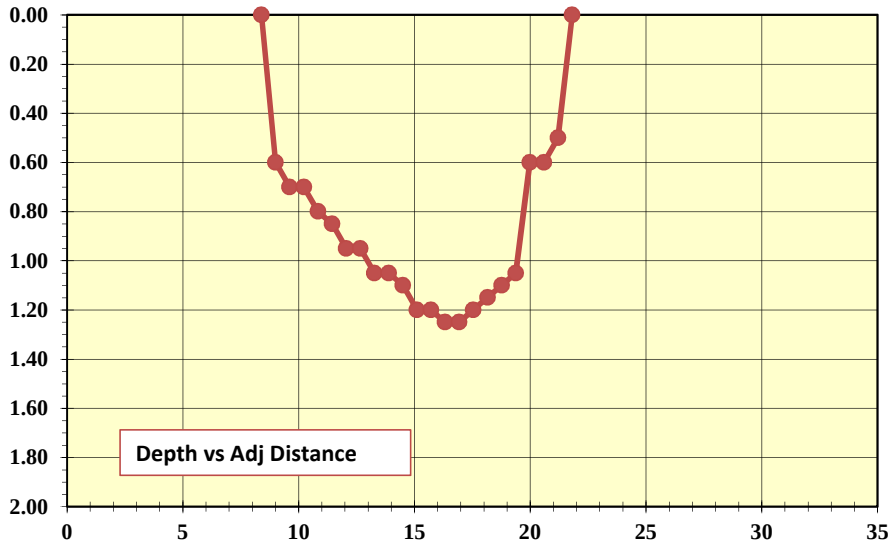


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

10/3/18 @ 11:30 - VL and JS gaging at RC1

Water Level: 1.01 **Total flow (gpm):** 3448.66

Station	Depth	Area	Velocity (ft/sec)		Discharge (cfs)	Wetted Surface	Adjusted Distance
							0
8.38	0	0	0		0.0000		8.38
9	0.3	0.279	0.11		0.0307	0.6888	9
9.62	0.55	0.341	0.49		0.1671	0.6685	9.62
10.24	0.5	0.310	0.57		0.1767	0.6220	10.24
10.85	0.55	0.336	0.7		0.2349	0.6120	10.85
11.47	0.45	0.279	0.76		0.2120	0.6280	11.47
12.09	0.65	0.403	0.87		0.3506	0.6515	12.09
12.71	0.7	0.434	0.97		0.4210	0.6220	12.71
13.33	0.8	0.496	0.89		0.4414	0.6280	13.33
13.95	0.8	0.496	0.92		0.4563	0.6200	13.95
14.57	0.85	0.527	1.19		0.6271	0.6220	14.57
15.18	0.85	0.519	1.08		0.5600	0.6100	15.18
15.8	0.8	0.496	1.22		0.6051	0.6220	15.8
16.42	0.9	0.558	1.34		0.7477	0.6280	16.42
17.04	0.9	0.558	1.35		0.7533	0.6200	17.04
17.66	0.85	0.527	1.37		0.7220	0.6220	17.66
18.28	0.8	0.496	1.09		0.5406	0.6220	18.28
18.9	0.85	0.527	0.82		0.4321	0.6220	18.9
19.52	0.8	0.496	0.39		0.1934	0.6220	19.52
20.13	0.5	0.305	0.14		0.0427	0.6798	20.13
20.75	0.3	0.186	-0.09		-0.0167	0.6515	20.75
21.37	0.25	0.2325	-0.06		-0.0140	0.6220	21.37
21.99	0	0	0		0.0000	0.6685	21.99
Average:	0.66		0.77	**Total:**	7.6842	13.9527	**River Width (ft):** 12.4

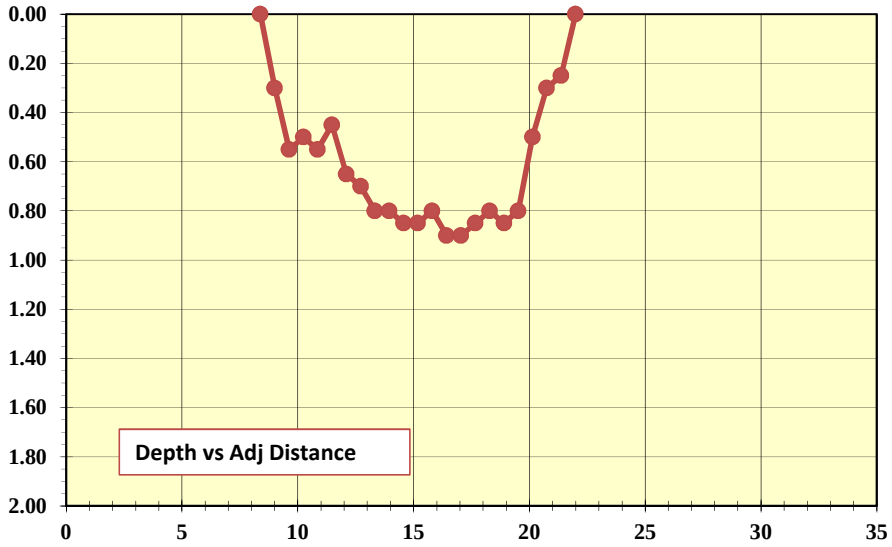


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

10/18/18 @ 10:00 - VL and AC gaging at RC1

Water Level: 0.96 **Total flow (gpm):** 2438.77

Station	Depth	Area	Velocity (ft/sec)		Discharge (cfs)	Wetted Surface	Adjusted Distance **0**
9.74	0	0	0		0.0000		9.74
10.3	0.45	0.378	0.26		0.0983	0.7184	10.3
10.86	0.4	0.226	0.36		0.0814	0.5622	10.86
11.43	0.5	0.283	0.43		0.1215	0.5787	11.43
11.99	0.3	0.170	0.58		0.0983	0.5946	11.99
12.56	0.6	0.339	0.66		0.2237	0.6441	12.56
13.12	0.65	0.367	0.61		0.2240	0.5622	13.12
13.69	0.7	0.396	0.77		0.3045	0.5722	13.69
14.25	0.75	0.424	0.77		0.3263	0.5622	14.25
14.82	0.8	0.452	0.82		0.3706	0.5722	14.82
15.38	0.8	0.452	0.83		0.3752	0.5600	15.38
15.95	0.8	0.452	0.95		0.4294	0.5700	15.95
16.51	0.75	0.424	1.07		0.4534	0.5622	16.51
17.08	0.8	0.452	1.07		0.4836	0.5722	17.08
17.64	0.8	0.452	0.9		0.4068	0.5600	17.64
18.21	0.8	0.452	1.01		0.4565	0.5700	18.21
18.77	0.8	0.452	0.9		0.4068	0.5600	18.77
19.34	0.75	0.424	0.82		0.3475	0.5722	19.34
19.9	0.65	0.367	0.51		0.1873	0.5689	19.9
20.47	0.4	0.226	0.25		0.0565	0.6224	20.47
21.03	0.3	0.170	-0.03		-0.0051	0.5689	21.03
21.6	0.25	0.21	-0.06		-0.0126	0.5722	21.6
22.16	0	0	0		0.0000	0.6133	22.16
Average:	0.62		0.64	**Total:**	5.4340	12.8391	**River Width (ft):** 11.3

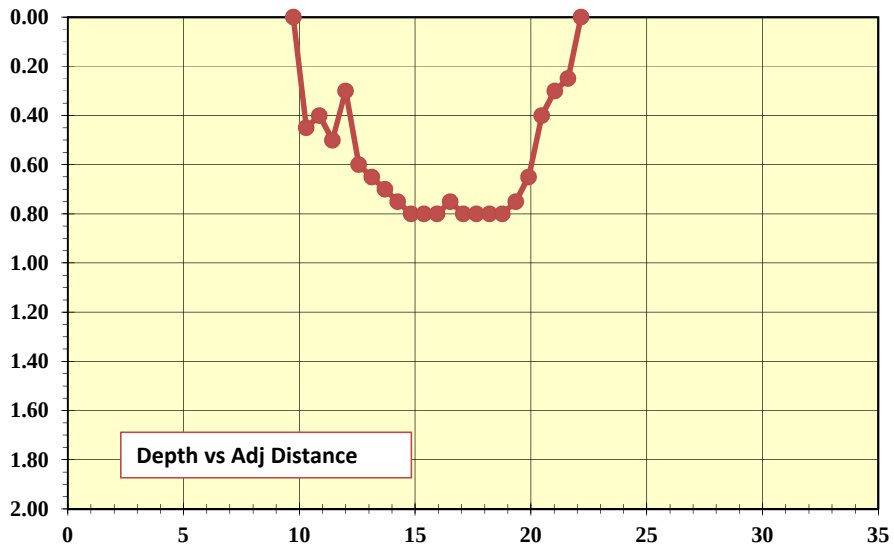


Table 3A
RC1 Stream Flow Gauging Information
Tannery Site, Rockford, MI

11/1/18 @ 8:45 - VL and BB gaging at RC1

Water Level: 0.99 **Total flow (gpm):** 2869.78

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
9.22	0	0	0	0.0000		9.22
9.8	0.5	0.439	0.23	0.1009	0.7658	9.8
10.38	0.4	0.234	0.42	0.0983	0.5886	10.38
10.97	0.5	0.293	0.45	0.1316	0.5984	10.97
11.55	0.4	0.234	0.66	0.1544	0.5886	11.55
12.14	0.6	0.351	0.75	0.2633	0.6230	12.14
12.72	0.7	0.410	0.74	0.3030	0.5886	12.72
13.3	0.75	0.439	0.71	0.3115	0.5822	13.3
13.89	0.8	0.468	0.61	0.2855	0.5921	13.89
14.47	0.85	0.497	0.88	0.4376	0.5822	14.47
15.06	0.85	0.497	0.86	0.4276	0.5900	15.06
15.64	0.85	0.497	1.03	0.5122	0.5800	15.64
16.22	0.85	0.497	1.22	0.6066	0.5800	16.22
16.81	0.9	0.527	1.28	0.6739	0.5921	16.81
17.39	0.9	0.527	1.17	0.6160	0.5800	17.39
17.98	0.8	0.468	1.09	0.5101	0.5984	17.98
18.56	0.85	0.497	0.94	0.4674	0.5822	18.56
19.14	0.8	0.468	0.79	0.3697	0.5822	19.14
19.73	0.5	0.293	0.47	0.1375	0.6619	19.73
20.31	0.35	0.205	0.05	0.0102	0.5991	20.31
20.9	0.35	0.205	-0.07	-0.0143	0.5900	20.9
21.48	0.2	0.1755	-0.05	-0.0088	0.5991	21.48
22.06	0	0	0	0.0000	0.6135	22.06
Average:	0.65		0.68	**Total:** 6.3943	13.2577	**River Width (ft):** 11.68

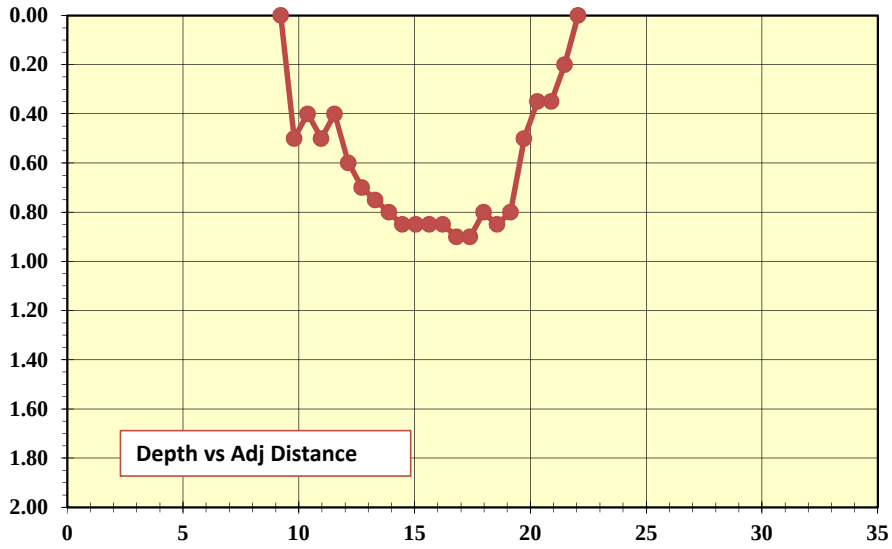


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

6/29/18 @ 11:00 - DJT gaging at RC2

Water Level: 1.36 **Total flow (gpm):** 2374.25

Station	Depth	Area	Velocity (ft/sec)		Discharge (cfs)	Wetted Surface	Adjusted Distance
							0
2	0	0	0		0.0000		2
3	0.32	0.48	0		0.0000	1.0500	3.0
4	0.52	0.52	0.01		0.0052	1.0198	4.0
5	0.61	0.61	0.01		0.0061	1.0040	5.0
6	0.91	0.91	0.06		0.0546	1.0440	6.0
7	0.75	0.75	0.11		0.0825	1.0127	7.0
8	0.67	0.67	0.15		0.1005	1.0032	8.0
9	0.65	0.65	0.17		0.1105	1.0002	9.0
10	0.7	0.7	0.21		0.1470	1.0012	10.0
11	0.74	0.74	0.2		0.1480	1.0008	11.0
12	0.88	0.88	0.18		0.1584	1.0098	12.0
13	0.95	0.95	0.2		0.1900	1.0024	13.0
14	0.99	0.99	0.21		0.2079	1.0008	14.0
15	0.88	0.88	0.23		0.2024	1.0060	15.0
16	0.92	0.92	0.3		0.2760	1.0008	16.0
17	0.94	0.94	0.24		0.2256	1.0002	17.0
18	1.03	1.03	0.24		0.2472	1.0040	18.0
19	0.98	0.98	0.27		0.2646	1.0012	19.0
20	1.05	1.05	0.28		0.2940	1.0024	20.0
21	1.18	1.18	0.28		0.3304	1.0084	21.0
22	1.3	1.3	0.22		0.2860	1.0072	22.0
23	1.39	1.39	0.28		0.3892	1.0040	23.0
24	1.37	1.37	0.27		0.3699	1.0002	24.0
25	1.19	1.19	0.25		0.2975	1.0161	25.0
26	1.3	1.3	0.2		0.2600	1.0060	26.0
27	1.22	1.22	0.3		0.3660	1.0032	27.0
28	1.02	1.02	0.14		0.1428	1.0198	28.0
29	0.82	1.066	0.12		0.1279	1.0198	29.0
29.8	0	0	0		0.0000	1.1456	29.8
Average:	0.94		0.19	**Total:**	5.2902	28.3941	**River Width (ft):** 27.8

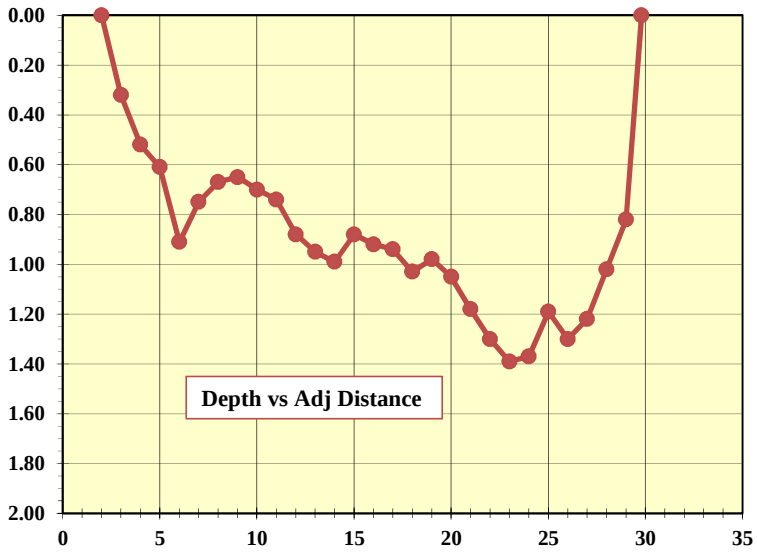


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

7/17/18 @ 11:00 - DJT gaging at RC2

Water Level: 0.59 **Total flow (gpm):** 1790.08

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance **-9.5**
14	0	0	0	0.0000		4.5
15	0.1	0.1	0	0.0000	1.0050	5.5
16	0.15	0.15	0.1	0.0150	1.0012	6.5
17	0.2	0.2	0.48	0.0960	1.0012	7.5
18	0.3	0.3	0.63	0.1890	1.0050	8.5
19	0.34	0.34	0.64	0.2176	1.0008	9.5
20	0.4	0.4	1	0.4000	1.0018	10.5
21	0.4	0.4	0.91	0.3640	1.0000	11.5
22	0.41	0.41	0.91	0.3731	1.0000	12.5
23	0.38	0.285	0.59	0.1682	1.0004	13.5
23.5	0.36	0.18	0.85	0.1530	0.5004	14.0
24	0.35	0.175	0.82	0.1435	0.5001	14.5
24.5	0.33	0.165	0.81	0.1337	0.5004	15.0
25	0.33	0.165	0.53	0.0875	0.5000	15.5
25.5	0.3	0.15	0.69	0.1035	0.5009	16.0
26	0.33	0.165	0.71	0.1172	0.5009	16.5
26.5	0.35	0.175	0.68	0.1190	0.5004	17.0
27	0.35	0.175	0.8	0.1400	0.5000	17.5
27.5	0.4	0.2	0.77	0.1540	0.5025	18.0
28	0.38	0.19	0.69	0.1311	0.5004	18.5
28.5	0.46	0.23	0.78	0.1794	0.5064	19.0
29	0.46	0.23	0.85	0.1955	0.5000	19.5
29.5	0.42	0.21	0.81	0.1701	0.5016	20.0
30	0.39	0.195	0.79	0.1541	0.5009	20.5
30.5	0.33	0.165	0.85	0.1403	0.5036	21.0
31	0.32	0.16	0.18	0.0288	0.5001	21.5
31.5	0.12	0.09	0.17	0.0153	0.5385	22.0
32	0	0	0	0.0000	0.5142	22.5
Average:	0.33		0.66	**Total:** 3.9886	18.0868	**River Width (ft):** 18.0

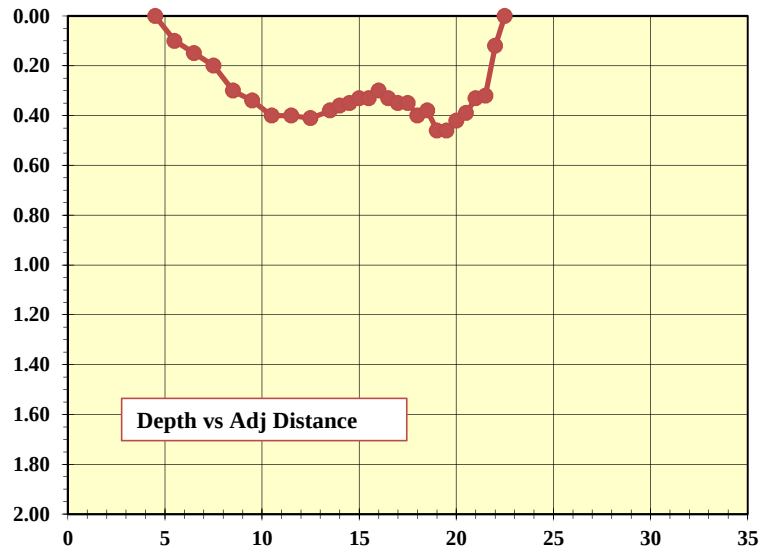


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

7/25/18 @ 15:30 - BW gaging at RC2

Water Level: 0.67 **Total flow (gpm):** 1736.63

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance **0**
4.5	0	0	0	0.0000		4.5
4.95	0	0	0	0.0000	0.4500	4.95
6.4	0.4	0.48	0.36	0.1728	1.5042	6.4
7.35	0.5	0.475	0.54	0.2565	0.9552	7.35
8.3	0.6	0.57	0.52	0.2964	0.9552	8.3
9.25	0.42	0.399	0.52	0.2075	0.9669	9.25
10.2	0.41	0.3895	0.69	0.2688	0.9501	10.2
11.15	0.45	0.4275	0.52	0.2223	0.9508	11.15
12.1	0.4	0.38	0.55	0.2090	0.9513	12.1
13.05	0.42	0.399	0.69	0.2753	0.9502	13.05
14	0.42	0.399	0.62	0.2474	0.9500	14
14.95	0.4	0.38	0.7	0.2660	0.9502	14.95
15.9	0.42	0.399	0.68	0.2713	0.9502	15.9
16.85	0.45	0.4275	0.64	0.2736	0.9505	16.85
17.8	0.42	0.399	0.67	0.2673	0.9505	17.8
18.75	0.42	0.399	0.65	0.2594	0.9500	18.75
19.7	0.4	0.38	0.67	0.2546	0.9502	19.7
20.65	0.2	0.19	0.38	0.0722	0.9708	20.65
21.6	0.1	0.095	0.39	0.0371	0.9552	21.6
22.55	0.05	0.07125	0.17	0.0121	0.9513	22.55
23.5	0	0	0	0.0000	0.9513	23.5
Average:	0.36		0.52	**Total:** 3.8695	18.6643	**River Width (ft):** 19.0

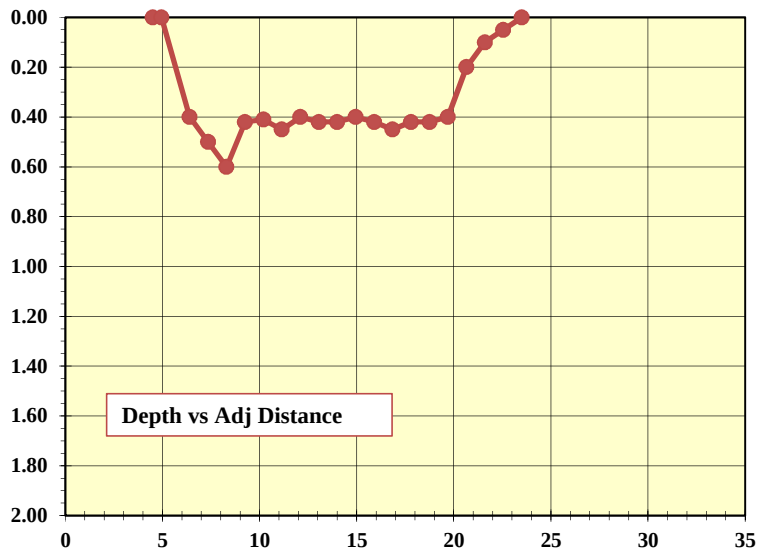


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

8/22/18 @ 8:30 - BW gaging at RC2

Water Level: 0.61 **Total flow (gpm):** 1808.24

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance 0
3.8	0	0	0	0.0000		3.8
4.7	0.1	0.135	0.01	0.0014	0.9055	4.7
5.6	0.3	0.27	0.07	0.0189	0.9220	5.6
6.5	0.4	0.36	0.56	0.2016	0.9055	6.5
7.4	0.4	0.36	0.57	0.2052	0.9000	7.4
8.3	0.45	0.405	0.68	0.2754	0.9014	8.3
9.2	0.4	0.36	0.61	0.2196	0.9014	9.2
10.1	0.4	0.36	0.44	0.1584	0.9000	10.1
11	0.4	0.36	0.62	0.2232	0.9000	11
11.9	0.4	0.36	0.56	0.2016	0.9000	11.9
12.8	0.4	0.36	0.59	0.2124	0.9000	12.8
13.7	0.4	0.36	0.72	0.2592	0.9000	13.7
14.6	0.4	0.36	0.68	0.2448	0.9000	14.6
15.5	0.4	0.36	0.55	0.1980	0.9000	15.5
16.4	0.4	0.36	0.6	0.2160	0.9000	16.4
17.3	0.4	0.36	0.74	0.2664	0.9000	17.3
18.2	0.4	0.36	0.71	0.2556	0.9000	18.2
19.1	0.4	0.36	0.8	0.2880	0.9000	19.1
20	0.45	0.405	0.7	0.2835	0.9014	20
20.9	0.4	0.36	0.67	0.2412	0.9014	20.9
21.6	0.2	0.16	0.35	0.0560	0.7280	21.6
22.5	0.1	0.135	0.02	0.0027	0.9055	22.5
23.4	0	0	0	0.0000	0.9055	23.4
Average:	0.36		0.54	**Total:** 4.0291	19.6777	**River Width (ft):** 19.6

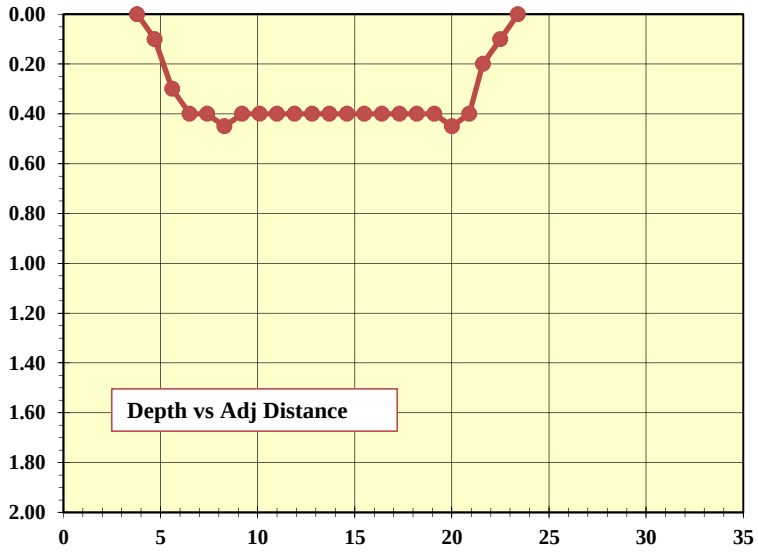


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

8/25/18 @ 13:10 - JM gaging at RC2

Water Level: 0.68 **Total flow (gpm):** 1939.62

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance -8
11.7	0	0	0	0.0000		3.7
12.6	0.1	0.135	0.05	0.0068	0.9055	4.6
13.5	0.2	0.18	0.05	0.0090	0.9055	5.5
14.4	0.35	0.315	0.26	0.0819	0.9124	6.4
15.3	0.5	0.45	0.55	0.2475	0.9124	7.3
16.2	0.5	0.45	0.63	0.2835	0.9000	8.2
17.1	0.5	0.45	0.67	0.3015	0.9000	9.1
18	0.5	0.45	0.67	0.3015	0.9000	10
18.9	0.5	0.45	0.63	0.2835	0.9000	10.9
19.8	0.45	0.405	0.61	0.2471	0.9014	11.8
20.7	0.45	0.405	0.63	0.2552	0.9000	12.7
21.6	0.45	0.405	0.66	0.2673	0.9000	13.6
22.5	0.5	0.45	0.61	0.2745	0.9014	14.5
23.4	0.5	0.45	0.67	0.3015	0.9000	15.4
24.3	0.45	0.405	0.55	0.2228	0.9014	16.3
25.2	0.4	0.36	0.51	0.1836	0.9014	17.2
26.1	0.45	0.405	0.62	0.2511	0.9014	18.1
27	0.45	0.405	0.52	0.2106	0.9000	19
27.9	0.45	0.405	0.56	0.2268	0.9000	19.9
28.8	0.5	0.45	0.61	0.2745	0.9014	20.8
29.7	0.4	0.36	0.27	0.0972	0.9055	21.7
30.6	0.2	0.18	-0.03	-0.0054	0.9220	22.6
31.5	0	0	0	0.0000	0.9220	23.5
Average:	0.42		0.49	**Total:** 4.3218	19.8937	**River Width (ft):** 19.8

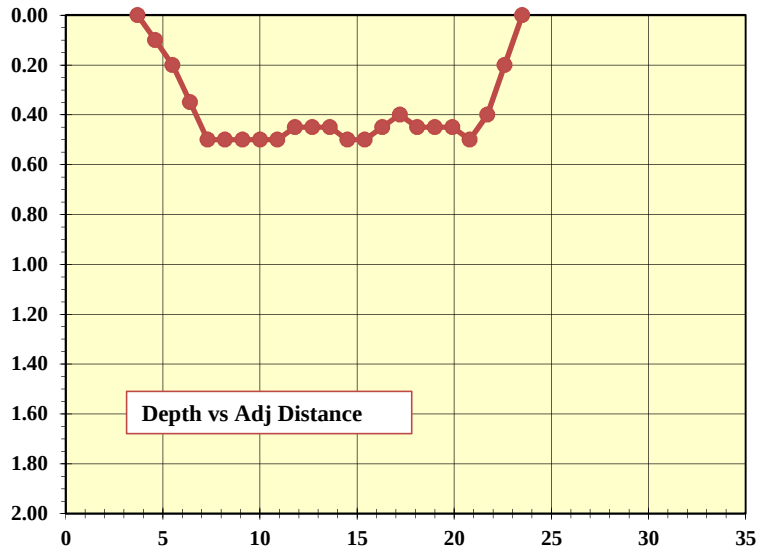


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

8/27/18 @ 16:42 - BW gaging at RC2

Water Level: 1.15 **Total flow (gpm):** 4038.28

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
3.3	0	0	0	0.0000		3.3
4.6	0.1	0.195	0.01	0.0020	1.3038	4.6
5.9	0.3	0.39	0	0.0000	1.3153	5.9
7.2	0.45	0.585	0.01	0.0059	1.3086	7.2
8.5	0.55	0.715	0.01	0.0072	1.3038	8.5
9.8	0.55	0.715	0.11	0.0787	1.3000	9.8
11.1	0.4	0.52	0.27	0.1404	1.3086	11.1
12.4	0.5	0.65	0.36	0.2340	1.3038	12.4
13.7	0.6	0.78	0.38	0.2964	1.3038	13.7
15	0.7	0.91	0.43	0.3913	1.3038	15
16.3	0.85	1.105	0.48	0.5304	1.3086	16.3
17.6	0.9	1.17	0.43	0.5031	1.3010	17.6
18.9	1.1	1.43	0.47	0.6721	1.3153	18.9
20.2	1.3	1.69	0.46	0.7774	1.3153	20.2
21.5	1	1.3	0.54	0.7020	1.3342	21.5
22.8	1.2	1.56	0.5	0.7800	1.3153	22.8
24.1	1.2	1.56	0.49	0.7644	1.3000	24.1
25.4	1.3	1.69	0.56	0.9464	1.3038	25.4
26.7	1	1.3	0.51	0.6630	1.3342	26.7
28	1.2	1.56	0.43	0.6708	1.3153	28
29.3	0.9	1.17	0.56	0.6552	1.3342	29.3
30.6	0.7	1.365	0.13	0.1775	1.3153	30.6
31.9	0	0	0	0.0000	1.4765	31.9
Average:	0.81		0.35	**Total:** 8.9980	27.5441	**River Width (ft):** 28.6

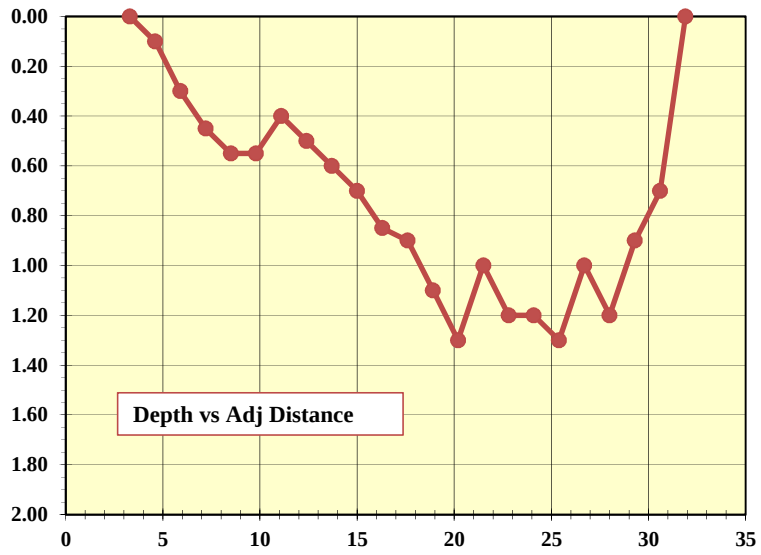


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

9/20/18 @ 18:00 - VL gaging at RC2

Water Level: 0.98 **Total flow (gpm):** 1630.72

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
2.62	0	0	0	0.0000		2.62
3.75	0.2	0.339	-0.06	-0.0203	1.1476	3.75
4.88	0.7	0.396	0.5	0.1978	1.2357	4.88
6.01	1	0.565	0.48	0.2712	1.1691	6.01
7.14	1.05	0.593	0.29	0.1720	1.1311	7.14
8.27	1.2	0.678	0.43	0.2915	1.1399	8.27
9.4	1	0.565	0.61	0.3447	1.1476	9.4
10.53	0.85	0.480	0.74	0.3554	1.1399	10.53
11.66	0.8	0.452	0.82	0.3706	1.1311	11.66
12.79	0.6	0.339	0.82	0.2780	1.1476	12.79
13.92	0.6	0.339	0.73	0.2475	1.1300	13.92
15.05	0.6	0.339	0.62	0.2102	1.1300	15.05
16.18	0.65	0.367	0.52	0.1910	1.1311	16.18
17.31	0.65	0.367	0.49	0.1800	1.1300	17.31
18.44	0.6	0.339	0.43	0.1458	1.1311	18.44
19.57	0.5	0.283	0.36	0.1017	1.1344	19.57
20.7	0.5	0.283	0.41	0.1158	1.1300	20.7
21.83	0.4	0.226	0.43	0.0972	1.1344	21.83
22.96	0.4	0.226	0.25	0.0565	1.1300	22.96
24.09	0.2	0.113	0.12	0.0136	1.1476	24.09
25.22	0.2	0.339	0.04	0.0136	1.1300	25.22
26.35	0	0	0	0.0000	1.1476	26.35
Average:	0.64		0.45	**Total:** 3.6335	23.9957	**River Width (ft):** 23.7

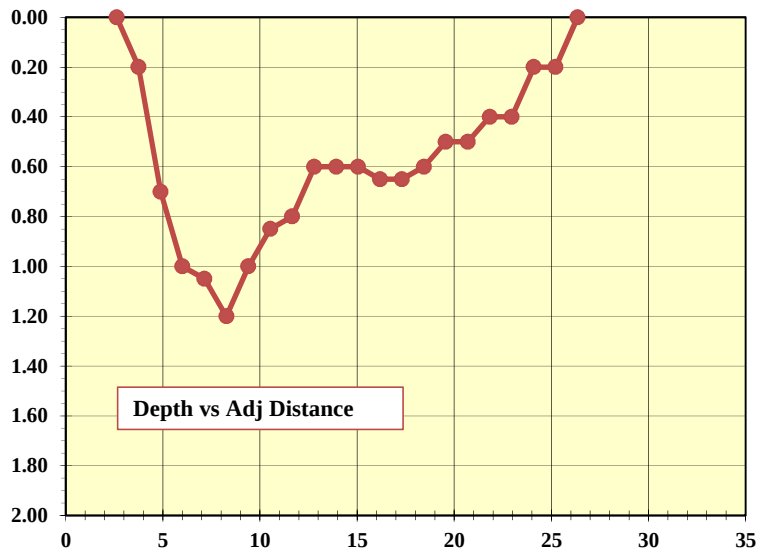


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

10/1/18 @ 16:30 - VL and JS gaging at RC2

Water Level: 1.1 **Total flow (gpm):** 7287.11

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
1.83	0	0	0	0.0000		1.83
3.18	0.2	0.405	0.02	0.0081	1.3647	3.18
4.53	0.95	1.283	0.88	1.1286	1.5443	4.53
5.87	1.1	1.474	0.7	1.0318	1.3484	5.87
7.22	1.25	1.688	0.93	1.5694	1.3583	7.22
8.56	1	1.340	1.04	1.3936	1.3631	8.56
9.91	1.05	1.418	1.05	1.4884	1.3509	9.91
11.26	1	1.350	1.03	1.3905	1.3509	11.26
12.6	0.9	1.206	1	1.2060	1.3437	12.6
13.95	0.8	1.080	1.03	1.1124	1.3537	13.95
15.29	0.9	1.215	0.9	1.0935	1.3437	15.29
16.64	0.85	1.148	0.87	0.9983	1.3509	16.64
17.99	0.85	1.139	0.87	0.9909	1.3500	17.99
19.33	0.8	1.080	0.72	0.7776	1.3409	19.33
20.68	0.75	1.013	0.68	0.6885	1.3509	20.68
22.02	0.6	0.804	0.71	0.5708	1.3484	22.02
23.37	0.5	0.675	0.64	0.4320	1.3537	23.37
24.72	0.5	0.675	0.46	0.3105	1.3500	24.72
26.06	0.15	0.203	0.25	0.0506	1.3850	26.06
27.41	0.1	0.134	-0.02	-0.0027	1.3509	27.41
28.75	0.15	0.203	-0.01	-0.0020	1.3409	28.75
30.1	0.1	0.203	0	0.0000	1.3509	30.1
31.45	0	0	0	0.0000	1.3537	31.45
Average:	0.69		0.65	**Total:** 16.2369	29.9482	**River Width (ft):** 29.6

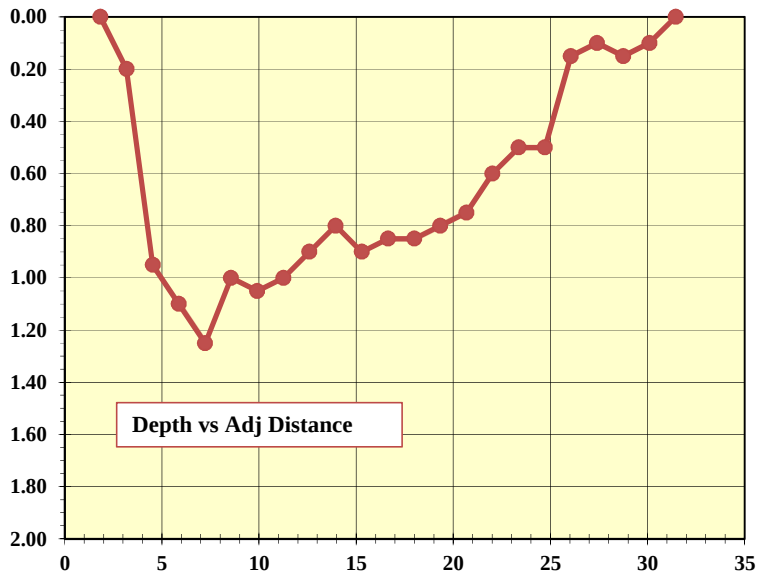


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

10/19/18 - AC gaging at RC2

Water Level: 1.01 **Total flow (gpm):** 2568.51

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance -4
7.885	0	0	0	0.0000		3.885
9	0.2	0.335	-0.01	-0.0033	1.1328	5
10.115	0.4	0.446	0.07	0.0312	1.1328	6.115
11.23	0.4	0.446	0.14	0.0624	1.1150	7.23
12.345	0.5	0.558	0.19	0.1059	1.1195	8.345
13.46	0.6	0.669	0.22	0.1472	1.1195	9.46
14.575	0.7	0.781	0.25	0.1951	1.1195	10.575
15.69	0.65	0.725	0.31	0.2247	1.1161	11.69
16.805	0.7	0.781	0.37	0.2888	1.1161	12.805
17.92	0.7	0.781	0.31	0.2420	1.1150	13.92
19.035	0.75	0.836	0.24	0.2007	1.1161	15.035
20.15	0.75	0.836	0.31	0.2592	1.1150	16.15
21.265	0.8	0.892	0.46	0.4103	1.1161	17.265
22.38	0.8	0.892	0.44	0.3925	1.1150	18.38
23.495	0.8	0.892	0.4	0.3568	1.1150	19.495
24.61	0.8	0.892	0.48	0.4282	1.1150	20.61
25.725	1	1.115	0.45	0.5018	1.1328	21.725
26.84	1.15	1.282	0.42	0.5385	1.1250	22.84
27.95	1	1.115	0.43	0.4795	1.1201	23.95
29.07	1	1.115	0.3	0.3345	1.1200	25.07
30.185	0.84	0.937	0.42	0.3934	1.1264	26.185
31.3	0.4	0.669	0.2	0.1338	1.1987	27.3
32.415	0	0	0	0.0000	1.1846	28.415
Average:	0.71		0.30	**Total:** 5.7231	24.7861	**River Width (ft):** 22.3

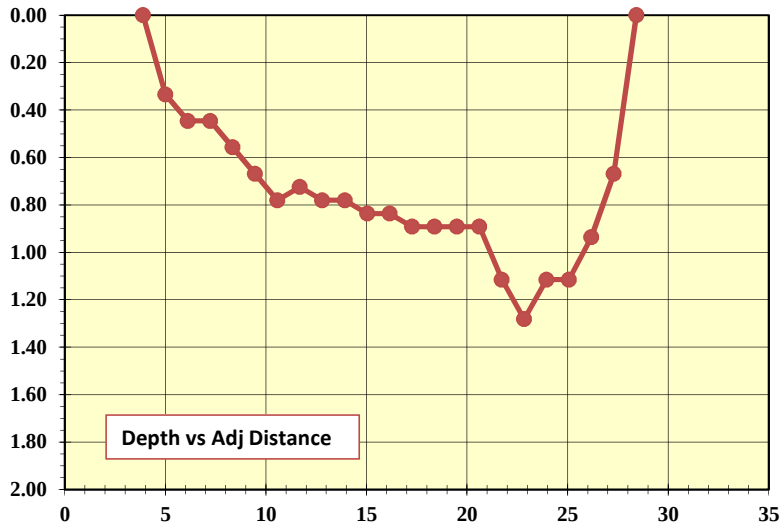


Table 3B
RC-2 Stream Flow Gauging Information
Tannery Site, Rockford, MI

11/1/18 - VL and BB gaging at RC2

Water Level: 1.09 **Total flow (gpm):** 2619.8

Station	Depth	Area	Velocity (ft/sec)	Discharge (cfs)	Wetted Surface	Adjusted Distance
						0
2.795	0	0	0	0.0000		2.795
3.92	0.55	0.928	0.01	0.0093	1.2522	3.92
5.05	0.95	1.069	0.2	0.2138	1.1987	5.05
6.17	1.05	1.181	0.32	0.3780	1.1245	6.17
7.3	1.15	1.294	0.34	0.4399	1.1344	7.3
8.43	0.85	0.956	0.43	0.4112	1.1691	8.43
9.55	1.1	1.238	0.4	0.4950	1.1476	9.55
10.68	1	1.125	0.42	0.4725	1.1344	10.68
11.8	0.95	1.069	0.41	0.4382	1.1211	11.8
12.93	0.9	1.013	0.48	0.4860	1.1311	12.93
14.06	0.9	1.013	0.48	0.4860	1.1300	14.06
15.18	0.85	0.956	0.35	0.3347	1.1211	15.18
16.31	0.75	0.844	0.38	0.3206	1.1344	16.31
17.44	0.7	0.788	0.32	0.2520	1.1311	17.44
18.56	0.65	0.731	0.35	0.2559	1.1211	18.56
19.69	0.4	0.450	0.24	0.1080	1.1573	19.69
20.82	0.65	0.731	0.28	0.2048	1.1573	20.82
21.94	0.65	0.731	0.3	0.2194	1.1200	21.94
23.07	0.55	0.619	0.27	0.1671	1.1344	23.07
24.2	0.5	0.563	0.21	0.1181	1.1311	24.2
25.32	0.4	0.450	0.06	0.0270	1.1245	25.32
26.45	0.2	0.3375	0	0.0000	1.1476	26.45
27.575	0	0	0	0.0000	1.1426	27.575
Average:	0.75		0.30	**Total:** 5.8373	25.1658	**River Width (ft):** 22.53

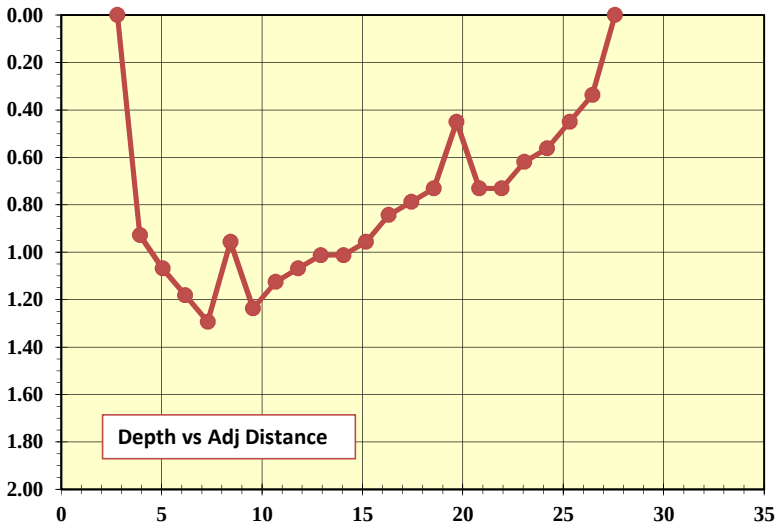


Table 4. Sediment Sample Summary
Former Wolverine Tannery
Rockford, Michigan

Sample Location	Start - End Depth (ft)	Start Date	End Date	Sample ID	Date Samples Sent to Lab	PID Sweep for Samples Sent to Lab
TA-SED-Boat Ramp	(0-1)	29-Jun-18	29-Jun-18	TA-SED-Boat Ramp(0-1)	2-Jul-18	0.2
TA-SED-Boat Ramp	(1-1.9)	29-Jun-18	29-Jun-18	TA-SED-Boat Ramp(1-1.9)	2-Jul-18	0.2
TA-SED-RCAccess	(0-1)	29-Jun-18	29-Jun-18	TA-SED-RCAccess(0-1)	2-Jul-18	0.3
TA-SED-RCAccess	(1.5-2.5)	29-Jun-18	29-Jun-18	TA-SED-RCAccess(1.5-2.5)	2-Jul-18	NM
TA-SED-EASTDAM	(0-0.5)	23-Jul-18	23-Jul-18	TA-SED-EASTDAM(0-0.5)	23-Jul-18	TBD
TA-SED-RC-1	(0-1)	29-Jun-18	29-Jun-18	TA-SED-RC-1(0-1)	2-Jul-18	0.7
TA-SED-RC-1	(1.2-2.2)	29-Jun-18	29-Jun-18	TA-SED-RC-1(1.2-2.2)	2-Jul-18	0.2
TA-SED-RC-2	(0-1)	29-Jun-18	29-Jun-18	TA-SED-RC-2(0-1)	2-Jul-18	1.8
TA-SED-RC-2	(1-2)	29-Jun-18	29-Jun-18	TA-SED-RC-2(1-2)	2-Jul-18	0.8
TA-SED-RC-2	(2-3)	29-Jun-18	29-Jun-18	TA-SED-RC-2(2-3)	2-Jul-18	0.6
TA-SED-RC-3	(0-0.4)	29-Jun-18	29-Jun-18	TA-SED-RC-3(0-0.4)	2-Jul-18	0.2
TA-SED-T10-1	(0-1)	29-Jun-18	29-Jun-18	TA-SED-T10-1(0-1)	2-Jul-18	3.9
TA-SED-T10-1	(1.5-2.5)	29-Jun-18	29-Jun-18	TA-SED-T10-1(1.5-2.5)	2-Jul-18	0.8
TA-SED-T10-1	(3-4)	29-Jun-18	29-Jun-18	TA-SED-T10-1(3-4)	2-Jul-18	1.0
TA-SED-T10-3	(0-1)	29-Jun-18	29-Jun-18	TA-SED-T10-3(0-1)	2-Jul-18	1.4
TA-SED-T10-3	(1-2)	29-Jun-18	29-Jun-18	TA-SED-T10-3(1-2)	2-Jul-18	0.8
TA-SED-T10-ISLAND	(0-1)	23-Jul-18	23-Jul-18	TA-SED-T10-ISLAND(0-1)	23-Jul-18	TBD
TA-SED-T10-ISLAND	(2-3)	23-Jul-18	23-Jul-18	TA-SED-T10-ISLAND(2-3)	23-Jul-18	TBD
TA-SED-T10-ISLAND	(4-5)	23-Jul-18	23-Jul-18	TA-SED-T10-ISLAND(4-5)	23-Jul-18	TBD
TA-SED-T1-1	(0-1)	24-Jul-18	24-Jul-18	TA-SED-T1-1(0-1)	24-Jul-18	TBD
TA-SED-T1-3	(0-1)	24-Jul-18	24-Jul-18	TA-SED-T1-3(0-1)	24-Jul-18	TBD
TA-SED-T2-1	(0-1)	22-Jun-18	22-Jun-18	TA-SED-T2-1(0-1)	22-Jun-18	0.7
TA-SED-T2-1	(2-3)	22-Jun-18	22-Jun-18	TA-SED-T2-1(2-3)	22-Jun-18	0.2
TA-SED-T2-1	(4-5)	22-Jun-18	22-Jun-18	TA-SED-T2-1(4-5)	22-Jun-18	0.8
TA-SED-T2-2	(0-1)	25-Jun-18	25-Jun-18	TA-SED-T2-2(0-1)	25-Jun-18	2.2
TA-SED-T2-2	(2-3)	25-Jun-18	25-Jun-18	TA-SED-T2-2(2-3)	25-Jun-18	4.0
TA-SED-T2-2	(4-5)	25-Jun-18	25-Jun-18	TA-SED-T2-2(4-5)	25-Jun-18	4.6
TA-SED-T2-3	(0-1)	22-Jun-18	22-Jun-18	TA-SED-T2-3(0-1)	22-Jun-18	1.8
TA-SED-T2-3	(2-3)	22-Jun-18	22-Jun-18	TA-SED-T2-3(2-3)	22-Jun-18	1.4
TA-SED-T2-3	(4-5)	22-Jun-18	22-Jun-18	TA-SED-T2-3(4-5)	22-Jun-18	2.4
TA-SED-T3-1A	(0-1)	22-Jun-18	22-Jun-18	TA-SED-T3-1A(0-1)	22-Jun-18	ND
TA-SED-T3-1A	(2-3)	22-Jun-18	22-Jun-18	TA-SED-T3-1A(2-3)	22-Jun-18	ND
TA-SED-T3-1A	(5-6)	22-Jun-18	22-Jun-18	TA-SED-T3-1A(5-6)	22-Jun-18	0.5
TA-SED-T3-2	(0-1.2)	21-Jun-18	21-Jun-18	TA-SED-T3-2(0-1.2)	21-Jun-18	ND
TA-SED-T3-2	(1.7-2.7)	21-Jun-18	21-Jun-18	TA-SED-T3-2(1.7-2.7)	21-Jun-18	ND
TA-SED-T3-2	(4-5)	21-Jun-18	21-Jun-18	TA-SED-T3-2(4-5)	21-Jun-18	ND
TA-SED-T3-2	(6.2-7.2)	21-Jun-18	21-Jun-18	TA-SED-T3-2(6.2-7.2)	21-Jun-18	ND
TA-SED-T3-3	(0-1)	21-Jun-18	21-Jun-18	TA-SED-T3-3(0-1)	21-Jun-18	ND
TA-SED-T3-3	(2-3)	21-Jun-18	21-Jun-18	TA-SED-T3-3(2-3)	21-Jun-18	ND
TA-SED-T3-3	(5-6)	21-Jun-18	21-Jun-18	TA-SED-T3-3(5-6)	21-Jun-18	ND
TA-SED-T4-1	(0-1)	25-Jun-18	25-Jun-18	TA-SED-T4-1(0-1)	25-Jun-18	3.6
TA-SED-T4-1	(2.5-3.5)	25-Jun-18	25-Jun-18	TA-SED-T4-1(2.5-3.5)	25-Jun-18	2.6
TA-SED-T4-1	(3.5-4.5)	25-Jun-18	25-Jun-18	TA-SED-T4-1(3.5-4.5)	25-Jun-18	5.0
TA-SED-T4-2	(0-1)	29-Jun-18	29-Jun-18	TA-SED-T4-2(0-1)	2-Jul-18	0.6
TA-SED-T4-2	(1-2)	29-Jun-18	29-Jun-18	TA-SED-T4-2(1-2)	2-Jul-18	0.3
TA-SED-T4-2	(2-3)	29-Jun-18	29-Jun-18	TA-SED-T4-2(2-3)	2-Jul-18	NM
TA-SED-T4-3	(0-1)	28-Jun-18	28-Jun-18	TA-SED-T4-3(0-1)	28-Jun-18	5.6
TA-SED-T4-3	(1-1.7)	28-Jun-18	28-Jun-18	TA-SED-T4-3(1-1.7)	28-Jun-18	2.2
TA-SED-T4-ISLAND	(0-0.5)	11-Jul-18	11-Jul-18	TA-SED-T4-ISLAND(0-0.5)	13-Jul-18	3.1
TA-SED-T4-ISLAND	(4-5)	12-Jul-18	12-Jul-18	TA-SED-T4-ISLAND(4-5)	13-Jul-18	0.8
TA-SED-T4-ISLAND	(6-7)	12-Jul-18	12-Jul-18	TA-SED-T4-ISLAND(6-7)	13-Jul-18	1.6
TA-SED-T5-1	(0-1)	25-Jun-18	25-Jun-18	TA-SED-T5-1(0-1)	25-Jun-18	2.9
TA-SED-T5-1	(1-2)	25-Jun-18	25-Jun-18	TA-SED-T5-1(1-2)	25-Jun-18	3.4
TA-SED-T5-2	(0-1)	26-Jun-18	26-Jun-18	TA-SED-T5-2(0-1)	26-Jun-18	2.4

Table 4. Sediment Sample Summary
Former Wolverine Tannery
Rockford, Michigan

Sample Location	Start - End Depth (ft)	Start Date	End Date	Sample ID	Date Samples Sent to Lab	PID Sweep for Samples Sent to Lab
TA-SED-T5-2	(1.7-2.7)	26-Jun-18	26-Jun-18	TA-SED-T5-2(1.7-2.7)	26-Jun-18	1.5
TA-SED-T5-2	(3.7-4.7)	26-Jun-18	26-Jun-18	TA-SED-T5-2(3.7-4.7)	26-Jun-18	2.3
TA-SED-T5-3	(0-1)	26-Jun-18	26-Jun-18	TA-SED-T5-3(0-1)	26-Jun-18	0.4
TA-SED-T5-3	(2-3)	26-Jun-18	26-Jun-18	TA-SED-T5-3(2-3)	26-Jun-18	1.5
TA-SED-T5-3	(4-5)	26-Jun-18	26-Jun-18	TA-SED-T5-3(4-5)	26-Jun-18	0.7
TA-SED-T6-1	(0-1)	26-Jun-18	26-Jun-18	TA-SED-T6-1(0-1)	26-Jun-18	0.6
TA-SED-T6-1	(2.5-3.5)	26-Jun-18	26-Jun-18	TA-SED-T6-1(2.5-3.5)	26-Jun-18	1.7
TA-SED-T6-1	(4.1-5.1)	26-Jun-18	26-Jun-18	TA-SED-T6-1(4.1-5.1)	26-Jun-18	1.1
TA-SED-T6-2	(0-1)	27-Jun-18	27-Jun-18	TA-SED-T6-2(0-1)	27-Jun-18	4.4
TA-SED-T6-2	(2-3)	27-Jun-18	27-Jun-18	TA-SED-T6-2(2-3)	27-Jun-18	2.6
TA-SED-T6-2	(3.6-4.6)	27-Jun-18	27-Jun-18	TA-SED-T6-2(3.6-4.6)	27-Jun-18	0.9
TA-SED-T6-3	(0-1)	26-Jun-18	26-Jun-18	TA-SED-T6-3(0-1)	26-Jun-18	0.9
TA-SED-T6-3	(2-3)	26-Jun-18	26-Jun-18	TA-SED-T6-3(2-3)	26-Jun-18	3.4
TA-SED-T6-3	(3.8-4.8)	26-Jun-18	26-Jun-18	TA-SED-T6-3(3.8-4.8)	26-Jun-18	2.6
TA-SED-T7-1	(0-1)	27-Jun-18	27-Jun-18	TA-SED-T7-1(0-1)	27-Jun-18	3.1
TA-SED-T7-1	(2-3)	27-Jun-18	27-Jun-18	TA-SED-T7-1(2-3)	27-Jun-18	3.1
TA-SED-T7-1	(4.2-5.2)	27-Jun-18	27-Jun-18	TA-SED-T7-1(4.2-5.2)	27-Jun-18	0.8
TA-SED-T7-1	(6.4-7.4)	27-Jun-18	27-Jun-18	TA-SED-T7-1(6.4-7.4)	27-Jun-18	6.8
TA-SED-T7-2	(0-1)	27-Jun-18	27-Jun-18	TA-SED-T7-2(0-1)	27-Jun-18	2.4
TA-SED-T7-2	(1-2)	27-Jun-18	27-Jun-18	TA-SED-T7-2(1-2)	27-Jun-18	4.2
TA-SED-T7-ISLAND	(0-0.5)	9-Jul-18	9-Jul-18	TA-SED-T7-ISLAND(0-0.5)	10-Jul-18	0.0
TA-SED-T7-ISLAND	(1-2)	13-Jul-18	13-Jul-18	TA-SED-T7-ISLAND(1-2)	13-Jul-18	0.7
TA-SED-T7-ISLAND	(3-4)	13-Jul-18	13-Jul-18	TA-SED-T7-ISLAND(3-4)	13-Jul-18	0.5
TA-SED-T7-ISLAND	(6-7)	13-Jul-18	13-Jul-18	TA-SED-T7-ISLAND(6-7)	13-Jul-18	0.4
TA-SED-T8-1	(0-1)	28-Jun-18	28-Jun-18	TA-SED-T8-1(0-1)	28-Jun-18	0.7
TA-SED-T8-1	(1.5-2.5)	28-Jun-18	28-Jun-18	TA-SED-T8-1(1.5-2.5)	28-Jun-18	6.5
TA-SED-T8-1	(4-5)	28-Jun-18	28-Jun-18	TA-SED-T8-1(4-5)	28-Jun-18	3.0
TA-SED-T8-2	(0-1)	28-Jun-18	28-Jun-18	TA-SED-T8-2(0-1)	28-Jun-18	4.0
TA-SED-T8-2	(1-2)	28-Jun-18	28-Jun-18	TA-SED-T8-2(1-2)	28-Jun-18	1.3
TA-SED-T8-2	(3-4.1)	28-Jun-18	28-Jun-18	TA-SED-T8-2(3-4.1)	28-Jun-18	1.5
TA-SED-T8-3	(0-1)	28-Jun-18	28-Jun-18	TA-SED-T8-3(0-1)	28-Jun-18	2.2
TA-SED-T8-3	(1.5-2.5)	28-Jun-18	28-Jun-18	TA-SED-T8-3(1.5-2.5)	28-Jun-18	NM
TA-SED-T8-3	(3-4)	28-Jun-18	28-Jun-18	TA-SED-T8-3(3-4)	28-Jun-18	3.1
TA-SED-T9-1	(0-1)	29-Jun-18	29-Jun-18	TA-SED-T9-1(0-1)	2-Jul-18	NM
TA-SED-T9-1	(2-3)	29-Jun-18	29-Jun-18	TA-SED-T9-1(2-3)	2-Jul-18	0.4
TA-SED-T9-1	(4-5)	29-Jun-18	29-Jun-18	TA-SED-T9-1(4-5)	2-Jul-18	1.3
TA-SED-T9-2	(0-1)	28-Jun-18	28-Jun-18	TA-SED-T9-2(0-1)	28-Jun-18	2.9
TA-SED-T9-2	(2-3)	28-Jun-18	28-Jun-18	TA-SED-T9-2(2-3)	28-Jun-18	2.4
TA-SED-T9-2	(4-5)	28-Jun-18	28-Jun-18	TA-SED-T9-2(4-5)	28-Jun-18	1.5
TA-SED-T9-2	(5-6)	28-Jun-18	28-Jun-18	TA-SED-T9-2(5-6)	28-Jun-18	1.5
TA-SED-T9-3	(0-1)	29-Jun-18	29-Jun-18	TA-SED-T9-3(0-1)	2-Jul-18	0.7
TA-SED-T9-ISLAND	(0-0.5)	13-Jul-18	13-Jul-18	TA-SED-T9-ISLAND(0-0.5)	13-Jul-18	0.1
TA-SED-T9-ISLAND	(1-2)	13-Jul-18	13-Jul-18	TA-SED-T9-ISLAND(1-2)	13-Jul-18	0.3
TA-SED-T9-ISLAND	(4-5)	13-Jul-18	13-Jul-18	TA-SED-T9-ISLAND(4-5)	13-Jul-18	0.5
TA-SED-T9-ISLAND	(6.5-7.5)	13-Jul-18	13-Jul-18	TA-SED-T9-ISLAND(6.5-7.5)	13-Jul-18	0.6

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-01	TA-SB-01	TA-SB-02	TA-SB-02	TA-SB-03	TA-SB-03	TA-SB-04	TA-SB-04	TA-SB-05
Sample Name									TA-SB-01(2-3)	TA-SB-01(7-8)	TA-SB-02(2-3)	TA-SB-02(7-8)	TA-SB-03(6-7)	TA-SB-03(12-13)	TA-SB-04(7-8)	TA-SB-04(12-13)	TA-SB-05 (2-3)
Depth Interval (Feet below ground surface)									2 - 3	7 - 8	2 - 3	7 - 8	6 - 7	12 - 13	7 - 8	12 - 13	2 - 3
Laboratory Sample ID(s)									TH03007-005	TH03007-006	TH03007-009	TH03007-010	TH03007-015	TH03007-016	TH03007-017	TH03007-018	TH08019-006
Sample Date									8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/3/2018
Parameter (µg/kg)																	
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<670	<650	<530	<780	360	<920	<640	<440	370 [J]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<670	<650	<530	<780	<890	<920	<640	<440	<1,100 [UJ]
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<130	<130	<110	<160	<180	<180	<130	<88	<220 [UJ]
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<67	<65	<53	<78	<89	<92	<64	<44	120 [J]
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<67	63	<53	<78	<89	<92	<64	<44	<110 [UJ]
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<130	<130	<110	<160	<180	<180	<130	<88	<220 [UJ]
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<67 [UJ]	<65 [UJ]	<53 [UJ]	<78 [UJ]	<89 [UJ]	<92 [UJ]	<64 [UJ]	<44 [UJ]	<110 [UJ]
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	38	<65	90	<78	<89	<92	<64	<44	<110 [UJ]
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<67	<65	<53	<78	<89	<92	<64	<44	56 [J]
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<67	<65	<53	<78	<89	***85***	<64	<44	<110 [UJ]
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<130 [UJ]	<130 [UJ]	<110 [UJ]	<160 [UJ]	<180 [UJ]	<180 [UJ]	<130 [UJ]	<88 [UJ]	<220 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<670	<650	<530	<780	<890	<920	<640	<440	<1,100 [UJ]
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	31	45	48	180	590	<92	<64	24	460 [J]
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<670	<650	<530	<780	<890	<920	<640	<440	<1,100 [UJ]
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	250	<330	500	<390	<440	<460	<320	<220	45 [J]
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	***31***	<65	***59***	<78	<89	<92	<64	<44	<110 [UJ]
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	82	<65	69	<78	<89	<92	<64	<44	56 [J]
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<67	<65	300	<78	<89	<92	<64	<44	<110 [UJ]
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<67	<65	<53	<78	<89	<92	<64	<44	<110 [UJ]
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	170	<130	210	<160	<180	<180	<130	<88	44 [J]
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	98	<65	110	<78	<89	<92	<64	<44	44 [J]
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	73	<65	94	<78	<89	<92	<64	<44	<110 [UJ]
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-05	TA-SB-06	TA-SB-06	TA-SB-07	TA-SB-07	TA-SB-08	TA-SB-08	TA-SB-08
Sample Name									TA-SB-05 (7-8)	TA-SB-06(2-3)	TA-SB-06(7-8)	TA-SB-07 (3-4)	TA-SB-07 (9-10)	TA-SB-08(3-4)	TA-SB-08(7-8)	TA-SB-08(7-8)DUP
Depth Interval (Feet below ground surface)									7 - 8	2 - 3	7 - 8	3 - 4	9 - 10	3 - 4	7 - 8	7 - 8
Laboratory Sample ID(s)									TH08019-007	TH03007-020	TH03007-019	TH08019-004	TH08019-005	TH03007-011	TH03007-012	TH03007-013
Sample Date									8/3/2018	8/2/2018	8/2/2018	8/7/2018	8/7/2018	8/2/2018	8/2/2018	8/2/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	1,800 [J]	<610	<600	<480	<1,100 [UJ]	<610	270	<1,500
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<2,200 [UJ]	<610	<600	<480	<1,100	<610	<1,100	<1,500
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<440 [UJ]	<120	<120	<95	<220	<120	<210	<300
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	220 [J-]	<61	<60	<48	82	<61	160	110
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<220 [UJ]	<61	<60	<48	53	<61	<110	<150
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<440 [UJ]	<120	<120	<95	<220	<120	<210	<300
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<220 [UJ]	<61 [UJ]	<60 [UJ]	<48	<110	<61	<110 [UJ]	<150 [UJ]
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<220 [UJ]	<61	<60	<48	54	<61	<110	<150
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<440 [UJ]	<120 [UJ]	<120 [UJ]	<95 [UJ]	<220	<120 [UJ]	<210 [UJ]	<300 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<220 [UJ]	***32***	<60	<48	<110	<61	<110	<150
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<2,200 [UJ]	<610	<600	<480	<1,100	<610 [UJ]	<1,100	<1,500
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	2,200 [J-]	99	32	<48	270	<61	640	800
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<2,200 [UJ]	<610	<600	<480	<1,100	<610	<1,100	<1,500
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,100 [UJ]	<310	<300	<240	<540	<310	<530	<750
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<220 [UJ]	99	<60	<48	<110	<61	<110	<150
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<220 [UJ]	<61	<60	<48	<110	<61	<110	<150
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<440 [UJ]	130	<120	<95	<220	<120	<210	<300
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<220 [UJ]	91	<60	<48	<110	<61	<110	<150
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<220 [UJ]	35	<60	<48	<110	<61	<110	<150
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-09	TA-SB-09	TA-SB-10	TA-SB-10	TA-SB-11	TA-SB-11	TA-SB-12	TA-SB-12	TA-SB-12
Sample Name									TA-SB-09(2-3)	TA-SB-09(6-7)	TA-SB-10 (1-2)	TA-SB-10 (4-5)	TA-SB-11 (1-2)	TA-SB-11 (6-7)	TA-SB-12 (0-1)	TA-SB-12 (1-2)	TA-SB-12 (4-5)
Depth Interval (Feet below ground surface)									2 - 3	6 - 7	1 - 2	4 - 5	1 - 2	6 - 7	0 - 1	1 - 2	4 - 5
Laboratory Sample ID(s)									TH03007-007	TH03007-008	TH01025-023	TH01025-024	TH01025-011	TH01025-012	TH01025-016	TH01025-006	TH01025-007
Sample Date									8/2/2018	8/2/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018
Parameter (µg/kg)																	
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<680	<650	170 [J+]	<640	<480	<520	170 [J+]	<580	<500
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<680	<650	<610	<640	<480	<520	<780	<580	<500
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<140	<130	<120 [UJ]	<130 [UJ]	<97	<100	<160 [UJ]	<120	<100
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<140	<130	<120	<130	<97	<100	<160	<120	<100
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<68	<65 [UJ]	<61	<64	<48	<52	<78	<58	<50
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<68	<65	<61	<64	<48	<52	99	<58	<50
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<68	<65	<61	<64	<48	<52	<78	<58	<50
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<140 [UJ]	<130 [UJ]	<120	<130	<97	<100	<160	<120	<100
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<68	<65	<61	<64	<48	<52	<78	<58	<50
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<68	<65	<61	<64	<48	<52	<78	<58	<50
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<680	<650	<610	<640	<480 [UJ]	<520 [UJ]	<780	<580 [UJ]	<500 [UJ]
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<68	<65	300	<64	<48	<52	97	<58	<50
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<680	<650	<610	<640	<480	<520	<780	<580	<500
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<340	<330	<310	<320	<240	<260	250	<290	<250
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<68	<65	<61	<64	<48	<52	32	<58	<50
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<68	<65	<61	<64	<48	<52	<78	<58	<50
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<68	<65	<61	<64	<48	<52	<78	<58	<50
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<68	<65	<61	<64	<48	<52	<78	<58	<50
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<140	<130	<120	<130	<97	<100	150	<120	<100
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<68	<65	<61	<64	<48	<52	87	<58	<50
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<68	<65	<61	<64	<48	<52	67	<58	<50
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-13	TA-SB-13	TA-SB-14	TA-SB-14	TA-SB-15	TA-SB-15	TA-SB-16	TA-SB-16	TA-SB-17
Sample Name									TA-SB-13 (1-2)	TA-SB-13 (6-7)	TA-SB-14 (5-6)	TA-SB-14 (7-8)	TA-SB-15 (2-3)	TA-SB-15 (7-8)	TA-SB-16 (2-3)	TA-SB-16 (6-7)	TA-SB-17 (1-2)
Depth Interval (Feet below ground surface)									1 - 2	6 - 7	5 - 6	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	1 - 2
Laboratory Sample ID(s)									TH01025-013	TH01025-014	TH01025-004	TH01025-005	TH01025-017	TH01025-018	TG27014-006	TG27014-005	TG27014-016
Sample Date									7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/26/2018	7/26/2018	7/26/2018
Parameter (µg/kg)																	
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<500	<590	<610	<540	<520	<540	<450	<480	<530
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<500	<590	<610	<540	<520	<540	<450	<480	<530
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<100	<120	<120	<110	<100 [UJ]	<110 [UJ]	<90	<96	<110
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<100	<120	<120	<110	<100	<110	<90	<96	<110
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<50	<59	<61	<54	<52	<54	<45	<48	<53
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<100	<120	<120	<110	<100	<110	<90	<96	<110
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<50	<59	<61	<54	<52	<54	<45	<48	<53
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<50	<59	<61	<54	<52	<54	<45	<48	<53
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<500 [UJ]	<590 [UJ]	<610 [UJ]	<540 [UJ]	<520	<540	<450	<480	<530
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<50	<59	<61	<54	<52	<54	<45	48	58
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<500	<590	<610	<540	<520	<540	<450	<480	<530
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<250	<300	<300	<270	<260	<270	<230	85	40
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<50	<59	30	<54	<52	<54	<45	<48	<53
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<50	<59	<61	<54	<52	<54	<45	44	<53
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<50	<59	<61	<54	<52	<54	<45	<48	<53
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<50	<59	<61	<54	<52	<54	<45	<48	<53
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<50	<59	<61	<54	<52	<54	<45	<48	<53
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<100	<120	<120	<110	<100	<110	<90	100	<110
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<50	<59	<61	<54	<52	<54	<45	66	<53
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<50	<59	<61	<54	<52	<54	<45	36	<53
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-17	TA-SB-18	TA-SB-18	TA-SB-19	TA-SB-19	TA-SB-20	TA-SB-20	TA-SB-21	TA-SB-21
Sample Name									TA-SB-17 (7-8)	TA-SB-18 (2-3)	TA-SB-18 (6-7)	TA-SB-19 (3-4)	TA-SB-19 (7-8)	TA-SB-20(5-6)	TA-SB-20 (7-8)	TA-SB-21 (6-7)	TA-SB-21 (9-10)
Depth Interval (Feet below ground surface)									7 - 8	2 - 3	6 - 7	3 - 4	7 - 8	5 - 6	7 - 8	6 - 7	9 - 10
Laboratory Sample ID(s)									TG27014-017	TG27014-009	TG27014-010	TG27014-007	TG27014-008	TG28004-018	TG27014-018	TH01025-025	TH01025-026
Sample Date									7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/26/2018	7/31/2018	7/31/2018
Parameter (µg/kg)																	
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<570	140 [J+]	<700	1,600 [J]	<460	2,200 [J+]	<580	<510	<620
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<57	***63***	<70	<96	<46	<140	<58	<51	<62
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<570	<660	<700	450 [J-]	<460	750	<580	<510	<620
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<110	<130	<140	<190	<93	<280	<120	<100 [UJ]	<120 [UJ]
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<57	<66	<70	100	<46	<140	<58	<51	<62
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<110	<130	<140	<190	<93	<280	<120	<100	<120
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<57	***31***	<70	<96	<46	<140	<58	<51	<62
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<57	230	<70	57	<46	<140	<58	<51	<62
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<57	<66	<70	<96 [UJ]	<46	<140	<58	<51	<62
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<57	<66	<70	<96	<46	<140	<58	<51	<62
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<57	<66	<70	<96	<46	<140	<58	<51	<62
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<57	<66	<70	<96 [UJ]	<46	<140	<58	<51	<62
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<110	<130	<140	<190 [UJ]	<93	<280 [UJ]	<120	<100	<120
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<57	***110***	<70	<96	<46	<140	<58	<51	<62
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<57	<66	<70	<96	<46	<140	<58	<51	<62
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<57	<66	<70	<96	<46	<140	<58	<51	<62
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<57	***84***	<70	***72***	<46	<140	<58	<51	<62
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<570	<660	<700	<960 [UJ]	<460	<1,400	<580	<510	<620
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	120	92	<70	800	34	2,700	<58	<51	<62
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<570	<660	<700	<960	<460	<1,400	<580	<510	<620
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	23	760	<350	220	<230	<690	<290	<260	<310
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<57	<66	<70	57	<46	<140	<58	<51	<62
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<57	<66	<70	<96 [UJ]	<46	<140	<58	<51	<62
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<57	520	<70	150	<46	<140	<58	<51	<62
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<57	<66	<70	<96 [UJ]	<46	<140	<58	<51	<62
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<57	***790***	<70	<96	<46	<140	<58	<51	<62
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<57	<66	<70	<96	<46	<140	<58	<51	<62
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<57	<66	<70	<96	<46	<140	<58	<51	<62
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<57	98	<70	<96	<46	<140	<58	<51	<62
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<57	<66	<70	<96	<46	<140	<58	<51	<62
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<110	***810***	<140	220	<93	<280	<120	<100	<120
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<57	520	<70	130	<46	<140	<58	<51	<62
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<57	290	<70	86	<46	<140	<58	<51	<62
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	31	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-22	TA-SB-22	TA-SB-23	TA-SB-23	TA-SB-24	TA-SB-24	TA-SB-25	TA-SB-25	TA-SB-26
Sample Name									TA-SB-22 (2-3)	TA-SB-22 (8-9)	TA-SB-23(6-7)	TA-SB-23(9-10)	TA-SB-24(0-1)	TA-SB-24(5-6)	TA-SB-25(1-2)	TA-SB-25(7-8)	TA-SB-26 (5-6)
Depth Interval (Feet below ground surface)									2 - 3	8 - 9	6 - 7	9 - 10	0 - 1	5 - 6	1 - 2	7 - 8	5 - 6
Laboratory Sample ID(s)									TH01025-021	TH01025-022	TH09090-001	TH09090-002	TG28004-027	TG28004-028	TG28004-029	TG28004-001	TH01025-002
Sample Date									7/31/2018	7/31/2018	8/8/2018	8/8/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/31/2018
Parameter (µg/kg)																	
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<540	<670	<1,600	780 [J+]	<550	<1,100	<850 [UJ]	800	<550
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<540	<670	<1,600	<1,100	<550	<1,100	<850 [UJ]	<2,500	<550
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<110 [UJ]	<130 [UJ]	<310	<220	<110	<210	<170	<500	<110
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<54	<67	240	61	<55	<110	<85	<250	<55
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<110	<130	<310	<220	<110	<210	<170	<500	<110
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<54	<67	<160	<110	41	<110	<85	<250	180
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<54	<67	<160	<110	<55	<110	<85 [UJ]	<250	<55
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<110	<130	<310 [UJ]	<220 [UJ]	<110 [UJ]	<210 [UJ]	<170 [UJ]	<500	<110
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<54	<67	<160	<110	<55	<110	<85	<250	<55
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<54	<67	<160	<110	<55	<110	<85	<250	<55
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<54	<67	<160	<110	<55	<110	<85	<250	***27***
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<540	<670	<1,600	<1,100	<550	<1,100	<850	<2,500	<550 [UJ]
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<54	<67	<160	<110	<55	<110	<85	<250	28
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<54	<67	280	510	30	<110	290	740	<55
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<540	<670	<1,600	<1,100	<550	<1,100	<850	<2,500	<550
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<270	54	<780	<550	86	<530	<420	<1,200	470
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<54	<67	<160	<110	26	<110	<85	<250	43
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<54	<67	<160	<110	<55	<110	<85	<250	<55
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<54	<67	<160	<110	<55	<110	<85	<250	<55
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<54	<67	<160	<110	<55	<110	<85	<250	<55
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<110	45	<310	<220	62	<210	<170	<500	190
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<54	<67	<160	<110	34	<110	<85	<250	93
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<54	<67	<160	<110	27	<110	<85	<250	99
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-26	TA-SB-27	TA-SB-27	TA-SB-27	TA-SB-28	TA-SB-28	TA-SB-29	TA-SB-29
Sample Name									TA-SB-26 (8-9)	TA-SB-27 (1-2)	TA-SB-27 (1-2) DUP	TA-SB-27 (8-9)	TA-SB-28(2-3)	TA-SB-28(6-7)	TA-SB-29 (2-3)	TA-SB-29 (9-10)
Depth Interval (Feet below ground surface)									8 - 9	1 - 2	1 - 2	8 - 9	2 - 3	6 - 7	2 - 3	9 - 10
Laboratory Sample ID(s)									TH01025-003	TG31022-021	TG31022-023	TH08019-001	TG28004-004	TG28004-005	TG31022-018	TG31022-019
Sample Date									7/31/2018	7/30/2018	7/30/2018	8/7/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<580	<670	<620	<580	<510	<460	<550	<580
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<58	<67	<62	<58	<51	<46	<55	<58
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<58	<67	<62	<58	<51	<46	<55	<58
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<58	<67	<62	<58	<51	<46	<55	<58
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<580	<670	<620	<580	<510	<460	<550	<580
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<120	<130	<120	<120	<100	<91	<110	<120
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<58	320	340	<58	<51	<46	<55	<58
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<58	<67	<62	<58	<51	<46	<55	<58
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<58	<67	<62	<58	<51	<46	<55	<58
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<120	<130	<120	<120	<100	<91	<110	<120
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<58	<67	<62	<58	<51	<46	<55	<58
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<58	<67	<62	<58	<51	<46	<55	<58
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<58	<67	<62	<58	<51	<46	<55	<58
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<58	<67	<62	<58	<51	<46	<55	<58
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<58	<67	<62	<58	<51	<46	<55	<58
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<58	<67	<62	<58	<51	<46	<55	<58
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<58	<67	<62	<58	<51	<46	<55	<58
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<58	<67	<62	<58	<51	<46	<55	<58
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<58	<67	<62	<58	<51	<46	<55	<58
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<120	<130 [UJ]	<120 [UJ]	<120 [UJ]	<100	<91	<110 [UJ]	<120 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<58	<67	<62	<58	<51	<46	<55	<58
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<58	<67	<62	<58	<51	<46	<55	<58
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<58	<67	<62	<58	<51	<46	<55	<58
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<58	<67	<62	<58	<51	<46	<55	<58
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<58	<67	<62	<58	<51	<46	<55	<58
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<58	<67	<62	<58	<51	<46	<55	<58
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<58	<67	<62	<58	<51	<46	<55	<58
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<58	<67	<62	<58	<51	<46	<55	<58
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<58	***75***	<62	<58	<51	<46	<55	<58
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<580 [UJ]	<670	<620	<580	<510	<460	<550	<580
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<58	45	<62	<58	<51	<46	<55	<58
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	100	170 [J]	470 [J]	37	<51	150	<55	<58
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<58	<67	<62	<58	<51	<46	<55	<58
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<580	820	<620	<580	<510	<460	<550	<580
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<290	<330	<310	<290	<250	<230	<270	<290
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<58	<67	<62	<58	<51	<46	<55	<58
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<58	<67	<62	<58	<51	<46	<55	<58
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<58	<67	<62	<58	<51	<46	<55	<58
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<58	<67	<62	<58	<51	<46	<55	<58
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<58	<67	<62	<58	<51	<46	<55	<58
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<58	<67	<62	<58	<51	<46	<55	<58
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<58	<67	<62	<58	<51	<46	<55	<58
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<58	<67	<62	<58	<51	<46	<55	<58
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<58	<67	<62	<58	<51	<46	<55	<58
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<58	<67	<62	<58	<51	<46	<55	<58
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<58	1,200 [J]	590 [J]	<58	<51	<46	<55	<58
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<58	<67	<62	<58	<51	<46	<55	<58
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<120	***1,200 [J]***	190 [J]	<120	<100	<91	<110	<120
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<58	430 [J]	72 [J]	<58	<51	<46	<55	<58
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<58	800 [J]	120 [J]	<58	<51	<46	<55	<58
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-30	TA-SB-30	TA-SB-31	TA-SB-31	TA-SB-32	TA-SB-32	TA-SB-32	TA-SB-33
Sample Name									TA-SB-30 (2-3)	TA-SB-30 (13-14)	TA-SB-31(2-3)	TA-SB-31(7-8)	TA-SB-32(2-3)	TA-SB-32(2-3) DUP	TA-SB-32(9-10)	TA-SB-33(1-2)
Depth Interval (Feet below ground surface)									2 - 3	13 - 14	2 - 3	7 - 8	2 - 3	2 - 3	9 - 10	1 - 2
Laboratory Sample ID(s)									TH01025-001	TG31022-020	TG28004-002	TG28004-003	TG28004-006	TG28004-007	TG28004-008	TG28004-023
Sample Date									7/30/2018	7/30/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	900 [J+]	<580	<550	1,200	<640	<570	<510	<1,300
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	***550***	<58	<55	<230	<64	<57	<51	<130
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<80	<58	<55	<230	<64	<57	<51	<130
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<80	<58	<55	<230	<64	<57	<51	<130
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<800	<580	<550	550	<640	<570	<510	<1,300
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<160	<120	<110	<470	<130	<110	<100	<260
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<80	<58	82	290	<64	<57	<51	<130
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<80	<58	<55	<230	<64	<57	<51	<130
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<80	<58	<55	<230	<64	<57	<51	<130
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<160	<120	<110	<470	<130	<110	<100	<260
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<80	<58	<55	<230	<64	<57	<51	<130
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<80	<58	<55	<230	<64	<57	<51	<130
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	1,700	<58	<55	<230	<64	<57	<51	<130
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<80	<58	<55	<230	<64	<57	<51	<130
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<80	<58	<55	<230	<64	<57	<51	<130
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<80	<58	<55	<230	<64	<57	<51	<130
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<80	<58	110	<230	<64	<57	<51	<130
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<80	<58	<55	<230	<64	<57	<51	<130
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<80	<58	<55	<230	<64	<57	<51	<130
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<160	<120 [UJ]	<110	<470	<130	<110	<100 [UJ]	<260 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<80	***11,000***	***32***	<230	<64	<57	<51	<130
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<80	<58	<55	<230	<64	<57	<51	<130
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<80	***270 [J+]***	<55	<230	<64	<57	<51	<130
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<80	***46***	<55	<230	<64	<57	<51	<130
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<80	<58	<55	<230	<64	<57	<51	<130
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<80	<58	<55	<230	<64	<57	<51	<130
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<80	<58	<55	<230	<64	<57	<51	<130
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<80	<58	<55	<230	<64	<57	<51	<130
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	***410***	<58	<55	<230	<64	<57	<51	<130
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<800 [UJ]	<580	<550	<2,300	<640	<570	<510	<1,300
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	130	<58	<55	<230	<64	<57	<51	<130
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	250	31	130	2,200	27	<57	<51	140
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<80	<58	<55	<230	<64	<57	<51	<130
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<800	<580	<550	<2,300	<640	<570	<510	<1,300
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	4,500	<290	33	<1,200	<320	<280	<250	76
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<80	<58	<55	<230	<64	<57	59	<130
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<80	<58	<55	<230	<64	<57	<51	<130
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<80	<58	<55	<230	<64	<57	<51	<130
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	***510***	<58	<55	<230	<64	<57	<51	<130
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	***3,900***	520	60	<230	<64	<57	<51	<130
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<80	40	<55	<230	<64	<57	<51	<130
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<80	<58	<55	<230	<64	<57	<51	<130
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	64	***5,200***	<55	<230	<64	<57	<51	<130
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<80	<58	<55	<230	<64	<57	<51	<130
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	***1,000***	<58	<55	<230	<64	<57	<51	<130
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<80	<58	<55	<230	<64	<57	<51	<130
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<80	<58	<55	<230	<64	<57	<51	<130
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	***3,600***	<120	67	<470	<130	<110	<100	<260
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	2,300	<58	43	<230	<64	<57	<51	<130
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	1,300	<58	24	<230	<64	<57	<51	<130
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-33	TA-SB-34	TA-SB-34	TA-SB-35	TA-SB-35	TA-SB-36	TA-SB-36	TA-SB-37	TA-SB-37
Sample Name									TA-SB-33(7-8)	TA-SB-34(3-4)	TA-SB-34(6-7)	TA-SB-35 (2-3)	TA-SB-35 (6-7)	TA-SB-36 (2-3)	TA-SB-36 (5-6)	TA-SB-37(1-2)	TA-SB-37(6-7)
Depth Interval (Feet below ground surface)									7 - 8	3 - 4	6 - 7	2 - 3	6 - 7	2 - 3	5 - 6	1 - 2	6 - 7
Laboratory Sample ID(s)									TG28004-024	TG28004-020	TG28004-019	TG27014-001	TG27014-002	TG27014-003	TG27014-004	TG28004-016	TG28004-017
Sample Date									7/27/2018	7/27/2018	7/27/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																	
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<1,300	770 [J+]	430 [J+]	<630	270 [J+]	<860	460 [J+]	<600	<1,200
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<130	<160	<97	<63	<83	***52***	***95***	<60	<120
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<1,300	350	<970	<630	<830	<860	<1,400	<600	<1,200
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<270	<330	<190	<130	<170	<170	<280	<120	<240
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<130	<160	63	36	<83	<86	110	<60	75
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<270	<330	<190	<130	<170	<170	<280	<120	<240
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<130	<160	<97	<63	<83	<86	<140	<60	<120
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<270 [UJ]	<330 [UJ]	<190 [UJ]	<130	<170	<170	<280	<120 [UJ]	<240 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<130	<160	<97	<63	<83	<86	<140	<60	<120
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<130	<160	<97	<63	<83	<86	<140	<60	<120
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<1,300	<1,600	<970	<630	<830	<860	<1,400	<600	<1,200
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	630	1,000	510	250	420	100	720	110	400
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<1,300	<1,600	<970	<630	<830	<860	<1,400	<600	<1,200
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<670	<820	<490	43	<410	35	<700	130	<600
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<130	<160	<97	<63	<83	73	760	<60	86
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<130	<160	<97	<63	<83	<86	<140	<60	<120
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<130	<160	<97	<63	<83	<86	<140	<60	<120
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<130	<160	<97	<63	<83	<86	<140	<60	<120
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<270	<330	<190	***290***	<170	35	<280	54	<240
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<130	<160	<97	220	<83	35	<140	29	<120
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<130	<160	<97	66	<83	<86	<140	24	<120
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-38	TA-SB-38	TA-SB-38	TA-SB-39	TA-SB-39	TA-SB-40	TA-SB-40	TA-SB-41
Sample Name									TA-SB-38 (0.5-1.5)	TA-SB-38 (0.5-1.5) DUP	TA-SB-38 (6-7)	TA-SB-39 (1-2)	TA-SB-39 (6-7)	TA-SB-40(2-3)	TA-SB-40(6-7)	TA-SB-41 (2-3)
Depth Interval (Feet below ground surface)									0.5 - 1.5	0.5 - 1.5	6 - 7	1 - 2	6 - 7	2 - 3	6 - 7	2 - 3
Laboratory Sample ID(s)									TG27014-011	TG27014-012	TG27014-013	TG27014-015	TG27014-014	TG28004-011	TG28004-012	TG31022-003
Sample Date									7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/27/2018	7/30/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<560	<600	810 [J+]	<460	<540 [UJ]	<560	<1,200	<560
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<560	<600	430	<460	<540 [UJ]	<560	<1,200	<560
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<110	<120	<430	<92	<110 [UJ]	<110	<230	<110
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<56	<60	210	<46	<54 [UJ]	<56	<120	<56
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<110	<120	<430	<92	<110 [UJ]	<110	<230	<110
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<110	<120	<430	<92	<110 [UJ]	<110 [UJ]	<230 [UJ]	<110
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<56	<60	<210	<46	<54 [UJ]	<56	***400***	<56
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<56	<60	<210	<46	<54 [UJ]	<56	***110***	<56
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<56	<60	<210	<46	<54 [UJ]	<56	***48***	<56
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<560	<600	<2,100	<460	<540 [UJ]	<560	<1,200	<560
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	100	120	1,400	60	<54 [UJ]	<56	230	110
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<560	<600	<2,100	<460	<540 [UJ]	<560	<1,200	<560
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	44	47	<1,100	23	<270 [UJ]	56	<580	<280
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<56	31	<210	<46	<54 [UJ]	<56	<120	<56
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<56	<60	<210	<46	<54 [UJ]	33	<120	<56
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<56	<60	<210	<46	<54 [UJ]	210	***470***	<56
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<56	<60	<210	<46	<54 [UJ]	<56	<120	<56
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<110	<120	<430	<92	<110 [UJ]	61	<230	<110
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<60	<210	<46	<54 [UJ]	40	<120	<56
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<56	<60	<210	<46	<54 [UJ]	22	<120	<56
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-41	TA-SB-42	TA-SB-42	TA-SB-43	TA-SB-43	TA-SB-44	TA-SB-44	TA-SB-45
Sample Name									TA-SB-41 (5-6)	TA-SB-42 (1-2)	TA-SB-42 (6-7)	TA-SB-43 (1-2)	TA-SB-43 (7-8)	TA-SB-44 (1-2)	TA-SB-44 (7-8)	TA-SB-45 (2-3)
Depth Interval (Feet below ground surface)									5 - 6	1 - 2	6 - 7	1 - 2	7 - 8	1 - 2	7 - 8	2 - 3
Laboratory Sample ID(s)									TG31022-004	TG31022-007	TG31022-008	TG19003-022	TG19003-023	TG31022-011	TG31022-012	TH01025-010
Sample Date									7/30/2018	7/30/2018	7/30/2018	7/19/2018	7/19/2018	7/30/2018	7/30/2018	7/31/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<560	<520	<540	<540 [UJ]	<810 [UJ]	<610	<550	150 [J+]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<56	<52	<54	<54	<81	***60***	<55	***45 [J+]***
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<56	<52	<54	<54	<81	<61	<55	<50
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<56	<52	<54	<54	<81	<61	<55	<50
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<560	<520	<540	<540	<810	<610	<550	<500
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<110	<100	<110	<110	<160	<120	<110	<100
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<56	<52	<54	<54	<81	<61	<55	<50
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<56	<52	<54	<54	<81	<61	<55	<50
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<56	<52	<54	<54	<81	<61	<55	<50
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<110	<100	<110	<110	<160	<120	<110	<100
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<56	<52	<54	<54	<81	<61	<55	<50
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<56	<52	<54	<54	<81	<61	<55	<50
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<56	<52	<54	<54	<81	670	<55	<50
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<56	<52	<54	<54	<81	<61	<55	<50
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<56	<52	<54	<54	<81	<61	<55	<50
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<56	<52	<54	<54	<81	<61	<55	<50
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<56	<52	<54	<54	<81	<61	<55	<50
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<56	<52	<54	<54	<81	<61	<55	<50
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<56	<52	<54	<54	<81	<61	<55	<50
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<110	<100	<110	<110 [UJ]	<160 [UJ]	<120	<110 [UJ]	<100
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<56	<52	<54	<54	<81	<61	<55	<50
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<56	<52	<54	<54	<81	<61	<55	<50
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<56	<52	<54	<54	<81	<61	<55	<50
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<56	<52	<54	<54	<81	<61	<55	<50
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<56	<52	<54	<54	<81	<61	<55	<50
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<56	<52	<54	<54	<81	<61	<55	<50
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<52	<54	<54	<81	<61	<55	<50
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<52	<54	<54	<81	<61	<55	<50
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<56	<52	<54	<54	<81	***93***	<55	***26 [J+]***
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<560	<520	<540	<540	<810	<610	<550	<500 [UJ]
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<56	<52	<54	<54	<81	70	<55	76 [J+]
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<56	<52	<54	24	140	190	<55	130 [J+]
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<56	<52	<54	<54	<81	<61	<55	<50
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<560	<520	<540	<540	<810	<610	<550	<500
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<280	<260	<270	44	<410	2,100	<270	45 [J+]
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<56	<52	<54	40	<81	<61	<55	<50
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<56	<52	<54	<54	<81	<61	<55	<50
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<56	<52	<54	<54	<81	<61	<55	<50
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<56	<52	<54	<54	<81	<61	<55	<50
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<56	<52	<54	64	<81	340	<55	21 [J+]
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<56	<52	<54	<54	<81	<61	<55	<50
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<56	<52	<54	<54	<81	<61	<55	<50
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<56	<52	<54	<54	<81	<61	<55	<50
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<56	<52	<54	<54	<81	<61	<55	<50
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<56	<52	<54	<54	<81	<61	<55	<50
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<56	<52	<54	<54	<81	<61	<55	<50
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<56	<52	<54	<54	<81	<61	<55	<50
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<110	<100	<110	130	<160	***1,000***	<110	210 [J+]
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<52	<54	92	<81	540	<55	140 [J+]
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<56	<52	<54	38	<81	480	<55	73 [J+]
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-45	TA-SB-45	TA-SB-46	TA-SB-46	TA-SB-47	TA-SB-47	TA-SB-48	TA-SB-48
Sample Name									TA-SB-45 (6-7)	TA-SB-45 (6-7) DUP	TA-SB-46(8-9)	TA-SB-46(9-10)	TA-SB-47 (3-4)	TA-SB-47 (5-6)	TA-SB-48(1-2)	TA-SB-48(10-11)
Depth Interval (Feet below ground surface)									6 - 7	6 - 7	8 - 9	9 - 10	3 - 4	5 - 6	1 - 2	10 - 11
Laboratory Sample ID(s)									TH01025-008	TH01025-009	TG28004-009	TG28004-010	TG31022-016	TG31022-017	TG28004-014	TG28004-013
Sample Date									7/31/2018	7/31/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<590	<500	<460	<510	<740	<590	<540	<590
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<59	<50	<46	<51	<74	<59	<54	<59
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<59	<50	<46	<51	<74	<59	<54	<59
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<59	<50	<46	<51	<74	<59	<54	<59
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<590	<500	<460	<510	<740	<590	<540	<590
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<120	<100	<91	<100	<150	<120	<110	<120
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<59	<50	<46	<51	<74	<59	<54	<59
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<59	<50	<46	<51	<74	<59	<54	<59
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<59	<50	<46	<51	<74	<59	<54	<59
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<120	<100	<91	<100	<150	<120	<110	<120
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<59	<50	<46	<51	<74	<59	<54	<59
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<59	<50	<46	<51	<74	<59	<54	<59
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<59	<50	<46	<51	200	<59	<54	<59
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<59	<50	<46	<51	<74	<59	<54	<59
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<59	<50	<46	<51	<74	<59	<54	<59
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<59	<50	<46	<51	<74	<59	<54	<59
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<59	<50	<46	<51	<74	<59	<54	<59
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<59	<50	<46	<51	<74	<59	<54	<59
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<59	<50	<46	<51	<74	<59	<54	<59
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<120	<100	<91 [UJ]	<100 [UJ]	<150 [UJ]	<120 [UJ]	<110 [UJ]	<120 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<59	<50	<46	<51	***140***	<59	<54	<59
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<59	<50	<46	<51	<74	<59	<54	<59
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<59	<50	<46	<51	***30 [J+]***	<59	<54	<59
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<59	<50	<46	<51	<74	<59	<54	<59
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<59	<50	<46	<51	<74	<59	<54	<59
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<59	<50	<46	<51	<74	<59	<54	<59
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<59	<50	<46	<51	<74	<59	<54	<59
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<59	<50	<46	<51	<74	<59	<54	<59
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<59	<50	<46	<51	***36***	<59	<54	<59
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<590 [UJ]	<500 [UJ]	<460	<510	<740	<590	<540	<590
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<59	<50	<46	<51	<74	<59	<54	<59
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<59	<50	<46	<51	77	<59	<54	<59
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<59	<50	<46	<51	<74	<59	<54	<59
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<590	<500	<460	<510	<740	<590	<540	<590
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<290	110	<230	<250	880	<300	24	<290
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<59	35	<46	<51	<74	<59	<54	<59
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<59	<50	<46	<51	<74	<59	<54	<59
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<59	<50	<46	<51	<74	<59	<54	<59
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<59	<50	<46	<51	<74	<59	<54	<59
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<59	<50	<46	<51	170	<59	<54	<59
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<59	<50	<46	<51	<74	<59	<54	<59
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<59	<50	<46	<51	<74	<59	<54	<59
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<59	<50	<46	<51	***2,600***	<59	<54	<59
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<59	<50	<46	<51	40	<59	<54	<59
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<59	<50	<46	<51	<74	<59	<54	<59
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<59	<50	<46	<51	<74	<59	<54	<59
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<59	<50	<46	<51	<74	<59	<54	<59
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<120	<100	<91	<100	***460***	<120	<110	<120
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<59	<50	<46	<51	240	<59	<54	<59
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<59	<50	<46	<51	220	<59	<54	<59
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-49	TA-SB-49	TA-SB-50	TA-SB-50	TA-SB-51	TA-SB-51	TA-SB-52	TA-SB-52
Sample Name									TA-SB-49 (3-4)	TA-SB-49 (7-8)	TA-SB-50 (2-3)	TA-SB-50 (7-8)	TA-SB-51 (2-3)	TA-SB-51 (6-7)	TA-SB-52 (1-2)	TA-SB-52 (6-7)
Depth Interval (Feet below ground surface)									3 - 4	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	1 - 2	6 - 7
Laboratory Sample ID(s)									TG31022-009	TG31022-010	TH01025-019	TH01025-020	TG31022-001	TG31022-002	TG31022-013	TG31022-014
Sample Date									7/30/2018	7/30/2018	7/31/2018	7/31/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<560	<570	<520	<400	<530	<510	170 [J+]	<480
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<56	<57	<52	<40	<53	<51	***42***	<48
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<56	<57	<52	<40	<53	<51	<68	<48
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<56	<57	<52	<40	<53	<51	<68	<48
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<560	<570	<520	<400	<530	<510	<680	<480
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<110	<110	<100 [UJ]	<80 [UJ]	<110	<100	<140	<96
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<56	<57	<52	<40	<53	<51	<68	<48
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<56	<57	<52	<40	<53	<51	<68	<48
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<56	<57	<52	<40	<53	<51	<68	<48
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<110	<110	<100	<80	<110	<100	<140	<96
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<56	<57	<52	<40	<53	<51	<68	<48
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<56	<57	<52	<40	<53	<51	<68	<48
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<56	<57	<52	<40	<53	<51	450	<48
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<56	<57	<52	<40	<53	<51	<68	<48
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<56	<57	<52	<40	<53	<51	<68	<48
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<56	<57	<52	<40	<53	<51	<68	<48
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<56	<57	<52	<40	<53	<51	<68	<48
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<56	<57	<52	<40	<53	<51	<68	<48
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<56	<57	<52	<40	<53	<51	<68	<48
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<110	<110	<100	<80	<110	<100	<140 [UJ]	<96 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<56	<57	<52	<40	<53	<51	<68	<48
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<56	<57	<52	<40	<53	<51	<68	<48
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<56	<57	<52	<40	<53	<51	<68	<48
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<56	<57	<52	<40	<53	<51	<68	<48
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<56	<57	<52	<40	<53	<51	<68	<48
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<56	<57	<52	<40	<53	<51	<68	<48
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<57	<52	<40	<53	<51	<68	<48
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<57	<52	<40	<53	<51	<68	<48
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<56	<57	<52	<40	<53	<51	***100***	<48
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<560	<570	<520	<400	<530	<510	<680	<480
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<56	<57	<52	<40	<53	<51	59	<48
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<56	<57	21	<40	<53	<51	160	<48
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<56	<57	<52	<40	<53	<51	<68	<48
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<560	<570	<520	<400	<530	<510	<680	<480
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<280	<280	38	<200	<270	<250	1,800	<240
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<56	<57	<52	<40	<53	<51	<68	<48
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<56	<57	<52	<40	<53	<51	<68	<48
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<56	<57	<52	<40	<53	<51	<68	<48
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<56	<57	<52	<40	<53	<51	<68	<48
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<56	<57	<52	<40	<53	<51	420	<48
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<56	<57	<52	<40	<53	<51	<68	<48
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<56	<57	<52	<40	<53	<51	<68	<48
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<56	<57	<52	<40	<53	<51	<68	<48
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<56	<57	<52	<40	<53	<51	<68	<48
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<56	<57	<52	<40	<53	<51	<68	<48
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<56	<57	<52	<40	<53	<51	<68	<48
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<56	<57	<52	<40	<53	<51	<68	<48
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<110	<110	<100	<80	<110	<100	***1,000***	<96
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<57	<52	<40	<53	<51	560	<48
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<56	<57	<52	<40	<53	<51	460	<48
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-53	TA-SB-53	TA-SB-53	TA-SB-54	TA-SB-54	TA-SB-55	TA-SB-55	TA-SB-56
Sample Name									TA-SB-53 (0-1)	TA-SB-53 (5-6)	TA-SB-53(7-8)	TA-SB-54 (0-1)	TA-SB-54 (3-4)	TA-SB-55 (1-2)	TA-SB-55 (5-6)	TA-SB-56 (1-2)
Depth Interval (Feet below ground surface)									0 - 1	5 - 6	7 - 8	0 - 1	3 - 4	1 - 2	5 - 6	1 - 2
Laboratory Sample ID(s)									TG19003-017	TG19003-021	TG19003-019	TG19003-002	TG19003-005	TG19003-006	TG19003-007	TG19003-001
Sample Date									7/19/2018	7/19/2018	7/19/2018	7/18/2018	7/18/2018	7/18/2018	7/18/2018	7/18/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<840 [UJ]	<710 [UJ]	<710 [UJ]	210 [J]	<560 [UJ]	<630 [UJ]	<760 [UJ]	<690 [UJ]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<84	<71 [UJ]	<71	***72 [J-]***	<56	<63	<76	***61 [J-]***
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<840	<710 [UJ]	<710	210 [J-]	<560	<630 [UJ]	<760	<690 [UJ]
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<170	<140 [UJ]	<140	<170 [UJ]	<110	<130	<150	<140 [UJ]
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<170	<140 [UJ]	<140	<170 [UJ]	<110	<130	<150	<140 [UJ]
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	100	<71 [UJ]	<71	920 [J-]	<56	<63	<76	1,100 [J-]
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<170 [UJ]	<140 [UJ]	<140 [UJ]	<170 [UJ]	<110 [UJ]	<130 [UJ]	<150 [UJ]	<140 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<84	***35 [J-]***	<71	***170 [J-]***	<56	<63	<76	***160 [J-]***
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<840	<710 [UJ]	<710	<850 [UJ]	<560	<630 [UJ]	<760	<690 [UJ]
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<84	<71 [UJ]	<71	120 [J-]	<56	<63	<76	65 [J-]
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	200	300 [J-]	<71	260 [J-]	<56	32	130	150 [J-]
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<840	<710 [UJ]	<710	<850 [UJ]	<560	<630	<760	<690 [UJ]
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	310	35 [J-]	<350	2,500 [J-]	<280	<310	<380	1,900 [J-]
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<84	30 [J-]	46	<85 [UJ]	<56	<63	<76	33 [J-]
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63 [UJ]	<76	<69 [UJ]
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<84	31 [J-]	<71	660 [J-]	<56	<63	<76	670 [J-]
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<84	<71 [UJ]	<71	<85 [UJ]	<56	<63	<76	<69 [UJ]
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	130	140 [J-]	<140	***1,600 [J-]***	<110	<130	<150	***1,700 [J-]***
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	72	97 [J-]	<71	910 [J-]	<56	<63	<76	1,100 [J-]
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	60	45 [J-]	<71	710 [J-]	<56	<63	<76	640 [J-]
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-56	TA-SB-57	TA-SB-57	TA-SB-58	TA-SB-58	TA-SB-59	TA-SB-59	TA-SB-60
Sample Name									TA-SB-56 (6-7)	TA-SB-57 (2-3)	TA-SB-57 (6-7)	TA-SB-58 (7-8)	TA-SB-58 (12-13)	TA-SB-59(2-3)	TA-SB-59(11-12)	TA-SB-60 (7-8)
Depth Interval (Feet below ground surface)									6 - 7	2 - 3	6 - 7	7 - 8	12 - 13	2 - 3	11 - 12	7 - 8
Laboratory Sample ID(s)									TH02019-001	TG31022-005	TG31022-006	TH08019-002	TH08019-003	TG28004-025	TG28004-026	TG19003-009
Sample Date									8/1/2018	7/30/2018	7/30/2018	8/7/2018	8/7/2018	7/27/2018	7/27/2018	7/18/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<680	<540	<520	<480	<460	310 [J+]	630 [J+]	<660 [UJ]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<68	<54	<52	<48	<46	<110	<220	<66
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<68	<54	<52	<48	<46	<110	<220	<66
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<68	<54	<52	<48	<46	<110	<220	<66
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<680	<540	<520	<480	<460	<1,100	<2,200	<660
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<140	<110	<100	<97	<93	<210	<440	<130
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<68	<54	<52	<48	<46	<110	140	<66
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<68	<54	<52	<48	<46	<110	<220	<66
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<68	<54	<52	<48	<46	<110	<220	<66
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<140	<110	<100	<97	<93	<210	<440	<130
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<68	<54	<52	<48	<46	<110	<220	<66
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<68	<54	<52	<48	<46	<110	<220	<66
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<68	<54	<52	<48	<46	<110	<220	<66
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<68	<54	<52	<48	<46	<110	<220	<66
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<68	<54	<52	<48	<46	<110	<220	<66
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<68	<54	<52	<48	<46	<110	<220	<66
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<68	<54	<52	<48	<46	<110	<220	<66
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<68	<54	<52	<48	<46	<110	<220	<66
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<68	<54	<52	<48	<46	<110	<220	<66
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<140	<110	<100	<97 [UJ]	<93 [UJ]	<210 [UJ]	<440 [UJ]	<130 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<68	<54	<52	<48	<46	***160***	<220	<66
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<68	<54	<52	<48	<46	<110	<220	<66
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<68	<54	<52	<48	<46	<110	<220	<66
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<68	<54	<52	<48	<46	<110	<220	<66
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<68	<54	<52	<48	<46	<110	<220	<66
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<68	<54	<52	<48	<46	<110	<220	<66
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<68	<54	<52	<48	<46	<110	<220	<66
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<68	<54	<52	<48	<46	<110	<220	<66
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<68	<54	<52	<48	<46	<110	<220	<66
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<680	<540	<520	<480	<460	<1,100	<2,200	<660
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<68	<54	<52	<48	<46	<110	<220	<66
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<68	<54	<52	<48	<46	310	1,400	230
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<68	<54	<52	<48	<46	<110	<220	<66
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<680	<540	<520	<480	<460	<1,100	<2,200	<660
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<340	<270	<260	<240	<230	44	<1,100	<330
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<68	<54	<52	<48	<46	<110	<220	<66
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<68	<54	<52	<48	<46	<110	<220	<66
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<68	<54	<52	<48	<46	<110	<220	<66
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<68	<54	<52	<48	<46	<110	<220	<66
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<68	<54	<52	<48	<46	<110	<220	<66
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<68	<54	<52	<48	<46	<110	<220	<66
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<68	<54	<52	<48	<46	<110	<220	<66
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<68	<54	<52	<48	<46	220	<220	<66
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<68	<54	<52	<48	<46	<110	<220	<66
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<68	<54	<52	<48	<46	<110	<220	<66
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<68	<54	<52	<48	<46	<110	<220	<66
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<68	<54	<52	<48	<46	<110	<220	<66
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<140	<110	<100	<97	<93	<210	<440	<130
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<68	<54	<52	<48	<46	<110	<220	<66
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<68	<54	<52	<48	<46	<110	<220	<66
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-60	TA-SB-61	TA-SB-61	TA-SB-62	TA-SB-62	TA-SB-63	TA-SB-63	TA-SB-64
Sample Name									TA-SB-60 (8-9)	TA-SB-61 (5-6)	TA-SB-61 (7-8)	TA-SB-62 (3-4)	TA-SB-62 (5-6)	TA-SB-63 (1-2)	TA-SB-63 (7-8)	TA-SB-64 (0-1)
Depth Interval (Feet below ground surface)									8 - 9	5 - 6	7 - 8	3 - 4	5 - 6	1 - 2	7 - 8	0 - 1
Laboratory Sample ID(s)									TG19003-010	TG17025-011	TG17025-012	TG17025-013	TG17025-014	TG17025-017	TG17025-018	TG19003-018
Sample Date									7/18/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/19/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<1,800 [UJ]	<790	<620	<3,300	<680	<650	<840	<550 [UJ]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<1,800 [UJ]	<790	<620	<3,300	<680	<650	<840	<550
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<360 [UJ]	<160	<120	<660	<140	<130	<170	<110
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<360 [UJ]	<160	<120	<660	<140	<130	<170	<110
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<180 [UJ]	<79	<62	<330	<68	50	<84	<55
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<360 [UJ]	<160 [UJ]	<120 [UJ]	<660 [UJ]	<140 [UJ]	<130 [UJ]	<170 [UJ]	<110 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<1,800 [UJ]	<790	<620	<3,300	<680	<650	<840	<550
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	820 [J-]	590	29	380	210	130	150	180
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<1,800 [UJ]	<790	<620	<3,300	<680	<650	<840	<550
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<910 [UJ]	<390	<310	<1,700	28	100	<420	<270
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<360 [UJ]	<160	<120	<660	<140	27	<170	<110
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<180 [UJ]	<79	<62	<330	<68	27	<84	<55
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<180 [UJ]	<79	<62	<330	<68	<65	<84	<55
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-64	TA-SB-65	TA-SB-65	TA-SB-65	TA-SB-66	TA-SB-66	TA-SB-67	TA-SB-67
Sample Name									TA-SB-64 (4-5)	TA-SB-65 (1-2)	TA-SB-65 (1-2) DUP	TA-SB-65 (4-5)	TA-SB-66(0-1)	TA-SB-66(2-3)	TA-SB-67 (0-1)	TA-SB-67 (5-6)
Depth Interval (Feet below ground surface)									4 - 5	1 - 2	1 - 2	4 - 5	0 - 1	2 - 3	0 - 1	5 - 6
Laboratory Sample ID(s)									TG19003-020	TG19003-012	TG19003-013	TG19003-014	TG28004-021	TG28004-022	TG24017-001	TG24017-002
Sample Date									7/19/2018	7/18/2018	7/18/2018	7/18/2018	7/27/2018	7/27/2018	7/23/2018	7/23/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<2,000 [UJ]	<1,800 [UJ]	<1,200 [UJ]	<1,300 [UJ]	<530	<1,100	<550 [UJ]	<540 [UJ]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<2,000 [UJ]	<1,800	<1,200 [UJ]	<1,300 [UJ]	<530	<1,100	<550 [UJ]	<540 [UJ]
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<400 [UJ]	<360	<250 [UJ]	<260 [UJ]	<110	<220	<110	<110
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<400 [UJ]	<360	<250 [UJ]	<260 [UJ]	<110	<220	<110	<110
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	31	<110	<55	<54
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<400 [UJ]	<360 [UJ]	<250 [UJ]	<260 [UJ]	<110 [UJ]	<220 [UJ]	<110	<110
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<2,000 [UJ]	<1,800	<1,200 [UJ]	<1,300 [UJ]	<530	<1,100	<550	<540
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	750 [J-]	180	200 [J-]	210 [J-]	56	150	25	<54
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<2,000 [UJ]	<1,800	<1,200 [UJ]	<1,300 [UJ]	<530	<1,100	<550	<540
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,000 [UJ]	<900	<610 [UJ]	<650 [UJ]	100	<560	<280	<270
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	30	44
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	<53	<110	<55	<54
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<400 [UJ]	<360	<250 [UJ]	<260 [UJ]	59	<220	<110	<110
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	33	<110	<55	<54
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<200 [UJ]	<180	<120 [UJ]	<130 [UJ]	26	<110	<55	<54
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-68	TA-SB-68	TA-SB-69	TA-SB-69	TA-SB-70	TA-SB-70	TA-SB-71	TA-SB-71
Sample Name									TA-SB-68 (1-2)	TA-SB-68 (3-4)	TA-SB-69 (2-3)	TA-SB-69 (4-5)	TA-SB-70 (0-1)	TA-SB-70 (5-6)	TA-SB-71(1-2)	TA-SB-71(3-4)
Depth Interval (Feet below ground surface)									1 - 2	3 - 4	2 - 3	4 - 5	0 - 1	5 - 6	1 - 2	3 - 4
Laboratory Sample ID(s)									TG11005-003	TG11005-004	TG11005-009	TG11005-010	TG17025-015	TG17025-016	TG21001-001	TG21001-002
Sample Date									7/10/2018	7/10/2018	7/10/2018	7/10/2018	7/17/2018	7/17/2018	7/20/2018	7/20/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<1,900 [UJ]	<1,600 [UJ]	<1,600	<610	<650	270	<560	<540
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<190	<160	<160	<61	<65	<110	***26***	<54
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<190	<160	<160	<61	<65	<110	<56	<54
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<190	<160	<160	<61	<65	<110	<56	<54
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<1,900 [UJ]	<1,600 [UJ]	<1,600	<610	<650	<1,100	<560	<540
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<390 [UJ]	<320 [UJ]	<330	<120	<130	<220	<110	<110
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<190	<160	<160	<61	<65	<110	<56	<54
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<190	<160	<160	<61	<65	<110	<56	<54
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<190	<160	<160	<61	<65	<110	<56	<54
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<390 [UJ]	<320 [UJ]	<330	<120	<130	<220	<110	<110
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<190	***100***	<160	<61	<65	<110	<56	<54
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<190	<160	<160	<61	<65	<110	<56	<54
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<190	<160	<160	<61	<65	<110	440 [J+]	<54
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<190	<160	<160	<61	<65	<110	<56	<54
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<190	<160	<160	<61	<65	<110	<56	<54
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<190	<160	<160	<61	<65	<110	<56	<54
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<190	<160	<160	<61	<65	<110	<56	<54
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<190	<160	<160	<61	<65	<110	<56	<54
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<190	<160	<160	<61	<65	<110	<56	<54
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<390	<320	<330	<120	<130 [UJ]	<220 [UJ]	<110 [UJ]	<110 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<190	***200***	<160	<61	<65	<110	<56	<54
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<190	***170***	<160	<61	<65	<110	<56	<54
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<190	<160	<160	<61	<65	<110	<56	<54
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<190	***95***	<160	<61	<65	<110	<56	<54
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<190	***150***	<160	<61	<65	<110	<56	<54
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<190	<160	<160	<61	<65	<110	<56	<54
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<190	<160	<160	<61	<65	<110	<56	<54
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<190	<160	<160	<61	<65	<110	<56	<54
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<190	<160	<160	<61	<65	<110	***39***	<54
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<1,900	<1,600	<1,600	<610	<650	<1,100	<560	<540
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<190	<160	<160	<61	<65	<110	37	<54
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	430	200	69	<61	82	450	71	<54
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<190	<160	<160	<61	<65	<110	<56	<54
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<1,900	<1,600	<1,600	<610	<650	<1,100	<560	<540
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	110	110	<820	<310	<330	<550	980	<270
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<190	<160	<160	<61	<65	<110	<56	<54
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<190	<160	<160	<61	<65	<110	<56	<54
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<190	<160	<160	<61	<65	<110	<56	<54
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<190	<160	<160	<61	<65	<110	<56	<54
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<190	240	<160	<61	<65	<110	180	<54
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<190	<160	<160	<61	<65	<110	<56	<54
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<190	<160	<160	<61	<65	<110	<56	<54
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	170	***1,600***	<160	<61	<65	<110	<56	<54
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<190	***250***	<160	<61	<65	<110	<56	<54
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<190	***190***	<160	<61	<65	<110	<56	<54
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<190	<160	<160	<61	<65	<110	<56	<54
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<190	<160	<160	<61	<65	<110	<56	<54
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	130	110	<330	<120	<130	<220	***500***	<110
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	130	110	<160	<61	<65	<110	270	<54
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<190	<160	<160	<61	<65	<110	230	<54
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	100	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-72	TA-SB-72	TA-SB-72	TA-SB-73	TA-SB-73	TA-SB-74	TA-SB-74	TA-SB-75
Sample Name									TA-SB-72(1-2)	TA-SB-72(1-2) DUP	TA-SB-72(3-4))	TA-SB-73(1-2)	TA-SB-73(6-7)	TA-SB-74(1-2)	TA-SB-74(5-6)	TA-SB-75 (5-6)
Depth Interval (Feet below ground surface)									1 - 2	1 - 2	3 - 4	1 - 2	6 - 7	1 - 2	5 - 6	5 - 6
Laboratory Sample ID(s)									TG21001-003	TG21001-004	TG21001-005	TG21001-006	TG21001-007	TG21001-008	TG21001-009	TG19003-003
Sample Date									7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/18/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<1,100 [UJ]	<1,300 [UJ]	<620	1,300	<450	<1,500 [UJ]	<610	<1,900 [UJ]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<110 [UJ]	<130 [UJ]	<62	***65***	<45	<150 [UJ]	<61	<190 [UJ]
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<1,100 [UJ]	<1,300 [UJ]	<620	500	<450	<1,500 [UJ]	<610	<1,900 [UJ]
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<210 [UJ]	<270 [UJ]	<120	<240	<90	<290 [UJ]	<120	<370 [UJ]
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<210 [UJ]	<270 [UJ]	<120	<240	<90	<290 [UJ]	<120	<370 [UJ]
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<110 [UJ]	<130 [UJ]	<62	***76***	<45	<150 [UJ]	<61	<190 [UJ]
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	44 [J-]	57 [J-]	<62	1,800	<45	98 [J-]	<61	<190 [UJ]
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<210 [UJ]	<270 [UJ]	<120 [UJ]	<240 [UJ]	<90 [UJ]	<290 [UJ]	<120 [UJ]	<370 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<110 [UJ]	<130 [UJ]	<62	***190***	<45	<150 [UJ]	<61	<190 [UJ]
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<1,100 [UJ]	<1,300 [UJ]	<620	<1,200	<450	<1,500 [UJ]	<610	<1,900 [UJ]
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<110 [UJ]	<130 [UJ]	<62	110	<45	<150 [UJ]	<61	<190 [UJ]
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	89 [J-]	160 [J-]	33	270	<45	130 [J-]	<61	200 [J]
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<1,100 [UJ]	<1,300 [UJ]	<620	<1,200	<450	<1,500 [UJ]	<610	<1,900 [UJ]
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	78 [J-]	<670 [UJ]	<310	4,300	<230	180 [J-]	<310	<940 [UJ]
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<110 [UJ]	<130 [UJ]	<62	1,000	<45	140 [J-]	<61	210 [J]
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	94 [J]
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<110 [UJ]	<130 [UJ]	<62	<120	<45	<150 [UJ]	<61	<190 [UJ]
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<210 [UJ]	<270 [UJ]	<120	***2,600***	<90	120 [J-]	<120	<370 [UJ]
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110 [UJ]	<130 [UJ]	<62	1,600	<45	120 [J-]	<61	<190 [UJ]
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<110 [UJ]	<130 [UJ]	<62	1,100	<45	<150 [UJ]	<61	<190 [UJ]
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-75	TA-SB-75	TA-SB-76	TA-SB-76	TA-SB-77	TA-SB-77	TA-SB-78	TA-SB-78
Sample Name									TA-SB-75 (5-6) DUP	TA-SB-75 (7-8)	TA-SB-76 (1-2)	TA-SB-76 (7-8)	TA-SB-77 (2-3)	TA-SB-77 (5-6)	TA-SB-78 (5-6)	TA-SB-78 (6-7)
Depth Interval (Feet below ground surface)									5 - 6	7 - 8	1 - 2	7 - 8	2 - 3	5 - 6	5 - 6	6 - 7
Laboratory Sample ID(s)									TG19003-004	TG19003-008	TG17025-008	TG19003-011	TG17025-020	TG17025-019	TG17025-005	TG17025-006
Sample Date									7/18/2018	7/18/2018	7/16/2018	7/18/2018	7/17/2018	7/17/2018	7/16/2018	7/16/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<2,000 [UJ]	<590 [UJ]	<4,800	<930 [UJ]	<2,400	<890	450	<820
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<200	<59	<480	<93	<240	<89	<87	<82
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<200	<59	<480	<93	<240	<89	<87	<82
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<200	<59	<480	<93	<240	<89	<87	<82
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<2,000	<590	<4,800	<930	<2,400	<890	210	<820
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<410	<120	<970	<190	<470	<180	<170	<160
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<200	<59	<480	<93	<240	<89	<87	<82
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<200	<59	<480	<93	<240	<89	<87	<82
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<200	<59	<480	<93	<240	<89	<87	<82
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<410	<120	<970	<190	<470	<180	<170	<160
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<200	<59	<480	<93	<240	<89	<87	<82
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<200	<59	<480	<93	<240	<89	<87	<82
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<200	<59	<480	<93	<240	<89	<87	<82
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<200	<59	<480	<93	<240	<89	<87	<82
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<200	<59	<480	<93	<240	<89	<87	<82
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<200	<59	<480	<93	<240	<89	<87	<82
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<200	<59	<480	<93	<240	<89	<87	<82
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<200	<59	<480	<93	<240	<89	<87	<82
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<200	<59	<480	<93	<240	<89	<87	<82
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<410 [UJ]	<120 [UJ]	<970 [UJ]	<190 [UJ]	<470 [UJ]	<180 [UJ]	<170	<160
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	***240***	<59	<480	<93	<240	<89	<87	<82
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<200	<59	<480	<93	<240	<89	<87	<82
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<200	<59	<480	<93	<240	<89	<87	<82
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<200	<59	<480	<93	<240	<89	<87	<82
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<200	<59	<480	<93	<240	<89	<87	<82
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<200	<59	<480	<93	<240	<89	<87	<82
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<200	<59	<480	<93	<240	<89	<87	<82
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<200	<59	<480	<93	<240	<89	<87	<82
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<200	<59	<480	<93	<240	<89	<87	<82
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<2,000	<590	<4,800	<930	<2,400	<890	<870	<820
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<200	<59	<480	<93	<240	<89	<87	<82
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	560 [J]	57	1,000	470	680	540	410	34
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<200	<59	<480	<93	<240	<89	<87	<82
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<2,000	<590	<4,800	<930	<2,400	<890	<870	<820
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,000	<300	<2,400	<460	<1,200	<440	<430	<410
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<200	<59	<480	<93	***130***	49	<87	<82
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<200	<59	<480	<93	<240	<89	<87	<82
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<200	<59	<480	<93	<240	<89	<87	<82
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<200	<59	<480	<93	<240	<89	<87	<82
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	1,000 [J]	<59	<480	<93	<240	<89	52	<82
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<200	<59	<480	<93	<240	<89	<87	<82
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<200	<59	<480	<93	<240	<89	<87	<82
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	***1,400 [J]***	<59	<480	<93	<240	<89	<87	<82
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<200	<59	<480	<93	<240	<89	<87	<82
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<200	<59	<480	<93	<240	<89	<87	<82
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<200	<59	<480	<93	<240	<89	<87	<82
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<200	<59	<480	<93	<240	<89	<87	<82
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<410	<120	<970	<190	<470	<180	<170	<160
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<200	<59	<480	<93	<240	<89	<87	<82
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<200	<59	<480	<93	<240	<89	<87	<82
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-79	TA-SB-79	TA-SB-80	TA-SB-80	TA-SB-81	TA-SB-81	TA-SB-82	TA-SB-82
Sample Name									TA-SB-79 (2-3)	TA-SB-79 (4-5)	TA-SB-80 (2-3)	TA-SB-80 (3-4)	TA-SB-81 (4-5)	TA-SB-81 (5-6)	TA-SB-82 (0-1)	TA-SB-82 (6-7)
Depth Interval (Feet below ground surface)									2 - 3	4 - 5	2 - 3	3 - 4	4 - 5	5 - 6	0 - 1	6 - 7
Laboratory Sample ID(s)									TG17025-003	TG17025-004	TG17025-001	TG17025-002	TG17025-010	TG17025-007	TG19003-024	TG19003-025
Sample Date									7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/17/2018	7/16/2018	7/19/2018	7/19/2018
Parameter (µg/kg)																
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<720	390	520	220	600	570	<630	680 [J-]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<720	<1,200	250	<900	410	<1,900	<630	<1,600 [UJ]
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<140	<240	<240	<180	<360	<380	<130	<320 [UJ]
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	35	<120	89	<90	<180	<190	<63	<160 [UJ]
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<140	<240	<240	<180	<360	<380	<130	<320 [UJ]
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<72	<120	<120	<90	<180	<190	100	<160 [UJ]
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<140	<240	<240	<180	<360 [UJ]	<380	<130	<320 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<720	<1,200	<1,200	<900	<1,800	<1,900	<630	<1,600 [UJ]
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	270	490	880	360	1,600	1,400	160	850 [J-]
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<720	<1,200	<1,200	<900	<1,800	<1,900	<630	<1,600 [UJ]
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<360	<590	<590	<450	<900	<950	240	<800 [UJ]
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<72	<120	<120	<90	<180	***140***	<63	<160 [UJ]
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	33	<120	<120	<90	<180	<190	49	<160 [UJ]
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<72	<120	<120	<90	<180	<190	<63	<160 [UJ]
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<140	<240	<240	<180	<360	<380	120	<320 [UJ]
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<72	<120	<120	<90	<180	<190	66	<160 [UJ]
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<72	<120	<120	<90	<180	<190	55	<160 [UJ]
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-83	TA-SB-83	TA-SB-AOC-B-01	TA-SB-AOC-B-01	TA-SB-AOC-B-02	TA-SB-AOC-B-02
Sample Name									TA-SB-83 (1-2)	TA-SB-83 (4-5)	TA-SB-AOC-B-01 (2-3)	TA-SB-AOC-B-01 (7-8)	TA-SB-AOC-B-02 (2-3)	TA-SB-AOC-B-02 (4-5)
Depth Interval (Feet below ground surface)									1 - 2	4 - 5	2 - 3	7 - 8	2 - 3	4 - 5
Laboratory Sample ID(s)									TG17025-021	TG17025-022	TH02019-006	TH02019-007	TH02019-008	TH02019-009
Sample Date									7/17/2018	7/17/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)														
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<660	<520	<530	<530	<730	<580
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<66	<52	<53	<53	<73	<58
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<66	<52	<53	<53	<73	<58
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<66	<52	<53	<53	<73	<58
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<660	<520	<530	<530	<730	<580
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<130	<100	<110	<110	<150	<120
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<66	<52	<53	<53	<73	<58
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<66	<52	<53	<53	<73	<58
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<66	<52	<53	<53	<73	<58
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<130	<100	<110	<110	<150	<120
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<66	<52	<53	<53	<73	<58
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<66	<52	<53	<53	<73	<58
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<66	<52	<53	<53	<73	<58
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<66	<52	<53	<53	<73	<58
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<66	<52	<53	<53	<73	<58
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<66	<52	<53	<53	<73	<58
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<66	<52	<53	<53	<73	<58
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<66	<52	<53	<53	<73	<58
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<66	<52	<53	<53	<73	<58
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<130 [UJ]	<100 [UJ]	<110	<110	<150	<120
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<66	<52	<53	<53	<73	<58
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<66	<52	<53	<53	<73	<58
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<66	<52	<53	<53	<73	<58
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<66	<52	<53	<53	<73	<58
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<66	<52	<53	<53	<73	<58
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<66	<52	<53	<53	<73	<58
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<66	<52	<53	<53	<73	<58
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<66	<52	<53	<53	<73	<58
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<66	<52	<53	<53	***41***	<58
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<660	<520	<530	<530	<730	<580
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<66	<52	<53	<53	<73	<58
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	66	<52	<53	<53	89,000 [J-]	<58
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<66	<52	<53	<53	<73	<58
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<660	<520	<530	<530	470	<580
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<330	<260	<270	<270	<360	<290
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<66	22	<53	<53	<73	<58
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<66	<52	<53	<53	<73	<58
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<66	<52	<53	<53	<73	<58
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<66	<52	<53	<53	<73	<58
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<66	<52	<53	<53	<73	<58
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<66	<52	<53	<53	<73	<58
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<66	<52	<53	<53	<73	<58
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<66	<52	<53	<53	<73	<58
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<66	<52	<53	<53	<73	<58
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<66	<52	<53	<53	<73	<58
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<66	<52	<53	<53	110	<58
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<66	<52	<53	<53	<73	<58
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<130	<100	<110	<110	***530***	<120
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<66	<52	<53	<53	240	<58
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<66	<52	<53	<53	290	<58
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-C-01	TA-SB-AOC-C-01	TA-SB-AOC-C-01	TA-SB-AOC-C-02	TA-SB-AOC-C-02	TA-SB-AOC-D-01
Sample Name									TA-SB-C-01 (2-3)	TA-SB-C-01 (2-3) DUP	TA-SB-C-01 (11-12)	TA-SB-AOC-C-02(2-3)	TA-SB-AOC-C-02(9-10)	TA-SB-AOC-D-01 (2-3)
Depth Interval (Feet below ground surface)									2 - 3	2 - 3	11 - 12	2 - 3	9 - 10	2 - 3
Laboratory Sample ID(s)									TH02019-021	TH02019-023	TH02019-022	TH03007-003	TH03007-004	TH02019-002
Sample Date									8/1/2018	8/1/2018	8/1/2018	8/2/2018	8/2/2018	8/1/2018
Parameter (µg/kg)														
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<520	400	<420	<520	<420	<530
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<52	<60	<42	<52	<42	<53
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<52	<60	<42	<52	<42	<53
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<52	<60	<42	<52	<42	<53
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<520	<600	<420	<520	<420	<530
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<100	<120	<83	<100	<85	<110
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<52 [UJ]	130 [J]	<42	140	<42	<53
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<52	<60	<42	<52	<42	<53
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<52	<60	<42	<52	<42	<53
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<100	<120	<83	<100	<85	<110
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<52	<60	<42	<52	<42	<53
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<52	<60	<42	<52 [UJ]	<42 [UJ]	<53
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<52	71	<42	<52	<42	<53
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<52	<60	<42	<52	<42	<53
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<52	<60	<42	<52	<42	<53
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<52	<60	<42	<52	<42	<53
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<52	<60	<42	<52	<42	<53
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<52	<60	<42	<52	<42	<53
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<52	<60	<42	<52	<42	<53
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<100 [UJ]	<120 [UJ]	<83 [UJ]	<100 [UJ]	<85 [UJ]	<110 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<52	<60	<42	<52	<42	<53
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<52	<60	<42	<52	<42	<53
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<52	<60	<42	<52	<42	<53
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<52	<60	<42	<52	<42	<53
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<52	<60	<42	<52	<42	<53
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<52	<60	<42	<52	<42	<53
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<52	<60	<42	<52	<42	<53
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<52	<60	<42	<52	<42	<53
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<52	***63***	<42	<52	<42	<53
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<520	<600	<420	<520	<420	<530
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<52	<60	<42	<52	<42	<53
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<52 [UJ]	440 [J]	<42	140	<42	28
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<52	<60	<42	<52	<42	<53
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<520	140	<420	<520	<420	<530
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<260	270	<210	59	<210	87
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<52	<60	<42	<52	<42	<53
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<52	<60	<42	<52	<42	<53
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<52	<60	<42	<52	<42	<53
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<52	<60	<42	<52	<42	<53
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<52	27	<42	<52	<42	26
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<52	<60	<42	<52	<42	<53
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<52	<60	<42	<52	<42	<53
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<52	<60	<42	<52	<42	<53
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<52	<60	<42	<52	<42	<53
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<52	<60	<42	<52	<42	<53
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<52	<60	<42	<52	<42	<53
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<52	<60	<42	<52	<42	<53
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<100	280	<83	36	<85	61
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<52	190	<42	36	<42	35
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<52	94	<42	<52	<42	26
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-D-01	TA-SB-AOC-D-02	TA-SB-AOC-D-02	TA-SB-AOC-E-01	TA-SB-AOC-E-01	TA-SB-AOC-E-02
Sample Name									TA-SB-AOC-D-01 (8-9)	TA-SB-AOC-D-02 (2-3)	TA-SB-AOC-D-02 (6-7)	TA-SB-AOC-E-01 (3-4)	TA-SB-AOC-E-01 (10-11)	TA-SB-AOC-E-02 (5-6)
Depth Interval (Feet below ground surface)									8 - 9	2 - 3	6 - 7	3 - 4	10 - 11	5 - 6
Laboratory Sample ID(s)									TH02019-003	TH02019-004	TH02019-005	TH02019-013	TH02019-014	TH02019-017
Sample Date									8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)														
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<460	<500	<600	<610	<850	<630
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<46	<50	<60	***40***	<85	<63
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<46	<50	<60	<61	<85	<63
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<46	<50	<60	<61	<85	<63
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<460	<500	<600	<610	<850	<630
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<92	<100	<120	<120	<170	<130
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<46	<50	<60	<61	<85	<63
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<46	<50	<60	<61	<85	<63
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<46	<50	<60	<61	<85	<63
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<92	<100	<120	<120	<170	<130
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<46	<50	<60	<61	<85	<63
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<46	<50	<60	<61	<85	<63
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<46	<50	<60	230	<85	<63
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<46	<50	<60	<61	<85	<63
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<46	<50	<60	<61	<85	<63
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<46	<50	<60	<61	<85	<63
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<46	<50	<60	<61	<85	<63
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<46	<50	<60	<61	<85	<63
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<46	<50	<60	<61	<85	<63
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<92	<100	<120	<120 [UJ]	<170 [UJ]	<130 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<46	<50	<60	<61	<85	<63
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<46	<50	<60	<61	<85	<63
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<46	<50	<60	<61	<85	<63
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<46	<50	<60	<61	<85	<63
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<46	<50	<60	<61	<85	<63
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<46	<50	<60	<61	<85	<63
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<46	<50	<60	<61	<85	<63
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<46	<50	<60	<61	<85	<63
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<46	<50	<60	<61	<85	<63
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<460	<500	<600	<610	<850	<630
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<46	<50	<60	35	<85	<63
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<46	26	<60	140	100	<63
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<46	<50	<60	<61	<85	<63
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<460	<500	<600	<610	<850	<630
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<230	38	<300	470	<420	<310
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<46	<50	<60	<61	<85	<63
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<46	<50	<60	<61	<85	<63
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<46	<50	<60	<61	<85	<63
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<46	<50	<60	<61	<85	<63
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<46	37	<60	280	<85	<63
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<46	<50	<60	<61	<85	<63
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<46	<50	<60	<61	<85	<63
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<46	<50	<60	<61	<85	<63
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<46	<50	<60	<61	<85	<63
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<46	<50	<60	<61	<85	<63
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<46	<50	<60	<61	<85	<63
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<46	<50	<60	<61	<85	<63
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<92	45	<120	***400***	<170	<130
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<46	29	<60	230	<85	<63
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<46	<50	<60	170	<85	<63
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-E-02	TA-SB-AOC-G-01	TA-SB-AOC-G-01	TA-SB-AOC-G-02	TA-SB-AOC-G-02	TA-SB-AOC-H-01
Sample Name									TA-SB-AOC-E-02 (10-11)	TA-SB-AOC-G-01 (1-2)	TA-SB-AOC-G-01 (5-6)	TA-SB-AOC-G-02 (1-2)	TA-SB-AOC-G-02 (6-7)	TA-SB-AOC-H-01 (2-3)
Depth Interval (Feet below ground surface)									10 - 11	1 - 2	5 - 6	1 - 2	6 - 7	2 - 3
Laboratory Sample ID(s)									TH02019-018	TG24017-003	TG24017-004	TG24017-005	TG24017-006	TG11005-007
Sample Date									8/1/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018	7/10/2018
Parameter (µg/kg)														
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<740	<1,200 [UJ]	<600 [UJ]	<1,200 [UJ]	<780 [UJ]	<1,100
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	***40***	***150***	<60	<120	<78	<110
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<74	<120	<60	<120	<78	<110
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<74	<120	<60	<120	<78	<110
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<740	<1,200 [UJ]	<600 [UJ]	<1,200 [UJ]	<780 [UJ]	<1,100
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<150	<240	<120	<230	<160	<220
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<74	<120	<60	<120	<78	<110
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<74	<120	<60	<120	<78	<110
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<74	<120	<60	<120	<78	<110
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<150	<240	<120	<230	<160	<220
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<74	<120	<60	<120	<78	<110
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<74	<120	<60	<120	<78	<110
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	100	320 [J+]	<60	<120	<78	170
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<74	<120	<60	<120	<78	<110
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<74	<120	<60	<120	<78	<110
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<74	<120	<60	<120	<78	<110
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<74	<120	<60	<120	<78	<110
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<74	<120	<60	<120	<78	<110
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<74	<120	<60	<120	<78	<110
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<150 [UJ]	<240	<120	<230	<160	<220
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	***230***	<120	<60	<120	<78	<110
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<74	<120	<60	<120	<78	<110
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<74	<120	<60	<120	<78	<110
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<74	<120	<60	<120	<78	<110
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<74	<120	<60	<120	<78	<110
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<74	<120	<60	<120	<78	<110
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<74	<120	<60	<120	<78	<110
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<74	<120	<60	<120	<78	<110
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<74	<120	<60	<120	<78	<110
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<740	<1,200	<600	<1,200	<780	<1,100
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<74	<120	<60	<120	<78	<110
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	100	230	<60	<120	400	71
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<74	<120	<60	<120	<78	<110
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<740	<1,200	<600	<1,200	<780	<1,100
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	140	620	<300	<580	<390	330
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<74	***130***	<60	<120	<78	<110
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<74	<120	<60	<120	<78	<110
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<74	***84***	<60	<120	<78	<110
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<74	<120	<60	<120	<78	<110
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	120	800	<60	<120	<78	310
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<74	<120	<60	<120	<78	<110
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<74	<120	<60	<120	<78	<110
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	150	<120	<60	<120	<78	<110
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<74	<120	<60	<120	<78	<110
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<74	<120	<60	<120	<78	<110
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<74	<120	<60	<120	<78	<110
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<74	<120	<60	<120	<78	<110
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	77	***300***	<120	<230	<160	210
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	77	190	<60	<120	<78	120
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<74	110	<60	<120	<78	88
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-H-01	TA-SB-AOC-H-02	TA-SB-AOC-H-02	TA-SB-AOC-H-03	TA-SB-AOC-H-03	TA-SB-AOC-J-01
Sample Name									TA-SB-AOC-H-01 (4-5)	TA-SB-AOC-H-02 (2-3)	TA-SB-AOC-H-02 (6-7)	TA-SB-AOC-H-03 (2-2.5)	TA-SB-AOC-H-03 (5-6)	TA-SB-AOC-J-01 (2-3)
Depth Interval (Feet below ground surface)									4 - 5	2 - 3	6 - 7	2 - 2.5	5 - 6	2 - 3
Laboratory Sample ID(s)									TG11005-008	TG11005-005	TG11005-006	TG11005-001	TG11005-002	TH02019-010
Sample Date									7/10/2018	7/10/2018	7/10/2018	7/10/2018	7/10/2018	8/1/2018
Parameter (µg/kg)														
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<560	330 [J-]	<640	5,200 [J-]	<560 [UJ]	<490
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<56	<110	<64	<240	<56	<49
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<56	<110	<64	<240	<56	<49
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<56	<110	<64	<240	<56	<49
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<560	<1,100 [UJ]	<640	2,000 [J-]	<560 [UJ]	<490
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<110	<220 [UJ]	<130	<480 [UJ]	<110 [UJ]	<98
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<56	<110	<64	<240	<56	<49
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<56	<110	<64	<240	<56	<49
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<56	<110	<64	<240	<56	<49
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<110	<220 [UJ]	<130	<480 [UJ]	<110 [UJ]	<98
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<56	<110	<64	<240	<56	<49
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<56	<110	<64	<240	<56	<49
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	25	300	<64	<240	<56	<49
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<56	<110	<64	<240	<56	<49
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<56	<110	<64	<240	<56	<49
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<56	<110	<64	<240	<56	<49
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<56	<110	<64	<240	<56	<49
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<56	<110	<64	<240	<56	<49
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<56	<110	<64	<240	<56	<49
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<110	<220	<130	<480	<110	<98 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<56	***130***	<64	<240	<56	<49
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<56	<110	<64	<240	<56	<49
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<56	<110	<64	<240	<56	<49
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<56	<110	<64	<240	<56	<49
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<56	<110	<64	<240	<56	<49
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<56	<110	<64	<240	<56	<49
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<110	<64	<240	<56	<49
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	<110	<64	<240	<56	<49
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<56	***48***	<64	<240	<56	<49
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<560	<1,100	<640	<2,400	<560	<490
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<56	<110	<64	<240	<56	<49
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	130	120	29	5,000	83	<49
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<56	<110	<64	<240	<56	<49
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<560	<1,100	<640	<2,400	<560	<490
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	46	710	<320	<1,200	<280	<240
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<56	<110	<64	<240	<56	<49
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<56	<110	<64	<240	<56	<49
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<56	<110	<64	<240	<56	<49
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<56	<110	<64	<240	<56	<49
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<56	260	<64	99	<56	<49
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<56	<110	<64	<240	<56	<49
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<56	<110	<64	<240	<56	<49
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<56	110	<64	<240	<56	<49
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<56	<110	<64	<240	<56	<49
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<56	<110	<64	<240	<56	<49
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<56	<110	<64	<240	<56	<49
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<56	<110	<64	<240	<56	<49
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	35	***380***	<130	130	24	<98
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<56	260	<64	130	24	<49
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<56	110	<64	<240	<56	<49
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-J-01	TA-SB-AOC-J-02	TA-SB-AOC-J-02	TA-SB-GW-01	TA-SB-GW-01	TA-SB-GW-02
Sample Name									TA-SB-AOC-J-01 (5-6)	TA-SB-AOC-J-02 (9-10)	TA-SB-AOC-J-02 (13-14)	TA-SB-MW-01 (2-3)	TA-SB-MW-01 (6-7)	TA-SB-MW-02 (1-2)
Depth Interval (Feet below ground surface)									5 - 6	9 - 10	13 - 14	2 - 3	6 - 7	1 - 2
Laboratory Sample ID(s)									TH02019-011	TH02019-015	TH02019-016	TF29012-001	TF29012-002	TF29012-012
Sample Date									8/1/2018	8/1/2018	8/1/2018	6/28/2018	6/28/2018	6/29/2018
Parameter (µg/kg)														
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<530	<600	<470	<570	420 [J-]	180 [J-]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<53	<60	<47	<57	<100 [UJ]	***30***
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<53	<60	<47	<57	<100 [UJ]	<68
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<53	<60	<47	<57	<100 [UJ]	<68
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<530	<600	<470	<570	230 [J-]	<680 [UJ]
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<110	<120	<93	<110	<200 [UJ]	<140
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<53	<60	<47	37	61 [J-]	<68
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<53	<60	<47	<57	<100 [UJ]	<68
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<53	<60	<47	<57	<100 [UJ]	<68
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<110	<120	<93	<110	<200 [UJ]	<140
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<53	<60	<47	<57	<100 [UJ]	<68
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<53	<60	<47	<57	<100 [UJ]	<68
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<53	<60	<47	<57	<100 [UJ]	170 [J]
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<53	<60	<47	<57	<100 [UJ]	<68
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<53	<60	<47	<57	<100 [UJ]	<68
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<53	<60	<47	<57	<100 [UJ]	<68
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<53	<60	<47	<57	<100 [UJ]	<68
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<53	<60	<47	<57	<100 [UJ]	<68
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<53	<60	<47	<57	<100 [UJ]	<68
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<110 [UJ]	<120 [UJ]	<93 [UJ]	<110	<200 [UJ]	<140
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<53	<60	<47	<57	<100 [UJ]	<68
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<53	<60	<47	<57	<100 [UJ]	<68
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<53	<60	<47	<57	<100 [UJ]	<68
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<53	<60	<47	<57	<100 [UJ]	<68
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<53	<60	<47	<57	<100 [UJ]	<68
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<53	<60	<47	<57	<100 [UJ]	<68
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<53	<60	<47	<57	<100 [UJ]	<68
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<53	<60	<47	<57	<100 [UJ]	<68
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<53	<60	<47	***24***	<100 [UJ]	***45***
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<530	<600	<470	<570	<1,000 [UJ]	<680 [UJ]
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<53	<60	<47	<57	<100 [UJ]	<68
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<53	120	<47	190	810 [J-]	84
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<53	<60	<47	<57	<100 [UJ]	<68
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<530	<600	<470	<570	<1,000 [UJ]	<680
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<270	<300	<230	34	<510 [UJ]	440
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<53	<60	<47	<57	<100 [UJ]	32
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<53	<60	<47	<57	<100 [UJ]	<68
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<53	<60	<47	<57	<100 [UJ]	<68
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<53	<60	<47	<57	<100 [UJ]	<68
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<53	<60	<47	30	<100 [UJ]	320
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<53	<60	<47	<57	<100 [UJ]	<68
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<53	<60	<47	<57	<100 [UJ]	<68
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<53	<60	<47	<57	<100 [UJ]	<68
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<53	<60	<47	<57	<100 [UJ]	<68
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<53	<60	<47	<57	<100 [UJ]	<68
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<53	<60	<47	<57	<100 [UJ]	<68
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<53	<60	<47	<57	<100 [UJ]	<68
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<110	<120	<93	58	<200 [UJ]	***440***
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<53	<60	<47	38	<100 [UJ]	290
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<53	<60	<47	<57	<100 [UJ]	150
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-GW-02	TA-SB-GW-04	TA-SB-GW-04	TA-SB-GW-04	TA-SB-GW-05	TA-SB-GW-05	TA-SB-GW-06
Sample Name									TA-SB-MW-02 (4-5)	TA-SB-MW-04 (1-2)	TA-SB-MW-04DUP (1-2)	TA-SB-MW-04 (5-6)	TA-SB-MW-05 (1-2)	TA-SB-MW-05 (4-5)	TA-SB-MW-06 (2-3)
Depth Interval (Feet below ground surface)									4 - 5	1 - 2	1 - 2	5 - 6	1 - 2	4 - 5	2 - 3
Laboratory Sample ID(s)									TF29012-013	TF29012-009	TF29012-010	TF29012-011	TF29012-015	TF29012-016	TF29012-005
Sample Date									6/29/2018	6/29/2018	6/29/2018	6/29/2018	7/2/2018	7/2/2018	6/29/2018
Parameter (µg/kg)															
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<610 [UJ]	<860 [UJ]	<660 [UJ]	<630 [UJ]	330 [J-]	<1,700 [UJ]	140
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<61	<86 [UJ]	<66 [UJ]	<63	***43 [J-]***	<170	***94***
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<610 [UJ]	<860 [UJ]	<660 [UJ]	<630 [UJ]	<1,100 [UJ]	<1,700 [UJ]	<610
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<120	<170 [UJ]	<130 [UJ]	<130	<210 [UJ]	<340	<120
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<61	<86 [UJ]	<66 [UJ]	<63	55 [J-]	<170	61
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<120	<170 [UJ]	<130 [UJ]	<130	<210 [UJ]	<340	<120
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<61	65 [J]	140 [J]	<63	190 [J]	150 [J]	250
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<120	<170 [UJ]	<130 [UJ]	<130	<210 [UJ]	<340	<120
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<61	<86 [UJ]	<66 [UJ]	<63	***160 [J-]***	***81***	<61
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<61	<86 [UJ]	<66 [UJ]	<63	***490 [J-]***	<170	<61
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	***990***
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<610 [UJ]	<860 [UJ]	<660 [UJ]	<630 [UJ]	<1,100 [UJ]	<1,700 [UJ]	<610
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	2,000
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	<61	59 [J-]	58 [J-]	36	120 [J-]	120	290
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<610	<860 [UJ]	<660 [UJ]	<630	<1,100 [UJ]	<1,700	<610
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<300	130 [J-]	330 [J-]	<320	540 [J-]	360	1,200
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	44	<86 [UJ]	<66 [UJ]	37	85 [J-]	78	24
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<61	<86 [UJ]	55 [J-]	<63	120 [J-]	130	170
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<61	110 [J-]	160 [J-]	<63	***5,100 [J-]***	***8,000***	<61
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<61	<86 [UJ]	<66 [UJ]	<63	<110 [UJ]	<170	<61
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<120	66 [J-]	160 [J-]	<130	60 [J-]	230	***1,000***
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<61	39 [J-]	91 [J-]	<63	<110 [UJ]	150	900
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<61	<86 [UJ]	73 [J-]	<63	<110 [UJ]	81	150
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-GW-06	TA-SB-GW-07	TA-SB-GW-07	TA-SB-GW-08	TA-SB-GW-08	TA-SB-MA-01	TA-SB-MA-01
Sample Name									TA-SB-MW-06 (4-5)	TA-SB-MW-07 (4-5)	TA-SB-MW-07 (6-7)	TA-SB-MW-08 (2-3)	TA-SB-MW-08 (5-6)	TA-SB-MA-01 (7-8)	TA-SB-MA-01 (11-12)
Depth Interval (Feet below ground surface)									4 - 5	4 - 5	6 - 7	2 - 3	5 - 6	7 - 8	11 - 12
Laboratory Sample ID(s)									TF29012-006	TF29012-003	TF29012-004	TF29012-007	TF29012-008	TH02019-019	TH02019-020
Sample Date									6/29/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	8/1/2018	8/1/2018
Parameter (µg/kg)															
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	330	<560	<600	<520	460 [J-]	<1,100	<570
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	270	<560	<600	<520	230 [J-]	<1,100	<570
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<190	<110	<120	<100	<170 [UJ]	<220	<110
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	140	34	38	<52	<83 [UJ]	780	<57
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<190	<110	<120	<100	<170 [UJ]	<220	<110
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	42	<56	<60	<52	<83 [UJ]	<110	<57
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<97	<56	<60	<52	<83 [UJ]	<110	<57
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<190	<110	<120	<100	<170 [UJ]	<220 [UJ]	<110 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<97	<56	<60	<52	<83 [UJ]	<110	<57
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<97	<56	<60	<52	<83 [UJ]	<110	<57
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<970	<560	<600	<520	<830 [UJ]	<1,100	<570
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	120	<56	<60	<52	<83 [UJ]	<110	<57
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	560	200	94	26	600 [J-]	680	<57
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<970	<560	<600	<520	<830 [UJ]	<1,100	<570
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	60	<280	<300	<260	<410 [UJ]	<550	<280
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<97	25	29	<52	<83 [UJ]	<110	<57
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	51	<56	<60	<52	<83 [UJ]	<110	<57
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<97	81	<60	<52	<83 [UJ]	<110	<57
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<97	<56	<60	<52	<83 [UJ]	<110	<57
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<97	<56	<60	<52	<83 [UJ]	<110	<57
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	39	<110	<120	<100	<170 [UJ]	<220	<110
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	39	<56	<60	<52	<83 [UJ]	<110	<57
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<97	<56	<60	<52	<83 [UJ]	<110	<57
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-MA-02	TA-SB-MA-02	TA-SB-MA-03	TA-SB-MA-03	TA-SB-MA-04	TA-SB-MA-04
Sample Name									TA-SB-MA-02 (7-8)	TA-SB-MA-02 (11-12)	TA-SB-MA-03(7-8)	TA-SB-MA-03(13-14)	TA-SB-MW-04(8-9)	TA-SB-MW-04(10-11)
Depth Interval (Feet below ground surface)									7 - 8	11 - 12	7 - 8	13 - 14	8 - 9	10 - 11
Laboratory Sample ID(s)									TH02019-024	TH02019-025	TH03007-002	TH03007-001	TH09090-003	TH09090-004
Sample Date									8/1/2018	8/1/2018	8/2/2018	8/2/2018	8/8/2018	8/8/2018
Parameter (µg/kg)														
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<1,400	<630	<600	<670	200 [J+]	230 [J+]
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<140	<63	<60	<67	<78	<80
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<140	<63	<60	<67	<78	<80
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<140	<63	<60	<67	<78	<80
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<1,400	<630	<600	<670	<780	<800
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<290	<130	<120	<130	<160	<160
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<140	<63	36	<67	100	<80
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<140	<63	<60	<67	<78	<80
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<140	<63	<60	<67	<78	<80
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<290	<130	<120	<130	<160	<160
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<140	<63	<60	<67	<78	<80
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<140	<63	<60 [UJ]	<67 [UJ]	<78	<80
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<140	<63	<60	<67	<78	<80
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<140	<63	<60	<67	<78	<80
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<140	<63	<60	<67	<78	<80
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<140	<63	<60	<67	<78	<80
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<140	<63	<60	<67	<78	<80
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<140	<63	<60	<67	<78	<80
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<140	<63	<60	<67	<78	<80
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<290 [UJ]	<130 [UJ]	<120 [UJ]	<130 [UJ]	<160 [UJ]	<160 [UJ]
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<140	<63	<60	<67	<78	<80
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<140	<63	<60	<67	<78	<80
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<140	<63	<60	<67	<78	<80
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<140	<63	<60	<67	<78	<80
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<140	<63	<60	<67	<78	<80
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<140	<63	<60	<67	<78	<80
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<140	<63	<60	<67	<78	<80
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<140	<63	<60	<67	<78	<80
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<140	<63	<60	<67	<78	<80
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<1,400	<630	<600	<670	<780	<800
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<140	<63	<60	<67	<78	<80
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	160	<63	80	31	250	850 [J+]
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<140	<63	<60	<67	<78	<80
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<1,400	<630	<600	<670	<780	<800
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<720	<320	<300	<330	<390	42 [J+]
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<140	<63	<60	<67	<78	<80
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<140	<63	<60	<67	<78	<80
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<140	<63	<60	<67	<78	<80
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<140	<63	<60	<67	<78	<80
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	74	<63	<60	<67	<78	41 [J+]
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<140	<63	<60	<67	<78	<80
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<140	<63	<60	<67	<78	<80
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<140	<63	<60	<67	<78	<80
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<140	<63	<60	<67	<78	<80
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<140	<63	<60	<67	<78	<80
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<140	<63	<60	<67	<78	<80
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<140	<63	<60	<67	<78	<80
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<290	<130	<120	<130	<160	<160
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<140	<63	<60	<67	<78	<80
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<140	<63	<60	<67	<78	<80
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND

TABLES 5A
SUMMARY OF SOIL SAMPLE ANALYSIS - VOCs
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T4-ISLAND	TA-SED-T7-ISLAND	TA-SED-T9-ISLAND
Sample Name									TA-SED-T10-ISLAND(0-1)	TA-SED-T10-ISLAND(2-3)	TA-SED-T4-ISLAND(0-0.5)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T9-ISLAND(0-0.5)
Depth Interval (Feet below ground surface)									0 - 1	2 - 3	0 - 0.5	0 - 0.5	0 - 0.5
Laboratory Sample ID(s)									TG24016-002	TG24016-003	TG14035-001	TG11006-001	TG14035-007
Sample Date									7/23/2018	7/23/2018	7/11/2018	7/9/2018	7/13/2018
Parameter (µg/kg)													
Acetone	15,000	34,000	290,000,000 (C)	130,000,000	390,000,000,000	23,000,000	260,000	180,000,000	<1,000 [UJ]	920 [J]	2,900 [J]	530 [J]	2,000
Benzene	100	240 (X)	1,600	13,000	380,000,000	180,000	1.7	120,000	<100	<230	<550 [UJ]	<110	<350
Bromodichloromethane	1,600 (W)	ID	1,200	9,100	84,000,000	110,000	NCL	29,000	<100	<230	<550 [UJ]	<110	<350
Bromoform	1,600 (W)	ID	150,000	900,000	2,800,000,000	820,000	NCL	1,900,000	<100	<230	<550 [UJ]	<110	<350
2-Butanone (MEK)	260,000	44,000	54,000,000 (C)	29,000,000	67,000,000,000	120,000,000 (C, DD)	NCL	81,000,000	<1,000 [UJ]	<2,300 [UJ]	1,200 [J]	240 [J-]	1,100
Bromomethane (Methyl bromide)	200	100	860	11,000	330,000,000	320,000	NCL	21,000	<200	<450	<1,100 [UJ]	<220 [UJ]	<700
Carbon disulfide	16,000	ID	76,000	1,300,000	47,000,000,000	7,200,000 (C, DD)	NCL	2,300,000	<100	<230	370 [J]	<110	190
Carbon tetrachloride	100	94 (X)	190	3,500	130,000,000	96,000	NCL	65,000	<100	<230	<550 [UJ]	<110	<350
Chlorobenzene	2,000	500	120,000	770,000	4,700,000,000	4300000 (C)	82	830,000	<100	<230	<550 [UJ]	<110	<350
Chloroethane	8,600	3,400 (X)	2,900,000 (C)	30,000,000	670,000,000,000	2600000 (C)	330	41,000,000	<200	<450	<1,100 [UJ]	<220 [UJ]	<700
Chloroform	1,600 (W)	7,000	7,200	45,000	1,300,000,000	1,200,000	0.26	32,000	<100	<230	<550 [UJ]	<110	<350
Chloromethane (Methyl chloride)	5,200	ID	2,300	40,000	4,900,000,000	1,600,000 (C)	6.9	330,000	<100	<230	<550 [UJ]	<110	<350
Cyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000,000	<100	<230	<550 [UJ]	<110	<350
1,2-Dibromo-3-chloropropane (DBCP)	10 (M)	ID	220	260	560,000	4400 (C)	NCL	530	<100	<230	<550 [UJ]	<110	<350
Dibromochloromethane	1,600 (W)	ID	3,900	24,000	130,000,000	110,000.00	NCL	830,000	<100	<230	<550 [UJ]	<110	<350
1,2-Dibromoethane (EDB)	20 (M)	20 (X)	670	1,700	14,000,000	92	NCL	3,600	<100	<230	<550 [UJ]	<110	<350
1,2-Dichlorobenzene	14,000	280	11,000,000 (C)	39,000,000	100,000,000,000	19,000,000 (C)	NCL	5,400,000	<100	<230	<550 [UJ]	<110	<350
1,3-Dichlorobenzene	170	680	26,000	79,000	200,000,000	200,000 (C)	10	NCL	<100	<230	<550 [UJ]	<110	<350
1,4-Dichlorobenzene	1,700	360	19,000	z	450,000,000	400,000	23	260,000	<100	<230	<550 [UJ]	<110	<350
Dichlorodifluoromethane	95,000	ID	900,000	53,000,000	3,300,000,000,000	52,000,000 (C)	NCL	260,000	<200	<450	<1,100 [UJ]	<220	<700
1,1-Dichloroethane	18,000	15,000	230,000	2,100,000	33,000,000,000	27,000,000 (C)	2.6	360,000	<100	<230	<550 [UJ]	<110	<350
1,2-Dichloroethane	100	120 (X)	2,100	6,200	120,000,000	91,000	NCL	46,000	<100	<230	<550 [UJ]	<110	<350
1,1-Dichloroethene	140	2,600	62	1,100	62,000,000	200,000	12	680,000	<100	<230	<550 [UJ]	<110	<350
cis-1,2-Dichloroethene	1,400	12,000	22,000	180,000	2,300,000,000	2,500,000 (C)	2.1	470,000	<100	<230	<550 [UJ]	<110	<350
trans-1,2-Dichloroethene	2,000	9,400 (X)	23,000	280,000	4,700,000,000	3,800,000 (C)	39	4,700,000	<100	<230	<550 [UJ]	<110	<350
1,2-Dichloropropane	100	180 (X)	4,000	25,000	270,000,000	140,000	NCL	47,000	<100	<230	<550 [UJ]	<110	<350
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<100	<230	<550 [UJ]	<110	<350
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<100	<230	<550 [UJ]	<110	<350
Ethylbenzene	1,500	360	87,000	720,000	10,000,000,000	22,000,000 (C)	12	580,000	<100	<230	<550 [UJ]	<110	<350
1,3-Dichloropropene (Calculated: cis + trans)	170	100 (X)	1,000	18,000	780,000,000	10,000	NCL	NCL	ND	ND	ND	ND	ND
2-Hexanone	20,000	ID	990,000	1,100,000	2,700,000,000	32,000,000 (C)	NCL	600,000	<1,000	<2,300	<5,500 [UJ]	<1,100	<3,500
Isopropylbenzene	91,000	3,200	400,000 (C)	1,700,000	5,800,000,000	25,000,000 (C)	NCL	5,800,000	<100	<230	<550 [UJ]	<110	<350
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000,000	500	1,500 [J+]	8,800 [J]	650	3,800
Methyl tertiary butyl ether (MTBE)	800	2,000 (X)	9,900,000 (C)	25,000,000	200,000,000,000	1,500,000	74	4,700,000	<100	<230	<550 [UJ]	<110	<350
4-Methyl-2-pentanone	36,000	ID	37,000,000 (C)	45,000,000	140,000,000,000	56,000,000 (C)	NCL	99,000,000	<1,000	<2,300	<5,500 [UJ]	<1,100	<3,500
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<510	<1,100	<2,700 [UJ]	<540	<1,700
Methylene chloride	100	940 (X)	45,000	210,000	6,600,000,000	1,300,000	130	1,000,000	<100	<230	***260 [J]***	53	<350
Styrene	2,700	530 (X)	250,000	970,000	5,500,000,000	400,000	NCL	18,000,000	<100	<230	<550 [UJ]	<110	<350
1,1,2,2-Tetrachloroethane	170	64 (X)	4,300	10,000	54,000,000	53,000	NCL	60,000	<100	<230	<550 [UJ]	<110	<350
Tetrachloroethene	100	220 (X)	11,000	170,000	2,700,000,000	200,000 (C)	6.2	240,000	<100	<230	<550 [UJ]	<110	<350
Toluene	16,000	5,400	330,000 (C)	2,800,000	27,000,000,000	50,000,000 (C)	3,700	15,000,000	<100	<230	<550 [UJ]	<110	<350
1,1,2-Trichloro-1,2,2-Trifluoroethane	9,000,000 (C)	1,700	5,100,000 (C)	180,000,000	5,100,000,000,000	1,000,000,000 (C,D)	NCL	20,000,000	<100	<230	<550 [UJ]	<110	<350
1,2,4-Trichlorobenzene	4,200	4700 (X)	9,600,000 (C)	28,000,000	25,000,000,000	990,000 (DD)	53	170,000	<100	<230	<550 [UJ]	<110	<350
1,1,1-Trichloroethane	4,000	1,800	250,000	3,800,000	67,000,000,000	500,000,000 (C)	450	24,000,000	<100	<230	<550 [UJ]	<110	<350
1,1,2-Trichloroethane	100	240 (X)	4,600	17,000	190,000,000	180,000	NCL	4,500	<100	<230	<550 [UJ]	<110	<350
Trichloroethene	100	580 (X)	1,000	11,000	130,000,000	110,000 (DD)	NCL	12,000	<100	<230	<550 [UJ]	<110	<350
Trichlorofluoromethane	52,000	NA	2,800,000 (C)	92,000,000	3,800,000,000,000	79,000,000 (C)	NCL	70,000,000	<100	<230	<550 [UJ]	<110	<350
Vinyl chloride	40	40 (X)	270	4,200	350,000,000	3,800	NCL	5,900	<100	<230	<550 [UJ]	<110	<350
Xylenes (total)	5,600	980	6,300,000 (C)	46,000,000	290,000,000,000	410,000,000 (C)	280	1,700,000	<200	<450	<1,100 [UJ]	<220	<700
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<100	<230	<550 [UJ]	<110	<350
o - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900,000	<100	<230	<550 [UJ]	<110	<350
Trihalomethanes (Calculation: Bromodichloromentane + Bromoform + Chloroform + Dibromochloromethane)	1,600 (W)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-01	TA-SB-01	TA-SB-02	TA-SB-02	TA-SB-03	TA-SB-03	TA-SB-04	TA-SB-04	TA-SB-05	TA-SB-05
Sample Name									TA-SB-01(2-3)	TA-SB-01(7-8)	TA-SB-02(2-3)	TA-SB-02(7-8)	TA-SB-03(6-7)	TA-SB-03(12-13)	TA-SB-04(7-8)	TA-SB-04(12-13)	TA-SB-05 (2-3)	TA-SB-05 (7-8)
Depth Interval (Feet below ground surface)									2 - 3	7 - 8	2 - 3	7 - 8	6 - 7	12 - 13	7 - 8	12 - 13	2 - 3	7 - 8
Laboratory Sample ID(s)									TH03007-005	TH03007-006	TH03007-009	TH03007-010	TH03007-015	TH03007-016	TH03007-017	TH03007-018	TH08019-006	TH08019-007
Sample Date									8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/3/2018	8/3/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	160	<16	350	<17	710	<99	<15	<14	640	26
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<140	<16	<140	<17	<870	<99	<15	<14	120	<46
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	420	<16	650	<17	1,600	<99	<15	13	2,000 [J+]	78 [J+]
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<3,600	<400	<3,600	<440	<22,000	<2,500	<390	<360	<2,800	<1,200
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	1,200	<16	1,700	24	3,100	80	<15	27	3,800	150
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	1,200	<16	1,700	20	***3,100***	59	<15	25	***2,900***	98
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	1,500	<16	2,300	<17	4,000	72	<15	29	3,600	130
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	460	<16	550	<17	1,000	<99	<15	9.2	930	35
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	570	<16	750	<17	1,800	30	<15	16	1,500	58
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	190	<80	250	<90	900	<510	<79	8.6	410 [J+]	<240
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	1,300	<16	1,700	23	3,500	<99	<15	30	3,500	100
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<140	<16	<140	<17	<870	<99	<15	<14	<110	<46
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<740	<80	<730	<90	<4,500	<510	<79	<72	380	<240
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<3,600	<400	<3,600	<440	<22,000	<2,500	<390	<360	<2,800	<1,200
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<1,400	<160	<1,400	<170	<8,700	<990	<150	<140	<1,100	<460
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	2,600	11	3,400	45	***9,000***	130	13	60	***7,900 [J+]***	330 [J+]
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	140	<16	230	<17	580	<99	<15	<14	1,200	46
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<3,600	<400	<3,600	<440	<22,000	<2,500	<390	<360	<2,800	<1,200
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	410	<16	510	<17	1,100	<99	<15	8.6	1,000	37
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	210	<16	330	11	<870	<99	<15	<14	110 [J+]	<46
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<1,400	<160	<1,400	<170	<8,700	250	<150	<140	<1,100	<460
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	220	<16	420	18	650	130	<15	<14	***1,700 [J+]***	***1,200 [J+]***
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<1,400	<160	<1,400	<170	<8,700	<990	<150	<140	<1,100	<460
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<3,600	<400	<3,600	<440	<22,000	<2,500	<390	<360	<2,800	<1,200
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	1,800	<16	***2,500***	28	***7,100***	90	10	47	***7,300 [J+]***	280 [J+]
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<740	<80	<730	<90	<4,500	530	<79	<72	<560	<240
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	2,200	9.1	2,700	37	6,500	100	9.3	44	5,800	210
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<740	<80	<730	<90	<4,500	<510	<79	<72	<560	<240

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-06	TA-SB-06	TA-SB-07	TA-SB-07	TA-SB-08	TA-SB-08	TA-SB-08	TA-SB-09	TA-SB-09	TA-SB-10
Sample Name									TA-SB-06(2-3)	TA-SB-06(7-8)	TA-SB-07 (3-4)	TA-SB-07 (9-10)	TA-SB-08(3-4)	TA-SB-08(7-8)	TA-SB-08(7-8)DUP	TA-SB-09(2-3)	TA-SB-09(6-7)	TA-SB-10 (1-2)
Depth Interval (Feet below ground surface)									2 - 3	7 - 8	3 - 4	9 - 10	3 - 4	7 - 8	7 - 8	2 - 3	6 - 7	1 - 2
Laboratory Sample ID(s)									TH03007-020	TH03007-019	TH08019-004	TH08019-005	TH03007-011	TH03007-012	TH03007-013	TH03007-007	TH03007-008	TH01025-023
Sample Date									8/2/2018	8/2/2018	8/7/2018	8/7/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	7/31/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	260	<15	25	<42	69	<390	<130	<15	<15	<15
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<300	<15	<28	<42	<73	<390	<130	<15	<15	<15
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	660	20	99 [J+]	15 [J+]	150	350	<130	<15	<15	<15
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<7,600	<370	<720	<1,100	<1,900	<9,900	<3,400	<370	<390	<390
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	1,300	49	210	52	370	890	180	<15	<15	40
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	1,300	55	180	35	390	980 [J]	190 [J]	<15	<15	39
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	1,400 [J+]	71	210	52	480	1,200 [J]	270 [J]	<15	<15	61
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	670	20	120	18	130	440	<130	<15	<15	16
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	640	26	90	13	190	410	89	<15	<15	19
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<1,500	<75	51 [J+]	<220	75	<2,000	<690	<76	<79	<79
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	1,300	55	220	34	390	1,000	230	<15	<15	44
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<300	<15	<28	<42	<73	<390	<130	<15	<15	<15
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	10
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<7,600	<370	<720	<1,100	<1,900	<9,900	<3,400	<370 [UR]	<390	<390
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<3,000	<150	<280	<420	<730	<3,900	<1,300	<150	<150	<150
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	1,200	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	3,100	120	510 [J+]	92 [J+]	840	2,400 [J]	490 [J]	<15	<15	73 [J+]
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	250	<15	43	13	51	240	<130	<15	<15	<15
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<7,600	<370	<720	<1,100	<1,900	<9,900	<3,400	<370 [UR]	<390	<390
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	730	18	99	16	150	650	74	<15	<15	16
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<300	<15	160 [J+]	<42	<73	480	<130	<15	<15	32 [J+]
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<3,000	<150	69	<420	<730	<3,900	<1,300	<150	<150	<150
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	160	<15	150 [J+]	670 [J+]	66	***1,100***	360	<15	<15	21 [J+]
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<3,000	<150	<280	<420	<730	<3,900	<1,300	<150	<150	<150
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<7,600 [UJ]	<370 [UJ]	<720	<1,100	<1,900	<9,900	<3,400	<370	<390	<390
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	***2,400***	67	440 [J+]	53 [J+]	530	1,700 [J]	340 [J]	<15	<15	40 [J+]
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<1,500	<75	190	<220	<380	<2,000	<690	<76	<79	<79
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	2,600	92	400	71	640	1,800 [J]	380 [J]	<15	<15	66
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<1,500	<75	<150	<220	<380	<2,000	<690	<76	<79	<79

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-10	TA-SB-11	TA-SB-11	TA-SB-12	TA-SB-12	TA-SB-12	TA-SB-13	TA-SB-13	TA-SB-14	TA-SB-14	TA-SB-15
Sample Name									TA-SB-10 (4-5)	TA-SB-11 (1-2)	TA-SB-11 (6-7)	TA-SB-12 (0-1)	TA-SB-12 (1-2)	TA-SB-12 (4-5)	TA-SB-13 (1-2)	TA-SB-13 (6-7)	TA-SB-14 (5-6)	TA-SB-14 (7-8)	TA-SB-15 (2-3)
Depth Interval (Feet below ground surface)									4 - 5	1 - 2	6 - 7	0 - 1	1 - 2	4 - 5	1 - 2	6 - 7	5 - 6	7 - 8	2 - 3
Laboratory Sample ID(s)									TH01025-024	TH01025-011	TH01025-012	TH01025-016	TH01025-006	TH01025-007	TH01025-013	TH01025-014	TH01025-004	TH01025-005	TH01025-017
Sample Date									7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018
Parameter (µg/kg)																			
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<15	<72	<14	53	<15	<14	37	<14	<16	<15	<14
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<15	<72	<14	87	9.5	<14	<71	<14	<16	<15	<14
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<15	44 [J+]	<14	220 [J+]	17 [J+]	<14	90 [J+]	<14	<16	<15	<14
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<390	<1,800	<350	<1,900	<380	<360	<1,800	<350	<400	<370	<350
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<15	190	<14	900	82	<14	280	7	11	<15	<14
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	<15	180	<14	1,100	100	<14	210	<14	7.6	<15	<14
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	<15	220	<14	1,500	140	<14	300	4.4	9.4	<15	<14
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<15	130	<14	720	35	<14	130	<14	<16	<15	<14
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<15	86	<14	500	48	<14	93	<14	4.4	<15	<14
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	<15	150	<14	1,100	96	<14	230	<14	6.6	<15	<14
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<15	<72	<14	<76	<15	<14	<71	<14	<16	<15	<14
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<78	<370	<70	97	<77	<74	<360	<71	<82	<75	<71
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<390	<1,800	<350	<1,900	<380	<360	<1,800	<350	<400	<370	<350
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<150	<720	<140	<760	<150	<140	<710	<140	<160	<150	<140
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	<15	360 [J+]	<14	1,800 [J+]	150 [J+]	<14	540 [J+]	6.3 [J+]	15 [J+]	<15	4 [J+]
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<15	<72	<14	45	4.1	<14	43	<14	<16	<15	<14
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<390	<1,800	<350	<1,900	<380	<360	<1,800	<350	<400	<370	<350
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<15	110	<14	640	36	<14	120	<14	<16	<15	<14
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<15	<72	<14	300 [J+]	49 [J+]	<14	<71	<14	<16	<15	<14
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<150	<720	<140	<760	<150	<140	<710	<140	<160	<150	<140
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<15	<72	<14	220 [J+]	37 [J+]	<14	<71	<14	<16	<15	<14
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<150	<720	<140	<760	<150	<140	<710	<140	<160	<150	<140
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<390	<1,800	<350	<1,900	<380	<360	<1,800	<350	<400	<370	<350
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	<15	150 [J+]	<14	1,100 [J+]	92 [J+]	<14	420 [J+]	4.6 [J+]	13 [J+]	<15	4.1 [J+]
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	<15	300	<14	1,700	160	<14	430	5.3	12	<15	<14
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<78	<370	<70	<390	<77	<74	<360	<71	<82	<75	<71

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-15	TA-SB-16	TA-SB-16	TA-SB-17	TA-SB-17	TA-SB-18	TA-SB-18	TA-SB-19	TA-SB-19	TA-SB-20	TA-SB-20
Sample Name									TA-SB-15 (7-8)	TA-SB-16 (2-3)	TA-SB-16 (6-7)	TA-SB-17 (1-2)	TA-SB-17 (7-8)	TA-SB-18 (2-3)	TA-SB-18 (6-7)	TA-SB-19 (3-4)	TA-SB-19 (7-8)	TA-SB-20(5-6)	TA-SB-20 (7-8)
Depth Interval (Feet below ground surface)									7 - 8	2 - 3	6 - 7	1 - 2	7 - 8	2 - 3	6 - 7	3 - 4	7 - 8	5 - 6	7 - 8
Laboratory Sample ID(s)									TH01025-018	TG27014-006	TG27014-005	TG27014-016	TG27014-017	TG27014-009	TG27014-010	TG27014-007	TG27014-008	TG28004-018	TG27014-018
Sample Date									7/31/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/26/2018
Parameter (µg/kg)																			
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<14	<71	<70	8.1	45	3,300	<14	2,400 [J+]	<14	<120	<16
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<14	<71	<70	8.1	26	1,700	<14	280	<14	<120	<16
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<14	150	140	26	130	14,000	9	3,900 [J+]	<14	120	<16
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<340	<1,800	<1,800	<370	<1,900	<16,000	<360	<3,700	<370	<3,000	<400
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<14	370	520	98	340	***21,000***	15	4,300 [J+]	4.4	290	<16
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	<14	360	560	110	380	***17,000***	18	***4,500***	12	360	<16
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	<14	450	680	120	430	20,000	22	5,300 [J+]	<14	630	<16
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<14	130	190	49	150	8,600	4.4	970 [J-]	<14	230	<16
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<14	190	310	60	150	8,200	5.1	2,400 [J-]	<14	240	<16
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<70	<360	37	<75	<390	***5,300***	<73	490	<74	83	<80
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	<14	370	520	97	300	18,000	7.7	4,400	<14	400	<16
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<14	<71	<70	<15	<75	<650	<14	<140	<14	<120	<16
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<70	<360	<360	<75	<390	***3,800***	<73	1,400	<74	<600	<80
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<340	<1,800	<1,800	<370	<1,900	<16,000	<360	<3,700	<370	<3,000	<400
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<140	<710	<700	<150	<750	<6,500	<140	<1,400	<140	<1,200	<160
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<70	<360	<360	<75	<390	<3,300	54	<750	53	<600	<80
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	<14	820	1,100	190	710	***47,000***	30	***13,000 [J+]***	<14	630	<16
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<14	<71	<70	7.9	44	***5,400***	4.2	3,000 [J+]	<14	99	<16
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<340	<1,800	<1,800	<370	<1,900	<16,000	<360	<3,700 [UR]	<370	<3,000	<400
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<14	130	180	50	190	7,800	15	1,100 [J-]	<14	190	<16
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<14	<71	<70	27	59	590	<14	390 [J+]	<14	88	<16
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<140	<710	<700	<150	<750	<6,500	<140	1,600 [J+]	<140	<1,200	<160
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<14	<71	39	22	75	560	<14	160	<14	210	<16
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<140	<710	<700	<150	<750	<6,500	<140	<1,400	<140	<1,200	<160
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<340	<1,800	<1,800	<370	<1,900	<16,000	<360	<3,700	<370	<3,000	<400
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	<14	460	450	130	540	***40,000***	31	***12,000 [J+]***	<14	550	<16
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<70	<360	<360	<75	<390	<3,300	<73	1,700	<74	<600	<80
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	<14	640	920	210	650	38,000	23	11,000 [J+]	4.7	440	<16
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<70	<360	<360	<75	<390	<3,300	<73	<750	<74	<600	<80

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-21	TA-SB-21	TA-SB-22	TA-SB-22	TA-SB-23	TA-SB-23	TA-SB-24	TA-SB-24	TA-SB-25	TA-SB-25
Sample Name									TA-SB-21 (6-7)	TA-SB-21 (9-10)	TA-SB-22 (2-3)	TA-SB-22 (8-9)	TA-SB-23(6-7)	TA-SB-23(9-10)	TA-SB-24(0-1)	TA-SB-24(5-6)	TA-SB-25(1-2)	TA-SB-25(7-8)
Depth Interval (Feet below ground surface)									6 - 7	9 - 10	2 - 3	8 - 9	6 - 7	9 - 10	0 - 1	5 - 6	1 - 2	7 - 8
Laboratory Sample ID(s)									TH01025-025	TH01025-026	TH01025-021	TH01025-022	TH09090-001	TH09090-002	TG28004-027	TG28004-028	TG28004-029	TG28004-001
Sample Date									7/31/2018	7/31/2018	7/31/2018	7/31/2018	8/8/2018	8/8/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<15	<15	<13	6.8	76	<38	<68	<35	72	<38
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<15	<15	<13	<16	<41	<38	<68	<35	<86	<38
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<15	<15	<13	26 [J+]	130 [J+]	<38	53	53	68	<38
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<380	<370	<330	<410	<1,000	<980	<1,700	<880	<2,200	<970
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	21	8.6	6.1	76	250	21	180	60	180	<38
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	22	<15	11	71	170	<38	220	46	210	<38
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	30	7.5	13	110	260	12	300	47	290	<38
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	9.6	<15	19	42	52	<38	79	<35	67	<38
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	8.6	<15	4.2	25	90	<38	100	17	110	<38
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<76	<75	<68	<84	55 [J+]	<200	<350	<180	<440	<200
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	16	<15	6.7	91	280	<38	220	53	230	<38
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<15	<15	<13	<16	<41	<38	<68	<35	<86	<38
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<76	<75	<68	39	92	<200	<350	<180	<440	<200
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<380	<370	<330	<410	<1,000	<980	<1,700	<880	<2,200	<970
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<150	<150	<130	<160	<410	<380	<680	<350	<860	<380
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	24 [J+]	9.6 [J+]	13 [J+]	140 [J+]	690 [J+]	17 [J+]	360	120	470 [J+]	<38
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<15	<15	<13	<16	90	<38	<68	<35	49	<38
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<380	<370	<330	<410	<1,000	<980	<1,700	<880	<2,200	<970
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	9.5	<15	13	37	44	<38	70	<35	66	<38
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<15	<15	<13	160 [J+]	180 [J+]	<38	<68	140	51 [J+]	<38
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<150	<150	<130	<160	<410	<380	<680	<350	<860	<380
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<15	<15	<13	100 [J+]	120 [J+]	45 [J+]	<68	47	82	<38
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<150	<150	<130	<160	<410	<380	<680	<350	<860	<380
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<380	<370	<330	<410	<1,000	<980	<1,700	<880	<2,200	<970
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	13 [J+]	<15	5.6 [J+]	180 [J+]	450 [J+]	13 [J+]	200	170	290 [J+]	<38
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	26	8	11	140	550	14	310	100	370 [J+]	<38
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<76	<75	<68	<84	200	<200	<350	<180	<440	<200
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<76	<75	<68	<84	<210	<200	<350	<180	<440	<200

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-26	TA-SB-26	TA-SB-27	TA-SB-27	TA-SB-27	TA-SB-28	TA-SB-28	TA-SB-29	TA-SB-29	TA-SB-30
Sample Name									TA-SB-26 (5-6)	TA-SB-26 (8-9)	TA-SB-27 (1-2)	TA-SB-27 (1-2) DUP	TA-SB-27 (8-9)	TA-SB-28(2-3)	TA-SB-28(6-7)	TA-SB-29 (2-3)	TA-SB-29 (9-10)	TA-SB-30 (2-3)
Depth Interval (Feet below ground surface)									5 - 6	8 - 9	1 - 2	1 - 2	8 - 9	2 - 3	6 - 7	2 - 3	9 - 10	2 - 3
Laboratory Sample ID(s)									TH01025-002	TH01025-003	TG31022-021	TG31022-023	TH08019-001	TG28004-004	TG28004-005	TG31022-018	TG31022-019	TH01025-001
Sample Date									7/31/2018	7/31/2018	7/30/2018	7/30/2018	8/7/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/30/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	19	<15	<730	<730	<29	<14	<13	100	<15	50
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	4.3	<15	<730	<730	<29	<14	<13	150	<15	160
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	200
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	61 [J+]	<15	<730	<730	9.4 [J+]	<14	3.6 [J+]	510	<15	280 [J+]
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<370	<390	<19,000	<19,000	<750	<360	<340	<3,500	<380	<2,000
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	140	<15	<730	360	29	<14	16 [J+]	1,900 [J-]	<15	820
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	110	<15	<730	<730	18	<14	22 [J+]	***2,200***	<15	910
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	180	4.9	<730	120	23	<14	27 [J+]	2,800	<15	1,800
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	35	<15	<730	<730	13	<14	9.5 [J+]	560 [J-]	<15	280
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	58	<15	<730	<730	<29	<14	7.3 [J+]	1,300	<15	620
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	25 [J+]	<79	<3,800	<3,800	<150	<74	<69	130	<77	160 [J+]
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	150	<15	<730	<730	19	<14	12 [J+]	1,900 [J-]	<15	1,200
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<15	<15	<730	<730	<29	<14	<13	<140	<15	<80
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	22	<79	<3,800	<3,800	<150	<74	<69	<710	<77	350
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<370	<390	<19,000	<19,000	<750	<360	<340	<3,500 [UR]	<380	<2,000
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<150	<150	<7,300	<7,300	<290	<140	<130	<1,400	<150	<800
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<76	<79	<3,800	<3,800	<150	<74	<69 [UB]	<710	<77	<410
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	300 [J+]	4.8 [J+]	<730	260 [J+]	45 [J+]	<14	23 [J+]	3,500	<15	1,600 [J+]
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	24	<15	<730	<730	<29	<14	<13	140	<15	62
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<370	<390	<19,000	<19,000	<750	<360	<340	<3,500 [UR]	<380	<2,000
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	35	<15	<730	<730	11	<14	18 [J+]	540	<15	310
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	35 [J+]	<15	<730	<730	<29	<14	<13	<140	<15	1,200 [J+]
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<150	<150	<7,300	<7,300	<290	<140	<130	<1,400	<150	100
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	24 [J+]	<15	<730	<730	<29	<14	6.4 [J+]	140	<15	***1,000 [J+]***
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<150	<150	<7,300	<7,300	<290	<140	<130	<1,400	<150	<800
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<370	<390	<19,000	<19,000	<750	<360 [UJ]	<340 [UJ]	<3,500	<380	<2,000
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	290 [J+]	<15	<730	380 [J+]	37 [J+]	<14	16 [J+]	1,300 [J-]	<15	1,400 [J+]
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	240	4.8	<730	220	40	<14	22 [J+]	2,800 [J-]	<15	1,500
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710 [UJ]	<77	<410
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<76	<79	<3,800	<3,800	<150	<74	<69	<710	<77	<410

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-30	TA-SB-31	TA-SB-31	TA-SB-32	TA-SB-32	TA-SB-32	TA-SB-33	TA-SB-33	TA-SB-34	TA-SB-34
Sample Name									TA-SB-30 (13-14)	TA-SB-31(2-3)	TA-SB-31(7-8)	TA-SB-32(2-3)	TA-SB-32(2-3) DUP	TA-SB-32(9-10)	TA-SB-33(1-2)	TA-SB-33(7-8)	TA-SB-34(3-4)	TA-SB-34(6-7)
Depth Interval (Feet below ground surface)									13 - 14	2 - 3	7 - 8	2 - 3	2 - 3	9 - 10	1 - 2	7 - 8	3 - 4	6 - 7
Laboratory Sample ID(s)									TG31022-020	TG28004-002	TG28004-003	TG28004-006	TG28004-007	TG28004-008	TG28004-023	TG28004-024	TG28004-020	TG28004-019
Sample Date									7/30/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<14	310	110	<14	<28	<14	240	<1,100	<130	<170
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<14	70	<140	<14	<28	<14	530	<1,100	<130	<170
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<14	900	220	<14	<28	<14	1,700	<1,100	210	110
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<360	<1,800	<3,600	<360	<720	<360	<7,900	<27,000	<3,200	<4,200
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<14	1,800	400	<14	22	<14	6,600	1,200	750	340
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	<14	1,500	400	15	36	<14	***6,000***	940	780	360
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	<14	1,900	430	<14	<28	<14	7,900	1,000	1,000	470
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<14	460	150	<14	19	<14	1,900	<1,100	300	180
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<14	780	170	<14	<28	<14	3,300	500	450	180
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<73	410	<730	<73	<150	<74	380	<5,400	120	<860
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	<14	1,600	390	<14	14	<14	6,000	900	920	400
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<14	<73	<140	<14	<28	<14	<310	<1,100	<130	<170
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<73	230	<730	<73	<150	<74	<1,600	<5,400	<650	<860
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<73	<370	<730	780 [J]	100 [J]	<74	<1,600	<5,400	<650	<860
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<360	<1,800	<3,600	<360	<720	<360	<7,900	<27,000	<3,200	<4,200
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<140	<730	<1,400	<140	<280	<140	<3,100	<11,000	<1,300	<1,700
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<73	<370 [UB]	<730	<73 [UB]	<150	<74 [UB]	<1,600	<5,400	<650	<860
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	<14	3,400	900	<14	<28	<14	***12,000***	2,300	2,000	720
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<14	440	130	<14	<28	<14	400	<1,100	110	<170
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<360	<1,800	<3,600	<360	<720	<360	<7,900	<27,000	<3,200	<4,200
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<14	470	220	14	30	<14	2,100	<1,100	280	170
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<14	240	220	<14	<28	<14	240	<1,100	<130	<170
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<140	94	<1,400	<140	<280	<140	<3,100	<11,000	210	<1,700
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<14	***750***	***1,700***	<14	<28	<14	320	<1,100	***1,200***	710
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<140	<730	<1,400	<140	<280	<140	<3,100	<11,000	<1,300	<1,700
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<360	<1,800	<3,600 [UJ]	<360 [UJ]	<720 [UJ]	<360 [UJ]	<7,900	<27,000	<3,200	<4,200
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	<14	***3,500***	1,100	260	320	<14	***4,900***	1,900	970	380
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	<14	3,200	870	43 [J]	76 [J]	<14	9,500	1,800	1,500	600
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<73	<370	<730	<73	<150	<74	<1,600	<5,400	<650	<860

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-35	TA-SB-35	TA-SB-36	TA-SB-36	TA-SB-37	TA-SB-37	TA-SB-38	TA-SB-38	TA-SB-38	TA-SB-39
Sample Name									TA-SB-35 (2-3)	TA-SB-35 (6-7)	TA-SB-36 (2-3)	TA-SB-36 (5-6)	TA-SB-37(1-2)	TA-SB-37(6-7)	TA-SB-38 (0.5-1.5)	TA-SB-38 (0.5-1.5) DUP	TA-SB-38 (6-7)	TA-SB-39 (1-2)
Depth Interval (Feet below ground surface)									2 - 3	6 - 7	2 - 3	5 - 6	1 - 2	6 - 7	0.5 - 1.5	0.5 - 1.5	6 - 7	1 - 2
Laboratory Sample ID(s)									TG27014-001	TG27014-002	TG27014-003	TG27014-004	TG28004-016	TG28004-017	TG27014-011	TG27014-012	TG27014-013	TG27014-015
Sample Date									7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/27/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	840	<17	<95	<110	470	590	280	320	<150	140
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<740	<17	<95	<110	<150	63	240	240	<150	22
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	2,300	<17	82	<110	1,000	1,500	1,300	1,800	41	340
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<19,000	<430	<2,400	<2,900	<3,900	<5,800	<17,000	<6,900	<3,700	<1,800
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	4,700	<17	260	140	2,000	2,900	3,000	3,200	180	910
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	***5,000***	<17	240	140	1,700	***2,300***	***2,900***	***2,600***	240	910
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	5,700	<17	340	190	1,800	2,800	3,500	3,100	300	1,100
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	2,100	<17	110	65	680	940	1,400	1,300	72	390
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	2,500	<17	110	84	900	1,400	1,300	1,300	96	410
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	710	<87	<490	<590	310	740	<3,500	650	<760	130
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	5,400	<17	300	200	1,900	3,000	2,400	2,800	150	820
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<740	<17	<95	<110	<150	<230	<690	<270	<150	<70
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<3,800	<87	<490	<590	230	<1,200	<3,500	390	<760	91
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<19,000	<430	<2,400	<2,900	<3,900	<5,800	<17,000	<6,900	<3,700	<1,800
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<7,400	<170	<950	<1,100	<1,500	<2,300	<6,900	<2,700	<1,500	<700
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	***12,000***	<17	530	380	3,900	***6,400***	***6,200***	***7,100***	420	1,700
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	1,100	<17	<95	<110	390	580	480	590	<150	140
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<19,000	<430	<2,400	<2,900	<3,900	<5,800	<17,000	<6,900	<3,700	<1,800
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	2,100	<17	96	65	670	980	1,700	1,400	180	380
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	680	<17	76	<110	210	260	<690	170	<150	140
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<7,400	<170	<950	640	<1,500	<2,300	<6,900	<2,700	<1,500	<700
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	***2,200***	<17	***1,700***	***1,600***	290	***1,200***	300	260	<150	520
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<7,400	<170	<950	<1,100	<1,500	<2,300	<6,900	<2,700	<1,500	<700
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<19,000	<430	<2,400	<2,900	<3,900 [UJ]	<5,800 [UJ]	<17,000	<6,900	<3,700	<1,800
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	***8,300***	<17	360	220	***3,000***	***4,900***	***4,500***	***6,200***	250	1,100
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	9,200	<17	410	280	3,300	5,700	4,700	5,900	330	1,500
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<3,800	<87	<490	<590	<780	<1,200	<3,500	<1,400	<760	<360

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-39	TA-SB-40	TA-SB-40	TA-SB-41	TA-SB-41	TA-SB-42	TA-SB-42	TA-SB-43	TA-SB-43	TA-SB-44
Sample Name									TA-SB-39 (6-7)	TA-SB-40(2-3)	TA-SB-40(6-7)	TA-SB-41 (2-3)	TA-SB-41 (5-6)	TA-SB-42 (1-2)	TA-SB-42 (6-7)	TA-SB-43 (1-2)	TA-SB-43 (7-8)	TA-SB-44 (1-2)
Depth Interval (Feet below ground surface)									6 - 7	2 - 3	6 - 7	2 - 3	5 - 6	1 - 2	6 - 7	1 - 2	7 - 8	1 - 2
Laboratory Sample ID(s)									TG27014-014	TG28004-011	TG28004-012	TG31022-003	TG31022-004	TG31022-007	TG31022-008	TG19003-022	TG19003-023	TG31022-011
Sample Date									7/26/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/19/2018	7/19/2018	7/30/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	150	360	42	<15	<15	<13	<14	110	700	45
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	23	190	<110	<15	<15	<13	<14	49	<86	71
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	380	1,100	140	<15	<15	<13	<14	250	1,800	170
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<1,900	<7,600	<2,800	<370	<370	<320	<350	<1,800	<2,200	<1,700
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	840	4,100	520	13	<15	<13	<14	810	2,300	620
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	770	***3,800***	550	11	<15	<13	<14	910	***2,100***	690
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	910	4,300	620	15	<15	<13	<14	1,400	2,500	1,200
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	310	1,900	280	9.9	<15	<13	<14	390	590	180
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	420	2,200	290	<15	<15	<13	<14	430	890	560
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	140	670	<560	<76	<76	<65	<71	170	500	110
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	790	4,400	540	11	<15	<13	<14	980	2,000	830
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<74	<300	<110	<15	<15	<13	<14	<71	<86	<67
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	95	<1,500	<560	26	<76	<65	<71	100	370	270
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<1,900	<7,600	<2,800	<370	<370	<320	<350	<1,800	<2,200	<1,700
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<740	<3,000	<1,100	<150	<150	<130	<140	<710	<860	<670
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	1,700	***9,500***	890	16	<15	<13	<14	2,000	5,400	1,400
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	180	370	51	<15	<15	<13	<14	100	700	51
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<1,900	<7,600	<2,800	<370	<370	<320	<350	<1,800	<2,200	<1,700
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	330	1,800	310	8.4	<15	<13	<14	380	590	190
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	92	260	140	130	<15	<13	<14	230	160	830
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<740	<3,000	<1,100	<150	<150	<130	<140	<710	<860	<670
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	110	250	130	94	<15	<13	<14	210	300	580
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<740	<3,000	<1,100	<150	<150	<130	<140	<710	<860	<670
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<1,900	<7,600 [UJ]	<2,800 [UJ]	<370	<370	<320	<350	<1,800	<2,200	<1,700
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	1,200	***5,900***	510	41	<15	<13	<14	1,400	***5,300***	1,500
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	1,600	8,200	820	16	<15	<13	<14	1,500	4,300	1,000
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<380	<1,500	<560	<76	<76	<65	<71	<370	<440	<340

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-44	TA-SB-45	TA-SB-45	TA-SB-45	TA-SB-46	TA-SB-46	TA-SB-47	TA-SB-47	TA-SB-48	TA-SB-48
Sample Name									TA-SB-44 (7-8)	TA-SB-45 (2-3)	TA-SB-45 (6-7)	TA-SB-45 (6-7) DUP	TA-SB-46(8-9)	TA-SB-46(9-10)	TA-SB-47 (3-4)	TA-SB-47 (5-6)	TA-SB-48(1-2)	TA-SB-48(10-11)
Depth Interval (Feet below ground surface)									7 - 8	2 - 3	6 - 7	6 - 7	8 - 9	9 - 10	3 - 4	5 - 6	1 - 2	10 - 11
Laboratory Sample ID(s)									TG31022-012	TH01025-010	TH01025-008	TH01025-009	TG28004-009	TG28004-010	TG31022-016	TG31022-017	TG28004-014	TG28004-013
Sample Date									7/30/2018	7/31/2018	7/31/2018	7/31/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<14	<69	<14	<72	<14	<13	7,300	<78	<70	<13
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<14	<69	<14	<72	<14	<13	2,100	<78	<70	<13
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<14	38 [J+]	<14	<72	<14	<13	23,000	62	<70	<13
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<360	<1,700	<370	<1,800	<340	<340	<18,000	<2,000	<1,800	<340
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<14	110	<14	<72	<14	<13	***28,000***	120	100	<13
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	<14	79	<14	<72	<14	<13	***35,000***	140	140	<13
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	<14	97	<14	<72	<14	<13	***42,000***	190	170	<13
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<14	48	<14	<72	<14	<13	8,400	<78	51	<13
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<14	37	<14	<72	<14	<13	18,000	73	49	<13
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<73	<350	<74	<370	<70	<69	***3,800***	<400	<360	<68
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	<14	92	<14	<72	<14	<13	27,000	150	87	<13
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<14	<69	<14	<72	<14	<13	<710	<78	<70	<13
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<73	<350	<74	<370	<70	<69	***7,300***	<400	<360	<68
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<360	<1,700	<370	<1,800	<340	<340	<18,000	<2,000	<1,800	<340
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<140	<690	<140	<720	<140	<130	<7,100	<780	<700	<130
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<73	<350	39	<370	<70	<69 [UB]	<3,700	<400	<360	<68
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	<14	150 [J+]	4.5 [J+]	<72	<14	<13	***74,000***	260	150	<13
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<14	18	<14	<72	<14	<13	***12,000***	<78	<70	<13
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<360	<1,700	<370	<1,800	<340	<340	<18,000	<2,000	<1,800	<340
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<14	41	<14	<72	<14	<13	9,400	44	96	<13
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<14	95 [J+]	<14	<72	<14	<13	3,100	<78	<70	<13
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<140	<690	<140	<720	<140	<130	<7,100	<780	<700	<130
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<14	120 [J+]	<14	<72	<14	<13	***3,900***	<78	<70	<13
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<140	<690	<140	<720	<140	<130	<7,100	<780	<700	<130
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<360	<1,700	<370	<1,800	<340 [UJ]	<340 [UJ]	<18,000	<2,000	<1,800 [UJ]	<340 [UJ]
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	<14	170 [J+]	6.5 [J+]	<72	<14	<13	***68,000***	200	71	<13
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	<14	120	7.9	<72	<14	<13	52,000	200	140	<13
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<73	<350	<74	<370	<70	<69	<3,700	<400	<360	<68

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-49	TA-SB-49	TA-SB-50	TA-SB-50	TA-SB-51	TA-SB-51	TA-SB-52	TA-SB-52	TA-SB-53	TA-SB-53
Sample Name									TA-SB-49 (3-4)	TA-SB-49 (7-8)	TA-SB-50 (2-3)	TA-SB-50 (7-8)	TA-SB-51 (2-3)	TA-SB-51 (6-7)	TA-SB-52 (1-2)	TA-SB-52 (6-7)	TA-SB-53 (0-1)	TA-SB-53 (5-6)
Depth Interval (Feet below ground surface)									3 - 4	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	1 - 2	6 - 7	0 - 1	5 - 6
Laboratory Sample ID(s)									TG31022-009	TG31022-010	TH01025-019	TH01025-020	TG31022-001	TG31022-002	TG31022-013	TG31022-014	TG19003-017	TG19003-021
Sample Date									7/30/2018	7/30/2018	7/31/2018	7/31/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/19/2018	7/19/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<13	<13	<70	<14	<14	<14	<680	<14	<67	***51,000***
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<13	<13	25	<14	<14	<14	<680	<14	41	***6,400***
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<13	<13	71 [J+]	<14	<14	<14	<680	<14	46	***97,000***
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<320	<320	<1,800	<350	<350	<350	<17,000	<340	<1,700	<190,000
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<13	<13	270	<14	10	<14	760	<14	220	***96,000***
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	<13	<13	290	<14	8.7	<14	1,000	<14	300	***82,000***
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	<13	<13	360	<14	12	<14	1,800	<14	440	***110,000***
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<13	<13	150	<14	7.7	<14	440	<14	250	25,000
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<13	<13	140	<14	<14	<14	750	<14	110	37,000
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	***34,000***
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	<13	<13	290	<14	7.9	<14	700	<14	310	88,000
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<13	<13	<70	<14	<14	<14	<680	<14	<67	<7,500
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	***55,000***
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<320	<320	<1,800	<350	<350	<350	<17,000	<340	<1,700	<190,000
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<130	<130	<700	<140	<140	<140	<6,800	<140	<670	<75,000
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	<13	<13	440 [J+]	<14	14	<14	1,500	<14	530	***290,000***
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<13	<13	<70	<14	<14	<14	<680	<14	21	***83,000***
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<320	<320	<1,800	<350	<350	<350	<17,000	<340	<1,700	<190,000
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<13	<13	140	<14	<14	<14	430	<14	210	***29,000***
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<13	<13	75 [J+]	<14	<14	<14	1,200	<14	90	***13,000***
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<130	<130	<700	<140	<140	<140	<6,800	<140	<670	<75,000
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<13	<13	65 [J+]	<14	<14	<14	***980***	<14	95	***55,000***
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<130	<130	<700	<140	<140	<140	<6,800	<140	<670	<75,000
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<320	<320	<1,800	<350	<350	<350	<17,000	<340	<1,700	<190,000
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	<13	<13	240 [J+]	<14	8.3	<14	1,500	<14	270	***320,000***
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	<13	<13	390	<14	13	<14	1,300	<14	440	190,000
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<66	<66	<360	<72	<71	<70	<3,500	<70	<350	<39,000

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-53	TA-SB-54	TA-SB-54	TA-SB-55	TA-SB-55	TA-SB-56	TA-SB-56	TA-SB-57	TA-SB-57	TA-SB-58
Sample Name									TA-SB-53(7-8)	TA-SB-54 (0-1)	TA-SB-54 (3-4)	TA-SB-55 (1-2)	TA-SB-55 (5-6)	TA-SB-56 (1-2)	TA-SB-56 (6-7)	TA-SB-57 (2-3)	TA-SB-57 (6-7)	TA-SB-58 (7-8)
Depth Interval (Feet below ground surface)									7 - 8	0 - 1	3 - 4	1 - 2	5 - 6	1 - 2	6 - 7	2 - 3	6 - 7	7 - 8
Laboratory Sample ID(s)									TG19003-019	TG19003-002	TG19003-005	TG19003-006	TG19003-007	TG19003-001	TH02019-001	TG31022-005	TG31022-006	TH08019-002
Sample Date									7/19/2018	7/18/2018	7/18/2018	7/18/2018	7/18/2018	7/18/2018	8/1/2018	7/30/2018	7/30/2018	8/7/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	13	<760	<13	<140	<79	52	<14	<13	<13	<14
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<15	1,200	<13	190	<79	530	<14	<13	<13	<14
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	12	1,000	<13	160	<79	390	<14	13	<13	<14
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<390	<19,000	<330	<3,400	<2,000	<1,800	<350	<340	<330	<360
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	19	3,200	<13	1,100 [J+]	42	2,100	<14	73	<13	<14
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	15	***4,800***	<13	1,700	<79	***2,800***	<14	71	<13	<14
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	17	7,300	<13	2,300	48	4,800	<14	88	<13	<14
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	10	2,000	<13	1,100 [J-]	<79	660	<14	32	<13	<14
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	8.4	3,500	<13	840	23	1,500	<14	32	<13	<14
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<80	<3,900	<67	<700	<410	160	<71	<69	<66	<74
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	16	4,500	<13	1,400	<79	1,600	<14	69	<13	<14
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<15	<760	<13	<140	<79	<70	<14	<13	<13	<14
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<80	<3,900	<67	<700	<410	230	<71	<69	<66	<74
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<390	<19,000	<330	<3,400	<2,000	<1,800	<350	<340	<330	<360
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<150	<7,600	<130	<1,400	<790	<700	<140	<130	<130	<140
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	31	***5,700***	<13	1,400 [J+]	46	2,300	<14	140	<13	<14
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	11	230	<13	<140	<79	<70	<14	<13	<13	<14
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<390	<19,000 [UJ]	<330	<3,400 [UJ]	<2,000	<1,800 [UJ]	<350	<340	<330	<360
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	9.2	2,100	<13	890 [J-]	<79	850	<14	33	<13	<14
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<15	1,400	<13	120	<79	780	<14	<13	<13	<14
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<150	<7,600	<130	<1,400	<790	<700	<140	<130	<130	<140
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	15	***1,200***	<13	110	<79	670	<14	<13	<13	<14
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<150	<7,600	<130	<1,400	<790	<700	<140	<130	<130	<140
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<390	<19,000	<330	<3,400	<2,000	<1,800	<350	<340	<330	<360
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	35	***3,100***	<13	490 [J+]	<79	960	<14	54	<13	<14
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	24	5,400	<13	1,500 [J+]	<79	2,200	<14	130	<13	<14
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<80	<3,900	<67	<700	<410	<360	<71	<69	<66	<74

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-58	TA-SB-59	TA-SB-59	TA-SB-60	TA-SB-60	TA-SB-61	TA-SB-61	TA-SB-62	TA-SB-62	TA-SB-63
Sample Name									TA-SB-58 (12-13)	TA-SB-59(2-3)	TA-SB-59(11-12)	TA-SB-60 (7-8)	TA-SB-60 (8-9)	TA-SB-61 (5-6)	TA-SB-61 (7-8)	TA-SB-62 (3-4)	TA-SB-62 (5-6)	TA-SB-63 (1-2)
Depth Interval (Feet below ground surface)									12 - 13	2 - 3	11 - 12	7 - 8	8 - 9	5 - 6	7 - 8	3 - 4	5 - 6	1 - 2
Laboratory Sample ID(s)									TH08019-003	TG28004-025	TG28004-026	TG19003-009	TG19003-010	TG17025-011	TG17025-012	TG17025-013	TG17025-014	TG17025-017
Sample Date									8/7/2018	7/27/2018	7/27/2018	7/18/2018	7/18/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<14	***23,000***	<580	<76	<110	<780	<16	<1,200	<150	2,900
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<14	<1,800	<580	<76	160	210	<16	360	<150	270
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<14	***61,000***	<580	<76	<110	1,100	<16	510	120	8,800
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<350	<47,000	<15,000	<1,900	<2,900	<20,000	<400	<29,000	<3,900	<17,000
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<14	***83,000***	<580	<76	<110	3,900	<16	3,100	370	10,000
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	<14	***65,000***	<580	<76	160	***4,000***	<16	***6,500***	500	***9,200***
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	<14	***83,000***	<580	<76	<110	5,500	<16	13,000	770	13,000
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<14	13,000	<580	<76	<110	1,900	<16	4,800	260	2,600
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<14	38,000	<580	<76	<110	2,100	<16	5,000	310	3,400
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<70	<9,500	<3,000	<390	270	<4,000	<81	<6,000	<800	<3,500
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<70	***30,000***	<3,000	<390	<590	<4,000	<81	<6,000	<800	***4,200***
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<70	<9,500	<3,000	<390	<590	<4,000 [UR]	<81	<6,000 [UR]	<800 [UJ]	<3,500
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<70	<9,500	<3,000	<390	***280***	<4,000	<81	<6,000	<800	<3,500
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<70	<9,500	<3,000	<390	9,300	<4,000	<81	<6,000	<800	<3,500
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<70	<9,500	<3,000	<390	<590	<4,000 [UR]	<81	<6,000 [UR]	<800 [UJ]	<3,500
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	<14	70,000	<580	<76	<110	4,400	<16	5,400	350	10,000
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<14	<1,800	<580	<76	<110	<780	<16	<1,200	<150	<670
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<70	***16,000***	<3,000	<390	<590	<4,000	<81	<6,000	<800	***3,000***
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<70	<9,500	<3,000	<390	<590	<4,000 [UR]	<81	<6,000 [UR]	<800 [UJ]	<3,500
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<70	<9,500	<3,000	<390	270	<4,000 [UR]	<81	<6,000 [UR]	<800 [UJ]	<3,500
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<350	<47,000	<15,000	<1,900	<2,900	<20,000 [UR]	<400	<29,000 [UR]	<3,900 [UJ]	<17,000
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<140	<18,000	<5,800	<760	<1,100	<7,800	<160	<12,000	<1,500	<6,700
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	<14	***170,000***	<580	41	<110	***9,300***	<16	2,000	730	***33,000***
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<14	***24,000***	<580	<76	62	270	<16	<1,200	41	4,700
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<350	<47,000	<15,000	<1,900	<2,900	<20,000	<400 [UJ]	<29,000	<3,900	<17,000
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<14	15,000	<580	<76	<110	1,600	<16	3,700	220	2,800
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<70	<9,500	<3,000	<390	660	<4,000	<81	<6,000	<800	<3,500
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<14	***9,900***	<580	<76	<110	<780	<16	570	73	1,100
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<70	<9,500	<3,000	<390	<590	<4,000 [UR]	<81	<6,000 [UR]	<800 [UJ]	<3,500
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<140	<18,000	<5,800	<760	<1,100	<7,800 [UR]	<160	<12,000 [UR]	<1,500 [UJ]	<6,700
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<14	***26,000***	<580	<76	<110	<780	<16	<1,200	67	***2,200***
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<140	<18,000	<5,800	<760	<1,100	<7,800 [UR]	<160	<12,000 [UR]	<1,500 [UJ]	<6,700
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<70	<9,500	<3,000	<390	<590	<4,000	<81	<6,000	<800	<3,500
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<350	<47,000	<15,000	<1,900	<2,900	<20,000 [UR]	<400	<29,000 [UR]	<3,900 [UJ]	<17,000
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	<14	***170,000***	<580	<76	<110	***5,300***	<16	1,400	410	***31,000***
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<70	<9,500	<3,000	<390	<590	<4,000 [UR]	<81	<6,000 [UR]	<800 [UJ]	<3,500
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	<14	120,000	<580	<76	140	6,300	<16	2,300	510	20,000
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<70	<9,500	<3,000	<390	<590	<4,000 [UR]	<81	<6,000 [UR]	<800 [UJ]	<3,500
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<70	<9,500	<3,000	<390	<590	<4,000 [UR]	<81	<6,000 [UR]	<800 [UJ]	<3,500

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-63	TA-SB-64	TA-SB-64	TA-SB-65	TA-SB-65	TA-SB-65	TA-SB-66	TA-SB-66	TA-SB-67	TA-SB-67
Sample Name									TA-SB-63 (7-8)	TA-SB-64 (0-1)	TA-SB-64 (4-5)	TA-SB-65 (1-2)	TA-SB-65 (1-2) DUP	TA-SB-65 (4-5)	TA-SB-66(0-1)	TA-SB-66(2-3)	TA-SB-67 (0-1)	TA-SB-67 (5-6)
Depth Interval (Feet below ground surface)									7 - 8	0 - 1	4 - 5	1 - 2	1 - 2	4 - 5	0 - 1	2 - 3	0 - 1	5 - 6
Laboratory Sample ID(s)									TG17025-018	TG19003-018	TG19003-020	TG19003-012	TG19003-013	TG19003-014	TG28004-021	TG28004-022	TG24017-001	TG24017-002
Sample Date									7/17/2018	7/19/2018	7/19/2018	7/18/2018	7/18/2018	7/18/2018	7/27/2018	7/27/2018	7/23/2018	7/23/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<890	<660	<1,700	<1,000	<1,100	<1,200	<270	780	<66	<15
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	490	<660	1,600	<1,000	<1,100	<1,200	<270	<1,000	<66	<15
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	840	230	1,900	550	680	<1,200	320	3,900	<66	<15
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<23,000	<17,000	<43,000	<25,000	<27,000	<31,000	<7,000	<27,000	<1,700	<370
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	1,800	1,000	4,000	2,700	2,200	1,000	1,600	8,900	83	<15
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	***6,000***	980	***11,000***	***6,300***	***6,000***	***2,400***	2,000	***31,000***	79	<15
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	7,600	1,200	14,000	7,300	7,000	3,100	2,300	***35,000***	140	<15
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	3,600	730	8,500	2,200	2,400	1,400	930	11,000	54	<15
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	2,000	520	3,400	2,000	1,900	1,300	1,100	11,000	40	<15
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	***1,700***	<340	<75
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<4,600 [UR]	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<4,600 [UR]	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	1,500	970	4,200	2,100	1,800	840	1,800	9,900	77	<15
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<890	<660	<1,700	<1,000	<1,100	<1,200	<270	<1,000	<66	<15
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<4,600 [UR]	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<4,600 [UR]	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<23,000 [UR]	<17,000	<43,000	<25,000	<27,000	<31,000	<7,000	<27,000	<1,700	<370
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<8,900	<6,600	<17,000	<10,000	<11,000	<12,000	<2,700	<10,000	<660	<150
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<4,600	<3,400	35,000	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	1,700	1,900	5,400	1,600	1,800	1,800	3,100	***17,000***	110	<15
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<890	<660	1,200	<1,000	<1,100	<1,200	<270	870	<66	<15
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<23,000	<17,000	<43,000	<25,000	<27,000	<31,000	<7,000	<27,000	<1,700	<370
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	2,200	630	6,600	1,900	2,100	1,000	950	11,000	38	<15
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	450	<660	1,100	<1,000	<1,100	<1,200	<270	1,500	<66	<15
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<4,600 [UR]	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<8,900 [UR]	<6,600	<17,000	<10,000	<11,000	<12,000	<2,700	<10,000	<660	<150
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	420	<660	***780***	730	<1,100	<1,200	<270	***2,600***	<66	<15
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<8,900 [UR]	<6,600	<17,000	<10,000	<11,000	<12,000	<2,700	<10,000	<660	<150
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<4,600	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	2,800	<3,400	<8,800	3,300	2,800	<6,300	<1,400	2,400	<340	<75
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<23,000 [UR]	<17,000	<43,000	<25,000	<27,000	<31,000	<7,000	<27,000	<1,700	<370
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	1,600	970	***6,000***	1,300	1,800	1,200	1,200	***12,000***	50	<15
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<4,600 [UR]	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	1,700	1,500	4,800	1,600	2,000	1,400	2,700	12,000	100	<15
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<4,600 [UR]	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<4,600 [UR]	<3,400	<8,800	<5,200	<5,600	<6,300	<1,400	<5,400	<340	<75

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-68	TA-SB-68	TA-SB-69	TA-SB-69	TA-SB-70	TA-SB-70	TA-SB-71	TA-SB-71	TA-SB-72	TA-SB-72
Sample Name									TA-SB-68 (1-2)	TA-SB-68 (3-4)	TA-SB-69 (2-3)	TA-SB-69 (4-5)	TA-SB-70 (0-1)	TA-SB-70 (5-6)	TA-SB-71(1-2)	TA-SB-71(3-4)	TA-SB-72(1-2)	TA-SB-72(1-2) DUP
Depth Interval (Feet below ground surface)									1 - 2	3 - 4	2 - 3	4 - 5	0 - 1	5 - 6	1 - 2	3 - 4	1 - 2	1 - 2
Laboratory Sample ID(s)									TG11005-003	TG11005-004	TG11005-009	TG11005-010	TG17025-015	TG17025-016	TG21001-001	TG21001-002	TG21001-003	TG21001-004
Sample Date									7/10/2018	7/10/2018	7/10/2018	7/10/2018	7/17/2018	7/17/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<180	<360	<88	<300	<730	18	<130	<15	58	51
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	63	<360	<88	<300	<730	11	260	<15	77	78
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	110	<360	57	<300	700	67	290	<15	410 [J]	230 [J]
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<4,500	<9,100	<2,200	<7,500	<18,000	<480	<3,400	<380	<1,800	<1,900
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	530	340	160	230	1,700	170	1,400 [J+]	<15	1,400	1,100
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	610	240	150	220	1,900	180	2,000	<15	1,300	1,200
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	890	360	270	<300	2,600	240	3,400 [J+]	<15	2,300	2,400
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	320	110	62	110	800	80	820	<15	380	430
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	330	110	100	<300	1,000	77	1,000 [J+]	<15	830	760
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<920	<1,800	<460	<1,500	<3,700	36	<690	<77	100	120
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<920	<1,800 [UJ]	<460	<1,500	<3,700	<98	<690	<77	<370	<390 [UJ]
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<920	<1,800 [UJ]	<460	<1,500	<3,700 [UR]	<98	<690	<77	<370	<390 [UJ]
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	600	220	190	140	1,900	200	1,300 [J+]	<15	1,700	1,600
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<180	<360	<88	<300	<730	<19	<130	<15	<71	<75
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<920	<1,800	<460	<1,500	<3,700	<98	240	<77	100	<390
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<920	<1,800	<460	<1,500	<3,700	<98	<690 [UR]	<77	<370	<390
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<920	<1,800 [UJ]	<460	<1,500	<3,700 [UR]	<98	<690	<77	<370	<390 [UJ]
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<920	<1,800 [UJ]	<460	<1,500	<3,700 [UR]	<98	<690	<77	<370	<390 [UJ]
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<4,500 [UJ]	<9,100 [UJ]	<2,200 [UJ]	<7,500 [UJ]	<18,000	<480	<3,400	<380	<1,800	<1,900 [UJ]
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<1,800	<3,600	<880	<3,000	<7,300	<190	<1,300	<150	<710	<750
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	1,200	490	330	180	4,100	360	2,600 [J+]	<15	3,700	3,100
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<180	<360	24	<300	210	24	<130	<15	91	64
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<4,500 [UJ]	<9,100 [UJ]	<2,200 [UJ]	<7,500 [UJ]	<18,000	<480 [UJ]	<3,400 [UJ]	<380	<1,800 [UJ]	<1,900 [UJ]
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	270	100	58	81	770	76	840	<15	410	430
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<180	<360	88	<300	<730	24	600	<15	290	210
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<920	<1,800 [UJ]	<460	<1,500	<3,700 [UR]	<98	<690	<77	<370	<390 [UJ]
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<1,800	<3,600 [UJ]	<880	<3,000	<7,300	<190	<1,300	<150	<710	<750 [UJ]
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	91	<360	89	<300	<730	32	390	<15	170	180
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<1,800	<3,600 [UJ]	<880	<3,000	<7,300 [UR]	<190	<1,300	<150	<710	<750 [UJ]
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<920	<1,800	<460	<1,500	<3,700	<98	<690	<77	<370	<390
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<4,500	<9,100 [UJ]	<2,200	<7,500	<18,000 [UR]	<480	<3,400	<380	<1,800	<1,900 [UJ]
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	540	410	300	130	***2,500***	240	1,300	<15	1,600	1,300
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<920	<1,800 [UJ]	<460	<1,500	<3,700 [UR]	<98	<690	<77	<370	<390 [UJ]
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	910	390	220	200	3,000	260	2,100 [J+]	<15	2,400	2,000
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<920	<1,800 [UJ]	<460	<1,500	<3,700 [UR]	<98	<690	<77	<370	<390 [UJ]
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<920	<1,800 [UJ]	<460	<1,500	<3,700 [UR]	<98	<690	<77	<370	<390 [UJ]

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-72	TA-SB-73	TA-SB-73	TA-SB-74	TA-SB-74	TA-SB-75	TA-SB-75	TA-SB-75	TA-SB-76	TA-SB-76
Sample Name									TA-SB-72(3-4))	TA-SB-73(1-2)	TA-SB-73(6-7)	TA-SB-74(1-2)	TA-SB-74(5-6)	TA-SB-75 (5-6)	TA-SB-75 (5-6) DUP	TA-SB-75 (7-8)	TA-SB-76 (1-2)	TA-SB-76 (7-8)
Depth Interval (Feet below ground surface)									3 - 4	1 - 2	6 - 7	1 - 2	5 - 6	5 - 6	5 - 6	7 - 8	1 - 2	7 - 8
Laboratory Sample ID(s)									TG21001-005	TG21001-006	TG21001-007	TG21001-008	TG21001-009	TG19003-003	TG19003-004	TG19003-008	TG17025-008	TG19003-011
Sample Date									7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/18/2018	7/18/2018	7/18/2018	7/16/2018	7/18/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	17	<71	<14	<150	<16	<24	<140	<15	580	140
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	5.2	29	<14	<150	<16	<24	<140	<15	190	<100
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	35	50	<14	81	<16	12	<140	<15	3,000 [J]	160
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<370	<1,800	<360	<3,900	<410	<600	<3,400	<390	<6,000	<2,500
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	98	170	<14	270	<16	40	86	<15	9,400	270
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	100	140	<14	220	<16	35	<140	<15	***36,000***	260
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	120	210	<14	370	<16	67	87	<15	***48,000***	350
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	59	120	6.6	200	<16	27 [J-]	83	<15	14,000	65
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	44	74	<14	96	<16	21	23	<15	26,000	150
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	22	<370	<74	<800	<83	<120	<700	<79	***2,100 [J]***	69
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	100	190	<14	340	<16	31	<140	<15	7,100	290
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<14	<71	<14	<150	<16	<24 [UJ]	<140	<15	<240	<100
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<74	180	<74	310	<83	<120	<700	<79	920	<520
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200 [UR]	<520
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<370	<1,800	<360	<3,900	<410	<600 [UJ]	<3,400	<390	<6,000	<2,500
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<140	<710	<140	<1,500	<160	<240	<1,400	<150	<2,400 [UJ]	<1,000
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	240	370	<14	430	<16	61	100	<15	***10,000***	740
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	17	<71	<14	<150	<16	<24	<140	<15	440	98
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<370 [UJ]	<1,800 [UJ]	<360 [UJ]	<3,900 [UJ]	<410 [UJ]	<600 [UJ]	<3,400	<390	<6,000 [UR]	<2,500
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	54	82	<14	140	<16	22 [J-]	<140	<15	15,000	67
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	30	800	<14	1,300	<16	20	<140	<15	760	<100
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<140	<710	<140	<1,500	<160	<240	<1,400	<150	<2,400	<1,000
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	27	550	<14	***860***	<16	24	<140	<15	***2,300 [J]***	52
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<140	<710	<140	<1,500	<160	<240	<1,400	<150	<2,400	<1,000
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<74	<370	<74	<800	<83	<120	<700	<79	2,300 [J]	<520
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<370	<1,800	<360	<3,900	<410	<600	<3,400	<390	<6,000	<2,500
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	220	620	<14	1,100	<16	64	100	<15	***7,800***	540
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<74	300	<74	<800	<83	<120	<700	<79	<1,200	<520
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	190	300	5.2	390	<16	46	89	<15	7,000	510
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<74	<370	<74	<800	<83	<120	<700	<79	<1,200	<520

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-77	TA-SB-77	TA-SB-78	TA-SB-78	TA-SB-79	TA-SB-79	TA-SB-80	TA-SB-80	TA-SB-81	TA-SB-81
Sample Name									TA-SB-77 (2-3)	TA-SB-77 (5-6)	TA-SB-78 (5-6)	TA-SB-78 (6-7)	TA-SB-79 (2-3)	TA-SB-79 (4-5)	TA-SB-80 (2-3)	TA-SB-80 (3-4)	TA-SB-81 (4-5)	TA-SB-81 (5-6)
Depth Interval (Feet below ground surface)									2 - 3	5 - 6	5 - 6	6 - 7	2 - 3	4 - 5	2 - 3	3 - 4	4 - 5	5 - 6
Laboratory Sample ID(s)									TG17025-020	TG17025-019	TG17025-005	TG17025-006	TG17025-003	TG17025-004	TG17025-001	TG17025-002	TG17025-010	TG17025-007
Sample Date									7/17/2018	7/17/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/17/2018	7/16/2018
Parameter (µg/kg)																		
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<29	<18	<32	110	350	320	60	<36	230	<54
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<29	<18	<32	<33	120	<37	<110	<36	110	<54
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	25	<18	16	350	1,000	650	150	<36	730	30
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<730	<450	<810	<830	<2,000	<950	<2,700	<930	<6,600	<1,400
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	71	12	47	370	2,800	940	460	<36	2,200	94
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	85	8	38	320	***2,800***	880	520	<36	***2,300***	69
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	150	<18	60	290	3,800	1,100	740	<36	3,400	110
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	37	<18	16	80	910	230	260	<36	1,100	28
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	50	<18	<32	75	1,400	460	220	<36	1,200	39
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<150	<91	<170	<170	480	270	<560	<190	440	<280
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	99	6.6	42	360	2,900	870	590	<36	2,800	69
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<29	<18	<32	<33	<77	<37	<110	<36	<260	<54
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<150	<91	<170	<170	340	190	<560	<190	<1,300	<280
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<730	<450	<810	<830	<2,000	<950	<2,700	<930	<6,600	<1,400
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<290	<180	<320	<330	<770	<370	<1,100	<360	<2,600	<540
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	210	14	81	620	***6,700***	2,000	1,400	9.7	***6,900***	180
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	14	<18	<32	140	500	310	110	<36	370	23
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<730	<450	<810	<830	<2,000	<950	<2,700	<930	<6,600	<1,400
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	32	<18	12	71	940	250	250	<36	1,100	31
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	74	<18	<32	39	270	160	<110	<36	<260	<54
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<290	<180	<320	<330	<770	<370	<1,100	<360	<2,600	<540
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	55	<18	15	27	570	540	87	<36	<260	58
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<290	<180	<320	<330	<770	<370	<1,100	<360	<2,600	<540
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<730	<450	<810	<830	<2,000	<950	<2,700	<930	<6,600	<1,400
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	160	11	49	1,200	***4,200***	1,800	750	<36	***3,900***	130
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	150	11	61	830	4,500	1,400	1,000	<36	4,700	130
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<150	<91	<170	<170	<400	<190	<560	<190	<1,300	<280

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-82	TA-SB-82	TA-SB-83	TA-SB-83	TA-SB-AOC-B-01	TA-SB-AOC-B-01	TA-SB-AOC-B-02	TA-SB-AOC-B-02
Sample Name									TA-SB-82 (0-1)	TA-SB-82 (6-7)	TA-SB-83 (1-2)	TA-SB-83 (4-5)	TA-SB-AOC-B-01 (2-3)	TA-SB-AOC-B-01 (7-8)	TA-SB-AOC-B-02 (2-3)	TA-SB-AOC-B-02 (4-5)
Depth Interval (Feet below ground surface)									0 - 1	6 - 7	1 - 2	4 - 5	2 - 3	7 - 8	2 - 3	4 - 5
Laboratory Sample ID(s)									TG19003-024	TG19003-025	TG17025-021	TG17025-022	TH02019-006	TH02019-007	TH02019-008	TH02019-009
Sample Date									7/19/2018	7/19/2018	7/17/2018	7/17/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)																
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	2,900	<110	<69	<15	<15	<15	350	<15
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	1,900	<110	110	<15	3.9	<15	75	<15
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<36,000	<590	240	<77	<75	<78	<1,500	<78
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	12,000	<110	160	<15	5.3	<15	1,200	<15
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<180,000	<2,900	<1,700	<380	<370	<380	<7,200	<380
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	***27,000***	48	430	6.1	26	5.8	2,000	<15
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	***22,000***	<110	570	<15	24	<15	1,600	<15
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	***28,000***	<110	1,300	<15	39	<15	2,100	<15
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	8,500	<110	230	<15	9.2	<15	570	<15
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	11,000	<110	430	<15	15	<15	890	<15
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<36,000	<590	<350	<77	<75	<78	4,900	<78
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<36,000	<590	<350	<77	<75	<78	650	<78
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	21,000	<110	510	<15	19	<15	2,200	<15
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<7,100	<110	<69	<15	<15	<15	<280	<15
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<36,000	<590	210	<77	<75	<78	420	<78
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<36,000	<590	<350	<77	<75	<78	<1,500	<78
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<180,000	<2,900	<1,700	<380	<370	<380	<7,200	<380
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<71,000	<1,100	<690	<150	<150	<150	<2,800	<150
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<36,000	<590	<350	<77	<75	<78	950	<78
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	***53,000***	50	770	4.1	29	4.3	5,100	<15
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	4,300	<110	<69	<15	4.2	<15	540	<15
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<180,000	<2,900	<1,700	<380	<370	<380	<7,200	<380
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	8,500	<110	230	<15	5.3	<15	530	<15
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<7,100	<110	1,300	<15	11	<15	170	<15
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<71,000	<1,100	<690	<150	<150	<150	<2,800	<150
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<7,100	<110	***1,200***	<15	18	<15	250	<15
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<71,000	<1,100	<690	<150	<150	<150	<2,800	<150
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<36,000	<590	<350	<77	<75	<78	<1,500	<78
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<180,000	<2,900	<1,700	<380	<370	<380	<7,200	<380
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	***36,000***	<110	410	<15	27	6.7	***5,200***	<15
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	41,000	33	690	<15	29	<15	3,900	<15
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<36,000	<590	<350	<77	<75	<78	<1,500	<78

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-C-01	TA-SB-AOC-C-01	TA-SB-AOC-C-01	TA-SB-AOC-C-02	TA-SB-AOC-C-02	TA-SB-AOC-D-01	TA-SB-AOC-D-01
Sample Name									TA-SB-C-01 (2-3)	TA-SB-C-01 (2-3) DUP	TA-SB-C-01 (11-12)	TA-SB-AOC-C-02(2-3)	TA-SB-AOC-C-02(9-10)	TA-SB-AOC-D-01 (2-3)	TA-SB-AOC-D-01 (8-9)
Depth Interval (Feet below ground surface)									2 - 3	2 - 3	11 - 12	2 - 3	9 - 10	2 - 3	8 - 9
Laboratory Sample ID(s)									TH02019-021	TH02019-023	TH02019-022	TH03007-003	TH03007-004	TH02019-002	TH02019-003
Sample Date									8/1/2018	8/1/2018	8/1/2018	8/2/2018	8/2/2018	8/1/2018	8/1/2018
Parameter (µg/kg)															
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<720	<710	<14	360	<14	<15	<14
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<720	<710	<14	<300	<14	<15	<14
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	450	670	<14	1,200	<14	<15	<14
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<18,000	<18,000	<350	<7,500	<350	<370	<350
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	680	1,200	<14	1,800	<14	17	<14
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	540 [J]	1,100 [J]	<14	1,700	<14	9.6	<14
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	680	1,400	<14	2,700	<14	14	<14
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<720 [UJ]	<710 [UJ]	<14	250	<14	7.1	<14
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<720 [UJ]	560 [J]	<14	1,200	<14	4.5	<14
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<3,700	<3,700	<71	580	<70	<76	<71
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	660	980	<14	1,900	<14	11	<14
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<720 [UJ]	<710 [UJ]	<14	<300	<14	<15	<14
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<3,700	<3,700	<71	480	<70	<76	<71
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<3,700	<3,700	<71	<1,500	<70	<76	<71
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<18,000	<18,000	<350	<7,500	<350	<370	<350
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<7,200	<7,100	<140	<3,000	<140	<150	<140
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<3,700	<3,700	<71	1,100	<70	<76	<71
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	1,400	2,600	<14	4,900	<14	20	<14
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<720	<710	<14	660	<14	<15	<14
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<18,000	<18,000	<350	<7,500	<350	<370	<350
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<720 [UJ]	<710 [UJ]	<14	200	<14	5	<14
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	430	<710	<14	770	<14	33	<14
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	970	<7,100	<140	<3,000	<140	<150	<140
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	470	<710	<14	700	<14	28	<14
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<7,200	<7,100	<140	<3,000	<140	<150	<140
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<3,700	<3,700	<71	<1,500	<70	<76	<71
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<18,000	<18,000	<350	<7,500	<350	<370	<350
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	1,900	***2,700***	<14	***4,600***	<14	30	<14
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	1,200	2,100	<14	3,200	<14	19	<14
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<3,700	<3,700	<71	<1,500	<70	<76	<71
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<3,700	<3,700	<71	<1,500	<70	<76	<71

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-D-02	TA-SB-AOC-D-02	TA-SB-AOC-E-01	TA-SB-AOC-E-01	TA-SB-AOC-E-02	TA-SB-AOC-E-02	TA-SB-AOC-G-01
Sample Name									TA-SB-AOC-D-02 (2-3)	TA-SB-AOC-D-02 (6-7)	TA-SB-AOC-E-01 (3-4)	TA-SB-AOC-E-01 (10-11)	TA-SB-AOC-E-02 (5-6)	TA-SB-AOC-E-02 (10-11)	TA-SB-AOC-G-01 (1-2)
Depth Interval (Feet below ground surface)									2 - 3	6 - 7	3 - 4	10 - 11	5 - 6	10 - 11	1 - 2
Laboratory Sample ID(s)									TH02019-004	TH02019-005	TH02019-013	TH02019-014	TH02019-017	TH02019-018	TG24017-003
Sample Date									8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	7/23/2018
Parameter (µg/kg)															
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<15	<15	81	<19	<15	110	84
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<15	<15	320	<19	<15	<81	84
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<75	<78	<400	<96	<77	<420	<820
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	6.2	4.8	450	<19	<15	340	270
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<75	<78	<400	<96	<77	<420	<820
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<370	<380	<2,000	<470	<380	<2,100	<4,000
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	24	14	1,200	<19	<15	780	770
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	17	9.1	1,700	<19	<15	760	730
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	25	10	3,000	<19	<15	880	1,000 [J+]
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	11	5.2	560	<19	<15	400	530
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	8.1	3.9	1,100	<19	<15	370	370
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<75	<78	<400	<96	<77	<420	<820
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<75	<78	<400	<96	<77	<420	<820
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<75	<78	190	<96	<77	150	<820
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<75	<78	<400	<96	<77	<420	<820
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<75	<78	<400	<96	<77	<420	<820
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<75	<78	<400	<96	<77	<420	<820
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<75	<78	<400	<96	<77	<420	<820
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	20	8.6	1,900	<19	<15	750	920
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<15	<15	<77	<19	<15	<81	<160
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<75	<78	360	<96	<77	<420	230
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<75	<78	<400	<96	<77	<420	<820
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<75	<78	<400	<96	<77	<420	<820
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<75	<78	<400	<96	<77	<420	<820
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<75	<78	<400	<96	<77	<420	<820
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<75	<78	<400	<96	<77	<420	<820
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<75	<78	<400	<96	<77	<420	<820
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<370	<380	<2,000	<470	<380	<2,100	<4,000
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<150	<150	<770	<190	<150	<810	<1,600
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<75	<78	<400	<96	<77	<420	<820
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<75	<78	<400	<96	<77	<420	<820
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<75	<78	<400	<96	<77	<420	<820
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	39	20	2,000	<19	<15	1,800	1,600
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<15	<15	100	<19	<15	110	99
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<75	<78	<400	<96	<77	<420	<820
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<75	<78	<400	<96	<77	<420	<820
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<370	<380	<2,000	<470	<380	<2,100	<4,000
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<75	<78	<400	<96	<77	<420	<820
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	9.4	4	580	<19	<15	370	460
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<75	<78	<400	<96	<77	<420	<820
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	15	<15	570	<19	<15	61	800
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<75	<78	<400	<96	<77	<420	<820
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<150	<150	160	<190	<150	<810	<1,600
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	15	<15	***1,500***	9.3	<15	93	550
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<75	<78	<400	<96	<77	<420	<820
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<150	<150	<770	<190	<150	<810	<1,600
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<75	<78	<400	<96	<77	<420	<820
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<75	<78	<400	<96	<77	<420	<820
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<370	<380	<2,000	<470	<380	<2,100	<4,000
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	39	17	1,700	<19	<15	1,400	1,600
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<75	<78	<400	<96	<77	<420	<820
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	32	17	1,800	<19	<15	1,500	1,300
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<75	<78	<400	<96	<77	<420	<820
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<75	<78	<400	<96	<77	<420	<820

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-G-01	TA-SB-AOC-G-02	TA-SB-AOC-G-02	TA-SB-AOC-H-01	TA-SB-AOC-H-01	TA-SB-AOC-H-02	TA-SB-AOC-H-02
Sample Name									TA-SB-AOC-G-01 (5-6)	TA-SB-AOC-G-02 (1-2)	TA-SB-AOC-G-02 (6-7)	TA-SB-AOC-H-01 (2-3)	TA-SB-AOC-H-01 (4-5)	TA-SB-AOC-H-02 (2-3)	TA-SB-AOC-H-02 (6-7)
Depth Interval (Feet below ground surface)									5 - 6	1 - 2	6 - 7	2 - 3	4 - 5	2 - 3	6 - 7
Laboratory Sample ID(s)									TG24017-004	TG24017-005	TG24017-006	TG11005-007	TG11005-008	TG11005-005	TG11005-006
Sample Date									7/23/2018	7/23/2018	7/23/2018	7/10/2018	7/10/2018	7/10/2018	7/10/2018
Parameter (µg/kg)															
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<15	70	10	140	<77	120	<16
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<15	<150	8.4	63	22	74	<16
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<79	<780	<85	<840	<400	<760	<80
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<15	190	36	390	80	390	<16
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<79	<780	<85	<840	<400	<760	<80
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<390	<3,900	<420	<4,200	<2,000	<3,800	<400
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<15	540	88	910	290	1,200	<16
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	<15	460	92	910	280	1,200	<16
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	<15	650 [J+]	110 [J+]	1,500	430	1,700	<16
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<15	350	48	270	95	390	<16
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<15	220	34	430	120	580	<16
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<79	<780	<85	<840	<400	<760	<80
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<79	<780	<85	<840	<400	<760	<80
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<79	<780	<85	<840	<400	<760	<80
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<79	<780	<85	<840	<400	<760	<80
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<79	<780	<85	<840	<400	<760	<80
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<79	<780	<85	<840	<400	<760	<80
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<79	<780	<85	<840	<400	<760	<80
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	<15	620	95	950	310	1,200	<16
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<15	<150	<16	<160	<77	<150	<16
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<79	230	<85	240	<400	<760	<80
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<79	<780	<85	<840	<400	<760	<80
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<79	<780	<85	<840	<400	<760	<80
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<79	<780	<85	<840	<400	<760	<80
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<79	<780	<85	<840	<400	<760	<80
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<79	<780	<85	<840	<400	<760	<80
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<79	<780	<85	<840	<400	<760	<80
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<390	<3,900	<420	<4,200 [UJ]	<2,000 [UJ]	<3,800 [UJ]	<400 [UJ]
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<150	<1,500	<160	<1,600	<770	<1,500	<160
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<79	<780	<85	<840	<400	<760	<80
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<79	<780	<85	<840	<400	<760	<80
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<79	<780	<85	<840	<400	<760	<80
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	<15	1,100	200	2,100	590	2,400	<16
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<15	<150	13	190	28	170	<16
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<79	<780	<85	<840	<400	<760	<80
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<79	<780	<85	<840	<400	<760	<80
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<390	<3,900	<420	<4,200 [UJ]	<2,000 [UJ]	<3,800 [UJ]	<400 [UJ]
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<79	<780	<85	<840	<400	<760	<80
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<15	250	45	290	93	400	<16
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<79	<780	<85	<840	<400	<760	<80
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<15	810	14	580	84	310	<16
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<79	<780	<85	<840	<400	<760	<80
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<150	<1,500	<160	<1,600	<770	<1,500	<160
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<15	550	15	430	74	270	<16
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<79	<780	<85	<840	<400	<760	<80
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<150	<1,500	<160	<1,600	<770	<1,500	<160
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<79	<780	<85	<840	<400	<760	<80
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<79	<780	<85	<840	<400	<760	<80
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<390	<3,900	<420	<4,200	<2,000	<3,800	<400
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	<15	1,300	170	2,000	340	1,800	<16
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<79	<780	<85	<840	<400	<760	<80
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	<15	960	190	1,700	570	2,000	<16
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<79	<780	<85	<840	<400	<760	<80
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<79	<780	<85	<840	<400	<760	<80

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-H-03	TA-SB-AOC-H-03	TA-SB-AOC-J-01	TA-SB-AOC-J-01	TA-SB-AOC-J-02	TA-SB-AOC-J-02	TA-SB-GW-01
Sample Name									TA-SB-AOC-H-03 (2-2.5)	TA-SB-AOC-H-03 (5-6)	TA-SB-AOC-J-01 (2-3)	TA-SB-AOC-J-01 (5-6)	TA-SB-AOC-J-02 (9-10)	TA-SB-AOC-J-02 (13-14)	TA-SB-MW-01 (2-3)
Depth Interval (Feet below ground surface)									2 - 2.5	5 - 6	2 - 3	5 - 6	9 - 10	13 - 14	2 - 3
Laboratory Sample ID(s)									TG11005-001	TG11005-002	TH02019-010	TH02019-011	TH02019-015	TH02019-016	TF29012-001
Sample Date									7/10/2018	7/10/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	6/28/2018
Parameter (µg/kg)															
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	170	<16	10	<15	<31	<14	30
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<450	<16	<14	<15	<31	<14	28
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<2,300	<82	<71	<76	<160	<72	<370
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	380	<16	30	<15	29	<14	96
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<2,300	<82	<71	<76	<160	<72	<370
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<11,000	<410	<350	<380	<780	<360	<710
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	950	<16	90	<15	96	<14	340
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	930	<16	83	<15	99	<14	390
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	1,400	<16	110	<15	140	<14	500
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	240	<16	37	<15	28	7.5	210
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	580	<16	38	<15	57	<14	180
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<2,300	<82	<71	<76	<160	<72	<370
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<2,300	<82	<71	<76	<160	<72	<370
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<2,300	<82	16	<76	<160	<72	<370
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<2,300	<82	<71	<76	<160	<72	<370
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<2,300	<82	<71	<76	<160	<72	<370
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<2,300	<82	<71	<76	<160	<72	<370
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<2,300	<82	<71	<76	<160	<72	<370
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	950	<16	110	<15	110	<14	360
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<450	<16	<14	<15	<31	<14	<71
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<2,300	<82	32	<76	<160	<72	<370
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<2,300	<82	<71	<76	<160	<72	<370
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<2,300	<82	<71	<76	<160	<72	<370
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<2,300	<82	<71	<76	<160	<72	<370
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<2,300	<82	<71	<76	<160	<72	<370
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<2,300	<82	<71	<76	<160	<72	<370
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<2,300	<82	<71	<76	<160	<72	<370
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<11,000 [UJ]	<410 [UJ]	<350	<380	<780	<360	<1,800
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<4,500	<160	<140	<150	<310	<140	<710
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<2,300	<82	<71	<76	<160	<72	<370
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<2,300	<82	<71	<76	<160	<72	<370
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<2,300	<82	<71	<76	540	<72	<370
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	2,700	<16	210	<15	180	<14	660
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	250	<16	7	<15	13	<14	39
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<2,300	<82	<71	<76	<160	<72	<370
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<2,300	<82	<71	<76	<160	<72	<370
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<11,000 [UJ]	<410 [UJ]	<350	<380	<780	<360	<1,800
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<2,300	<82	<71	<76	<160	<72	<370
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	250	<16	32	<15	25	<14	180
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<2,300	<82	<71	<76	<160	<72	<370
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<450	<16	66	<15	14	<14	44
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<2,300	<82	<71	<76	<160	<72	<370
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<4,500	<160	<140	<150	<310	<140	<710
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	190	<16	53	<15	40	<14	<71
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<2,300	<82	<71	<76	<160	<72	<370
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<4,500	<160	<140	<150	<310	<140	<710
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<2,300	<82	<71	<76	<160	<72	<370
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<2,300	<82	<71	<76	<160	<72	<370
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<11,000	<410	<350	<380	<780	<360	<1,800
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	1,800	<16	240	<15	150	<14	330
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<2,300	<82	<71	<76	210	<72	<370
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	1,500	<16	190	<15	170	<14	500
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<2,300	<82	<71	<76	<160	<72	<370
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<2,300	<82	<71	<76	<160	<72	<370

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-GW-01	TA-SB-GW-02	TA-SB-GW-02	TA-SB-GW-04	TA-SB-GW-04	TA-SB-GW-04	TA-SB-GW-05	TA-SB-GW-05
Sample Name									TA-SB-MW-01 (6-7)	TA-SB-MW-02 (1-2)	TA-SB-MW-02 (4-5)	TA-SB-MW-04 (1-2)	TA-SB-MW-04DUP (1-2)	TA-SB-MW-04 (5-6)	TA-SB-MW-05 (1-2)	TA-SB-MW-05 (4-5)
Depth Interval (Feet below ground surface)									6 - 7	1 - 2	4 - 5	1 - 2	1 - 2	5 - 6	1 - 2	4 - 5
Laboratory Sample ID(s)									TF29012-002	TF29012-012	TF29012-013	TF29012-009	TF29012-010	TF29012-011	TF29012-015	TF29012-016
Sample Date									6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	7/2/2018	7/2/2018
Parameter (µg/kg)																
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	59	150	16	270	240	<30	180	<37
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	31	110	13	160	210	<30	48	44
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<440	<370	<160	<380	<380	<160	<420	<190
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	130	590 [J-]	51	700	800	<30	580	48
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<440	<370	<160	<380	<380	<160	<420	<190
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<850	<730	<300	<740	<730	<300	<810	<370
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	490	1,100 [J-]	190	2,200	3,100	<30	1,400	100
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	500	1,200 [J-]	220	***2,500***	***3,200***	<30	1,300	88
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	770	1,600 [J-]	280	3,600	4,500	<30	2,100	140
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	250	320 [J-]	73	770	870	<30	370	42
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	250	630	94	1,200	1,500	<30	700	44
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<440	<370	<160	<380	<380	<160	<420	<190
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<440	<370	<160	<380	<380	<160	<420	<190
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<440	200	<160	300	250	<160	260	<190
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<440	<370	<160	<380	<380	<160	<420	<190
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<440	<370	<160	<380	<380	<160	<420	<190
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<440	<370	<160	<380	<380	<160	<420	<190
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<440	<370	<160	<380	<380	<160	<420	<190
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	570	1,100	200	2,300	3,200	<30	1,400	89
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<85	<73 [UJ]	<30	<74	<73	<30	<81	<37
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<440	230	<160	230	240	<160	270	120
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<440	<370 [UR]	<160	<380	<380	<160	<420	<190
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<440	<370	<160	<380	<380	<160	<420	<190
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<440	<370	<160	<380	<380	<160	<420	<190
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<440	<370	<160	<380	<380	<160	<420	<190
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<440	<370	<160	<380	<380	<160	<420	<190
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<440	<370	<160	<380	<380	<160	<420	<190
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<2,100	<1,800	<760	<1,900	<1,800	<770	<2,100	<930
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<850	<730	<300	<740	<730	<300	<810	<370
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<440	<370	<160	<380	<380	<160	<420	<190
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<440	<370	<160	<380	<380	<160	<420	<190
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<440	<370	<160	<380	<380	<160	<420	<190
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	1,000	2,700 [J-]	400	4,600	***6,600***	<30	3,100	180
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	99	310	16	270	250	<30	200	<37
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<440	<370	<160	<380	<380	<160	<420	<190
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<440	<370	<160	<380	<380	<160	<420	<190
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<2,100	<1,800	<760	<1,900	<1,800	<770	<2,100	<930
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<440	<370	<160	<380	<380	<160	<420	<190
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	240	350 [J-]	71	860	990	<30	360	28
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<440	<370	<160	<380	<380	<160	<420	<190
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	52	280	63	400	490	<30	460	490
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<440	<370	<160	<380	<380	<160	<420	<190
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<850	<730	<300	<740	<730	<300	<810	<370
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	99	520	51	450	460	<30	350	370
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<440	<370	<160	<380	<380	<160	<420	<190
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<850	<730	<300	<740	<730	<300	<810	<370
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<440	<370	<160	<380	<380	<160	<420	<190
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<440	<370	<160	<380	<380	<160	<420	<190
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<2,100	<1,800	<760	<1,900	<1,800	<770	<2,100	<930
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	570	***2,200 [J-]***	260	***3,000***	***3,000***	<30	***2,800***	390
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<440	<370	<160	<380	<380	<160	<420	<190
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	760	1,900 [J-]	350	3,500	4,600	<30	2,300	150
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<440	<370	<160	<380	<380	<160	<420	<190
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<440	<370	<160	<380	<380	<160	<420	<190

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-GW-06	TA-SB-GW-06	TA-SB-GW-07	TA-SB-GW-07	TA-SB-GW-08	TA-SB-GW-08	TA-SB-MA-01	TA-SB-MA-01
Sample Name									TA-SB-MW-06 (2-3)	TA-SB-MW-06 (4-5)	TA-SB-MW-07 (4-5)	TA-SB-MW-07 (6-7)	TA-SB-MW-08 (2-3)	TA-SB-MW-08 (5-6)	TA-SB-MA-01 (7-8)	TA-SB-MA-01 (11-12)
Depth Interval (Feet below ground surface)									2 - 3	4 - 5	4 - 5	6 - 7	2 - 3	5 - 6	7 - 8	11 - 12
Laboratory Sample ID(s)									TF29012-005	TF29012-006	TF29012-003	TF29012-004	TF29012-007	TF29012-008	TH02019-019	TH02019-020
Sample Date									6/29/2018	6/29/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	8/1/2018	8/1/2018
Parameter (µg/kg)																
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	1,400 [J]	150	<30	<16	<13	<83	<20	<15
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<290 [UJ]	<95	<30	<16	<13	<83	<20	<15
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	1,500	160	8.7	<16	<13	52	<20	<15
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<2,900	<950	<300	<160	<130	<830	<500	<390
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	1,500	370	33	11	5.1	220	12	<15
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	1,400	370	27	8.1	4	260	13	<15
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	1,600	480	35	10	<13	340	<20	<15
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	880	140	15	<16	<13	110	<20	<15
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	800	170	11	3.9	<13	100	<20	<15
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<1,500	<490	<150	<82	<69	<430	<100	<78
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<1,500	<490	<150	<82	<69	<430	<100	<78
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<1,500	<490	<150	<82	<69	<430	<100	<78
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<1,500 [UJ]	<490	<150	<82	<69	<430	<100	<78
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	1,500	420	27	6.9	4.3	260	<20	<15
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<290	<95	<30	<16	<13	<83	<20	<15
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<1,500 [UJ]	160	<150	<82	<69	<430	<100	<78
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<1,500	<490	<150	<82	<69	<430	<100	<78
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<1,500 [UJ]	<490	<150	<82	<69	<430	<100	<78
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<1,500 [UJ]	<490	<150	<82	<69	<430	<100	<78
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<1,500	<490	<150	<82	<69	<430	<100	<78
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<7,300	<2,400	<760	<400	<340	<2,100	<500	<390
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<2,900 [UJ]	<950	<300	<160	<130	<830	<200	<150
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<1,500	<490	<150	<82	<69	<430	<100	<78
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<1,500	<490	<150	<82	<69	<430	<100	<78
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	3,500	860	51	12	11	410	27	<15
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<290 [UJ]	220	<30	<16	<13	23	<20	<15
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<7,300 [UJ]	<2,400	<760	<400	<340	<2,100	<500	<390
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	800	140	14	<16	<13	100	<20	<15
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<1,500	<490	<150	<82	<69	<430	<100	<78
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	***6,500***	900	<30	<16	<13	49	<20	<15
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<1,500	<490	<150	<82	<69	<430	<100	<78
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<2,900	<950	<300	<160	<130	<830	<200	<150
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	***2,200***	***1,700***	11	<16	<13	66	<20	<15
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<1,500	<490	<150	<82	<69	<430	<100	<78
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<2,900	<950	<300	<160	<130	<830	<200	<150
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<1,500	<490	<150	<82	<69	<430	<100	<78
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<7,300	<2,400	<760	<400	<340	<2,100	<500	<390
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	***7,400***	760	39	7.9	12	210	<20	<15
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<1,500	<490	<150	<82	<69	<430	<100	<78
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	3,500	640	45	11	9.7	380	20	<15
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<1,500 [UJ]	<490	<150	<82	<69	<430	<100	<78
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<1,500 [UJ]	<490	<150	<82	<69	<430	<100	<78

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-MA-02	TA-SB-MA-02	TA-SB-MA-03	TA-SB-MA-03	TA-SB-MA-04	TA-SB-MA-04	TA-SED-T10-ISLAND
Sample Name									TA-SB-MA-02 (7-8)	TA-SB-MA-02 (11-12)	TA-SB-MA-03(7-8)	TA-SB-MA-03(13-14)	TA-SB-MW-04(8-9)	TA-SB-MW-04(10-11)	TA-SED-T10-ISLAND(0-1)
Depth Interval (Feet below ground surface)									7 - 8	11 - 12	7 - 8	13 - 14	8 - 9	10 - 11	0 - 1
Laboratory Sample ID(s)									TH02019-024	TH02019-025	TH03007-002	TH03007-001	TH09090-003	TH09090-004	TG24016-002
Sample Date									8/1/2018	8/1/2018	8/2/2018	8/2/2018	8/8/2018	8/8/2018	7/23/2018
Parameter (µg/kg)															
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<120	<16	<15	<16	<36	<93	<20
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<120	<16	<15	<16	13	170	<20
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<620	<84	<80	<83	<180	<480	<100
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	89	<16	<15	10	17 [J+]	120 [J+]	<20
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<620	<84	<80	<83	<180	<480	<100
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<3,000	<410	<390	<410	<910	<2,400	<500
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	330	<16	<15	24	78	630	23
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	390	<16	<15	19	68	800	21
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	480	<16	<15	20	81	910	33
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	160	<16	<15	10	28	330	11
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	210	<16	<15	11	30	350	12
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<620	<84	<80	<83	<180	<480	<100
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<620	<84	<80	<83	<180	<480	<100
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<620	<84	<80	<83	<180	<480	<100
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<620	<84	<80	<83	<180	<480	<100
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<620	<84	<80	<83	<180	<480	<100
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<620	<84	<80	<83	<180	<480	<100
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<620	<84	<80	<83	<180	<480	<100
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	300	<16	<15	20	51	530	19
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<120	<16	<15	<16	<36	<93	<20
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<620	<84	<80	<83	<180	<480	<100
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<620	<84	<80	<83	<180	<480	<100
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<620	<84	<80	<83	<180	<480	<100
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<620	<84	<80	<83	<180	<480	<100
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<620	<84	<80	<83	<180	<480	<100
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<620	<84	<80	<83	<180	<480	<100
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<620	<84	<80	<83	<180	<480	<100
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<3,000	<410	<390	<410	<910	<2,400	<500
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<1,200	<160	<150	<160	<360	<930	<200
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<620	<84	<80	<83	<180	<480	<100
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<620	<84	<80	<83	<180	<480	<100
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<620	<84	<80	<83	<180	<480	<100
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	570	<16	12	50	120 [J+]	1,100 [J+]	39
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<120	<16	<15	<16	<36	35	<20
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<620	<84	<80	<83	<180	<480	<100
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<620	<84	<80	<83	<180	<480	<100
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<3,000	<410	<390	<410	<910	<2,400	<500
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<620	<84	<80	<83	<180	<480	<100
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	130	<16	<15	10	26	320	10
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<620	<84	<80	<83	<180	<480	<100
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	95	<16	14	<16	<36	110 [J+]	<20
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<620	<84	<80	<83	<180	<480	<100
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<1,200	<160	<150	<160	<360	<930	<200
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	130	<16	23	<16	33 [J+]	110 [J+]	<20
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<620	<84	<80	<83	<180	<480	<100
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<1,200	<160	<150	<160	<360	<930	<200
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<620	<84	<80	<83	<180	<480	<100
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<620	<84	<80	<83	<180	<480	<100
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<3,000	<410	<390	<410	<910	<2,400	<500
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	140	<16	16	36	62 [J+]	380 [J+]	13
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<620	<84	<80	<83	<180	<480	<100
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	520	<16	9.2	41	120	1,100	35
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<620	<84	<80	<83	<180	<480	<100
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<620	<84	<80	<83	<180	<480	<100

TABLE 5B
SUMMARY OF SOIL SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SED-T10-ISLAND	TA-SED-T4-ISLAND	TA-SED-T7-ISLAND	TA-SED-T9-ISLAND
Sample Name									TA-SED-T10-ISLAND(2-3)	TA-SED-T4-ISLAND(0-0.5)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T9-ISLAND(0-0.5)
Depth Interval (Feet below ground surface)									2 - 3	0 - 0.5	0 - 0.5	0 - 0.5
Laboratory Sample ID(s)									TG24016-003	TG14035-001	TG11006-001	TG14035-007
Sample Date									7/23/2018	7/11/2018	7/9/2018	7/13/2018
Parameter (µg/kg)												
Acenaphthene	300,000	8,700	190,000,000	81,000,000	14,000,000,000	41,000,000	NCL	11,000,000	<110	<130 [UJ]	<97	<81
Acenaphthylene	5,900	ID	1,600,000	2,200,000	2,300,000,000	1,600,000	NCL	NCL	<110	<130 [UJ]	<97	<81
Acetophenone	30,000	ID	120,000,000 (C)	44,000,000	33,000,000,000	47,000,000 (C)	NCL	23,000,000	<580	<650 [UJ]	<500	<420
Anthracene	41,000	ID	1,000,000,000 (D)	1,400,000,000	67,000,000,000	230,000,000	NCL	54,000,000	<110	<130 [UJ]	<97	<81
Atrazine	60	150	NLV	NLV	ID	71,000 (DD)	NCL	240,000	<580	<650 [UJ]	<500	<420
Benzidine	1,000 (M)	1,000 (M)	NLV	NLV	46,000	1,000 (M)	NCL	53	<2,900	<3,200 [UJ]	<2,500	<2,100
Benzo(a)anthracene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<110	120 [J]	71	65
Benzo(a)pyrene	NLL	NLL	NLV	NLV	1,500,000	2,000	NCL	11,000	30	99 [J]	61	53
Benzo(b)fluoranthene	NLL	NLL	ID	ID	ID	20,000	NCL	110,000	42	150 [J]	110	87
Benzo(g,h,i)perylene	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NCL	NCL	<110	<130 [UJ]	<97	<81
Benzo(k)fluoranthene	NLL	NLL	NLV	NLV	ID	200,000	NCL	1,100,000	<110	45 [J]	36	34
Butyl benzyl phthalate	2,200,000 (C)	13,000 (X)	NLV	NLV	47,000,000,000	36,000,000 (C)	NCL	29,000,000	<580	<650 [UJ]	<500	<420
Caprolactam	120,000	NA	NLV	NLV	670,000,000	53,000,000 (DD)	NCL	94,000,000	<580	<650 [UJ]	<500	<420
Carbazole	9,400	1,100	NLV	NLV	62,000,000	530,000	NCL	NCL	<580	<650 [UJ]	<500	<420
4-Chloro-3-methyl phenol	5,800	280	NLV	NLV	ID	4,500,000	NCL	19,000,000	<580	<650 [UJ]	<500	<420
bis(2-Chloroethyl)ether	100	100 (M)	8,300	3,800	9,400,000	13,000	NCL	23,000	<580	<650 [UJ]	<500	<420
2-Chloronaphthalene	620,000	NA	ID	ID	ID	56,000,000	NCL	14,000,000	<580	<650 [UJ]	<500	<420
2-Chlorophenol	900	360	430,000	960,000	1,200,000,000	1,400,000	NCL	1,200,000	<580	<650 [UJ]	<500	<420
Chrysene	NLL	NLL	ID	ID	ID	2,000,000	NCL	11,000,000	<110	76 [J]	50	<81
Dibenzo(a,h)anthracene	NLL	NLL	NLV	NLV	ID	2,000	NCL	11,000	<110	<130 [UJ]	<97	<81
Dibenzofuran	ID	1,700	2,000,000	130,000	6,700,000	ID	NCL	220,000	<580	<650 [UJ]	<500	<420
3,3'-Dichlorobenzidine	2,000 (M)	2,000 (M)	NLV	NLV	6,500,000	6,600	NCL	120,000	<580	<650 [UJ]	<500	<420
2,4-Dichlorophenol	1,500	330 (M)	NLV	NLV	5,100,000,000	660,000 (DD)	NCL	570,000	<580	<650 [UJ]	<500	<420
Diethylphthalate	110,000	2,200	NLV	NLV	3,300,000,000	170,000,000 (C)	NCL	150,000,000	<580	<650 [UJ]	<500	<420
Dimethyl phthalate	1,500,000 (C)	NA	NLV	NLV	3,300,000,000	1,000,000,000 (C,D)	NCL	NCL	<580	<650 [UJ]	<500	<420
2,4-Dimethylphenol	7,400	7,600	NLV	NLV	4,700,000,000	11,000,000	NCL	3,800,000	<580	<650 [UJ]	<500	<420
Di-n-butyl phthalate	960,000 (C)	11,000	NLV	NLV	3,300,000,000	27,000,000 (C)	NCL	19,000,000	<580	<650 [UJ]	<500	<420
4,6-Dinitro-2-methylphenol	830 (M)	NA	NLV	NLV	130,000,000	79,000	NCL	15,000	<2,900	<3,200 [UJ]	<2,500	<2,100
2,4-Dinitrotoluene	430	NA	NLV	NLV	16,000,000	48,000	NCL	170,000	<1,100	<1,300 [UJ]	<970	<810
Di-n-octylphthalate	100,000,000	ID	NLV	NLV	31,000,000,000	6,900,000	NCL	1,900,000	<580	<650 [UJ]	<500	<420
1,2-Diphenylhydrazine(as azobenzene)	4,200	ID	6,100,000	630,000	100,000,000	140,000	NCL	560,000	<580	<650 [UJ]	<500	<420
bis(2-Ethylhexyl)phthalate	NLL	NLL	NLV	NLV	700,000,000	2,800,000	NCL	3,800,000	<580	<650 [UJ]	<500	<420
Fluoranthene	730,000	5,500	1,000,000,000 (D)	740,000,000	9,300,000,000	46,000,000	NCL	7,200,000	65	200 [J]	150	100
Fluorene	390,000	5,300	580,000,000	130,000,000	9,300,000,000	27,000,000	NCL	7,200,000	<110	<130 [UJ]	<97	<81
Hexachlorobenzene	1,800	350	41,000	17,000	6,800,000	8,900	NCL	21,000	<580	<650 [UJ]	<500	<420
Hexachlorobutadiene	26,000	91	130,000	130,000	140,000,000	100,000	NCL	120,000	<580	<650 [UJ]	<500	<420
Hexachlorocyclopentadiene	320,000	ID	30,000	50,000	13,000,000	2,300,000 (C)	NCL	5,300	<2,900	<3,200 [UJ]	<2,500	<2,100
Hexachloroethane	430	310 (X)	40,000	550,000	230,000,000	230,000	NCL	130,000	<580	<650 [UJ]	<500	<420
Indeno(1,2,3-c,d)pyrene	NLL	NLL	NLV	NLV	ID	20,000	NCL	110,000	<110	<130 [UJ]	<97	<81
Isophorone	15,000	6,200 (X)	NLV	NLV	12,000,000,000	4,800,000 (C)	NCL	38,000,000	<580	<650 [UJ]	<500	<420
2-Methylnaphthalene	57,000	4,200	2,700,000	1,500,000	670,000,000	8,100,000	NCL	720,000	<110	<130 [UJ]	<97	<81
2-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,500,000	<580	<650 [UJ]	<500	<420
3+4-Methylphenol	NCL	NCL	NCL	NCL	NCL	NCL	NCL	19,000,000	<1,100	<1,300 [UJ]	<970	<810
Naphthalene	35,000	730	250,000	300,000	200,000,000	16,000,000	NCL	380,000	<110	<130 [UJ]	<97	<81
Nitrobenzene	330 (M)	330 (X)	91,000	54,000	47,000,000	100,000	NCL	380,000	<580	<650 [UJ]	<500	<420
2-Nitrophenol	400	ID	NLV	NLV	ID	630,000	NCL	NCL	<1,100	<1,300 [UJ]	<970	<810
N-Nitrosodi-n-propylamine	330 (M)	NA	NLV	NLV	1,600,000	1,200	NCL	7,800.0	<580	<650 [UJ]	<500	<420
N-Nitrosodiphenylamine (Diphenylamine)	5,400	NA	NLV	NLV	2,200,000,000	1,700,000	NCL	11,000,000	<580	<650 [UJ]	<500	<420
Pentachlorophenol	22	17000 (G,X)	NLV	NLV	100,000,000	90,000	NCL	100,000	<2,900	<3,200 [UJ]	<2,500	<2,100
Phenanthrene	56,000	2,100	2,800,000	160,000	6,700,000	1,600,000	NCL	NCL	44	74 [J]	77	44
Phenol	88,000	9,000	NLV	NLV	40,000,000,000	40,000,000 (C, DD)	NCL	57,000,000	<580	<650 [UJ]	<500	<420
Pyrene	480,000	ID	1,000,000,000 (D)	650,000,000	6,700,000,000	29,000,000	NCL	5,400,000	51	150 [J]	110	76
2,4,5-Trichlorophenol	39,000	NA	NLV	NLV	23,000,000,000	23,000,000	NCL	19,000,000	<580	<650 [UJ]	<500	<420
2,4,6-Trichlorophenol	2,400	330 (M)	NLV	NLV	1,000,000,000	710,000	NCL	190,000	<580	<650 [UJ]	<500	<420

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-01	TA-SB-01	TA-SB-02	TA-SB-02	TA-SB-03	TA-SB-03	TA-SB-04	TA-SB-04	TA-SB-05	TA-SB-05
Sample Name										TA-SB-01(2-3)	TA-SB-01(7-8)	TA-SB-02(2-3)	TA-SB-02(7-8)	TA-SB-03(6-7)	TA-SB-03(12-13)	TA-SB-04(7-8)	TA-SB-04(12-13)	TA-SB-05 (2-3)	TA-SB-05 (7-8)
Depth Interval (Feet below ground surface)										2 - 3	7 - 8	2 - 3	7 - 8	6 - 7	12 - 13	7 - 8	12 - 13	2 - 3	7 - 8
Laboratory Sample ID(s)										TH03007-005	TH03007-006	TH03007-009	TH03007-010	TH03007-015	TH03007-016	TH03007-017	TH03007-018	TH08019-006	TH08019-007
Sample Date										8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/3/2018	8/3/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	5,300,000	***10,000,000***	3,900,000	4,000,000	5,000,000	4,500,000	1,700,000	3,400,000	***7,100,000***	***11,000,000***
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<2,400	<550	<2,400	260	260	480	<450	<470	1,100	750
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	***29,000***	3,900	***22,000***	5,600	2,900	2,800	410	1,600	***12,000***	***12,000***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	210,000	88,000	190,000	46,000	100,000	57,000	12,000	22,000	77,000	65,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	420	3,300	480	310	600	310	110	280	320 [J+]	360 [J+]
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<63,000	***71,000***	<63,000	<15,000 [UB]	***19,000***	***21,000***	<12,000 [UB]	<12,000 [UB]	***20,000***	***26,000***
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	1,200	31	1,100	320	180	50	<120	44	680	760
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***360,000***	18,000	***270,000***	***130,000***	***26,000***	***630,000***	6,700	11,000	***110,000***	***89,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	***20,000***	<1,200	***31,000***	970	900	<1,600	<1,200	<1,100	<1,700	<1,800
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	340,000	18,000	240,000	130,000	25,000	630,000	6,700	11,000	110,000	89,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	3,300	2,200	3,500	3,000	2,900	3,000	1,200	2,400	4,000	***6,900***
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	29,000	4,700	31,000	9,300	11,000	34,000	3,000	5,400	20,000	22,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	12,000,000	***17,000,000***	***17,000,000***	11,000,000	9,500,000	***16,000,000***	3,500,000	7,900,000	***21,000,000***	***20,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	***1,300,000***	6,400	***1,000,000***	41,000	24,000	22,000	2,000	4,600	79,000	40,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***9,600,000***	***14,000,000***	8,000,000	5,100,000	***9,100,000***	***16,000,000***	1,500,000	***14,000,000***	***14,000,000***	***8,700,000***
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	***140 [J-]***	<92 [UJ]	***280***	54	61	<110	<94	<81	***360***	***260***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<12,000	800	<12,000	<3,000	1,300	***2,700***	<2,200	<2,400	1,500	***2,200***
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	11,000	5,600	9,600	7,300	9,300	20,000	3,400	7,600	10,000	17,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<6,300	***950***	<6,300	***600***	<1,200	<1,700	<1,200	<1,200	***750***	***900***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<1,200	<280	<1,200	<300	<240	560	<220	<240	<380	<410
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<480,000	280,000	<490,000	350,000	500,000	1,200,000	240,000	1,000,000	2,200,000	4,100,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<630	<140	<630	150	56	<170	<120	53	100	160
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	150,000	660,000	180,000	270,000	420,000	370,000	130,000	250,000	300,000	400,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	10,000	24,000	14,000	16,000	18,000	9,100	5,900	14,000	18,000	33,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	***280,000***	12,000	***250,000***	70,000	72,000	83,000	13,000	16,000	220,000	***310,000***

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-06	TA-SB-06	TA-SB-07	TA-SB-07	TA-SB-08	TA-SB-08	TA-SB-08	TA-SB-09	TA-SB-09	TA-SB-10
Sample Name										TA-SB-06(2-3)	TA-SB-06(7-8)	TA-SB-07 (3-4)	TA-SB-07 (9-10)	TA-SB-08(3-4)	TA-SB-08(7-8)	TA-SB-08(7-8)DUP	TA-SB-09(2-3)	TA-SB-09(6-7)	TA-SB-10 (1-2)
Depth Interval (Feet below ground surface)										2 - 3	7 - 8	3 - 4	9 - 10	3 - 4	7 - 8	7 - 8	2 - 3	6 - 7	1 - 2
Laboratory Sample ID(s)										TH03007-020	TH03007-019	TH08019-004	TH08019-005	TH03007-011	TH03007-012	TH03007-013	TH03007-007	TH03007-008	TH01025-023
Sample Date										8/2/2018	8/2/2018	8/7/2018	8/7/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	7/31/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	4,200,000	1,900,000	4,500,000	***12,000,000***	2,500,000 [J]	6,600,000	***7,700,000***	1,400,000 [J]	1,600,000	4,300,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	210	<560	<450	<730	<430	***2,900***	***1,800***	<480	240	160
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	4,100	720	1,600	4,800	2,000	***30,000***	***18,000***	560	1,400	3,600
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	77,000	9,400	71,000	73,000	21,000 [J]	220,000	250,000	5,500 [J]	7,100	80,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	400	120	410 [J+]	360 [J+]	200	780	840	94	120	210
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	***14,000***	<15,000	***12,000***	<19,000 [UB]	<11,000 [UB]	<70,000 [UB]	<25,000 [UB]	<12,000	<11,000 [UB]	5,200
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	360	<150	96	250	120	1,600	***3,100***	<120	<110	210
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	12,000	***25,000***	***59,000***	***180,000***	***100,000 [J]***	***250,000***	***410,000***	3,800	3,800	12,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,200	3,000	<1,100	<1,700	750 [J-]	<1,600	<2,100	360	<1,200	<1,200
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	12,000	22,000	59,000	180,000	99,000	250,000	410,000	3,400	3,800	12,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	3,000	1,000	1,800	4,700	2,000	***15,000 [J]***	***8,400 [J]***	880	1,100	1,700
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	10,000	2,100	7,700	14,000	9,500	***260,000 [J]***	62,000 [J]	1,700	2,100	10,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	10,000,000	3,900,000	7,000,000	***15,000,000***	6,600,000 [J]	***110,000,000 [J]***	***49,000,000 [J]***	2,800,000	3,300,000	6,500,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	31,000	2,900	10,000	20,000	15,000 [J]	250,000	360,000	1,500	1,800	62,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***10,000,000***	770,000	***32,000,000***	***9,300,000***	2,200,000 [J]	4,600,000	5,200,000	1,300,000 [J]	1,500,000	750,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	53	<92	<83	***290***	<90	***2,000 [J]***	***710 [J]***	<88 [UJ]	<95	89
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	760	<2,800	<2,300	<3,700	<2,100	***8,900***	***6,300***	<2,400	<2,100	660
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	8,800	2,700	5,400	11,000	4,800	92,000 [J]	31,000 [J]	2,300	2,600	3,800
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,100	<1,500	***630***	***1,300***	<1,100	<7,000	<2,500	<1,200	<1,100	***420***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<200	<280	55	<370	<210	340	270	<240	<210	74
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	340,000	66,000	340,000	1,900,000	89,000 [J]	1,700,000	2,000,000	<96,000	<84,000	1,100,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	46	<150	32	170	80	<700	230	<120	30	100
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	330,000	140,000	240,000	350,000	180,000 [J]	190,000 [J]	390,000 [J]	97,000 [J]	130,000	220,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	15,000	6,400	9,700	24,000	9,400	18,000	26,000	5,200	6,200	15,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	87,000	8,300	30,000	65,000	28,000 [J]	***980,000***	***860,000***	6,100	7,000	59,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-10	TA-SB-11	TA-SB-11	TA-SB-12	TA-SB-12	TA-SB-12	TA-SB-13	TA-SB-13	TA-SB-14	TA-SB-14
Sample Name										TA-SB-10 (4-5)	TA-SB-11 (1-2)	TA-SB-11 (6-7)	TA-SB-12 (0-1)	TA-SB-12 (1-2)	TA-SB-12 (4-5)	TA-SB-13 (1-2)	TA-SB-13 (6-7)	TA-SB-14 (5-6)	TA-SB-14 (7-8)
Depth Interval (Feet below ground surface)										4 - 5	1 - 2	6 - 7	0 - 1	1 - 2	4 - 5	1 - 2	6 - 7	5 - 6	7 - 8
Laboratory Sample ID(s)										TH01025-024	TH01025-011	TH01025-012	TH01025-016	TH01025-006	TH01025-007	TH01025-013	TH01025-014	TH01025-004	TH01025-005
Sample Date										7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	770,000	5,400,000	1,500,000	3,200,000	3,800,000	***7,700,000***	4,600,000	1,700,000	3,500,000	5,100,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<450	<520	<510	<520	<490	<550	<450	<500	<430	<490
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	700	2,300	2,900	3,600	2,000	2,200	1,800	2,000	560	1,900
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	2,600	31,000	7,600	83,000	36,000	44,000	34,000	17,000	17,000	28,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	52	270	150	470	240	590	220	130	300	460
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<12,000	4,400	5,800	4,800	2,600	***16,000***	3,400	5,700	7,200	***14,000***
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	42	92	<130	210	110	95	140	27	55	93
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	2,100	15,000	5,000	***110,000***	***21,000***	18,000	17,000	5,600	12,000	14,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,200	<1,100	<1,100	680	280	<1,200	<1,100	<1,100	<1,200	<1,200
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	2,100	15,000	5,000	110,000	21,000	18,000	17,000	5,600	12,000	14,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	490	3,300	1,700	3,200	2,400	5,500	2,700	2,500	2,400	4,200
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	2,100	4,400	4,500	31,000	4,300	12,000	3,500	5,600	7,300	10,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	1,900,000	9,700,000	5,000,000	7,800,000	7,700,000	***15,000,000***	8,000,000	6,800,000	8,200,000	12,000,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	1,000	7,700	4,500	64,000	9,500	6,600	9,400	2,600	3,700	5,600
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	200,000	1,500,000	***23,000,000***	6,000,000	1,000,000	***18,000,000***	980,000	***26,000,000***	***11,000,000***	***27,000,000***
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<89	21	<87	48	24	<95	32	<87	<93	<97
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,200	<2,600	<2,500	<2,600	<2,400	<2,800	<2,200	<2,500	1,300	640
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	950	6,700	4,600	7,800	4,600	16,000	5,000	5,600	7,600	12,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,200	<1,400	<1,300	***580***	<1,300	***550***	<1,200	<1,300	<1,100	<1,300
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<220	<260	<250	<260	<240	<280	<220	<250	<210	65
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	350,000	2,500,000	180,000	270,000	290,000	1,100,000	55,000	160,000	610,000	500,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<120	74	<130	86	86	150	67	<130	63	160
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	94,000	360,000	140,000	240,000	290,000	310,000	270,000	190,000	240,000	300,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	4,800	22,000	6,200	15,000	16,000	27,000	17,000	10,000	15,000	21,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	3,100	26,000	11,000	100,000	28,000	27,000	28,000	12,000	16,000	24,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-15	TA-SB-15	TA-SB-16	TA-SB-16	TA-SB-17	TA-SB-17	TA-SB-18	TA-SB-18	TA-SB-19	TA-SB-19
Sample Name										TA-SB-15 (2-3)	TA-SB-15 (7-8)	TA-SB-16 (2-3)	TA-SB-16 (6-7)	TA-SB-17 (1-2)	TA-SB-17 (7-8)	TA-SB-18 (2-3)	TA-SB-18 (6-7)	TA-SB-19 (3-4)	TA-SB-19 (7-8)
Depth Interval (Feet below ground surface)										2 - 3	7 - 8	2 - 3	6 - 7	1 - 2	7 - 8	2 - 3	6 - 7	3 - 4	7 - 8
Laboratory Sample ID(s)										TH01025-017	TH01025-018	TG27014-006	TG27014-005	TG27014-016	TG27014-017	TG27014-009	TG27014-010	TG27014-007	TG27014-008
Sample Date										7/31/2018	7/31/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	1,500,000	2,200,000	2,500,000	3,000,000	6,200,000	4,000,000	2,400,000	4,500,000	2,700,000 [J]	3,200,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<460	<430	<310	<390	<410	<410	<440	<430	<550	<310
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	610	1,600	3,200	2,400	4,300	3,700	1,800	2,900	2,900	3,000
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	6,900	12,000	28,000	29,000	46,000	44,000	18,000	28,000	29,000 [J]	21,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	97	120	<63 [UB]	<78 [UB]	90	<81 [UB]	<89 [UB]	<87 [UB]	<110 [UB]	<63 [UB]
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<12,000	<11,000 [UB]	<8,200 [UB]	<10,000 [UB]	***17,000***	<11,000 [UB]	<12,000 [UB]	<11,000 [UB]	***18,000***	<8,200 [UB]
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	<120	51	71	83	120	170	87	170	220	35
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	3,000	5,700	18,000	***28,000***	***40,000***	***28,000***	10,000	11,000	***54,000 [J]***	11,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,100	<1,100	770	530	800	370	740	<1,200 [UR]	<1,100 [UR]	<1,100
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	3,000	5,700	17,000	27,000	39,000	28,000	9,300	11,000	54,000	11,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	840	3,000	3,000	3,400	5,700	3,000	2,400	3,700	2,600	3,800
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	960	8,600	8,000	8,300	13,000	6,500	5,400	6,000	26,000 [J]	8,300
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	2,600,000	7,100,000	8,700,000	7,500,000	***14,000,000***	7,000,000	4,200,000	7,500,000	6,300,000	7,200,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	1,200	1,900	8,500	8,300	14,000	11,000	16,000	4,900	18,000	4,200
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	410,000	***41,000,000***	***26,000,000***	***17,000,000***	***13,000,000***	3,000,000	6,300,000	2,100,000	4,900,000 [J]	6,000,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<79	<83	23	<83	<92	51	<85	27	25	<84
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,300	<2,200	<1,600	630	<2,100	1,100	<2,200	<2,200	<2,700	<1,600
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	2,000	7,500	7,800	8,300	15,000	7,000	6,000	8,200	6,900	8,100
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,200	<1,100	<820	<1,000	<1,100	<1,100	<1,200	<1,100	<1,400	<820
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<230	<220	<160	<190	60	<200	<220	<220	170	42
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<93,000	220,000 [J]	290,000	210,000	590,000	180,000	85,000	110,000	500,000 [J]	420,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<120	35	77	71	150	71	51	88	71	100
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	77,000	180,000	220,000	250,000	260,000	230,000	200,000	260,000	180,000 [J]	300,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	4,600	11,000	13,000	16,000	24,000	15,000	10,000	17,000	13,000	19,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	4,700	13,000	23,000	25,000	40,000	23,000	15,000	41,000	37,000 [J]	17,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-20	TA-SB-20	TA-SB-21	TA-SB-21	TA-SB-22	TA-SB-22	TA-SB-23	TA-SB-23	TA-SB-24	TA-SB-24
Sample Name										TA-SB-20(5-6)	TA-SB-20 (7-8)	TA-SB-21 (6-7)	TA-SB-21 (9-10)	TA-SB-22 (2-3)	TA-SB-22 (8-9)	TA-SB-23(6-7)	TA-SB-23(9-10)	TA-SB-24(0-1)	TA-SB-24(5-6)
Depth Interval (Feet below ground surface)										5 - 6	7 - 8	6 - 7	9 - 10	2 - 3	8 - 9	6 - 7	9 - 10	0 - 1	5 - 6
Laboratory Sample ID(s)										TG28004-018	TG27014-018	TH01025-025	TH01025-026	TH01025-021	TH01025-022	TH09090-001	TH09090-002	TG28004-027	TG28004-028
Sample Date										7/27/2018	7/26/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	8/8/2018	8/8/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	4,300,000	2,000,000	5,400,000	2,600,000	2,700,000	2,800,000	***9,700,000***	***12,000,000***	3,500,000	4,300,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	1,100	<350	<390	<510	170	<590	<71,000	<16,000	<3,600	<3,100
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	***12,000***	780	2,200	880	1,200	3,500	***37,000***	***9,600***	***5,900***	4,700
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	100,000	12,000	31,000	10,000	11,000	60,000	100,000	51,000	24,000	42,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	<170 [UB]	<71 [UB]	420	210	130	460	<14,000	<3,100	260	830
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<22,000 [UB]	<9,200 [UB]	10,000	<13,000	<11,000	8,600	<1,800,000	<410,000	<94,000	***34,000***
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	***7,900***	70	81	58	37	160	***4,300***	<4,100	240	720
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***5,500,000***	6,800	14,000	6,600	5,200	***77,000***	***110,000,000***	***26,000,000***	***10,000,000***	***490,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	***4,000***	520	<1,200	<1,200	<1,100	410	<1,600	***4,200***	***11,000***	2,400
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	5,500,000	6,300	14,000	6,600	5,200	77,000	110,000,000	26,000,000	10,000,000	490,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	3,500	1,600	3,400	1,600	1,500	2,600	<180,000	<41,000	2,600	5,300
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	***280,000***	2,500	8,000	2,500	2,700	15,000	<180,000	<41,000	24,000	18,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	12,000,000	2,700,000	10,000,000	4,700,000	4,200,000	6,100,000	***36,000,000***	***13,000,000***	8,300,000	***49,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	380,000	2,000	4,800	2,100	2,000	17,000	63,000	8,400	23,000	7,400
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	3,200,000	570,000	***9,900,000***	740,000	1,600,000	1,600,000	<14,000,000	1,600,000	***8,500,000***	2,600,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	***510***	<90	<93	<90	<85	***630***	***1,200***	52	35	<110
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	***3,000***	<1,800	<1,900	<2,500	<2,200	940	<350,000	<78,000	<18,000	***4,700***
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	9,800	4,500	9,500	4,000	4,000	6,800	<180,000	<41,000	12,000	20,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<2,200	<920	<1,000	<1,300	<1,100	<1,500	<180,000	<41,000	<9,400	<8,000
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	120	<180	<190	<250	<220	<300	<35,000	<7,800	<1,800	<1,500
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	740,000	180,000	84,000	44,000	96,000	130,000	<14,000,000	<3,100,000	<720,000	<620,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	220	30	90	34	44	100	<18,000	<4,100	<940	<800 [UB]
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	260,000	150,000	250,000	200,000	150,000	200,000	310,000	270,000	200,000 [J+]	260,000 [J+]
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	<110,000	6,800	18,000	10,000	7,900	12,000	<1,800,000	***110,000***	42,000	15,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	***1,000,000***	9,500	21,000	8,600	10,000	32,000	***1,400,000***	73,000	88,000	200,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-25	TA-SB-25	TA-SB-26	TA-SB-26	TA-SB-27	TA-SB-27	TA-SB-27	TA-SB-28	TA-SB-28	TA-SB-29
Sample Name										TA-SB-25(1-2)	TA-SB-25(7-8)	TA-SB-26 (5-6)	TA-SB-26 (8-9)	TA-SB-27 (1-2)	TA-SB-27 (1-2) DUP	TA-SB-27 (8-9)	TA-SB-28(2-3)	TA-SB-28(6-7)	TA-SB-29 (2-3)
Depth Interval (Feet below ground surface)										1 - 2	7 - 8	5 - 6	8 - 9	1 - 2	1 - 2	8 - 9	2 - 3	6 - 7	2 - 3
Laboratory Sample ID(s)										TG28004-029	TG28004-001	TH01025-002	TH01025-003	TG31022-021	TG31022-023	TH08019-001	TG28004-004	TG28004-005	TG31022-018
Sample Date										7/27/2018	7/27/2018	7/31/2018	7/31/2018	7/30/2018	7/30/2018	8/7/2018	7/27/2018	7/27/2018	7/30/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	3,300,000 [J]	6,800,000	4,400,000	4,700,000	***9,700,000***	***7,300,000***	4,700,000	1,900,000	2,200,000	3,300,000 [J]
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<540	<1,200	630	<450	<4,900	<4,400	<440	<500	<380	200 [J]
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	4,600	3,400	***20,000***	3,300	3,200	***6,700***	***6,100***	1,500	1,300	1,700
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	84,000 [J]	64,000	42,000	32,000	25,000	27,000	23,000	10,000	17,000	22,000 [J]
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	330	400	360	300	330	430	180 [J+]	<100 [UB]	<76 [UB]	280
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	6,500	<32,000 [UB]	10,000	5,600	<130,000	<110,000	<11,000 [UB]	<13,000 [UB]	<9,800 [UB]	6,100
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	420	320	420	100	320	220	47	<130	<98 [UB]	160
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***83,000 [J]***	***150,000***	***380,000***	11,000	***17,000,000***	***16,000,000***	***31,000 [J]***	***22,000***	***19,000***	***37,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	610 [J-]	***4,600***	1,000	<1,200	2,300 [J]	***4,000 [J]***	490	1,400	700	330 [J-]
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	82,000	150,000	380,000	11,000	17,000,000	16,000,000	31,000	21,000	18,000	37,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	2,300	2,600	3,300	3,700	3,900	<11,000	3,000	1,500	1,400	2,700
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	17,000	***290,000***	35,000	5,800	18,000	6,600	7,300	3,200	3,400	8,400
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	8,500,000	7,100,000	***30,000,000***	11,000,000	***17,000,000***	***13,000,000***	10,000,000	4,400,000	4,000,000	9,200,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	63,000 [J]	5,500	31,000	6,400	9,700	9,300	3,700	2,000	2,600	15,000 [J]
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	1,500,000 [J]	5,200,000	2,600,000	1,300,000	***16,000,000 [J]***	***8,200,000 [J]***	***15,000,000***	710,000	1,800,000	7,200,000 [J]
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	45	***600***	73	<93	26	25	<95	<87	<82	27
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,700 [UJ]	<6,200	910	<2,300	<25,000	<22,000	<2,200	<2,500	***2,000***	<2,200
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	6,100	18,000	8,900	8,900	17,000	7,100	7,000	3,600	4,100	6,600
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	***620 [J]***	***7,000***	<1,200	<1,200	<13,000	<11,000	<1,100	<1,300	<980	***1,300***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	82	270	<230	<230	<2,500	<2,200	<220	<250	<190	<220
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	58,000	600,000	290,000	160,000	<980,000	<870,000	150,000 [J]	<100,000	89,000	340,000 [J]
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<140 [UB]	200	210	100	<1,300	<1,100	64	30	<98 [UB]	50 [J]
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	170,000 [J+]	240,000	240,000	330,000	250,000	200,000	240,000	180,000	150,000	210,000 [J]
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	12,000	11,000	15,000	17,000	***110,000***	36,000	14,000	9,500	7,500	12,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	52,000 [J]	31,000	170,000	24,000	65,000	52,000	21,000	23,000	14,000	50,000 [J]

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-29	TA-SB-30	TA-SB-30	TA-SB-31	TA-SB-31	TA-SB-32	TA-SB-32	TA-SB-32	TA-SB-33
Sample Name										TA-SB-29 (9-10)	TA-SB-30 (2-3)	TA-SB-30 (13-14)	TA-SB-31(2-3)	TA-SB-31(7-8)	TA-SB-32(2-3)	TA-SB-32(2-3) DUP	TA-SB-32(9-10)	TA-SB-33(1-2)
Depth Interval (Feet below ground surface)										9 - 10	2 - 3	13 - 14	2 - 3	7 - 8	2 - 3	2 - 3	9 - 10	1 - 2
Laboratory Sample ID(s)										TG31022-019	TH01025-001	TG31022-020	TG28004-002	TG28004-003	TG28004-006	TG28004-007	TG28004-008	TG28004-023
Sample Date										7/30/2018	7/30/2018	7/30/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	1,500,000	2,800,000	2,800,000	4,500,000	***7,500,000***	1,800,000	1,600,000	4,500,000	6,900,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<310	***1,300***	<390	310	450	<450	<440	<370	<2,600
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	800	***10,000***	1,400	***7,500***	***23,000***	1,800	1,500	2,300	***28,000***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	7,900	68,000	14,000	160,000	200,000	100,000 [J]	18,000 [J]	33,000	360,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	120	730	240	140	<190 [UB]	<91 [UB]	<87 [UB]	<74 [UB]	2,400
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	3,200	***12,000***	6,400	***14,000***	***38,000***	<12,000 [UB]	<11,000 [UB]	***13,000***	***14,000***
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	23	1,200	34	560	***3,600***	<120 [UB]	<110 [UB]	<96 [UB]	530
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	4,600	***180,000***	7,900	***120,000***	***140,000***	***38,000***	***39,000***	14,000	***460,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,200	2,800	<1,100	<1,100	<4,500	420	500	<1,100	***24,000***
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	4,600	180,000	7,900	120,000	140,000	38,000	39,000	14,000	440,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	800	5,300	1,500	4,600	***8,500***	1,700	1,800	4,100	***19,000***
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	1,500	58,000	3,600	34,000	43,000	17,000 [J]	36,000 [J]	8,500	***110,000***
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	3,200,000	***32,000,000***	6,400,000	***17,000,000***	***20,000,000***	10,000,000	***13,000,000***	10,000,000	***16,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	1,500	150,000	2,600	130,000	***550,000***	2,800	1,800	4,900	160,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***11,000,000***	4,400,000	***16,000,000***	***8,800,000***	4,900,000	1,200,000	1,200,000	***11,000,000***	1,600,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<96	***370***	<89	***170***	***420***	<87	<84	<81	110
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<1,600	***1,900***	<2,000	1,100	***1,900***	1,500	***2,800***	<1,800	<13,000
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	2,100	14,000	4,100	13,000	13,000	8,300	12,000	12,000	44,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<820	***640***	<1,000	***610***	***1,200***	<1,200	<1,100	<960	<6,800
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<160	85	<200	180	140	<230	<220	50	<1,300
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	91,000	220,000	93,000	410,000	2,600,000	42,000	37,000	380,000	380,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	32	200	47	120	250	<120	<110	110	<680 [UB]
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	160,000	260,000	220,000	300,000	350,000	130,000	120,000	200,000	310,000 [J+]
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	6,300	17,000	11,000	26,000	26,000	6,800	6,300	18,000	31,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	6,400	***770,000***	14,000	190,000	***530,000***	9,500	11,000	26,000	200,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-33	TA-SB-34	TA-SB-34	TA-SB-35	TA-SB-35	TA-SB-36	TA-SB-36	TA-SB-37	TA-SB-37
Sample Name										TA-SB-33(7-8)	TA-SB-34(3-4)	TA-SB-34(6-7)	TA-SB-35 (2-3)	TA-SB-35 (6-7)	TA-SB-36 (2-3)	TA-SB-36 (5-6)	TA-SB-37(1-2)	TA-SB-37(6-7)
Depth Interval (Feet below ground surface)										7 - 8	3 - 4	6 - 7	2 - 3	6 - 7	2 - 3	5 - 6	1 - 2	6 - 7
Laboratory Sample ID(s)										TG28004-024	TG28004-020	TG28004-019	TG27014-001	TG27014-002	TG27014-003	TG27014-004	TG28004-016	TG28004-017
Sample Date										7/27/2018	7/27/2018	7/27/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	5,500,000	6,200,000	5,600,000	4,400,000	4,300,000	***9,100,000***	5,200,000	3,500,000	5,000,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<3,100	450	***1,400***	880	230	***4,900***	740	310	***5,400***
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	***19,000***	***16,000***	***19,000***	***15,000***	***11,000***	***29,000***	***22,000***	4,400	***25,000***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	130,000	140,000	210,000	280,000	67,000	280,000	250,000	98,000	230,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	900	240	230	270	<99 [UB]	1,800	240	87	350
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	***19,000***	***24,000***	***31,000***	***14,000***	<13,000 [UB]	<67,000 [UB]	***21,000***	<8,700 [UB]	***16,000***
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	***11,000***	1,200	1,100	1,300	420	1,200	770	490	2,400
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***1,500,000***	***67,000***	***490,000***	***240,000***	***360,000***	***62,000***	***88,000***	***33,000***	***360,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	***6,700***	<2,000	<1,300	<1,200	<1,300	<1,500	<1,800	<1,200	<1,800
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	1,500,000	67,000	490,000	240,000	360,000	62,000	88,000	33,000	360,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	***8,400***	***7,000***	6,400	5,600	3,300	***11,000***	***7,600***	3,100	6,800
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	***210,000***	29,000	49,000	58,000	15,000	***550,000***	39,000	23,000	56,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***15,000,000***	***29,000,000***	***27,000,000***	***19,000,000***	9,500,000	***40,000,000***	***59,000,000***	8,400,000	***35,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	120,000	69,000	220,000	340,000	38,000	270,000	230,000	60,000	***790,000***
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	4,400,000	5,800,000	3,500,000	5,100,000	2,700,000	2,300,000	2,000,000	3,600,000	2,800,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	***500***	***4,100***	130	***390***	***2,800***	***180,000***	***3,800***	120	***1,300***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<15,000	***2,700***	1,400	1,500	<2,500	***4,700***	***3,400***	550	***3,500***
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	21,000	19,000	16,000	16,000	7,800	97,000	20,000	8,100	19,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<8,000	***1,200***	***820***	***540***	***570***	<6,700	***1,500***	350	***2,400***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<1,500	290	220	280	<250	470	***1,900***	140	390
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	300,000	1,400,000	880,000	470,000	510,000	2,000,000	1,200,000	84,000	490,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<800 [UB]	220	170	240	150	340	300	100	310
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	240,000 [J+]	300,000	300,000	260,000	220,000	310,000	230,000	210,000	270,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	7,800	24,000	21,000	19,000	18,000	34,000	20,000	15,000	23,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	***2,200,000***	220,000	***360,000***	***580,000***	89,000	***3,100,000***	***580,000***	92,000	***810,000***

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-38	TA-SB-38	TA-SB-38	TA-SB-39	TA-SB-39	TA-SB-40	TA-SB-40	TA-SB-41	TA-SB-41
Sample Name										TA-SB-38 (0.5-1.5)	TA-SB-38 (0.5-1.5) DUP	TA-SB-38 (6-7)	TA-SB-39 (1-2)	TA-SB-39 (6-7)	TA-SB-40(2-3)	TA-SB-40(6-7)	TA-SB-41 (2-3)	TA-SB-41 (5-6)
Depth Interval (Feet below ground surface)										0.5 - 1.5	0.5 - 1.5	6 - 7	1 - 2	6 - 7	2 - 3	6 - 7	2 - 3	5 - 6
Laboratory Sample ID(s)										TG27014-011	TG27014-012	TG27014-013	TG27014-015	TG27014-014	TG28004-011	TG28004-012	TG31022-003	TG31022-004
Sample Date										7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018
Parameter (µg/kg)																		
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	3,700,000	3,900,000	***8,900,000***	2,800,000	4,800,000	2,300,000	4,800,000	4,000,000	6,100,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	180	210	<780	240	<450	***1,400***	***6,000***	<410	<550
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	4,800	4,800	***19,000***	5,300	***14,000***	***18,000***	***29,000***	3,600	3,400
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	75,000	90,000	160,000	60,000	69,000	170,000	340,000	19,000	29,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	84	<88 [UB]	<160 [UB]	<87 [UB]	<89 [UB]	210	540	240	540
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<9,900 [UB]	<11,000 [UB]	***20,000***	<11,000 [UB]	<12,000 [UB]	<9,400 [UB]	<21,000 [UB]	5,100	9,100
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	470 [J]	870 [J]	1,000	630	230	510	***8,200***	51	66
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***360,000***	***410,000***	***420,000***	***47,000***	***390,000***	***160,000***	***220,000***	9,400	16,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	***3,600***	***4,500***	***4,500***	810	1,300	1,200	<1,700	<1,200	<1,200
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	360,000	410,000	420,000	46,000	390,000	160,000	220,000	9,400	16,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	3,500	3,500	6,300	3,000	3,000	3,800	***8,700***	3,200	3,200 [J]
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	20,000	21,000	27,000	16,000	9,500	44,000	100,000	18,000	7,500 [J]
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***13,000,000***	***13,000,000***	***15,000,000***	9,300,000	9,000,000	***19,000,000***	***120,000,000***	11,000,000	***13,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	74,000	76,000	55,000	34,000	24,000	320,000	***540,000***	35,000	6,700
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***11,000,000 [J]***	4,300,000 [J]	5,400,000	***11,000,000***	2,100,000	3,100,000	2,400,000	930,000	1,700,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	***250***	***160***	***5,300***	***170***	***490***	***410***	***1,200***	26	21
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	500	<2,200	1,000	830	<2,200	810	***2,800***	540	<2,700
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	9,800	13,000	15,000	8,600	7,400	11,000	22,000	7,300	8,600 [J]
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<990	<1,100	***1,700***	<1,100	<1,200	410	***3,000***	<1,100	<1,400 [UJ]
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	160	170	120	<220	<220	130	900	<200	150
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	170,000	130,000	1,400,000	530,000	1,300,000	110,000	420,000	390,000	350,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	110	100	310	96	140	<94 [UB]	<210 [UB]	<110 [UB]	<140 [UB]
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	220,000	240,000	350,000	220,000	200,000	140,000	290,000	270,000	270,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	7,100 [J]	19,000 [J]	31,000	17,000	6,900	14,000	29,000	18,000	21,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	120,000	120,000	210,000	68,000	66,000	***460,000***	***5,800,000***	47,000	31,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-42	TA-SB-42	TA-SB-43	TA-SB-43	TA-SB-44	TA-SB-44	TA-SB-45	TA-SB-45	TA-SB-45	TA-SB-46
Sample Name										TA-SB-42 (1-2)	TA-SB-42 (6-7)	TA-SB-43 (1-2)	TA-SB-43 (7-8)	TA-SB-44 (1-2)	TA-SB-44 (7-8)	TA-SB-45 (2-3)	TA-SB-45 (6-7)	TA-SB-45 (6-7) DUP	TA-SB-46(8-9)
Depth Interval (Feet below ground surface)										1 - 2	6 - 7	1 - 2	7 - 8	1 - 2	7 - 8	2 - 3	6 - 7	6 - 7	8 - 9
Laboratory Sample ID(s)										TG31022-007	TG31022-008	TG19003-022	TG19003-023	TG31022-011	TG31022-012	TH01025-010	TH01025-008	TH01025-009	TG28004-009
Sample Date										7/30/2018	7/30/2018	7/19/2018	7/19/2018	7/30/2018	7/30/2018	7/31/2018	7/31/2018	7/31/2018	7/27/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	1,100,000	860,000	4,000,000	3,500,000	3,000,000	3,100,000	3,600,000	3,800,000	3,600,000	2,200,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<360	<400	210	<640	***1,300***	<370	340	<450	190	<310
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	960	660	4,500	***7,700***	***7,500***	***6,000***	3,000	3,000	3,300	3,400
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	5,900	4,400	68,000	56,000	91,000	19,000	39,000	21,000	21,000	19,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	85	65	78	85	710	190	240	310	290	<63 [UB]
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	1,800	<10,000	<10,000	<17,000 [UB]	<51,000	5,900	4,400	9,900	***11,000***	<8,200 [UB]
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	<94	21	270	210	610	94	140	35	44	<82 [UB]
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	4,400	<3,000 [UB]	***49,000***	***91,000***	16,000	8,800	***19,000***	9,800	9,200	9,500
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,000	<1,100	<1,100	<1,400	<1,100	<1,100	<1,100	<1,200	<1,100	<1,100
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	4,400	ND	49,000	91,000	16,000	8,800	19,000	9,800	9,200	9,500
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	1,100	900	3,800	2,900	4,000	2,100	3,000	2,600	2,400	3,200
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	3,000	1,900	17,000	9,100	100,000	7,000	4,400	6,300	5,500	7,700
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	4,000,000	2,900,000	***13,000,000***	10,000,000	***17,000,000***	***15,000,000***	8,600,000	8,500,000	8,100,000	8,400,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	1,900	1,100	100,000	29,000	170,000	5,800	9,700	3,700	3,300	3,200
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	7,200,000	7,200,000	***10,000,000***	3,600,000	4,000,000	***41,000,000***	1,700,000	***13,000,000***	***15,000,000***	***41,000,000***
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<77	<85	***470***	***920***	***140***	<90	22	<88	<87	<82
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<1,800	<2,000	<2,000	<3,200	<9,700	<1,900	870	<2,300	660	<1,600
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	2,800	2,500	11,000	6,300	10,000	7,700	5,400	7,000	6,200	9,500
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<940	<1,000	***420***	***610***	<5,100	<970	<1,200	<1,200	<1,200	<820
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<180	<200	***1,500***	<320	<970	<190	<230	<230	<230	<160
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	44,000	59,000	57,000	<130,000	<390,000	410,000	47,000	110,000	110,000	150,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<94 [UB]	<100	98	98	<510	<100 [UB]	69	77	70	<82 [UB]
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	160,000	98,000	230,000	200,000	240,000	310,000	220,000	250,000	240,000	240,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	7,400	5,800	16,000	12,000	14,000	18,000	17,000	14,000	13,000	12,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	8,100	5,500	92,000	50,000	210,000	41,000	23,000	15,000	14,000	20,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-46	TA-SB-47	TA-SB-47	TA-SB-48	TA-SB-48	TA-SB-49	TA-SB-49	TA-SB-50	TA-SB-50
Sample Name										TA-SB-46(9-10)	TA-SB-47 (3-4)	TA-SB-47 (5-6)	TA-SB-48(1-2)	TA-SB-48(10-11)	TA-SB-49 (3-4)	TA-SB-49 (7-8)	TA-SB-50 (2-3)	TA-SB-50 (7-8)
Depth Interval (Feet below ground surface)										9 - 10	3 - 4	5 - 6	1 - 2	10 - 11	3 - 4	7 - 8	2 - 3	7 - 8
Laboratory Sample ID(s)										TG28004-010	TG31022-016	TG31022-017	TG28004-014	TG28004-013	TG31022-009	TG31022-010	TH01025-019	TH01025-020
Sample Date										7/27/2018	7/30/2018	7/30/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/31/2018	7/31/2018
Parameter (µg/kg)																		
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	1,900,000	2,100,000	4,300,000	3,300,000	760,000	1,300,000	1,200,000	3,100,000	3,900,000 [J]
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<370	<420	***2,200***	<410	<290	<400	<420	<500	<490
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	4,900	***6,100***	3,900	2,800	740	530	650	2,400	5,000
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	17,000	63,000	70,000	45,000	3,500	6,300	4,700	36,000	20,000 [J]
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	<75 [UB]	430	330	<83 [UB]	<57 [UB]	88	100	180	300
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<9,700 [UB]	3,600	4,100	<11,000 [UB]	<7,400 [UB]	<10,000	<11,000	5,300	9,600
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	<97 [UB]	300	300	270	<74	<100	32	120	45
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	8,500	***41,000***	***38,000***	***28,000***	3,100	<2,300 [UB]	<3,400 [UB]	9,100	10,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,100	380	<1,200	630	<1,000	<1,000	<1,000	<1,100	<1,100
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	8,500	41,000	38,000	27,000	3,100	ND	ND	9,100	10,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	4,200	2,300	1,700	2,100	980	620	730	1,700	3,300
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	8,500	19,000	13,000	6,200	2,200	1,000	1,000	5,500	6,500
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	11,000,000	8,000,000	10,000,000	6,300,000	2,700,000	2,200,000	2,500,000	5,600,000	8,900,000 [J]
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	3,900	40,000	45,000	21,000	980	1,000	1,200	10,000	3,100
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***41,000,000***	5,900,000	1,100,000	910,000	6,100,000	300,000	360,000	4,600,000	***15,000,000 [J]***
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<84	68	120	60	<83	<74	<84	38	<79
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	500	<2,100	<2,000	<2,100	<1,400	<2,000	<2,100	<2,500	720
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	9,200	6,400	3,600	5,100	2,500	1,400	1,700	4,100	7,600
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<970	<1,100	***500***	<1,100	<740	<1,000	<1,100	<1,300	<1,300
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<190	<210	***3,200***	96	<140	<200	<210	<250	<250
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	200,000	120,000	340,000	340,000	130,000	<81,000	<85,000	100,000	190,000 [J]
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<97 [UB]	120	160	<110 [UB]	<74	<100	<110	51	62
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	140,000	260,000	210,000	180,000	59,000	80,000	85,000	160,000	280,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	12,000	12,000	16,000	11,000	3,900	4,200	4,900	9,600	14,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	32,000	54,000	78,000	37,000	5,500	3,800	4,800	27,000	16,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-51	TA-SB-51	TA-SB-52	TA-SB-52	TA-SB-53	TA-SB-53	TA-SB-53	TA-SB-54	TA-SB-54	TA-SB-55
Sample Name										TA-SB-51 (2-3)	TA-SB-51 (6-7)	TA-SB-52 (1-2)	TA-SB-52 (6-7)	TA-SB-53 (0-1)	TA-SB-53 (5-6)	TA-SB-53(7-8)	TA-SB-54 (0-1)	TA-SB-54 (3-4)	TA-SB-55 (1-2)
Depth Interval (Feet below ground surface)										2 - 3	6 - 7	1 - 2	6 - 7	0 - 1	5 - 6	7 - 8	0 - 1	3 - 4	1 - 2
Laboratory Sample ID(s)										TG31022-001	TG31022-002	TG31022-013	TG31022-014	TG19003-017	TG19003-021	TG19003-019	TG19003-002	TG19003-005	TG19003-006
Sample Date										7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/19/2018	7/19/2018	7/19/2018	7/18/2018	7/18/2018	7/18/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	4,100,000	2,400,000	2,400,000	4,600,000	3,400,000	2,500,000	1,400,000	4,100,000	730,000	3,700,000 [J]
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<390	<380	230	<460	<500	<570	<530	***2,700***	<510	240
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	2,900	1,600	***8,700***	***18,000***	***10,000***	4,400	***6,800***	***15,000***	480	4,600
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	45,000	7,000	51,000	23,000	89,000	44,000	8,400	74,000	3,400	50,000 [J]
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	270	150	480	430	250	99	70	630	43	83 [J-]
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	2,800	2,800	4,600	9,000	<13,000	<15,000	<14,000	<76,000	<13,000	<13,000 [UJ]
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	280	31	240	94	120	210	110	830	<130	320
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	10,000	5,300	***69,000***	13,000	18,000	***91,000***	4,900	***40,000***	2,300	***38,000 [J]***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,100	<1,100	730	<1,100	<1,100	<1,200	<1,200	<1,200	<1,000	<1,100 [UJ]
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	10,000	5,300	68,000	13,000	18,000	91,000	4,900	40,000	2,300	38,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	2,100	1,700	3,200	3,300	4,600	4,700	2,200	5,900	390	3,700
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	6,900	3,100	14,000	6,400	16,000	16,000	8,500	94,000	1,900	27,000 [J-]
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	8,100,000	5,900,000	***16,000,000***	***17,000,000***	12,000,000	***16,000,000***	12,000,000	***29,000,000***	1,600,000	***13,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	15,000	2,000	35,000	14,000	13,000	20,000	5,300	230,000	1,200	74,000 [J]
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	910,000	***9,300,000***	6,700,000	***12,000,000***	***8,300,000***	***27,000,000***	3,400,000	4,700,000	210,000	6,700,000 [J]
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	65	<79	130	<83	52	67	<95	***220***	<85	93
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,000	<1,900	830	<2,300	1,000	1,400	<2,600	<15,000	<2,500	780
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	4,900	4,200	7,500	8,000	11,000	30,000	7,100	19,000	1,100	11,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,000	<980	<1,100	<1,200	<1,300	<1,500	<1,400	<7,600	<1,300	***520***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	53	<190	53	<230	<250	<290	<260	<1,500	<250	83
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	250,000	170,000	120,000	350,000	110,000	180,000	63,000	1,100,000	82,000	63,000 [J]
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<100 [UB]	<98 [UB]	120	130	150	110	150	170	<130	110
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	210,000	110,000	220,000	210,000	320,000	230,000	150,000	250,000	65,000	260,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	14,000	7,200	16,000	21,000	16,000	21,000	12,000	19,000	2,900	17,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	100,000	12,000	92,000	23,000	43,000	77,000	79,000	***290,000***	3,500	95,000 [J-]

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-55	TA-SB-56	TA-SB-56	TA-SB-57	TA-SB-57	TA-SB-58	TA-SB-58	TA-SB-59	TA-SB-59	TA-SB-60
Sample Name										TA-SB-55 (5-6)	TA-SB-56 (1-2)	TA-SB-56 (6-7)	TA-SB-57 (2-3)	TA-SB-57 (6-7)	TA-SB-58 (7-8)	TA-SB-58 (12-13)	TA-SB-59(2-3)	TA-SB-59(11-12)	TA-SB-60 (7-8)
Depth Interval (Feet below ground surface)										5 - 6	1 - 2	6 - 7	2 - 3	6 - 7	7 - 8	12 - 13	2 - 3	11 - 12	7 - 8
Laboratory Sample ID(s)										TG19003-007	TG19003-001	TH02019-001	TG31022-005	TG31022-006	TH08019-002	TH08019-003	TG28004-025	TG28004-026	TG19003-009
Sample Date										7/18/2018	7/18/2018	8/1/2018	7/30/2018	7/30/2018	8/7/2018	8/7/2018	7/27/2018	7/27/2018	7/18/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	3,800,000	3,800,000	590,000	3,900,000	2,100,000	2,300,000	5,100,000	6,000,000	4,500,000	2,600,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<490	***2,400***	<440	<340	<400	330	<440	<2,900	<1,000	<530
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	1,200	***8,500***	260	3,600	2,600	1,300	***11,000***	***41,000***	***6,600***	2,300
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	29,000	45,000	2,800	29,000	10,000	7,300	17,000	290,000	46,000	52,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	53	300	51	260	180	100 [J+]	200 [J+]	1,100	280	57
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<13,000	<54,000	<11,000	3,700	7,000	<13,000 [UB]	<11,000 [UB]	***27,000***	***150,000***	<14,000
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	65	580	<110	170	29	<130	48	***4,900***	340	80
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	12,000	17,000	1,700	14,000	6,700	5,200	11,000	***1,200,000***	17,000	7,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,300	<1,100	<1,100	210	<1,000	<1,100	<1,100	740	<4,500	<1,200
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	12,000	17,000	1,700	14,000	6,700	5,200	11,000	1,200,000	17,000	7,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	1,600	***7,800***	420	2,500	2,000	1,400	2,700	4,900	3,300	2,000
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	5,800	***120,000***	970	4,300	4,900	3,200	6,200	58,000	11,000	13,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	5,500,000	***34,000,000***	1,500,000	11,000,000	8,500,000	4,000,000	8,900,000	***15,000,000***	***16,000,000***	7,700,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	6,100	170,000	710	13,000	3,700	2,100	3,200	***550,000***	4,000	45,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	600,000	***12,000,000***	2,600,000	2,600,000	***50,000,000***	***12,000,000***	***24,000,000***	***21,000,000***	5,000,000	4,300,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	74	***230***	<80	<86	<78	<89	<80	***1,300***	<180	***430***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	670	<10,000	<2,200	<1,700	<2,000	<2,500	***1,600***	<15,000	1,500	<2,600
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	4,600	11,000	1,100	5,700	4,900	3,700	6,900	20,000	6,600	4,700
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	***780***	<5,400	<1,100	<870	<1,000	<1,300	<1,100	<7,600	***1,900***	<1,400
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<250	<1,000	<220	<170	<200	<250	<220	<1,500	<500	<260
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	190,000	170,000	<88,000	42,000	190,000	58,000	97,000	480,000	3,900,000	270,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	94	240	<110	<87 [UB]	<100 [UB]	40	76	<760	140	66
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	180,000	290,000	63,000	270,000	170,000	150,000	240,000	320,000 [J+]	230,000	180,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	12,000	15,000	3,000	18,000	11,000	7,400	13,000	28,000	15,000	10,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	12,000	190,000	2,600	25,000	15,000	8,100	14,000	***1,800,000***	27,000	30,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-60	TA-SB-61	TA-SB-61	TA-SB-62	TA-SB-62	TA-SB-63	TA-SB-63	TA-SB-64	TA-SB-64	TA-SB-65
Sample Name										TA-SB-60 (8-9)	TA-SB-61 (5-6)	TA-SB-61 (7-8)	TA-SB-62 (3-4)	TA-SB-62 (5-6)	TA-SB-63 (1-2)	TA-SB-63 (7-8)	TA-SB-64 (0-1)	TA-SB-64 (4-5)	TA-SB-65 (1-2)
Depth Interval (Feet below ground surface)										8 - 9	5 - 6	7 - 8	3 - 4	5 - 6	1 - 2	7 - 8	0 - 1	4 - 5	1 - 2
Laboratory Sample ID(s)										TG19003-010	TG17025-011	TG17025-012	TG17025-013	TG17025-014	TG17025-017	TG17025-018	TG19003-018	TG19003-020	TG19003-012
Sample Date										7/18/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/19/2018	7/19/2018	7/18/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	6,200,000	2,800,000	***10,000,000***	3,500,000	4,400,000	4,000,000	3,600,000	2,400,000	830,000	1,100,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<820	280	<520	***2,300***	<530	<460	***1,700***	<510	***2,600***	***2,000 [J]***
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	3,300	3,200	***7,100***	2,900	2,700	2,500	***11,000***	2,800	***10,000***	2,200
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	64,000	73,000	81,000	130,000	100,000	52,000	67,000	30,000	140,000	91,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	66	77	120	<750	95	100	92	62	<240	<710
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<21,000	5,800	***28,000***	<97,000	5,000	5,600	7,100	<13,000	<31,000	<92,000
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	250	430	82	***5,100***	260	210	2,400	180	670	1,700 [J]
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	16,000	***810,000***	***26,000***	***3,200,000***	***320,000***	***43,000***	***1,500,000***	***54,000***	***3,000,000***	***12,000,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<8,900	<62,000	<12,000	***28,000***	<61,000	<11,000	<70,000	<1,100	***28,000***	***81,000***
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	16,000	810,000	26,000	3,200,000	320,000	43,000	1,500,000	54,000	3,000,000	12,000,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	6,200	2,700	***7,900***	<9,700	3,300	2,900	6,600	2,100	2,100	<9,200
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	11,000	15,000	9,100	26,000	8,000	6,600	***220,000***	7,400	72,000	31,000 [J]
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***16,000,000***	10,000,000	***26,000,000***	***26,000,000***	11,000,000	8,600,000	***120,000,000***	7,300,000	***31,000,000***	4,300,000 [J]
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	21,000	50,000	9,800	80,000	19,000	21,000	52,000	28,000	110,000	71,000 [J]
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	1,500,000	3,200,000	***24,000,000***	580,000	3,900,000	6,300,000	2,200,000	4,500,000	240,000	820,000 [J]
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	***200***	88	<93	***380***	***180***	43	110	130 [J]	***1,200***	***630***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<4,100	1,200	<2,600	<19,000	<2,600	640	***7,200***	<2,500	***12,000***	<18,000
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	11,000	9,100	24,000	6,100	8,600	8,300	58,000	5,500	30,000	3,500
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	***830***	<1,300	<1,300	<9,700	<1,400	<1,200	<1,800	<1,300	<3,100	<9,200
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<410	<250 [UB]	<260	<1,900	<260	<230	<350 [UB]	<250	***1,100***	<1,800
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	530,000	130,000	190,000	470,000	100,000	<92,000	150,000	<100,000	120,000	320,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	170	85	180	<970	110	77	130	54	<310	<920
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	330,000	220,000	270,000	23,000	350,000	260,000	160,000	180,000	9,500	16,000 [J]
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	23,000	13,000	37,000	<39,000	13,000	15,000	16,000	10,000	<31,000	<180,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	46,000	***320,000***	27,000	***6,500,000***	93,000	28,000	***1,700,000***	43,000	***1,800,000***	***3,800,000 [J]***

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-65	TA-SB-65	TA-SB-66	TA-SB-66	TA-SB-67	TA-SB-67	TA-SB-68	TA-SB-68	TA-SB-69
Sample Name										TA-SB-65 (1-2) DUP	TA-SB-65 (4-5)	TA-SB-66(0-1)	TA-SB-66(2-3)	TA-SB-67 (0-1)	TA-SB-67 (5-6)	TA-SB-68 (1-2)	TA-SB-68 (3-4)	TA-SB-69 (2-3)
Depth Interval (Feet below ground surface)										1 - 2	4 - 5	0 - 1	2 - 3	0 - 1	5 - 6	1 - 2	3 - 4	2 - 3
Laboratory Sample ID(s)										TG19003-013	TG19003-014	TG28004-021	TG28004-022	TG24017-001	TG24017-002	TG11005-003	TG11005-004	TG11005-009
Sample Date										7/18/2018	7/18/2018	7/27/2018	7/27/2018	7/23/2018	7/23/2018	7/10/2018	7/10/2018	7/10/2018
Parameter (µg/kg)																		
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	1,600,000	1,900,000	2,900,000 [J]	3,200,000	4,700,000	6,200,000 [J]	5,600,000	2,400,000	4,800,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	***17,000 [J]***	***7,600***	250	***12,000***	<460	<490	380	260	***3,000***
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	2,500	***6,200***	***7,200***	***7,400***	2,100	1,100 [J]	***7,100***	4,600	***24,000***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	67,000	270,000	52,000 [J]	340,000	39,000	39,000	120,000	150,000	650,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	<770	<920	82 [J-]	<1,200	95	83 [J]	400	140	620
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<100,000	<120,000	<11,000 [UB]	***31,000***	4,700	***17,000 [J]***	<17,000	<16,000	5,500
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	420 [J]	460	420	***4,200***	98	74	680	640	1,200
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***15,000,000***	***19,000,000***	***460,000***	***7,400,000***	11,000	16,000 [J]	***110,000***	***91,000***	***2,200,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	***91,000***	***54,000***	900	***57,000***	<1,100	<1,100	<70,000	<70,000	<69,000
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	15,000,000	19,000,000	460,000	7,300,000	11,000	16,000	110,000	91,000	2,200,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	<10,000	<12,000	3,500	<16,000	3,700	4,800 [J]	6,400	4,000	***16,000***
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	***260,000 [J]***	***140,000***	19,000	***430,000***	12,000	8,300	30,000	***330,000***	***140,000***
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	8,800,000 [J]	***16,000,000***	***46,000,000***	***21,000,000***	9,200,000	***14,000,000 [J]***	8,800,000	8,400,000	***69,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	***460,000 [J]***	290,000	37,000	370,000	6,900	5,200	97,000	***580,000***	***710,000***
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	1,600,000 [J]	540,000	***11,000,000 [J]***	1,700,000	1,900,000	***15,000,000 [J]***	4,000,000	***18,000,000***	1,500,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	***250 [J]***	***660***	***180***	***370***	23	<95	***210***	97	***1,700***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<19,000	<23,000	***3,100***	<31,000	<2,300	<2,500	990	<3,000	***6,000***
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	8,300	4,600	9,100	14,000	6,800	14,000 [J]	14,000	11,000	44,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<10,000	<12,000	<1,100	<16,000	<1,200	<1,300	***1,600***	***1,300***	***1,800***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<1,900	<2,300	56	<3,100	<230	<250	<320 [UB]	<300	<300 [UB]
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<770,000	<920,000	81,000 [J]	<1,200,000	120,000	140,000 [J]	130,000	120,000	170,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	<1,000	<1,200	74	<1,600 [UB]	120	140	230	78	190
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	170,000 [J]	16,000	170,000	130,000 [J+]	210,000	270,000 [J]	210,000	110,000	240,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	32,000	<120,000	6,500	21,000	16,000	23,000 [J]	15,000	7,900	14,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	***1,400,000 [J]***	***1,200,000***	110,000 [J]	***5,000,000***	22,000	23,000	150,000	***280,000***	***1,100,000***

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-69	TA-SB-70	TA-SB-70	TA-SB-71	TA-SB-71	TA-SB-72	TA-SB-72	TA-SB-72	TA-SB-73	TA-SB-73
Sample Name										TA-SB-69 (4-5)	TA-SB-70 (0-1)	TA-SB-70 (5-6)	TA-SB-71(1-2)	TA-SB-71(3-4)	TA-SB-72(1-2)	TA-SB-72(1-2) DUP	TA-SB-72(3-4))	TA-SB-73(1-2)	TA-SB-73(6-7)
Depth Interval (Feet below ground surface)										4 - 5	0 - 1	5 - 6	1 - 2	3 - 4	1 - 2	1 - 2	3 - 4	1 - 2	6 - 7
Laboratory Sample ID(s)										TG11005-010	TG17025-015	TG17025-016	TG21001-001	TG21001-002	TG21001-003	TG21001-004	TG21001-005	TG21001-006	TG21001-007
Sample Date										7/10/2018	7/17/2018	7/17/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	***7,100,000***	4,300,000	4,600,000	2,500,000 [J]	5,400,000	1,900,000	1,700,000	4,100,000	1,900,000	5,500,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<460	360	480	***1,500***	<510	<2,900	<2,800	<510	<2,600	<490
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	2,900	***6,300***	***21,000***	***14,000***	2,900	3,900	3,600	2,700	***6,700***	2,000
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	37,000	95,000	250,000	36,000 [J]	35,000	110,000	91,000	36,000	150,000	42,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	65	210	210	300 [J]	72	550	380	70	450	85
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<12,000	6,800	***14,000***	<68,000	<13,000 [UB]	<74,000	<72,000	<13,000 [UB]	<67,000	***15,000***
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	150	600	3,000	220	140	560	620	180	<670	98
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***21,000***	***210,000***	***22,000***	***77,000***	15,000	***120,000***	***150,000***	***43,000***	***33,000***	16,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<59,000 [UJ]	<57,000 [UJ]	<15,000	1,100 [J+]	<1,200	***12,000 [J+]***	***17,000 [J+]***	1,700 [J+]	1,100 [J+]	<1,100
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	21,000	210,000	22,000	76,000	15,000	110,000	130,000	41,000	32,000	16,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	4,000	6,700	5,300	3,700 [J]	4,100	6,800	5,400	3,500	5,500	4,600
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	8,100	19,000	43,000	62,000 [J]	4,700	26,000	22,000	13,000	21,000	9,800
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	11,000,000	***13,000,000***	***17,000,000***	***20,000,000***	***14,000,000***	5,900,000	4,500,000	11,000,000	***15,000,000***	***14,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	8,500	47,000	360,000	110,000 [J]	6,800	51,000	65,000	10,000	20,000	5,400
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***8,200,000***	***11,000,000***	6,100,000	***11,000,000 [J]***	1,400,000	530,000	1,000,000	1,800,000	480,000	***15,000,000***
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<89	***310***	***240***	***200***	30	92	96	55	***140***	<93
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,300	1,500	***1,800***	<13,000	810	<14,000	<14,000	<2,600	<13,000	<2,500
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	10,000	15,000	16,000	9,500	8,000	13,000	11,000	7,200	11,000	13,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	***800***	<1,300	***1,400***	<6,800	***640***	<7,400	<7,200	***490***	<6,700	***820***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<230	<250	***1,200***	<1,300	<260	<1,400	<1,400	<260	<1,300	<250
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	42,000	110,000	280,000	350,000 [J]	540,000	<570,000	<560,000	130,000	230,000	200,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	110	140	180	280	120	<740	<720	94	<670	150
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	260,000	310,000	230,000	220,000 [J]	410,000	150,000	130,000	320,000	200,000	250,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	18,000	24,000	18,000	13,000	30,000	12,000	7,800	22,000	13,000	22,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	100,000	140,000	***580,000***	99,000 [J]	21,000	140,000	150,000	46,000	46,000	24,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-74	TA-SB-74	TA-SB-75	TA-SB-75	TA-SB-75	TA-SB-76	TA-SB-76	TA-SB-77	TA-SB-77
Sample Name										TA-SB-74(1-2)	TA-SB-74(5-6)	TA-SB-75 (5-6)	TA-SB-75 (5-6) DUP	TA-SB-75 (7-8)	TA-SB-76 (1-2)	TA-SB-76 (7-8)	TA-SB-77 (2-3)	TA-SB-77 (5-6)
Depth Interval (Feet below ground surface)										1 - 2	5 - 6	5 - 6	5 - 6	7 - 8	1 - 2	7 - 8	2 - 3	5 - 6
Laboratory Sample ID(s)										TG21001-008	TG21001-009	TG19003-003	TG19003-004	TG19003-008	TG17025-008	TG19003-011	TG17025-020	TG17025-019
Sample Date										7/20/2018	7/20/2018	7/18/2018	7/18/2018	7/18/2018	7/16/2018	7/18/2018	7/17/2018	7/17/2018
Parameter (µg/kg)																		
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	3,100,000	3,400,000	***7,500,000***	6,700,000	4,800,000	5,700,000 [J]	6,500,000	3,400,000	4,100,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<2,800	<550	<4,600	<5,200	<480	***2,100 [J]***	<3,400	<1,100	<500
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	***9,100***	2,100	***29,000***	***30,000***	2,800	***11,000***	5,800	***10,000***	4,900
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	160,000	29,000	290,000	250,000	36,000	540,000	130,000	300,000	48,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	950	75	1,000	990	52	770 [J]	<680	270	75
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<73,000	<14,000 [UB]	<120,000	<130,000	<12,000	<110,000	<88,000	***13,000***	8,400
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	420	400	830	650	200	2,900	2,400	690	150
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***71,000***	9,900	***2,900,000***	***2,900,000***	14,000	***3,900,000***	***1,100,000***	***450,000***	***25,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	***3,400 [J+]***	<1,300	***8,600***	***10,000***	<1,200	***32,000 [J-]***	1,100	<120,000	<72,000
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	68,000	9,900	2,900,000	2,900,000	14,000	3,900,000	1,100,000	450,000	25,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	***7,700***	2,200	***15,000***	***13,000***	3,800	***9,600***	4,400	4,400	2,600
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	51,000	6,100	70,000	71,000	4,900	***270,000 [J]***	70,000	43,000	5,300
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***20,000,000***	8,600,000	***24,000,000***	***22,000,000***	11,000,000	***13,000,000***	***14,000,000***	10,000,000	11,000,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	76,000	3,900	260,000	270,000	5,800	***1,000,000***	200,000	110,000	8,900
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	340,000	900,000	920,000	1,100,000	1,600,000	3,400,000	3,000,000	2,100,000	5,600,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	65	35	***160***	130	41	***410***	130	***470***	32
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<14,000	<2,700	<23,000	<26,000	<2,400	<21,000 [UJ]	<17,000	<5,700	<2,500
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	16,000	6,100	23,000	24,000	9,100	24,000	10,000	15,000	6,400
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<7,300	<1,400	***4,400***	<13,000	***720***	<11,000	<8,800	<2,900	<1,300
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<1,400	<270	<2,300	<2,600	<240	<2,100	<1,700	<570	<250
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	370,000	50,000	390,000	380,000	85,000	<840,000	280,000	170,000	100,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	210	75	400	410	96	<1,100	<880	91	92
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	280,000	200,000	350,000	340,000	400,000	270,000 [J]	290,000	270,000	240,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	15,000	15,000	<60,000	55,000	22,000	<54,000	15,000	15,000	15,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	230,000	***250,000***	***770,000***	***710,000***	24,000	***3,600,000***	***1,700,000***	***910,000***	28,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-78	TA-SB-78	TA-SB-79	TA-SB-79	TA-SB-80	TA-SB-80	TA-SB-81	TA-SB-81	TA-SB-82	TA-SB-82
Sample Name										TA-SB-78 (5-6)	TA-SB-78 (6-7)	TA-SB-79 (2-3)	TA-SB-79 (4-5)	TA-SB-80 (2-3)	TA-SB-80 (3-4)	TA-SB-81 (4-5)	TA-SB-81 (5-6)	TA-SB-82 (0-1)	TA-SB-82 (6-7)
Depth Interval (Feet below ground surface)										5 - 6	6 - 7	2 - 3	4 - 5	2 - 3	3 - 4	4 - 5	5 - 6	0 - 1	6 - 7
Laboratory Sample ID(s)										TG17025-005	TG17025-006	TG17025-003	TG17025-004	TG17025-001	TG17025-002	TG17025-010	TG17025-007	TG19003-024	TG19003-025
Sample Date										7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/17/2018	7/16/2018	7/19/2018	7/19/2018
Parameter (µg/kg)																			
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	2,700,000	2,300,000	4,900,000	5,000,000	5,300,000	2,800,000	***7,800,000***	***11,000,000***	3,100,000	6,600,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	250	<550	990	260	<780	<540	<970	<900	<520	<800
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	***28,000***	***21,000***	***12,000***	***18,000***	***11,000***	2,500	***7,200***	***25,000***	3,700	4,000
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	29,000	21,000	230,000	85,000	96,000	30,000	130,000	120,000	56,000	74,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	66	48	160	94	100	76	170	150	110	100
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	5,200	5,100	***13,000***	8,600	***13,000***	5,000	***18,000***	***15,000***	<13,000 [UB]	<21,000 [UB]
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	140	77	1,200	490	520	130	760	550	280	270
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***800,000***	***320,000***	***150,000***	***910,000***	***210,000***	***36,000***	***110,000***	***600,000***	***70,000***	***31,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<13,000	<13,000	<12,000	<75,000	<84,000	<72,000	<100,000	<110,000	<1,100	<1,800
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	800,000	320,000	150,000	910,000	210,000	36,000	110,000	600,000	70,000	31,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	2,000	2,000	5,100	3,400	3,700	1,800	5,100	6,000	3,500	4,800
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	7,900 [J-]	5,100 [J-]	45,000 [J-]	9,700 [J-]	11,000 [J-]	3,000 [J-]	16,000	12,000 [J-]	16,000	9,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	7,800,000	7,200,000	***31,000,000***	***13,000,000***	***15,000,000***	5,700,000	***20,000,000***	***22,000,000***	9,300,000	12,000,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	12,000	8,200	290,000	49,000	56,000	4,400	51,000	36,000	50,000	10,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***12,000,000***	***13,000,000***	6,700,000	6,000,000	***9,400,000***	2,500,000	***8,200,000***	7,300,000	5,600,000	3,200,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	85	38	***710***	***730***	***740***	46	***630***	***4,200***	73	***790***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,500	<2,800	1,200	<2,600	<3,900	<2,700	<4,900	<4,500	<2,600	<4,000
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	4,800	5,000	17,000	8,200	10,000	4,000	13,000	15,000	8,700	10,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,300	<1,400	***720***	***560***	<2,000	<1,400	***1,600***	***930***	<1,300	***1,200***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<250	<280	<290 [UB]	<260 [UB]	<390 [UB]	<270	<490 [UB]	<450	<260	<400
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	200,000	180,000	360,000	460,000	100,000	180,000	260,000	380,000	110,000	420,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	130	81	190	150	230	71	250	300	84	190
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	250,000	210,000	230,000	230,000	290,000	170,000	370,000	430,000	230,000	260,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	12,000	12,000	22,000	15,000	18,000	8,800	26,000	33,000	14,000	22,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	27,000	31,000	***420,000***	84,000	100,000	18,000	110,000	87,000	78,000	49,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-83	TA-SB-83	TA-SB-AOC-B-01	TA-SB-AOC-B-01	TA-SB-AOC-B-02	TA-SB-AOC-B-02	TA-SB-AOC-C-01
Sample Name										TA-SB-83 (1-2)	TA-SB-83 (4-5)	TA-SB-AOC-B-01 (2-3)	TA-SB-AOC-B-01 (7-8)	TA-SB-AOC-B-02 (2-3)	TA-SB-AOC-B-02 (4-5)	TA-SB-C-01 (2-3)
Depth Interval (Feet below ground surface)										1 - 2	4 - 5	2 - 3	7 - 8	2 - 3	4 - 5	2 - 3
Laboratory Sample ID(s)										TG17025-021	TG17025-022	TH02019-006	TH02019-007	TH02019-008	TH02019-009	TH02019-021
Sample Date										7/17/2018	7/17/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)																
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	2,900,000	***9,500,000***	4,100,000	2,500,000	4,000,000	3,300,000	6,300,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	610	<590	<400	<420	220	<430	210
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	***6,200***	4,000	***12,000***	650	3,500	1,500	***6,600***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	63,000	84,000	34,000	11,000	150,000	23,000	51,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	120	110	370	180	290	250	530
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	5,100	***27,000***	6,000	4,800	10,000	4,500	<9,900 [UB]
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	430	50	180	<110	220	53	180
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***20,000***	***24,000***	***23,000***	7,800	***380,000***	15,000	***38,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<11,000 [UR]	<12,000	<1,100	440	<1,100	<1,200	<1,100
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	20,000	24,000	23,000	7,400	380,000	15,000	38,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	2,900	***7,600***	5,100	2,000	3,500	2,600	***7,600***
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	26,000	8,600	15,000	4,900	27,000	6,300	20,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***20,000,000***	***19,000,000***	***17,000,000***	4,800,000	12,000,000	6,400,000	***21,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	77,000	8,300	11,000	2,500	23,000	3,300	15,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	3,200,000	***33,000,000***	3,400,000	***10,000,000***	***15,000,000***	1,000,000	2,100,000 [J]
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	***170***	36	<82	<94	69	***150***	34
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	840	<2,900	750	<2,100	***3,900***	<2,200	600
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	9,800	22,000	9,900	5,000	78,000	7,800	17,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,200	<1,500	<1,000	<1,100	<1,200	<1,100	<990
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<240 [UB]	<290	<200	<210	75	<220	<190
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<95,000	68,000	56,000	51,000	130,000	47,000	420,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	130	240	95	54	38	83	120
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	200,000	270,000	290,000	190,000	300,000	230,000	810,000 [J]
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	14,000	34,000	21,000	9,700	13,000	11,000	66,000 [J]
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	100,000	28,000	22,000	11,000	150,000	14,000	59,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-C-01	TA-SB-AOC-C-01	TA-SB-AOC-C-02	TA-SB-AOC-C-02	TA-SB-AOC-D-01	TA-SB-AOC-D-01	TA-SB-AOC-D-02
Sample Name										TA-SB-C-01 (2-3) DUP	TA-SB-C-01 (11-12)	TA-SB-AOC-C-02(2-3)	TA-SB-AOC-C-02(9-10)	TA-SB-AOC-D-01 (2-3)	TA-SB-AOC-D-01 (8-9)	TA-SB-AOC-D-02 (2-3)
Depth Interval (Feet below ground surface)										2 - 3	11 - 12	2 - 3	9 - 10	2 - 3	8 - 9	2 - 3
Laboratory Sample ID(s)										TH02019-023	TH02019-022	TH03007-003	TH03007-004	TH02019-002	TH02019-003	TH02019-004
Sample Date										8/1/2018	8/1/2018	8/2/2018	8/2/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)																
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	6,200,000	3,300,000	3,200,000	3,900,000	4,400,000 [J]	4,900,000	6,000,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<560	<480	260	<440	<440	<400	<490
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	***6,300***	2,500	4,400	4,700	3,700	3,000	***7,600***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	49,000	16,000	80,000	21,000	75,000	21,000	100,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	510	290	300	340	320	400	530
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<14,000 [UB]	<13,000 [UB]	4,400	<12,000 [UB]	3,700	***11,000***	4,900
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	200	56	790	57	160	68	310
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***33,000***	***62,000***	***1,200,000***	***300,000***	12,000	13,000	14,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,100	1,700	<1,200	***6,900***	<1,100	<1,100	<1,200
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	33,000	60,000	1,200,000	290,000	12,000	13,000	14,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	5,000	3,000	4,400	3,600	4,500	4,400	6,400
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	15,000	5,800	23,000	6,700	6,700	8,800	13,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***16,000,000***	8,600,000	12,000,000	10,000,000	11,000,000	11,000,000	***27,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	21,000	3,700	27,000	6,400	8,800	4,900	12,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	5,100,000 [J]	***12,000,000***	4,500,000	***11,000,000***	5,500,000 [J]	***12,000,000***	1,600,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	32	<82	67 [J-]	<87 [UJ]	32	<84	38
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,800	<2,400	1,100	<2,200	740	<2,000	***2,700***
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	13,000	8,900	9,400	11,000	7,500	11,000	13,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,400	<1,300	<1,200	<1,200	<1,200	<1,000	<1,300
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<280	<240	89	<220	<220	<200	<250
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	240,000	110,000	220,000	220,000	65,000 [J+]	230,000	770,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	140	73	190	90	120	110	210
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	320,000 [J]	160,000	190,000	150,000	330,000	210,000	460,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	26,000 [J]	12,000	<1,200	9,700	20,000	17,000	29,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	61,000	18,000	180,000	20,000	29,000	23,000	34,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-D-02	TA-SB-AOC-E-01	TA-SB-AOC-E-01	TA-SB-AOC-E-02	TA-SB-AOC-E-02	TA-SB-AOC-G-01
Sample Name										TA-SB-AOC-D-02 (6-7)	TA-SB-AOC-E-01 (3-4)	TA-SB-AOC-E-01 (10-11)	TA-SB-AOC-E-02 (5-6)	TA-SB-AOC-E-02 (10-11)	TA-SB-AOC-G-01 (1-2)
Depth Interval (Feet below ground surface)										6 - 7	3 - 4	10 - 11	5 - 6	10 - 11	1 - 2
Laboratory Sample ID(s)										TH02019-005	TH02019-013	TH02019-014	TH02019-017	TH02019-018	TG24017-003
Sample Date										8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	7/23/2018
Parameter (µg/kg)															
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	6,600,000	3,600,000	4,300,000	650,000	3,600,000	3,700,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<520	***2,800***	<520	<480	<630	<2,500
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	3,900	***20,000***	***8,900***	2,500	***11,000***	***15,000***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	30,000	210,000	30,000	2,900	54,000	110,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	510	420	280	65	420	910
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	9,600	<66,000	6,600	<12,000	<16,000 [UB]	***14,000***
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	93	2,000	460	<120	210	1,900
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	16,000	***450,000***	14,000	3,500	***81,000***	***250,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,200	***4,700***	<1,500	<1,200	<1,300	***5,600 [J-]***
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	16,000	450,000	14,000	3,500	81,000	240,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	3,300	***7,900***	3,300	760	3,400	6,000
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	10,000	***170,000***	13,000	1,600	11,000	72,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	12,000,000	***54,000,000***	9,100,000	2,600,000	***14,000,000***	***19,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	4,800	330,000	3,300	1,200	15,000	53,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	1,600,000	7,600,000	1,300,000	4,300,000	4,700,000	690,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<96	***480***	36	<87	81	***500***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,600	***12,000***	1,300	<2,400	1,000	<12,000
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	11,000	45,000	7,500	2,100	6,800	15,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,400	<6,600	***2,200***	<1,200	***780***	<6,500
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<260	<1,300	<260	<240	<310	<1,200
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	990,000	<510,000	540,000	37,000	530,000	530,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	110	200	94	34	100	210
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	300,000	350,000	200,000	84,000	210,000	240,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	21,000	29,000	18,000	3,700	15,000	14,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	22,000	***600,000***	25,000	5,700	42,000	***440,000***

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-G-01	TA-SB-AOC-G-02	TA-SB-AOC-G-02	TA-SB-AOC-H-01	TA-SB-AOC-H-01	TA-SB-AOC-H-02
Sample Name										TA-SB-AOC-G-01 (5-6)	TA-SB-AOC-G-02 (1-2)	TA-SB-AOC-G-02 (6-7)	TA-SB-AOC-H-01 (2-3)	TA-SB-AOC-H-01 (4-5)	TA-SB-AOC-H-02 (2-3)
Depth Interval (Feet below ground surface)										5 - 6	1 - 2	6 - 7	2 - 3	4 - 5	2 - 3
Laboratory Sample ID(s)										TG24017-004	TG24017-005	TG24017-006	TG11005-007	TG11005-008	TG11005-005
Sample Date										7/23/2018	7/23/2018	7/23/2018	7/10/2018	7/10/2018	7/10/2018
Parameter (µg/kg)															
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	3,900,000	3,300,000	6,100,000	3,600,000	5,400,000	2,900,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<420	<2,600	<350	580	<460	560
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	5,300	***20,000***	3,100	***16,000***	3,400	***8,500***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	34,000	100,000	55,000	83,000	59,000	73,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	74	900	57	340	91	170
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	5,200	<68,000	5,800	3,700	<12,000	<13,000
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	350	740	230	520	230	450
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	14,000	***300,000***	***24,000***	***3,700,000***	***140,000***	***290,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,200	***8,000***	<1,300	***30,000 [J-]***	<60,000 [UJ]	<58,000 [UJ]
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	14,000	290,000	24,000	3,700,000	140,000	290,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	5,100	4,900	5,300	4,800	3,100	4,400
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	6,900	33,000	5,700	24,000	10,000	28,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***36,000,000***	***13,000,000***	***16,000,000***	***41,000,000***	10,000,000	***15,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	7,300	57,000	11,000	62,000	21,000	100,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	2,100,000	1,000,000	1,900,000	2,800,000	***8,800,000***	2,300,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<88	***140***	41	93	36	***950***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	***2,200***	<13,000	690	***3,000***	***2,000***	1,300
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	10,000	13,000	10,000	11,000	6,800	12,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,100	<6,800	***440***	***1,600***	***710***	***810***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<210	<1,300	<170	<290	<230	<250 [UB]
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	76,000	1,600,000	52,000	330,000	170,000	500,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	70	210	130	200	110	120
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	280,000	220,000	450,000	200,000	230,000	140,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	27,000	63,000	28,000	<76,000	17,000	11,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	41,000	***260,000***	37,000	170,000	44,000	120,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-H-02	TA-SB-AOC-H-03	TA-SB-AOC-H-03	TA-SB-AOC-J-01	TA-SB-AOC-J-01	TA-SB-AOC-J-02
Sample Name										TA-SB-AOC-H-02 (6-7)	TA-SB-AOC-H-03 (2-2.5)	TA-SB-AOC-H-03 (5-6)	TA-SB-AOC-J-01 (2-3)	TA-SB-AOC-J-01 (5-6)	TA-SB-AOC-J-02 (9-10)
Depth Interval (Feet below ground surface)										6 - 7	2 - 2.5	5 - 6	2 - 3	5 - 6	9 - 10
Laboratory Sample ID(s)										TG11005-006	TG11005-001	TG11005-002	TH02019-010	TH02019-011	TH02019-015
Sample Date										7/10/2018	7/10/2018	7/10/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)															
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	***18,000,000***	2,100,000	4,500,000	3,700,000	2,700,000	2,800,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<510	***2,100***	<530	<390	<480	480
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	2,600	***32,000***	2,100	2,600	870	5,000
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	86,000	170,000	24,000	45,000	12,000	60,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	120	280	66	300	190	160
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	2,500	6,100	<14,000 [UJ]	5,300	5,200	4,800
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	120	1,400	360	88	29	620
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***27,000***	***10,000,000***	***29,000 [J]***	***19,000***	7,000	***630,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<63,000 [UJ]	<180,000	<62,000 [UJ]	340	<1,200	<1,200
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	27,000	10,000,000	29,000	19,000	7,000	630,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	***7,400***	3,400	1,900 [J]	4,400	2,100	5,200
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	16,000	45,000	4,100	11,000	5,500	76,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***21,000,000***	5,400,000	7,100,000	11,000,000	5,800,000	***28,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	10,000	***11,000,000***	10,000	6,000	2,400	31,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***22,000,000***	740,000	1,600,000 [J]	8,000,000	***12,000,000***	***11,000,000***
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<95	88	<98	35	<94	87
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,500	1,500	<2,600	650	<2,400	***3,500***
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	23,000	11,000	5,500	9,000	4,600	11,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	***2,200***	***970***	***610***	<1,000	<1,200	<1,300
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<250 [UB]	<410	<260	<190	<240	75
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	240,000	1,600,000	82,000 [J]	96,000	52,000	210,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	190	81	63	66	46	36
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	370,000	91,000	200,000 [J]	670,000	210,000	180,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	38,000	<210,000	15,000	22,000	10,000	5,900
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	41,000	***270,000***	36,000	22,000	11,000	***890,000***

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-J-02	TA-SB-GW-01	TA-SB-GW-01	TA-SB-GW-02	TA-SB-GW-02	TA-SB-GW-04	TA-SB-GW-04
Sample Name										TA-SB-AOC-J-02 (13-14)	TA-SB-MW-01 (2-3)	TA-SB-MW-01 (6-7)	TA-SB-MW-02 (1-2)	TA-SB-MW-02 (4-5)	TA-SB-MW-04 (1-2)	TA-SB-MW-04DUP (1-2)
Depth Interval (Feet below ground surface)										13 - 14	2 - 3	6 - 7	1 - 2	4 - 5	1 - 2	1 - 2
Laboratory Sample ID(s)										TH02019-016	TF29012-001	TF29012-002	TF29012-012	TF29012-013	TF29012-009	TF29012-010
Sample Date										8/1/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018
Parameter (µg/kg)																
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	2,900,000	5,500,000	3,900,000	4,900,000	***9,300,000***	5,400,000	4,000,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<490	290	<470	180 [J]	<480	540	780
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	4,300	5,600	3,200	4,200 [J]	3,300	***11,000***	***12,000***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	14,000	120,000	37,000	69,000 [J]	46,000	120,000	140,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	230	350	160	200 [J-]	100	280	360
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	6,400	<13,000 [UB]	<12,000 [UB]	<11,000 [UJ]	<13,000	<13,000	<14,000
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	59	630	180	170	180	330	350
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9,300	***360,000***	***82,000***	***100,000 [J]***	***40,000***	***63,000***	***68,000***
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,100	330	780	<11,000 [UJ]	<12,000	<29,000 [UR]	<23,000 [UJ]
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	9,300	360,000	81,000	100,000	40,000	63,000	68,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	3,200	3,400	2,300	3,700 [J]	4,900	4,000	4,100
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	***110,000***	21,000	6,300	20,000 [J]	13,000	29,000	34,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	7,500,000	11,000,000	5,200,000	9,500,000	12,000,000	9,600,000	9,900,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	9,600	75,000	14,000	44,000	23,000	76,000	93,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	***12,000,000***	7,400,000	2,300,000	4,000,000	***16,000,000***	4,000,000	4,700,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<83	***190***	***660***	<90	23	***200***	***160***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,500	900	<2,400	1,400 [J]	<2,400	910	1,100
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	7,200	8,900	5,200	9,000 [J]	12,000	10,000	10,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,300	<1,300	<1,200	***610 [J]***	<1,300	***1,300***	***1,700***
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<250	220	<240	<220	<240	<260 [UB]	<270 [UB]
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	88,000	280,000	310,000	71,000	190,000	110,000	94,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	70	75	62	130 [J]	150	240	240
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	190,000	270,000	120,000	210,000	230,000	190,000	200,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	12,000	15,000	8,800	13,000	22,000	14,000	14,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	18,000	230,000	40,000	65,000 [J]	37,000	110,000	110,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-GW-04	TA-SB-GW-05	TA-SB-GW-05	TA-SB-GW-06	TA-SB-GW-06	TA-SB-GW-07	TA-SB-GW-07	TA-SB-GW-08
Sample Name										TA-SB-MW-04 (5-6)	TA-SB-MW-05 (1-2)	TA-SB-MW-05 (4-5)	TA-SB-MW-06 (2-3)	TA-SB-MW-06 (4-5)	TA-SB-MW-07 (4-5)	TA-SB-MW-07 (6-7)	TA-SB-MW-08 (2-3)
Depth Interval (Feet below ground surface)										5 - 6	1 - 2	4 - 5	2 - 3	4 - 5	4 - 5	6 - 7	2 - 3
Laboratory Sample ID(s)										TF29012-011	TF29012-015	TF29012-016	TF29012-005	TF29012-006	TF29012-003	TF29012-004	TF29012-007
Sample Date										6/29/2018	7/2/2018	7/2/2018	6/29/2018	6/29/2018	6/28/2018	6/28/2018	6/29/2018
Parameter (µg/kg)																	
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	***8,400,000***	4,800,000	1,300,000	5,300,000	4,100,000	3,600,000	3,800,000	2,400,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<500	***1,300***	<730	390	380	<440	<570	<490
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	2,200	***13,000***	830	***9,900***	***63,000***	3,800	2,100	2,400
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	32,000	***1,200,000***	190,000	120,000	200,000	43,000	23,000	8,800
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	42	500	300	180	250	140	170	43
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<13,000	<13,000 [UB]	<19,000	<12,000	<16,000	<12,000 [UB]	<15,000 [UB]	<13,000
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	110	2,700	430	560	480	100	68	30
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	14,000	***320,000***	6,800	***96,000***	***73,000***	4,800	7,500	4,700
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<12,000	<25,000 [UJ]	<30,000 [UJ]	<29,000 [UR]	<38,000 [UR]	<60,000 [UR]	<1,200	<1,100 [UR]
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	14,000	320,000	6,800	96,000	73,000	4,800	7,500	4,700
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	5,500	6,100	2,000	3,800	3,900	1,300	2,000	1,700
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	7,800	***140,000***	10,000	33,000	27,000	5,400	5,400	4,400
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	12,000,000	12,000,000	1,500,000	***13,000,000***	***16,000,000***	4,000,000	4,900,000	5,000,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	5,200	230,000	2,300	130,000	64,000	29,000	7,700	2,600
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	2,700,000	820,000	650,000	***8,600,000***	***14,000,000***	430,000	3,000,000	***15,000,000***
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	<93	130	<110	***220***	***240***	39	<94	<79
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<2,500	***2,400***	<3,600	1,000	***1,600***	<2,200	<2,900	<2,400
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	11,000	17,000	6,800	10,000	10,000	2,900	5,300	4,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	***510***	***2,500***	***890***	***570***	***6,600***	<1,200	<1,500	<1,300
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<250	<250 [UB]	<360	<230 [UB]	<310 [UB]	<220	<290	<240
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	140,000	160,000	84,000	160,000	250,000	44,000	53,000	47,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	80	340	<190	100	580	53	52	33
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	500,000	270,000	190,000	200,000	230,000	120,000	150,000	130,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	25,000	19,000	7,900	14,000	13,000	7,400	9,500	8,300
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	39,000	***3,800,000***	***640,000***	210,000	160,000	27,000	18,000	17,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-GW-08	TA-SB-MA-01	TA-SB-MA-01	TA-SB-MA-02	TA-SB-MA-02	TA-SB-MA-03	TA-SB-MA-03
Sample Name										TA-SB-MW-08 (5-6)	TA-SB-MA-01 (7-8)	TA-SB-MA-01 (11-12)	TA-SB-MA-02 (7-8)	TA-SB-MA-02 (11-12)	TA-SB-MA-03(7-8)	TA-SB-MA-03(13-14)
Depth Interval (Feet below ground surface)										5 - 6	7 - 8	11 - 12	7 - 8	11 - 12	7 - 8	13 - 14
Laboratory Sample ID(s)										TF29012-008	TH02019-019	TH02019-020	TH02019-024	TH02019-025	TH03007-002	TH03007-001
Sample Date										6/29/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/2/2018	8/2/2018
Parameter (µg/kg)																
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	4,700,000	5,000,000	5,300,000	***7,000,000***	1,700,000	5,000,000	2,900,000
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<600	<620	<470	<3,300	<590	<480	<470
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	3,100	***22,000***	***6,900***	***56,000***	690	***31,000***	***13,000***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	29,000	48,000	29,000	190,000	8,000	30,000	17,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	91	340	490	680	140	390	230
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	<16,000	***17,000***	***12,000***	<87,000 [UB]	<15,000 [UB]	<12,000 [UB]	<12,000 [UB]
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	190	160	110	1,000	64	110	220
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	14,000	***47,000***	18,000	***12,000,000***	6,500	***25,000***	11,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<33,000 [UR]	<1,600	<1,200	<1,900	<1,300	<1,200	<1,300
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	14,000	47,000	18,000	12,000,000	6,500	25,000	11,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	2,900	3,800	6,100	6,400	1,400	4,400	3,100
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	18,000	7,000	11,000	83,000	6,800	9,500	3,400
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	8,200,000	***14,000,000***	***15,000,000***	***57,000,000***	4,000,000	12,000,000	11,000,000
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	45,000	9,500	5,500	320,000	2,900	15,000	4,100
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	5,400,000	5,700,000	***15,000,000***	5,700,000	***19,000,000***	2,900,000	2,000,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	***2,000***	37	<85	***2,900***	<95	23	33
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	<3,000	<3,100	730	<17,000	<2,900	<2,400	790
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	6,300	8,200	15,000	20,000	3,900	10,000	5,400
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,600	***610***	<1,200	<8,700	<1,500	<1,200	<1,200
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	<300	<310	<230	<1,700	<290	<240	<230
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	75,000	580,000	280,000	960,000	140,000	720,000	460,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	79	110	110	<870	<150	110	67
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	230,000	280,000	260,000	130,000	210,000	220,000	180,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	14,000	19,000	24,000	<170,000	8,800	18,000	14,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	53,000	31,000	30,000	***610,000***	9,900	29,000	20,000

TABLE 5C
SUMMARY OF SOIL SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Statewide Default Background	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-MA-04	TA-SB-MA-04	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T4-ISLAND	TA-SED-T7-ISLAND	TA-SED-T9-ISLAND
Sample Name										TA-SB-MW-04(8-9)	TA-SB-MW-04(10-11)	TA-SED-T10-ISLAND(0-1)	TA-SED-T10-ISLAND(2-3)	TA-SED-T4-ISLAND(0-0.5)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T9-ISLAND(0-0.5)
Depth Interval (Feet below ground surface)										8 - 9	10 - 11	0 - 1	2 - 3	0 - 0.5	0 - 0.5	0 - 0.5
Laboratory Sample ID(s)										TH09090-003	TH09090-004	TG24016-002	TG24016-003	TG14035-001	TG11006-001	TG14035-007
Sample Date										8/8/2018	8/8/2018	7/23/2018	7/23/2018	7/11/2018	7/9/2018	7/13/2018
Parameter (µg/kg)																
Aluminum	6,900,000	1,000	NA	NLV	NLV	ID	50,000,000 (DD)	NCL	230,000,000	***7,400,000***	5,800,000	1,500,000	4,900,000	***10,000,000 [J]***	3,200,000	***9,900,000***
Antimony	NA	4,300	1,200 (X)	NLV	NLV	13,000,000	180,000	NCL	94,000	<620	850	<530	<800	<2,300 [UJ]	<700	<1,500
Arsenic	5,800	4,600	4,600	NLV	NLV	720,000	7,600	NCL	68,000	***29,000***	***53,000***	1,800	3,300	***7,200 [J]***	2,200	***6,600***
Barium	75,000	1,300,000	660,000 (G)	NLV	NLV	330,000,000	37,000,000	NCL	46,000,000	46,000	58,000	18,000	50,000	100,000 [J]	28,000	120,000
Beryllium	NA	51,000	320,000 (G)	NLV	NLV	1,300,000	410,000	NCL	470,000	340	460	55	95	230 [J]	74	200
Boron	NA	10,000	80,000 (X)	NLV	NLV	ID	48,000,000 (DD)	NCL	47,000,000	***11,000***	***11,000***	<14,000 [UB]	<21,000 [UB]	<60,000 [UJ]	<18,000	<39,000
Cadmium	1,200	6,000	3,000 (G,X)	NLV	NLV	1,700,000	550,000	NCL	NCL	350	910	140	280	700 [J]	150	530
Chromium, Total	18,000	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	***69,000***	***650,000***	4,500	14,000	***42,000 [J]***	5,600	17,000
Chromium VI	NA	30,000	3,300	NLV	NLV	260,000	2,500,000	NCL	30,000	<1,400	<1,400	<1,500	<1,800	<250,000 [UJ]	<76,000	<160,000 [UJ]
Chromium III (Calculated: Total - Chromium VI)	NA	1,000,000,000 (D)	100,0000,000 (G,X)	NLV	NLV	330,000,000	790,000,000	NCL	350,000,000	69,000	650,000	4,500	14,000	42,000	5,600	17,000
Cobalt	6,800	800	2,000	NLV	NLV	13,000,000	2,600,000	NCL	70,000	***7,600***	***47,000***	1,200	3,100	4,600 [J]	1,700	4,400
Copper	32,000	5,800,000	100,000 (G)	NLV	NLV	130,000,000	20,000,000	NCL	9,400,000	8,100	26,000	2,300	6,800	21,000 [J]	4,300 [J-]	15,000
Iron	12,000,000	6,000	NA	NLV	NLV	ID	160,000,000	NCL	160,000,000	***16,000,000***	***18,000,000***	4,300,000	10,000,000	***16,000,000 [J]***	6,200,000	***18,000,000***
Lead	21,000	700,000	2,500,000 (G,X)	NLV	NLV	100,000,000	400,000	NCL	400,000	8,500	35,000	4,800	12,000	32,000 [J]	5,600	22,000
Magnesium	NA	8,000,000	NA	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NCL	NCL	6,000,000	***28,000,000***	1,100,000	2,200,000	7,600,000 [J]	3,300,000	6,700,000
Mercury	130	1,700	50 (M)	48,000	52,000	20,000,000	160,000	0.027	33,000	51	97	32	***160***	120 [J]	<120	***140***
Molybdenum	NA	1,500	2,400 (X)	NLV	NLV	ID	2,600,000	NCL	1,200,000	***1,800***	***6,200***	<2,600	<4,000	<11,000 [UJ]	<3,500	<7,500
Nickel	20,000	100,000	100,000 (G)	NLV	NLV	13,000,000	40,000,000	NCL	4,600,000	10,000	38,000	2,500	7,200	11,000 [J]	3,400 [J-]	10,000
Selenium	410	4,000	400	NLV	NLV	130,000,000	2,600,000	NCL	1,200,000	<1,600	***720***	<1,400	<2,100	***2,300 [J]***	<1,800	<3,900
Silver	1,000	4,500	100 (M)	NLV	NLV	6,700,000	2,500,000	NCL	1,200,000	160	***1,500***	<260	<400	<1,100 [UJ]	<350 [UJ]	<750
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	370,000	330,000	<110,000	<160,000	260,000 [J]	52,000	<300,000
Thallium	NA	2,300	1,400 (X)	NLV	NLV	13,000,000	35,000	NCL	2,300	130	120	43	120	210 [J]	53	170
Titanium	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	260,000	280,000	100,000	220,000	300,000 [J]	170,000	270,000
Vanadium	NA	72,000	430,000	NLV	NLV	ID	750,000 (DD)	NCL	1,200,000	17,000	8,600	5,400	15,000	20,000 [J]	8,200	20,000
Zinc	47,000	2,400,000	230,000 (G)	NLV	NLV	ID	170,000,000	NCL	70,000,000	31,000	91,000	23,000	43,000	110,000 [J]	22,000 [J-]	83,000

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-01	TA-SB-01	TA-SB-02	TA-SB-02	TA-SB-03	TA-SB-03	TA-SB-04	TA-SB-04	TA-SB-05	TA-SB-05
Sample Name									TA-SB-01(2-3)	TA-SB-01(7-8)	TA-SB-02(2-3)	TA-SB-02(7-8)	TA-SB-03(6-7)	TA-SB-03(12-13)	TA-SB-04(7-8)	TA-SB-04(12-13)	TA-SB-05 (2-3)	TA-SB-05 (7-8)
Depth Interval (Feet below ground surface)									2 - 3	7 - 8	2 - 3	7 - 8	6 - 7	12 - 13	7 - 8	12 - 13	2 - 3	7 - 8
Laboratory Sample ID(s)									TH03007-005 & 1808242-05A	TH03007-006 & 1808242-06A	TH03007-009 & 1808242-09A	TH03007-010 & 1808242-10A	TH03007-015 & 1808242-14A	TH03007-016 & 1808242-15A	TH03007-017 & 1808242-16A	TH03007-018 & 1808242-17A	TH08019-006 & 1808454-06A	TH08019-007 & 1808454-07A
Sample Date									8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/3/2018	8/3/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<20,000 [UJ]	<22,000 [UJ]	<21,000 [UJ]	<27,000 [UJ]	<25,000 [UJ]	48,000 [J-]	<23,000 [UJ]	<21,000 [UJ]	<7,800 [UJ]	<9,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	23,000 [J-]	<22,000 [UJ]	<21,000 [UJ]	<27,000 [UJ]	<25,000 [UJ]	<28,000 [UJ]	<23,000 [UJ]	<21,000 [UJ]	<7,800 [UJ]	<9,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***210***	***240***	***350***	<170 [UB]	***420***	***1,200***	<150 [UB]	<270	<210 [UB]	<210 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<43 [UJ]	53 [J-]	<43 [UJ]	200 [J-]	<51 [UJ]	97 [J-]	<48 [UJ]	<44 [UJ]	130	230
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,100	520	450	91,000	16,000	74,000	52,000	120,000	640,000	680,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	160	160	350	340	480	480	400	740	1,500	2,300
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	160	680	800	91,000	16,000	74,000	52,000	120,000	***640,000***	***680,000***
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	ND	20	17	***3,500***	***610***	***2,800***	***2,000***	***4,600***	***24,000***	***26,000***
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	4,300	19,000	19,000	84,000	200,000	***1,700,000***	100,000	210,000	490,000	***530,000***
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***260,000***	***180,000***	***300,000***	***310,000***	***140,000***	***250,000***	***46,000***	***140,000***	***340,000***	***210,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<11,000	30,000	50,000	110,000	640,000	150,000	14,000	170,000	1,100,000	270,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	220,000 [J-]	<110,000 [UJ]	<140,000 [UJ]	<130,000 [UJ]	1,700,000 [J-]	<120,000 [UJ]	<110,000 [UJ]	<140,000 [UJ]	<180,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-06	TA-SB-06	TA-SB-07	TA-SB-07	TA-SB-08	TA-SB-08	TA-SB-08	TA-SB-09	TA-SB-09	TA-SB-10
Sample Name									TA-SB-06(2-3)	TA-SB-06(7-8)	TA-SB-07 (3-4)	TA-SB-07 (9-10)	TA-SB-08(3-4)	TA-SB-08(7-8)	TA-SB-08(7-8)DUP	TA-SB-09(2-3)	TA-SB-09(6-7)	TA-SB-10 (1-2)
Depth Interval (Feet below ground surface)									2 - 3	7 - 8	3 - 4	9 - 10	3 - 4	7 - 8	7 - 8	2 - 3	6 - 7	1 - 2
Laboratory Sample ID(s)									TH03007-020 & 1808242-19A	TH03007-019 & 1808242-18A	TH08019-004 & 1808454-04A	TH08019-005 & 1808454-05A	TH03007-011 & 1808242-11A	TH03007-012 & 1808242-12A	TH03007-013 & 1808242-13A	TH03007-007 & 1808242-07A	TH03007-008 & 1808242-08A	TH01025-023 & 1808026-22A
Sample Date									8/2/2018	8/2/2018	8/7/2018	8/7/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	7/31/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<22,000 [UJ]	<21,000 [UJ]	14,000 [J-]	<8,400 [UJ]	<23,000 [UJ]	<29,000 [UJ]	<27,000 [UJ]	<22,000 [UJ]	<24,000 [UJ]	<22,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<22,000 [UJ]	<21,000 [UJ]	<5,600 [UJ]	<8,400 [UJ]	<23,000 [UJ]	<29,000 [UJ]	<27,000 [UJ]	<22,000 [UJ]	<24,000 [UJ]	<22,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***540***	<140 [UB]	<270 [UB]	<200 [UB]	<140 [UB]	<940 [UB]	***570***	<140 [UB]	<150 [UB]	***150 [J-]***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<47 [UJ]	<46 [UJ]	<44	180	<47 [UJ]	200 [J-]	200 [J-]	<47 [UJ]	<4.8 [UJ]	230
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	2,100	9,800	9,000	630,000	39,000	630,000	760,000	840	6,000	16,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	500	180	380	1,600	330	1,100	1,200	110 [J-]	290	380
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	2,600	10,000	9,400	***630,000***	39,000	***630,000***	***760,000***	950	6,300	16,000
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	80	370	340	***24,000***	***1,500***	***24,000***	***29,000***	32	230	***610***
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	25,000	24,000	250,000	320,000	21,000	150,000	200,000	3,600	4,300	450,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***130,000***	***79,000***	***110,000***	***290,000***	***160,000***	***510,000***	***790,000***	***87,000***	***74,000***	***700,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	680,000	27,000	380,000	150,000	97,000 [J-]	56,000	87,000	18,000	100,000	82,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<120,000 [UJ]	<120,000 [UJ]	240,000 [J-]	<160,000 [UJ]	<120,000 [UJ]	990,000 [J-]	910,000 [J-]	<120,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-10	TA-SB-11	TA-SB-11	TA-SB-12	TA-SB-12	TA-SB-12	TA-SB-13	TA-SB-13	TA-SB-14	TA-SB-14	TA-SB-15
Sample Name									TA-SB-10 (4-5)	TA-SB-11 (1-2)	TA-SB-11 (6-7)	TA-SB-12 (0-1)	TA-SB-12 (1-2)	TA-SB-12 (4-5)	TA-SB-13 (1-2)	TA-SB-13 (6-7)	TA-SB-14 (5-6)	TA-SB-14 (7-8)	TA-SB-15 (2-3)
Depth Interval (Feet below ground surface)									4 - 5	1 - 2	6 - 7	0 - 1	1 - 2	4 - 5	1 - 2	6 - 7	5 - 6	7 - 8	2 - 3
Laboratory Sample ID(s)									TH01025-024 & 1808026-23A	TH01025-011 & 1808026-11A	TH01025-012 & 1808026-12A	TH01025-016 & 1808026-15A	TH01025-006 & 1808026-06A	TH01025-007 & 1808026-07A	TH01025-013 & 1808026-13A	TH01025-014 & 1808026-14A	TH01025-004 & 1808026-04A	TH01025-005 & 1808026-05A	TH01025-017 & 1808026-16A
Sample Date									7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018
Parameter (µg/kg)																			
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<20,000 [UJ]	<21,000	<21,000	<22,000 [UJ]	<21,000	<22,000	<23,000	<21,000 [UJ]	<24,000	<23,000	<20,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<20,000	<21,000	<21,000	<22,000	<21,000	<22,000	<23,000	<21,000	<24,000	<23,000	<20,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<140 [UJ]	<140 [UB]	<260 [UB]	***390 [J-]***	<140 [UB]	<280 [UB]	***160 [J-]***	<270 [UB]	<300 [UB]	<280 [UB]	<130 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	76	100	<44	130	89	<45	150	<45	<48	<47	<43
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	800	4,000	<1,100	820	550	530	<1,100	460	<1,200	600	<1,100
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	62	1,500	320	280	950	2,600	140	340	160	110	<220 [UR]
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	860	5,500	320	1,100	1,500	3,100	140	800	160	710	ND
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	31	150	ND	31	21	20	ND	18	ND	23	ND
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	330,000	***2,700,000***	73,000	<12,000 [UB]	<12,000 [UB]	310,000	<11,000 [UB]	45,000	***930,000***	***570,000***	<11,000 [UB]
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***61,000***	***230,000***	***110,000***	***150,000***	***200,000***	***240,000***	***190,000***	***150,000***	***180,000***	***230,000***	***47,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	23,000	59,000	<11,000	<12,000	<12,000	7,900	<11,000	96,000	38,000	24,000	<11,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<120,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-15	TA-SB-16	TA-SB-16	TA-SB-17	TA-SB-17	TA-SB-18	TA-SB-18	TA-SB-19	TA-SB-19	TA-SB-20	TA-SB-20
Sample Name									TA-SB-15 (7-8)	TA-SB-16 (2-3)	TA-SB-16 (6-7)	TA-SB-17 (1-2)	TA-SB-17 (7-8)	TA-SB-18 (2-3)	TA-SB-18 (6-7)	TA-SB-19 (3-4)	TA-SB-19 (7-8)	TA-SB-20(5-6)	TA-SB-20 (7-8)
Depth Interval (Feet below ground surface)									7 - 8	2 - 3	6 - 7	1 - 2	7 - 8	2 - 3	6 - 7	3 - 4	7 - 8	5 - 6	7 - 8
Laboratory Sample ID(s)									TH01025-018 & 1808026-17A	TG27014-006 & 18071745-06A	TG27014-005 & 18071745-05A	TG27014-016 & 18071745-16A	TG27014-017 & 18071745-17A	TG27014-009 & 18071745-09A	TG27014-010 & 18071745-10A	TG27014-007 & 18071745-07A	TG27014-008 & 18071745-08A	TG28004-018 & 18071909-03A	TG27014-018 & 18071745-18A
Sample Date									7/31/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/26/2018
Parameter (µg/kg)																			
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<21,000 [UJ]	<21,000	<21,000	<22,000	<22,000	<20,000	<23,000	<22,000	<22,000	<42,000 [UJ]	<23,000
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<21,000	<21,000	<21,000	<22,000	<22,000	<20,000	<23,000	<22,000	<22,000	<42,000 [UJ]	<23,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<260 [UB]	<260 [UB]	<130 [UB]	<280 [UB]	<140 [UB]	<130 [UB]	<140 [UB]	<270 [UB]	<270 [UB]	***760***	<150 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<44	<43	86	100	170	57	47	190	66	260	89
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,100	<1,100	3,100	43,000	6,900	<1,100	<1,200	240,000 [J]	120,000	540,000	4,900
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	340	280	91	470	400	160	210	480 [J-]	600	600	430
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	340	280	3,200	43,000	7,300	160	210	***240,000***	120,000	***540,000***	5,300
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	120	***1,600***	260	ND	ND	***9,200***	***4,600***	***21,000***	190
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	39,000	7,500	19,000	21,000	23,000	7,700	2,500	18,000	20,000	300,000	72,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***190,000***	***190,000***	***200,000***	***310,000 [J]***	***140,000***	***140,000***	***180,000***	***270,000 [J]***	***220,000***	***250,000***	***120,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	6,700	12,000	19,000	<11,000	95,000	<11,000	<12,000	21,000	<11,000	1,600,000	37,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<220,000 [UJ]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-21	TA-SB-21	TA-SB-22	TA-SB-22	TA-SB-23	TA-SB-23	TA-SB-24	TA-SB-24	TA-SB-25	TA-SB-25
Sample Name									TA-SB-21 (6-7)	TA-SB-21 (9-10)	TA-SB-22 (2-3)	TA-SB-22 (8-9)	TA-SB-23(6-7)	TA-SB-23(9-10)	TA-SB-24(0-1)	TA-SB-24(5-6)	TA-SB-25(1-2)	TA-SB-25(7-8)
Depth Interval (Feet below ground surface)									6 - 7	9 - 10	2 - 3	8 - 9	6 - 7	9 - 10	0 - 1	5 - 6	1 - 2	7 - 8
Laboratory Sample ID(s)									TH01025-025 & 1808026-24A	TH01025-026 & 1808026-25A	TH01025-021 & 1808026-20A	TH01025-022 & 1808026-21A	TH09090-001 & 1808640-01A	TH09090-002 & 1808640-02A	TG28004-027 & 18071909-12A	TG28004-028 & 18071909-13A	TG28004-029 & 18071909-14A	TG28004-001 & 18071909-15A
Sample Date									7/31/2018	7/31/2018	7/31/2018	7/31/2018	8/8/2018	8/8/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<20,000 [UJ]	<22,000 [UJ]	<21,000 [UJ]	<23,000 [UJ]	<31,000 [UJ]	<27,000 [UJ]	<19,000 [UJ]	<25,000 [UJ]	<26,000 [UJ]	<52,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<20,000	<22,000	<21,000	<23,000	<31,000 [UJ]	<27,000 [UJ]	<19,000 [UJ]	<25,000 [UJ]	<26,000 [UJ]	<52,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<140 [UB]	<140 [UB]	<130 [UB]	<150 [UB]	***1,500***	<180 [UB]	***160***	***400***	<160 [UB]	<360 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<45	<46	<42	69	180 [J-]	270 [J-]	58	69	130	290
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,400	2,200	<1,100	780	20,000	27,000	<1,100 [UB]	<1,400 [UJ]	13,000 [J-]	120,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	150	<230	60 [J-]	<250	1,600	590	61	260	210 [J-]	1,200
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	1,600	2,200	60	780	22,000	28,000	61	260	13,000	120,000
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	53	84	ND	30	***760***	***1,000***	ND	ND	500	***4,600***
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	3,700	3,400	5,000	11,000	22,000	24,000	12,000	16,000	23,000	190,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***180,000***	***56,000***	***150,000***	***200,000***	***310,000***	***260,000***	***36,000***	***190,000***	***240,000***	***700,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	21,000	<12,000	<11,000	73,000	***16,000,000***	***8,400,000***	180,000	390,000	180,000	320,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<130,000 [UJ]	1,200,000 [J-]	<140,000 [UJ]	<110,000 [UJ]	<130,000 [UJ]	<130,000 [UJ]	<270,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-26	TA-SB-26	TA-SB-27	TA-SB-27	TA-SB-27	TA-SB-28	TA-SB-28	TA-SB-29	TA-SB-29	TA-SB-30
Sample Name									TA-SB-26 (5-6)	TA-SB-26 (8-9)	TA-SB-27 (1-2)	TA-SB-27 (1-2) DUP	TA-SB-27 (8-9)	TA-SB-28(2-3)	TA-SB-28(6-7)	TA-SB-29 (2-3)	TA-SB-29 (9-10)	TA-SB-30 (2-3)
Depth Interval (Feet below ground surface)									5 - 6	8 - 9	1 - 2	1 - 2	8 - 9	2 - 3	6 - 7	2 - 3	9 - 10	2 - 3
Laboratory Sample ID(s)									TH01025-002 & 1808026-02A	TH01025-003 & 1808026-03A	TG31022-021 & 18071952-20A	TG31022-023 & 18071952-21A	TH08019-001 & 1808454-01A	TG28004-004 & 18071909-18A	TG28004-005 & 18071909-19A	TG31022-018 & 18071952-17A	TG31022-019 & 18071952-18A	TH01025-001 & 1808026-01A
Sample Date									7/31/2018	7/31/2018	7/30/2018	7/30/2018	8/7/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/30/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<23,000	<24,000	<22,000	<22,000	<5,600 [UJ]	<21,000 [UJ]	<23,000 [UJ]	<22,000	<23,000	<25,000
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<23,000	<24,000	<22,000	<22,000	<5,600 [UJ]	<21,000 [UJ]	<23,000 [UJ]	<22,000	<23,000	<25,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<140 [UB]	<150 [UB]	<140 [UB]	<140 [UB]	<140 [UB]	<140 [UB]	<130 [UB]	***170***	<140 [UB]	***1,100 [J-]***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	53	110	85 [J+]	79 [J+]	100	<46	<42	160 [J+]	<47	160
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	2,100	23,000	<1,200	1,700	6,900	<1,100 [UB]	7,000	1,100	1,300	620
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	370	620	110	250	400	59 [J-]	910	260 [J-]	140	2,000
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	2,500	24,000	110	2,000	7,300	59	7,900	1,400	1,400	2,600
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	80	***880***	ND	65	260	ND	270	42	50	24
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	<12,000 [UB]	<12,000 [UB]	19,000	14,000	64,000	8,000	110,000	4,200	3,900	<12,000 [UB]
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***300,000***	***220,000***	***54,000***	***70,000***	***81,000***	***96,000***	***99,000***	***150,000***	***150,000***	***350,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<12,000	<12,000	***10,000,000***	***7,800,000***	200,000	5,900	36,000	<11,000	<12,000	16,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<120,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<100,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-30	TA-SB-31	TA-SB-31	TA-SB-32	TA-SB-32	TA-SB-32	TA-SB-33	TA-SB-33	TA-SB-34	TA-SB-34
Sample Name									TA-SB-30 (13-14)	TA-SB-31(2-3)	TA-SB-31(7-8)	TA-SB-32(2-3)	TA-SB-32(2-3) DUP	TA-SB-32(9-10)	TA-SB-33(1-2)	TA-SB-33(7-8)	TA-SB-34(3-4)	TA-SB-34(6-7)
Depth Interval (Feet below ground surface)									13 - 14	2 - 3	7 - 8	2 - 3	2 - 3	9 - 10	1 - 2	7 - 8	3 - 4	6 - 7
Laboratory Sample ID(s)									TG31022-020 & 18071952-19A	TG28004-002 & 18071909-16A	TG28004-003 & 18071909-17A	TG28004-006 & 18071909-20A	TG28004-007 & 18071909-28A	TG28004-008 & 18071909-21A	TG28004-023 & 18071909-08A	TG28004-024 & 18071909-09A	TG28004-020 & 18071909-05A	TG28004-019 & 18071909-04A
Sample Date									7/30/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<23,000	<22,000 [UJ]	<38,000 [UJ]	<25,000 [UJ]	<21,000 [UJ]	<19,000 [UJ]	<47,000 [UJ]	<30,000 [UJ]	<39,000 [UJ]	<28,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<23,000	<22,000 [UJ]	<38,000 [UJ]	<25,000 [UJ]	<21,000 [UJ]	<19,000 [UJ]	<47,000 [UJ]	<30,000 [UJ]	<39,000 [UJ]	<28,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<140 [UB]	<270 [UB]	<270 [UB]	<140 [UB]	<130 [UB]	<270 [UB]	***610***	***420***	<240 [UB]	<320 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<46	<45	190	<45	<45	<44	160	140	210	110
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	590	58,000	850,000	<1,200 [UB]	<1,100 [UB]	2,800	2,800	16,000	190,000	240,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	120	660	650	39	51	330	6,000	17,000	130	220
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	710	59,000	***850,000***	39	51	3,100	8,800	33,000	190,000	***240,000***
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	23	***2,200***	***32,000***	ND	ND	110	110	***610***	***7,300***	***9,200***
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	10,000	31,000	***690,000***	5,000	4,200	97,000	58,000	230,000	***880,000***	130,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***130,000***	***320,000***	***290,000***	***110,000***	***110,000***	***220,000***	***210,000***	***450,000***	***490,000***	***460,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<11,000	510,000	990,000	31,000 [J]	170,000 [J]	12,000	49,000	380,000	2,000,000	350,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<120,000 [UJ]	<110,000 [UJ]	220,000 [J-]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<130,000 [UJ]	<160,000 [UJ]	<200,000 [UJ]	240,000 [J-]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-35	TA-SB-35	TA-SB-36	TA-SB-36	TA-SB-37	TA-SB-37	TA-SB-38	TA-SB-38	TA-SB-38
Sample Name									TA-SB-35 (2-3)	TA-SB-35 (6-7)	TA-SB-36 (2-3)	TA-SB-36 (5-6)	TA-SB-37(1-2)	TA-SB-37(6-7)	TA-SB-38 (0.5-1.5)	TA-SB-38 (0.5-1.5) DUP	TA-SB-38 (6-7)
Depth Interval (Feet below ground surface)									2 - 3	6 - 7	2 - 3	5 - 6	1 - 2	6 - 7	0.5 - 1.5	0.5 - 1.5	6 - 7
Laboratory Sample ID(s)									TG27014-001 & 18071745-01A	TG27014-002 & 18071745-02A	TG27014-003 & 18071745-03A	TG27014-004 & 18071745-04A	TG28004-016 & 18071909-01A	TG28004-017 & 18071909-02A	TG27014-011 & 18071745-11A	TG27014-012 & 18071745-12A	TG27014-013 & 18071745-13A
Sample Date									7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/27/2018	7/26/2018	7/26/2018	7/26/2018
Parameter (µg/kg)																	
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<22,000	<34,000	<27,000	<31,000	<23,000 [UJ]	<33,000 [UJ]	<21,000	<21,000	<46,000
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<22,000	<34,000	<27,000	<31,000	<23,000 [UJ]	<33,000 [UJ]	<21,000	<21,000	<46,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***320***	<160 [UB]	***220***	<220 [UB]	<140 [UB]	<220 [UB]	***330***	***440***	***400***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	110	330	150	230	73	74	200	210	570
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	22,000	56,000	110,000	180,000	6,900	61,000	<1,100	<1,100	270,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	500	260	120	340	200	270	2,200	1,700	920
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	23,000	56,000	110,000	180,000	7,100	61,000	2,200	1,700	***270,000***
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	***840***	***2,100***	***4,200***	***6,900***	260	***2,300***	ND	ND	***10,000***
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	26,000	86,000	62,000	67,000	20,000	66,000	10,000	11,000	***680,000***
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***490,000***	***300,000***	***550,000***	***690,000***	***560,000***	***440,000***	***350,000***	***320,000***	***570,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	54,000	18,000	27,000	31,000	190,000	130,000	21,000	18,000	1,000,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<120,000 [UJ]	<170,000 [UJ]	<140,000 [UJ]	400,000 [J-]	<120,000 [UJ]	200,000 [J-]	<110,000 [UJ]	<110,000 [UJ]	<240,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-39	TA-SB-39	TA-SB-40	TA-SB-40	TA-SB-41	TA-SB-41	TA-SB-42	TA-SB-42	TA-SB-43	TA-SB-43	TA-SB-44
Sample Name									TA-SB-39 (1-2)	TA-SB-39 (6-7)	TA-SB-40(2-3)	TA-SB-40(6-7)	TA-SB-41 (2-3)	TA-SB-41 (5-6)	TA-SB-42 (1-2)	TA-SB-42 (6-7)	TA-SB-43 (1-2)	TA-SB-43 (7-8)	TA-SB-44 (1-2)
Depth Interval (Feet below ground surface)									1 - 2	6 - 7	2 - 3	6 - 7	2 - 3	5 - 6	1 - 2	6 - 7	1 - 2	7 - 8	1 - 2
Laboratory Sample ID(s)									TG27014-015 & 18071745-15A	TG27014-014 & 18071745-14A	TG28004-011 & 18071909-24A	TG28004-012 & 18071909-25A	TG31022-003 & 18071952-03A	TG31022-004 & 18071952-04A	TG31022-007 & 18071952-07A	TG31022-008 & 18071952-08A	TG19003-022 & 18071275-06A	TG19003-023 & 18071275-07A	TG31022-011 & 18071952-11A
Sample Date									7/26/2018	7/26/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/19/2018	7/19/2018	7/30/2018
Parameter (µg/kg)																			
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<21,000	<23,000	<19,000 [UJ]	<28,000 [UJ]	<21,000	<22,000	<18,000	<19,000	<22,000 [UJ]	<27,000 [UJ]	<20,000
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<21,000	<23,000	<19,000 [UJ]	<28,000 [UJ]	<21,000	<22,000	<18,000	<19,000	<22,000 [UJ]	<27,000 [UJ]	<20,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***140***	<140 [UB]	***320***	***410***	<140 [UB]	<140 [UB]	<120 [UB]	<130 [UB]	<260 [UB]	<170 [UB]	***150***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	110	170	<45	<61	97 [J-]	<47 [UJ]	<40 [UJ]	<45 [UJ]	78	130	47 [J-]
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	7,700	32,000	<1,200 [UB]	<1,700 [UB]	6,600	3,400	<1,000	<1,100	1,900 [J+]	19,000	<1,100
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	720	480	110	160	360	580	88	170	29	140	80
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	8,400	32,000	110	160	7,000	4,000	88	170	1,900	19,000	80
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	290	***1,200***	ND	ND	250	130	ND	ND	73	***730***	ND
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	32,000	***550,000***	4,200	20,000	<12,000 [UB]	<12,000 [UB]	<10,000 [UB]	<11,000 [UB]	<11,000 [UB]	<14,000 [UB]	14,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***220,000***	***350,000***	***210,000***	***760,000***	***590,000***	***200,000***	***89,000***	***78,000***	***230,000***	***300,000***	***260,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	170,000	170,000	12,000	750,000	110,000	<12,000	<10,000	<11,000	<11,000	140,000	10,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	700,000 [J-]	<120,000 [UJ]	<120,000 [UJ]	<100,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<140,000 [UJ]	<110,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-44	TA-SB-45	TA-SB-45	TA-SB-45	TA-SB-46	TA-SB-46	TA-SB-47	TA-SB-47	TA-SB-48	TA-SB-48
Sample Name									TA-SB-44 (7-8)	TA-SB-45 (2-3)	TA-SB-45 (6-7)	TA-SB-45 (6-7) DUP	TA-SB-46(8-9)	TA-SB-46(9-10)	TA-SB-47 (3-4)	TA-SB-47 (5-6)	TA-SB-48(1-2)	TA-SB-48(10-11)
Depth Interval (Feet below ground surface)									7 - 8	2 - 3	6 - 7	6 - 7	8 - 9	9 - 10	3 - 4	5 - 6	1 - 2	10 - 11
Laboratory Sample ID(s)									TG31022-012 & 18071952-12A	TH01025-010 & 1808026-10A	TH01025-008 & 1808026-08A	TH01025-009 & 1808026-09A	TG28004-009 & 18071909-22A	TG28004-010 & 18071909-23A	TG31022-016 & 18071952-15A	TG31022-017 & 18071952-16A	TG28004-014 & 18071909-27A	TG28004-013 & 18071909-26A
Sample Date									7/30/2018	7/31/2018	7/31/2018	7/31/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<21,000	<22,000	<24,000	<22,000	<21,000 [UJ]	<19,000 [UJ]	<23,000	<23,000	<20,000 [UJ]	<20,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<21,000	<22,000	<24,000	<22,000	<21,000 [UJ]	<19,000 [UJ]	<23,000	<23,000	<20,000 [UJ]	<20,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<270 [UB]	<130 [UB]	<280 [UB]	<270 [UB]	<260 [UB]	<260 [UB]	***1,200***	***320***	***130***	<120 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<46 [UJ]	130	<47	<45	<42	<43	55 [J]	310 [J]	<42	<41
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,100	780	2,100	1,900	<1,100 [UB]	<1,100 [UB]	<1,100	3,100	<1,100 [UB]	<1,000 [UB]
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	92	210	260	170	160	130	240	730	190	68
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	92	990	2,400	2,100	160	130	240	3,800	190	68
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	ND	30	80	73	ND	ND	ND	120	ND	ND
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	14,000	<11,000 [UB]	<12,000 [UB]	<11,000 [UB]	13,000	20,000	3,100	9,500	<11,000	95,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***140,000***	***350,000***	***240,000***	***210,000***	***140,000***	***450,000***	***140,000***	***250,000***	***320,000***	***55,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<11,000	<11,000	11,000	<11,000	<11,000	<11,000	<11,000	16,000	<11,000	<10,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<100,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-49	TA-SB-49	TA-SB-50	TA-SB-50	TA-SB-51	TA-SB-51	TA-SB-52	TA-SB-52	TA-SB-53	TA-SB-53
Sample Name									TA-SB-49 (3-4)	TA-SB-49 (7-8)	TA-SB-50 (2-3)	TA-SB-50 (7-8)	TA-SB-51 (2-3)	TA-SB-51 (6-7)	TA-SB-52 (1-2)	TA-SB-52 (6-7)	TA-SB-53 (0-1)	TA-SB-53 (5-6)
Depth Interval (Feet below ground surface)									3 - 4	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	1 - 2	6 - 7	0 - 1	5 - 6
Laboratory Sample ID(s)									TG31022-009 & 18071952-09A	TG31022-010 & 18071952-10A	TH01025-019 & 1808026-18A	TH01025-020 & 1808026-19A	TG31022-001 & 18071952-01A	TG31022-002 & 18071952-02A	TG31022-013 & 18071952-13A	TG31022-014 & 18071952-14A	TG19003-017 & 18071275-01A	TG19003-021 & 18071275-05A
Sample Date									7/30/2018	7/30/2018	7/31/2018	7/31/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/19/2018	7/19/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<20,000	<19,000	<22,000 [UJ]	<19,000 [UJ]	<21,000	<18,000	<22,000	<21,000	<20,000 [UJ]	<23,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<20,000	<19,000	<22,000	<19,000	<21,000	<18,000	<22,000	<21,000	<20,000 [UJ]	<23,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<120 [UB]	<120 [UB]	<260 [UB]	<130 [UB]	***130***	<130 [UB]	***330***	<260 [UB]	***270***	<290 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<41 [UJ]	<41 [UJ]	49	<44	<43	<42 [UJ]	<44 [UJ]	<43 [UJ]	140	83
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,000	<1,000	870	450	<1,100 [UJ]	<1,100 [UJ]	<1,100	<1,100	<1,100 [UB]	1,300 [J+]
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<210 [UR]	<210 [UR]	460	690	77	87	450	2,700	530	120
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	ND	ND	1,300	1,100	77	87	450	2,700	530	1,400
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	33	17	ND	ND	ND	ND	ND	50
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	<10,000	11,000	3,800	3,700	<11,000 [UB]	<11,000 [UB]	4,100	3,000	<11,000 [UB]	65,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***47,000***	***52,000***	***290,000***	***190,000***	***360,000***	***140,000***	***200,000***	***180,000***	***250,000***	***170,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<10,000	<10,000	<11,000	<11,000	<11,000	<11,000	<11,000	<11,000	16,000	370,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<100,000 [UJ]	<100,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-53	TA-SB-54	TA-SB-54	TA-SB-55	TA-SB-55	TA-SB-56	TA-SB-56	TA-SB-57	TA-SB-57	TA-SB-58
Sample Name									TA-SB-53(7-8)	TA-SB-54 (0-1)	TA-SB-54 (3-4)	TA-SB-55 (1-2)	TA-SB-55 (5-6)	TA-SB-56 (1-2)	TA-SB-56 (6-7)	TA-SB-57 (2-3)	TA-SB-57 (6-7)	TA-SB-58 (7-8)
Depth Interval (Feet below ground surface)									7 - 8	0 - 1	3 - 4	1 - 2	5 - 6	1 - 2	6 - 7	2 - 3	6 - 7	7 - 8
Laboratory Sample ID(s)									TG19003-019 & 18071275-03A	TG19003-002 & 18071147-02A	TG19003-005 & 18071147-05A	TG19003-006 & 18071147-06A	TG19003-007 & 18071147-07A	TG19003-001 & 18071147-01A	TH02019-001 & 1808208-01A	TG31022-005 & 18071952-05A	TG31022-006 & 18071952-06A	TH08019-002 & 1808454-02A
Sample Date									7/19/2018	7/18/2018	7/18/2018	7/18/2018	7/18/2018	7/18/2018	8/1/2018	7/30/2018	7/30/2018	8/7/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<23,000 [UJ]	<24,000 [UJ]	<20,000 [UJ]	<21,000 [UJ]	<26,000 [UJ]	<21,000 [UJ]	<20,000 [UJ]	<19,000	<18,000	<5,700 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<23,000 [UJ]	<24,000 [UJ]	<20,000 [UJ]	<21,000 [UJ]	<26,000 [UJ]	<21,000 [UJ]	<20,000 [UJ]	<19,000	<18,000	<5,700 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<150 [UB]	***290***	<120 [UB]	<260 [UB]	<150 [UB]	<260 [UB]	<130 [UB]	<130 [UB]	<250 [UB]	<130 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	69	89	<41	80	260	<44	<45 [UJ]	<42 [UJ]	<41 [UJ]	<45
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	2,600	<1,200 [UB]	<1,000 [UB]	<1,100 [UB]	1,800 [J+]	<1,100 [UB]	<1,100	<1,100 [UJ]	<1,000	<1,600 [UB]
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	140	1,100	41	1,200	410	10,000	860	70	70	350
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	2,700	1,100	41	1200 [J-]	2,200	10,000	860	70	70	350
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	99	ND	ND	ND	69	ND	ND	ND	ND	ND
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	26,000	390,000	110,000	28,000	240,000	83,000	17,000	11,000	<10,000 [UB]	<11,000 [UB]
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***220,000***	***360,000***	***43,000***	***270,000***	***180,000***	***250,000***	***55,000***	***280,000***	***170,000***	***100,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	35,000	64,000	<10,000	59,000	270,000	260,000	16,000	<11,000	<10,000	<11,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<120,000 [UJ]	<120,000 [UJ]	<100,000 [UJ]	<110,000 [UJ]	<130,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<100,000 [UJ]	<110,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-58	TA-SB-59	TA-SB-59	TA-SB-60	TA-SB-60	TA-SB-61	TA-SB-61	TA-SB-62	TA-SB-62	TA-SB-63
Sample Name									TA-SB-58 (12-13)	TA-SB-59(2-3)	TA-SB-59(11-12)	TA-SB-60 (7-8)	TA-SB-60 (8-9)	TA-SB-61 (5-6)	TA-SB-61 (7-8)	TA-SB-62 (3-4)	TA-SB-62 (5-6)	TA-SB-63 (1-2)
Depth Interval (Feet below ground surface)									12 - 13	2 - 3	11 - 12	7 - 8	8 - 9	5 - 6	7 - 8	3 - 4	5 - 6	1 - 2
Laboratory Sample ID(s)									TH08019-003 & 1808454-03A	TG28004-025 & 18071909-10A	TG28004-026 & 18071909-11A	TG19003-009 & 18071147-09A	TG19003-010 & 18071147-10A	TG17025-011 & 18071065-02A	TG17025-012 & 18071065-03A	TG17025-013 & 18071065-04A	TG17025-014 & 18071065-05A	TG17025-017 & 18071065-08A
Sample Date									8/7/2018	7/27/2018	7/27/2018	7/18/2018	7/18/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<5,500 [UJ]	<28,000 [UJ]	<45,000 [UJ]	<24,000 [UJ]	<30,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]	<42,000 [UJ]	<23,000 [UJ]	<21,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<5,500 [UJ]	<28,000 [UJ]	<45,000 [UJ]	<24,000 [UJ]	<30,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]	<42,000 [UJ]	<23,000 [UJ]	<21,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<260	***330***	<270 [UB]	<150 [UB]	<210 [UB]	***340***	<300 [UB]	***2,200***	***260***	***210***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<44	67	370	120	210	310 [J-]	<48	150	290	64
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,100 [UB]	74,000	530,000	4,700	15,000	3,600	1,400	8,300	3,300	1,200
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	320	1,800	940	290	480	4,500	600	54,000	800	400
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	320	76,000	***530,000***	5,000	15,000	8,100	2,000	62,000	4,100	1,600
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	ND	***2,800***	***20,000***	180	570	140	53	320	130	46
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	<11,000 [UB]	260,000	***790,000***	380,000	***1,200,000***	130,000	7,800	100,000	49,000	42,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***160,000***	***520,000***	***310,000***	***300,000***	***310,000***	***260,000***	***310,000***	***100,000***	***220,000***	***160,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<11,000	***14,000,000***	830,000	160,000	320,000	110,000	<12,000	160,000	19,000	44,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<160,000 [UJ]	<240,000 [UJ]	<120,000 [UJ]	<160,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<220,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-63	TA-SB-64	TA-SB-64	TA-SB-65	TA-SB-65	TA-SB-65	TA-SB-66	TA-SB-66	TA-SB-67	TA-SB-67
Sample Name									TA-SB-63 (7-8)	TA-SB-64 (0-1)	TA-SB-64 (4-5)	TA-SB-65 (1-2)	TA-SB-65 (1-2) DUP	TA-SB-65 (4-5)	TA-SB-66(0-1)	TA-SB-66(2-3)	TA-SB-67 (0-1)	TA-SB-67 (5-6)
Depth Interval (Feet below ground surface)									7 - 8	0 - 1	4 - 5	1 - 2	1 - 2	4 - 5	0 - 1	2 - 3	0 - 1	5 - 6
Laboratory Sample ID(s)									TG17025-018 & 18071065-09A	TG19003-018 & 18071275-02A	TG19003-020 & 18071275-04A	TG19003-012 & 18071147-12A	TG19003-013 & 18071147-13A	TG19003-014 & 18071147-14A	TG28004-021 & 18071909-06A	TG28004-022 & 18071909-07A	TG24017-001 & 18071457-01A	TG24017-002 & 18071457-02A
Sample Date									7/17/2018	7/19/2018	7/19/2018	7/18/2018	7/18/2018	7/18/2018	7/27/2018	7/27/2018	7/23/2018	7/23/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<21,000 [UJ]	<21,000 [UJ]	<41,000 [UJ]	<27,000 [UJ]	<36,000 [UJ]	<39,000 [UJ]	<21,000 [UJ]	<73,000 [UJ]	<21,000 [UJ]	<23,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<21,000 [UJ]	<21,000 [UJ]	<41,000 [UJ]	<27,000 [UJ]	<36,000 [UJ]	<39,000 [UJ]	<21,000 [UJ]	<73,000 [UJ]	31,000	<23,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***1,500***	<130 [UB]	***1,200***	***2,500***	***2,300***	***3,600***	<130 [UB]	***430***	<130 [UB]	<280 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	500	180	550	350	360	490	62	450	54	<45
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	2,500	<1,100 [UB]	56,000	4,600	8,200	6,400	1,500	2,600	<1,100	<1,100
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	41,000	3,600	640	20,000	27,000	130,000	550	19,000	360	530
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	44,000	3,600	57,000	25,000	35,000	140,000	2,100	22,000	360	530
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	96	ND	***2,100***	180	310	240	57	99	ND	ND
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	120,000	23,000	360,000	31,000	39,000	81,000	4,800	27,000	26,000	26,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***370,000***	***180,000***	***590,000***	***120,000***	***130,000***	***130,000 [J]***	***270,000***	***480,000***	***140,000***	***250,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	270,000	25,000	2,700,000	190,000	220,000	1,100,000	<11,000	210,000	30,000	<11,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<180,000 [UJ]	<100,000 [UJ]	1,100,000 [J-]	<200,000 [UJ]	<210,000 [UJ]	<200,000 [UJ]	<110,000 [UJ]	<200,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-68	TA-SB-68	TA-SB-69	TA-SB-69	TA-SB-70	TA-SB-70	TA-SB-71	TA-SB-71	TA-SB-72	TA-SB-72
Sample Name									TA-SB-68 (1-2)	TA-SB-68 (3-4)	TA-SB-69 (2-3)	TA-SB-69 (4-5)	TA-SB-70 (0-1)	TA-SB-70 (5-6)	TA-SB-71(1-2)	TA-SB-71(3-4)	TA-SB-72(1-2)	TA-SB-72(1-2) DUP
Depth Interval (Feet below ground surface)									1 - 2	3 - 4	2 - 3	4 - 5	0 - 1	5 - 6	1 - 2	3 - 4	1 - 2	1 - 2
Laboratory Sample ID(s)									TG11005-003 & 1807548-03A	TG11005-004 & 1807548-04A	TG11005-009 & 1807548-09A	TG11005-010 & 1807548-10A	TG17025-015 & 18071065-06A	TG17025-016 & 18071065-07A	TG21001-001 & 18071364-01A	TG21001-002 & 18071364-02A	TG21001-003 & 18071364-03A	TG21001-004 & 18071364-04A
Sample Date									7/10/2018	7/10/2018	7/10/2018	7/10/2018	7/17/2018	7/17/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<27,000 [UJ]	<21,000 [UJ]	<24,000 [UJ]	<23,000 [UJ]	<22,000 [UJ]	<29,000 [UJ]	<20,000 [UJ]	<23,000 [UJ]	<23,000 [UJ]	<24,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<27,000 [UJ]	<21,000 [UJ]	<24,000 [UJ]	<23,000 [UJ]	<22,000 [UJ]	<29,000 [UJ]	<20,000 [UJ]	<23,000 [UJ]	<23,000 [UJ]	<24,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***470***	<340 [UB]	***820***	<140 [UB]	***320***	<180 [UB]	***250 [J-]***	<140 [UB]	***310***	***360***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	250	60	190	48	160	150	<42 [UJ]	96	100	84
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20,000	<1,400	<1,400	2,500	5,100	8,600	<1,100	<1,200	<1,200	610
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	5,900	550	110	77	3,500	170	650 [J-]	1,300	720	840
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	26,000	550	110	2,600	8,600	8,800	650	1,300	720	1,500
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	***760***	ND	ND	96	190	330	ND	ND	ND	23
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	5,600	4,300	9,200	4,600	3,900	14,000	96,000	***600,000***	5,600	6,700
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***220,000***	***380,000***	***270,000***	***380,000***	***310,000***	***1,000,000***	***230,000***	***150,000***	***210,000***	***270,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<14,000	<14,000	27,000	<12,000	<11,000	960,000	28,000	34,000	<12,000	<12,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<140,000 [UJ]	<140,000 [UJ]	<140,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<150,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-72	TA-SB-73	TA-SB-73	TA-SB-74	TA-SB-74	TA-SB-75	TA-SB-75	TA-SB-75	TA-SB-76	TA-SB-76
Sample Name									TA-SB-72(3-4))	TA-SB-73(1-2)	TA-SB-73(6-7)	TA-SB-74(1-2)	TA-SB-74(5-6)	TA-SB-75 (5-6)	TA-SB-75 (5-6) DUP	TA-SB-75 (7-8)	TA-SB-76 (1-2)	TA-SB-76 (7-8)
Depth Interval (Feet below ground surface)									3 - 4	1 - 2	6 - 7	1 - 2	5 - 6	5 - 6	5 - 6	7 - 8	1 - 2	7 - 8
Laboratory Sample ID(s)									TG21001-005 & 18071364-05A	TG21001-006 & 18071364-06A	TG21001-007 & 18071364-07A	TG21001-008 & 18071364-08A	TG21001-009 & 18071364-09A	TG19003-003 & 18071147-03A	TG19003-004 & 18071147-04A	TG19003-008 & 18071147-08A	TG17025-008 & 1807973-08A	TG19003-011 & 18071147-11A
Sample Date									7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/18/2018	7/18/2018	7/18/2018	7/16/2018	7/18/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<21,000 [UJ]	<21,000 [UJ]	<23,000 [UJ]	<24,000 [UJ]	<23,000 [UJ]	<44,000 [UJ]	<44,000 [UJ]	<22,000 [UJ]	<31,000 [UJ]	<26,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<21,000 [UJ]	<21,000 [UJ]	<23,000 [UJ]	<24,000 [UJ]	<23,000 [UJ]	<44,000 [UJ]	<44,000 [UJ]	<22,000 [UJ]	<31,000 [UJ]	<26,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***130***	***710 [J-]***	<280 [UB]	***460***	<150 [UB]	***1,100***	***1,300***	<140 [UB]	***1,300 [J-]***	***390***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	84	77	<46	<48	<48	470	550	110	700	160
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,100	<1,100	24,000	<1,200	<1,300	450,000	380,000	220,000	<1,900 [UB]	250,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	110	170	370	2,200	230	220,000	240,000	240	140,000	320
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	110	170	24,000	2,200	230	***670,000***	***620,000***	***220,000***	140,000	***250,000***
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	***920***	ND	ND	***17,000***	***15,000***	***8,400***	ND	***9,600***
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	13,000	20,000	110,000	20,000	5,700	140,000	120,000	79,000	130,000 [J]	390,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***230,000***	***130,000***	***270,000***	***210,000***	***170,000***	***190,000***	***180,000***	***150,000***	***200,000***	***270,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<11,000	35,000	38,000	340,000	<13,000	460,000	320,000	7,400	110,000	790,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<220,000 [UJ]	<230,000 [UJ]	<120,000 [UJ]	<160,000 [UJ]	210,000 [J-]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-77	TA-SB-77	TA-SB-78	TA-SB-78	TA-SB-79	TA-SB-79	TA-SB-80	TA-SB-80	TA-SB-81	TA-SB-81
Sample Name									TA-SB-77 (2-3)	TA-SB-77 (5-6)	TA-SB-78 (5-6)	TA-SB-78 (6-7)	TA-SB-79 (2-3)	TA-SB-79 (4-5)	TA-SB-80 (2-3)	TA-SB-80 (3-4)	TA-SB-81 (4-5)	TA-SB-81 (5-6)
Depth Interval (Feet below ground surface)									2 - 3	5 - 6	5 - 6	6 - 7	2 - 3	4 - 5	2 - 3	3 - 4	4 - 5	5 - 6
Laboratory Sample ID(s)									TG17025-020 & 18071065-11A	TG17025-019 & 18071065-10A	TG17025-005 & 1807973-05A	TG17025-006 & 1807973-06A	TG17025-003 & 1807973-03A	TG17025-004 & 1807973-04A	TG17025-001 & 1807973-01A	TG17025-002 & 1807973-02A	TG17025-010 & 18071065-01A	TG17025-007 & 1807973-07A
Sample Date									7/17/2018	7/17/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/17/2018	7/16/2018
Parameter (µg/kg)																		
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<40,000 [UJ]	<25,000 [UJ]	<29,000	<26,000	<24,000	<28,000	<33,000	<28,000	<40,000 [UJ]	<43,000
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<40,000 [UJ]	<25,000 [UJ]	<29,000	<26,000	<24,000	<28,000	<33,000	<28,000	<40,000 [UJ]	<43,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<280 [UB]	<170 [UB]	<150 [UB]	<160 [UB]	***240***	<180 [UB]	<200 [UB]	<170 [UB]	<240 [UB]	<260 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	320	160	340	200	130	390	270	250	320 [J-]	630
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	180,000	130,000	70,000	51,000	42,000	190,000	69,000	51,000	75,000	180,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,100	41	510	420	2,300	270	260	240	120	340
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	180,000	130,000	71,000	51,000	44,000	190,000	69,000	51,000	75,000	180,000
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	***6,900***	***5,000***	***2,700***	***1,900***	***1,600***	***7,300***	***2,600***	***1,900***	***2,900***	***6,900***
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	130,000	81,000	92,000	95,000	320,000	***1,000,000***	37,000	240,000	260,000	***540,000***
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***180,000 [J-]***	***180,000***	***290,000***	***190,000***	***360,000***	***390,000***	***330,000***	***150,000***	***370,000***	***480,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	830,000	330,000	56,000	18,000	470,000	160,000	4,100,000	280,000	1,900,000	1,400,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<200,000 [UJ]	<130,000 [UJ]	<150,000 [UJ]	<130,000 [UJ]	<120,000 [UJ]	<160,000 [UJ]	<170,000 [UJ]	<150,000 [UJ]	<200,000 [UJ]	<220,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-82	TA-SB-82	TA-SB-83	TA-SB-83	TA-SB-AOC-B-01	TA-SB-AOC-B-01	TA-SB-AOC-B-02	TA-SB-AOC-B-02
Sample Name									TA-SB-82 (0-1)	TA-SB-82 (6-7)	TA-SB-83 (1-2)	TA-SB-83 (4-5)	TA-SB-AOC-B-01 (2-3)	TA-SB-AOC-B-01 (7-8)	TA-SB-AOC-B-02 (2-3)	TA-SB-AOC-B-02 (4-5)
Depth Interval (Feet below ground surface)									0 - 1	6 - 7	1 - 2	4 - 5	2 - 3	7 - 8	2 - 3	4 - 5
Laboratory Sample ID(s)									TG19003-024 & 18071275-08A	TG19003-025 & 18071275-09A	TG17025-021 & 18071065-12A	TG17025-022 & 18071065-13A	TH02019-006 & 1808208-06A	TH02019-007 & 1808208-07A	TH02019-008 & 1808208-08A	TH02019-009 & 1808208-09A
Sample Date									7/19/2018	7/19/2018	7/17/2018	7/17/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)																
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<21,000 [UJ]	<35,000 [UJ]	<21,000 [UJ]	<23,000 [UJ]	<21,000 [UJ]	<21,000 [UJ]	<21,000 [UJ]	<23,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<21,000 [UJ]	<35,000 [UJ]	<21,000 [UJ]	<23,000 [UJ]	<21,000 [UJ]	<21,000 [UJ]	<21,000 [UJ]	<23,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***400***	<210 [UB]	***310***	<280 [UB]	***140***	<140 [UB]	***160***	<280 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	130	240	230	<47	<44	<48	68 [J-]	<46
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1,100 [UB]	200,000	510	560	480	<1,200	1,400	<1,200
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,900	430	2,700	120	490	200	550	150
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	1,900	200,000	3,200	680	970	200	2,000	150
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	ND	***7,600***	19	21	18	ND	53	ND
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	70,000	***580,000***	2,900	3,300	13,000	2,200	47,000	<12,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***150,000***	***280,000***	***220,000***	***250,000***	***280,000***	***140,000***	***180,000***	***120,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	20,000	220,000	<11,000	<12,000	86,000	<12,000	1,300,000	890,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<180,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-C-01	TA-SB-AOC-C-01	TA-SB-AOC-C-01	TA-SB-AOC-C-02	TA-SB-AOC-C-02	TA-SB-AOC-D-01	TA-SB-AOC-D-01
Sample Name									TA-SB-C-01 (2-3)	TA-SB-C-01 (2-3) DUP	TA-SB-C-01 (11-12)	TA-SB-AOC-C-02(2-3)	TA-SB-AOC-C-02(9-10)	TA-SB-AOC-D-01 (2-3)	TA-SB-AOC-D-01 (8-9)
Depth Interval (Feet below ground surface)									2 - 3	2 - 3	11 - 12	2 - 3	9 - 10	2 - 3	8 - 9
Laboratory Sample ID(s)									TH02019-021 & 1808208-20A	TH02019-023 & 1808208-22A	TH02019-022 & 1808208-21A	TH03007-003 & 1808242-03A	TH03007-004 & 1808242-04A	TH02019-002 & 1808208-02A	TH02019-003 & 1808208-03A
Sample Date									8/1/2018	8/1/2018	8/1/2018	8/2/2018	8/2/2018	8/1/2018	8/1/2018
Parameter (µg/kg)															
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<22,000 [UJ]	<22,000 [UJ]	<20,000 [UJ]	<23,000 [UJ]	<21,000 [UJ]	<20,000 [UJ]	<20,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<22,000 [UJ]	<22,000 [UJ]	<20,000 [UJ]	<23,000 [UJ]	<21,000 [UJ]	<20,000 [UJ]	<20,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***280***	***260***	<270 [UB]	***160***	<260 [UB]	<140 [UB]	<130 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	130 [J-]	150 [J-]	<43 [UJ]	150 [J-]	<43 [UJ]	63 [J-]	<44 [UJ]
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	79,000	120,000	770	13,000	750	<1,100	520
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	150	250	63	420	880	180	550
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	79,000	120,000	830	13,000	1,600	180	1,100
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	***3,000***	***4,600***	29	500	29	ND	20
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	<11,000 [UB]	<11,000 [UB]	<11,000 [UB]	9,500	6,300	2,900	3,200
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***170,000***	***210,000***	***170,000***	***240,000***	***180,000***	***250,000***	***170,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	17,000	39,000	<11,000	320,000	<11,000	<11,000	<11,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]	<110,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-D-02	TA-SB-AOC-D-02	TA-SB-AOC-E-01	TA-SB-AOC-E-01	TA-SB-AOC-E-02	TA-SB-AOC-E-02	TA-SB-AOC-G-01
Sample Name									TA-SB-AOC-D-02 (2-3)	TA-SB-AOC-D-02 (6-7)	TA-SB-AOC-E-01 (3-4)	TA-SB-AOC-E-01 (10-11)	TA-SB-AOC-E-02 (5-6)	TA-SB-AOC-E-02 (10-11)	TA-SB-AOC-G-01 (1-2)
Depth Interval (Feet below ground surface)									2 - 3	6 - 7	3 - 4	10 - 11	5 - 6	10 - 11	1 - 2
Laboratory Sample ID(s)									TH02019-004 & 1808208-04A	TH02019-005 & 1808208-05A	TH02019-013 & 1808208-12A	TH02019-014 & 1808208-13A	TH02019-017 & 1808208-16A	TH02019-018 & 1808208-17A	TG24017-003 & 18071457-03A
Sample Date									8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	7/23/2018
Parameter (µg/kg)															
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<22,000 [UJ]	<23,000 [UJ]	<25,000 [UJ]	<26,000 [UJ]	<22,000 [UJ]	<27,000 [UJ]	<25,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<22,000 [UJ]	<23,000 [UJ]	<25,000 [UJ]	<26,000 [UJ]	<22,000 [UJ]	<27,000 [UJ]	<25,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***200***	<140 [UB]	***450***	<180 [UB]	<140 [UB]	<160 [UB]	***720***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	64	<48	91 [J-]	180 [J-]	<47 [UJ]	160 [J-]	150
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	3,400	630	920	85,000	<1,200	23,000	<1,200
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	480	1,300	1,100	690	130 [J-]	770	930
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	3,900	1,900	2,000	86,000	130	24,000	930
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	130	24	35	***3,200***	ND	***880***	ND
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	3,800	3,800	19,000	320,000	<12,000 [UB]	92,000	62,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***250,000***	***190,000***	***410,000***	***220,000***	***59,000***	***240,000***	***330,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<12,000	<12,000	57,000	210,000	50,000	140,000	120,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<110,000 [UJ]	<120,000 [UJ]	<130,000 [UJ]	<140,000 [UJ]	<120,000 [UJ]	<140,000 [UJ]	<130,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-G-01	TA-SB-AOC-G-02	TA-SB-AOC-G-02	TA-SB-AOC-H-01	TA-SB-AOC-H-01	TA-SB-AOC-H-02	TA-SB-AOC-H-02
Sample Name									TA-SB-AOC-G-01 (5-6)	TA-SB-AOC-G-02 (1-2)	TA-SB-AOC-G-02 (6-7)	TA-SB-AOC-H-01 (2-3)	TA-SB-AOC-H-01 (4-5)	TA-SB-AOC-H-02 (2-3)	TA-SB-AOC-H-02 (6-7)
Depth Interval (Feet below ground surface)									5 - 6	1 - 2	6 - 7	2 - 3	4 - 5	2 - 3	6 - 7
Laboratory Sample ID(s)									TG24017-004 & 18071457-04A	TG24017-005 & 18071457-06A	TG24017-006 & 18071457-07A	TG11005-007 & 1807548-07A	TG11005-008 & 1807548-08A	TG11005-005 & 1807548-05A	TG11005-006 & 1807548-06A
Sample Date									7/23/2018	7/23/2018	7/23/2018	7/10/2018	7/10/2018	7/10/2018	7/10/2018
Parameter (µg/kg)															
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<24,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]	<25,000 [UJ]	<23,000 [UJ]	<22,000 [UJ]	<24,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<24,000	<24,000	<24,000	<25,000 [UJ]	<23,000 [UJ]	<22,000 [UJ]	<24,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<150 [UB]	***370***	<150 [UB]	***260***	<140 [UB]	<280 [UB]	<150 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	95	84	150	110	120	54	<49
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	5,200	<1,200	6,700	<1,300	2,000	5,800	1,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	270	13,000	260	11,000	280	670	370
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	5,500	13,000	7,000	11,000	2,300	6,500	1,400
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	200	ND	260	ND	76	220	38
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	2,600	***970,000***	24,000	43,000	31,000	***650,000***	110,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***190,000***	***190,000***	***190,000***	***230,000***	***230,000***	***240,000***	***360,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	<12,000	230,000	7,600	260,000	60,000	350,000	<13,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<120,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<130,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-AOC-H-03	TA-SB-AOC-H-03	TA-SB-AOC-J-01	TA-SB-AOC-J-01	TA-SB-AOC-J-02	TA-SB-AOC-J-02	TA-SB-GW-01
Sample Name									TA-SB-AOC-H-03 (2-2.5)	TA-SB-AOC-H-03 (5-6)	TA-SB-AOC-J-01 (2-3)	TA-SB-AOC-J-01 (5-6)	TA-SB-AOC-J-02 (9-10)	TA-SB-AOC-J-02 (13-14)	TA-SB-MW-01 (2-3)
Depth Interval (Feet below ground surface)									2 - 2.5	5 - 6	2 - 3	5 - 6	9 - 10	13 - 14	2 - 3
Laboratory Sample ID(s)									TG11005-001 & 1807548-01A	TG11005-002 & 1807548-02A	TH02019-010 & 1808208-10A	TH02019-011 & 1808208-11A	TH02019-015 & 1808208-14A	TH02019-016 & 1808208-15A	TF29012-001 & 18061974-01A
Sample Date									7/10/2018	7/10/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	6/28/2018
Parameter (µg/kg)															
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<31,000 [UJ]	<22,000 [UJ]	<21,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]	<21,000 [UJ]	<22,000
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<31,000 [UJ]	<22,000 [UJ]	<21,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]	<21,000 [UJ]	<22,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***530***	<150 [UB]	<140 [UB]	<280 [UB]	***500***	<260 [UB]	<270 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	330	<47	<45	<47	95 [J-]	43 [J-]	<45 [UJ]
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	360,000	8,700	<1,100	<1,200	12,000	1,800	3,900
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	550	260	110	57	440	200	350
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	***360,000***	9,000	110	57	12,000	2,000	4,300
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	***14,000***	330	ND	ND	460	69	150
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	***2,100,000***	25,000	2,400	<12,000	12,000	<11,000 [UB]	60,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***150,000***	***210,000***	***570,000***	***160,000***	***500,000***	***100,000***	***200,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	580,000	<12,000	<11,000	<12,000	190,000	10,000	780,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<150,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<110,000 [UJ]	26,000

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-GW-01	TA-SB-GW-02	TA-SB-GW-02	TA-SB-GW-04	TA-SB-GW-04	TA-SB-GW-04	TA-SB-GW-05	TA-SB-GW-05
Sample Name									TA-SB-MW-01 (6-7)	TA-SB-MW-02 (1-2)	TA-SB-MW-02 (4-5)	TA-SB-MW-04 (1-2)	TA-SB-MW-04DUP (1-2)	TA-SB-MW-04 (5-6)	TA-SB-MW-05 (1-2)	TA-SB-MW-05 (4-5)
Depth Interval (Feet below ground surface)									6 - 7	1 - 2	4 - 5	1 - 2	1 - 2	5 - 6	1 - 2	4 - 5
Laboratory Sample ID(s)									TF29012-002 & 18061974-02A	TF29012-012 & 1807111-08A	TF29012-013 & 1807111-09A	TF29012-009 & 1807111-05A	TF29012-010 & 1807111-06A	TF29012-011 & 1807111-07A	TF29012-015 & 1807094-01A	TF29012-016 & 1807094-02A
Sample Date									6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	7/2/2018	7/2/2018
Parameter (µg/kg)																
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<26,000	<22,000	<22,000	<20,000	<21,000	<23,000	<25,000	<27,000
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<26,000	<22,000	<22,000	<20,000	<21,000	<23,000	<25,000	<27,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<160 [UB]	***200***	<290 [UB]	***150***	***220***	<140 [UB]	***390***	***370***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	150 [J-]	<48 [UJ]	49 [J-]	48 [J-]	51 [J-]	120 [J-]	<53 [UJ]	69 [J-]
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	34,000	<1,100	<1,200	<1,100	<1,200	<1,200	<1,300	<1,500
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1,300	360 [J-]	1,400	34	140	290	710	130
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	35,000	360	1,400	34	140	290	710	130
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	***1,300***	ND	ND	ND	ND	ND	ND	ND
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	380,000	4,700	6,800	<11,000	2,500	3,400	9,600	12,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***180,000***	***110,000 [J+]***	***320,000***	***220,000***	***260,000***	***190,000***	***230,000***	***39,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	80,000	<11,000	<12,000	<11,000	<12,000	<12,000	41,000	<15,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	49,000	<120,000 [UJ]	<110,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<120,000 [UJ]	<130,000 [UR]	<150,000 [UR]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-GW-06	TA-SB-GW-06	TA-SB-GW-07	TA-SB-GW-07	TA-SB-GW-08	TA-SB-GW-08	TA-SB-MA-01	TA-SB-MA-01
Sample Name									TA-SB-MW-06 (2-3)	TA-SB-MW-06 (4-5)	TA-SB-MW-07 (4-5)	TA-SB-MW-07 (6-7)	TA-SB-MW-08 (2-3)	TA-SB-MW-08 (5-6)	TA-SB-MA-01 (7-8)	TA-SB-MA-01 (11-12)
Depth Interval (Feet below ground surface)									2 - 3	4 - 5	4 - 5	6 - 7	2 - 3	5 - 6	7 - 8	11 - 12
Laboratory Sample ID(s)									TF29012-005 & 1807111-01A	TF29012-006 & 1807111-02A	TF29012-003 & 18061974-03A	TF29012-004 & 18061974-04A	TF29012-007 & 1807111-03A	TF29012-008 & 1807111-04A	TH02019-019 & 1808208-18A	TH02019-020 & 1808208-19A
Sample Date									6/29/2018	6/29/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	8/1/2018	8/1/2018
Parameter (µg/kg)																
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<22,000	<24,000	<24,000	<23,000	<20,000	<27,000	<27,000 [UJ]	<22,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<22,000	<24,000	<24,000	<23,000	<20,000	<27,000	<27,000 [UJ]	<22,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***200***	***420***	<140 [UB]	<150 [UB]	<130 [UB]	<160 [UB]	<190 [UB]	<280 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<46 [UJ]	86 [J-]	150 [J-]	63 [J-]	<43 [UJ]	200 [J-]	160 [J-]	58 [J-]
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	3,900	24,000	1,900	2,400	<1,100	10,000	200,000	70,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	450	590	270	450	130 [J-]	240	490	470
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	4,400	25,000	2,200	2,900	130	10,000	200,000	70,000
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	150	***920***	73	92	ND	380	***7,600***	***2,700***
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	12,000	55,000	4,900	7,600	2,100	3,200	67,000	15,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***280,000***	***160,000***	***370,000***	***250,000***	***170,000***	***250,000***	***190,000***	***190,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	470,000	150,000	170,000	170,000	<11,000	<13,000	110,000	6,500
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<120,000 [UJ]	210,000 [J-]	<24,000	<24,000	<110,000 [UJ]	<140,000 [UJ]	150,000 [J-]	<120,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-MA-02	TA-SB-MA-02	TA-SB-MA-03	TA-SB-MA-03	TA-SB-MA-04	TA-SB-MA-04	TA-SED-T10-ISLAND
Sample Name									TA-SB-MA-02 (7-8)	TA-SB-MA-02 (11-12)	TA-SB-MA-03(7-8)	TA-SB-MA-03(13-14)	TA-SB-MW-04(8-9)	TA-SB-MW-04(10-11)	TA-SED-T10-ISLAND(0-1)
Depth Interval (Feet below ground surface)									7 - 8	11 - 12	7 - 8	13 - 14	8 - 9	10 - 11	0 - 1
Laboratory Sample ID(s)									TH02019-024 & 1808208-23A	TH02019-025 & 1808208-24A	TH03007-002 & 1808242-02A	TH03007-001 & 1808242-01A	TH09090-003 & 1808640-03A	TH09090-004 & 1808640-04A	TG24016-002 & 18071457-08A
Sample Date									8/1/2018	8/1/2018	8/2/2018	8/2/2018	8/8/2018	8/8/2018	7/23/2018
Parameter (µg/kg)															
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<32,000 [UJ]	<23,000 [UJ]	<22,000 [UJ]	<25,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]	<29,000
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<32,000 [UJ]	<23,000 [UJ]	<22,000 [UJ]	<25,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]	<29,000
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	***760***	<310 [UB]	<150 [UB]	<150 [UB]	<170 [UB]	<170 [UB]	<180 [UB]
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	250 [J-]	50 [J-]	240 [J-]	130 [J-]	120 [J-]	70 [J-]	350
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	150,000	15,000	190,000	160,000	81,000	12,000	3,300
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	400	140	1,200	890	810	1,800	320
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	150,000	15,000	190,000	160,000	82,000	14,000	3,600
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	***5,700***	570	***7,300***	***6,100***	***3,100***	460	130
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	120,000	330,000	190,000	250,000	140,000	390,000	30,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***990,000***	***220,000***	***200,000***	***150,000***	***250,000***	***290,000***	***160,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	79,000	680,000	31,000	110,000	130,000	280,000	87,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	220,000 [J-]	<120,000 [UJ]	<130,000	150,000 [J-]	<140,000 [UJ]	180,000 [J-]	<140,000 [UJ]

TABLE 5D
SUMMARY OF SOIL SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SED-T10-ISLAND	TA-SED-T4-ISLAND	TA-SED-T7-ISLAND	TA-SED-T9-ISLAND
Sample Name									TA-SED-T10-ISLAND(2-3)	TA-SED-T4-ISLAND(0-0.5)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T9-ISLAND(0-0.5)
Depth Interval (Feet below ground surface)									2 - 3	0 - 0.5	0 - 0.5	0 - 0.5
Laboratory Sample ID(s)									TG24016-003 & 18071457-09A	TG14035-001 & 1807816-01A	TG11006-001 & 1807548-11A	TG14035-007 & 1807816-07A
Sample Date									7/23/2018	7/11/2018	7/9/2018	7/13/2018
Parameter (µg/kg)												
Acetic Acid	84,000	180,000 (G)	NLV	NLV	17,000,000,000	130,000,000	NCL	NCL	<34,000	<93,000 [UJ]	<27,000 [UJ]	<67,000 [UJ]
Formic Acid	200,000	ID	1,500,000	210,000	130,000,000	320,000,000 (C)	NCL	87,000	<34,000	<93,000 [UJ]	<27,000 [UJ]	<67,000 [UJ]
Cyanide - Total	4,000	100	NLV	NLV	250,000	12,000	NCL	69,000	<220 [UB]	<600 [UB]	<180 [UB]	***600***
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	240	630 [J]	180	840
Ammonia - N (gas diffusion)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	68,000	3,000 [J]	17,000	3,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	610	270 [J]	730	390
Nitrate-Nitrite - N + Ammonia - N (Calculated)	200,000 (N)	NCL	NCL	NCL	NCL	NCL	NCL	380,000,000	69,000	3,300	18,000	3,400
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	580 (CC)	NCL	NCL	NCL	NCL	NCL	NCL	***2,600***	110	***650***	110
Chloride (soluble)	5,000,000	1,000,000 (X)	NLV	NLV	ID	500,000 (F)	NCL	NCL	17,000	160,000 [J]	32,000	18,000
Phosphorus (total)	1,300,000	20,000 (EE)	NLV	NLV	67,000,000	1,000,000,000 (D)	NCL	NCL	***230,000***	***600,000 [J]***	***200,000***	***860,000***
Sulfate (soluble)	5,000,000	NA	NLV	NLV	ID	ID	NCL	NCL	260,000	1,200,000 [J]	1,000,000	1,600,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<170,000 [UJ]	<480,000 [UJ]	<140,000 [UJ]	<330,000 [UJ]

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	U.S. EPA Residential Soil Regional Removal Management Levels	TA-SB-01	TA-SB-01	TA-SB-02	TA-SB-02	TA-SB-03	TA-SB-03	TA-SB-04	TA-SB-04	TA-SB-05	TA-SB-05	TA-SB-06
Sample Name									TA-SB-01(2-3)	TA-SB-01(7-8)	TA-SB-02(2-3)	TA-SB-02(7-8)	TA-SB-03(6-7)	TA-SB-03(12-13)	TA-SB-04(7-8)	TA-SB-04(12-13)	TA-SB-05 (2-3)	TA-SB-05 (7-8)	TA-SB-06(2-3)
Depth Interval (Feet below ground surface)									2 - 3	7 - 8	2 - 3	7 - 8	6 - 7	12 - 13	7 - 8	12 - 13	2 - 3	7 - 8	2 - 3
Laboratory Sample ID(s)									TH03007-005	TH03007-006	TH03007-009	TH03007-010	TH03007-015	TH03007-016	TH03007-017	TH03007-018	TH08019-006	TH08019-007	TH03007-020
Sample Date									8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/3/2018	8/3/2018	8/2/2018
Parameter (µg/kg)																			
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<12	<11	<13	<14	<14	<11	<9.9	<16	<18	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<12	<11	<13	<14	<14	<11	<9.9	<16	<18	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.2	<2.3	<2.2	<2.6	40	<2.9	<2.1	<2	<3.1	<3.6	21
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.2	<2.3	<2.2	<2.6	<2.8	3.1	<2.1	<2	<3.1	<3.6	<2.2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	3,800,000	<5.6	<5.9	<5.5	<6.5	<7	27	<5.3	<5	<7.8	<8.9	<5.4
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	14	20	14	<7.2	<5.3	<5	<7.8	<8.9	5.8
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	17	<5.4
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	9.9	9.8	<5.3	<5	<7.8	<8.9	<5.4
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	8.3	6.8	42	17	<5.3	<5	<7.8	29	7.4
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	NCL	***280***	***11***	***620 [J]***	***620***	***49 [J]***	***60***	<5.3	<5	***13***	***160 [J]***	***23 [J]***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<5.9	<5.5	<6.5	<7	<7.2	<5.3	<5	<7.8	<8.9	<5.4
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	280	11	640	650	150	120	ND	ND	13	210	57

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-06	TA-SB-07	TA-SB-07	TA-SB-08	TA-SB-08	TA-SB-08	TA-SB-09	TA-SB-09	TA-SB-10	TA-SB-10	TA-SB-11	TA-SB-11
Sample Name								TA-SB-06(7-8)	TA-SB-07 (3-4)	TA-SB-07 (9-10)	TA-SB-08(3-4)	TA-SB-08(7-8)	TA-SB-08(7-8)DUP	TA-SB-09(2-3)	TA-SB-09(6-7)	TA-SB-10 (1-2)	TA-SB-10 (4-5)	TA-SB-11 (1-2)	TA-SB-11 (6-7)
Depth Interval (Feet below ground surface)								7 - 8	3 - 4	9 - 10	3 - 4	7 - 8	7 - 8	2 - 3	6 - 7	1 - 2	4 - 5	1 - 2	6 - 7
Laboratory Sample ID(s)								TH03007-019	TH08019-004	TH08019-005	TH03007-011	TH03007-012	TH03007-013	TH03007-007	TH03007-008	TH01025-023	TH01025-024	TH01025-011	TH01025-012
Sample Date								8/2/2018	8/7/2018	8/7/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	8/2/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018
Parameter (µg/kg)																			
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<11	<14	<12	<14	<18	<11	<12	<11	<10	<11	<9.9
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<11	<14	<12	<14	<18	<11	<12	<11	<10	<11	<9.9
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.1	<2.2	100	<2.3	<2.8	<3.5	<2.3	<2.3	<2.2	<2	<2.2	<2
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.1	<2.2	<2.9	<2.3	<2.8	<3.5	<2.3	<2.3	<2.2	<2	<2.2	<2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	15	<5.1	<5.5	<4.9
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	***80***	<5.8	***140***	***170***	<5.7	<5.8	***170***	***12***	***14 [J]***	<4.9
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.4	<7.2	<5.8	<6.9	<8.9	<5.7	<5.8	<5.5	<5.1	<5.5	<4.9
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	180	ND	140	170	ND	ND	190	12	14	ND

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-12	TA-SB-12	TA-SB-12	TA-SB-13	TA-SB-13	TA-SB-14	TA-SB-14	TA-SB-15	TA-SB-15	TA-SB-16	TA-SB-16	TA-SB-17
Sample Name								TA-SB-12 (0-1)	TA-SB-12 (1-2)	TA-SB-12 (4-5)	TA-SB-13 (1-2)	TA-SB-13 (6-7)	TA-SB-14 (5-6)	TA-SB-14 (7-8)	TA-SB-15 (2-3)	TA-SB-15 (7-8)	TA-SB-16 (2-3)	TA-SB-16 (6-7)	TA-SB-17 (1-2)
Depth Interval (Feet below ground surface)								0 - 1	1 - 2	4 - 5	1 - 2	6 - 7	5 - 6	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	1 - 2
Laboratory Sample ID(s)								TH01025-016	TH01025-006	TH01025-007	TH01025-013	TH01025-014	TH01025-004	TH01025-005	TH01025-017	TH01025-018	TG27014-006	TG27014-005	TG27014-016
Sample Date								7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/26/2018	7/26/2018	7/26/2018
Parameter (µg/kg)																			
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<12	<12	<9.7	<11	<11	<12	<11	<9.8	<10	<11	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<12	<12	<9.7	<11	<11	<12	<11	<9.8	<10	<11	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.2	<2.4	<2.3	<1.9	<2.1	<2.1	<2.4	<2.3	<2	<2.1	<2.1	<2.2
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.2	<2.4	<2.3	<1.9	<2.1	<2.1	<2.4	<2.3	<2	<2.1	<2.1	<2.2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***91***	***28***	***21***	***17***	<5.3	***11***	<6.1	***62***	<4.9	***9.1***	***8.7***	***18***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<6.1	<5.8	<4.9	<5.3	<5.3	<6.1	<5.7	<4.9	<5.2	<5.3	<5.5
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	91	28	21	17	ND	11	ND	62	ND	9.1	8.7	18

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-17	TA-SB-18	TA-SB-18	TA-SB-19	TA-SB-19	TA-SB-20	TA-SB-20	TA-SB-21	TA-SB-21	TA-SB-22	TA-SB-22
Sample Name								TA-SB-17 (7-8)	TA-SB-18 (2-3)	TA-SB-18 (6-7)	TA-SB-19 (3-4)	TA-SB-19 (7-8)	TA-SB-20(5-6)	TA-SB-20 (7-8)	TA-SB-21 (6-7)	TA-SB-21 (9-10)	TA-SB-22 (2-3)	TA-SB-22 (8-9)
Depth Interval (Feet below ground surface)								7 - 8	2 - 3	6 - 7	3 - 4	7 - 8	5 - 6	7 - 8	6 - 7	9 - 10	2 - 3	8 - 9
Laboratory Sample ID(s)								TG27014-017	TG27014-009	TG27014-010	TG27014-007	TG27014-008	TG28004-018	TG27014-018	TH01025-025	TH01025-026	TH01025-021	TH01025-022
Sample Date								7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/26/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<9.7	<9.9	<11	<10	<11	<18	<11	<10	<12	<8.8	<12
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<9.7	<9.9	<11	<10	<11	<18	<11	<10	<12	<8.8	<12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1.9	<2	<2.3	<2.1	<2.3	<3.6	<2.2	<2	<2.3	<1.8	<2.5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1.9	<2	<2.3	<2.1	<2.3	<3.6	<2.2	<2	<2.3	<1.8	<2.5
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	11	<5.5	<5	<5.8	<4.4	<6.2
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***34***	***62***	<5.7	***56***	<5.7	***140***	***14***	<5	<5.8	<4.4	***25***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<4.9	<5.7	<5.2	<5.7	<8.9	<5.5	<5	<5.8	<4.4	<6.2
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	34	62	ND	56	ND	150	14	ND	ND	ND	25

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-23	TA-SB-23	TA-SB-24	TA-SB-24	TA-SB-25	TA-SB-25	TA-SB-26	TA-SB-26	TA-SB-27	TA-SB-27	TA-SB-27
Sample Name								TA-SB-23(6-7)	TA-SB-23(9-10)	TA-SB-24(0-1)	TA-SB-24(5-6)	TA-SB-25(1-2)	TA-SB-25(7-8)	TA-SB-26 (5-6)	TA-SB-26 (8-9)	TA-SB-27 (1-2)	TA-SB-27 (1-2) DUP	TA-SB-27 (8-9)
Depth Interval (Feet below ground surface)								6 - 7	9 - 10	0 - 1	5 - 6	1 - 2	7 - 8	5 - 6	8 - 9	1 - 2	1 - 2	8 - 9
Laboratory Sample ID(s)								TH09090-001	TH09090-002	TG28004-027	TG28004-028	TG28004-029	TG28004-001	TH01025-002	TH01025-003	TG31022-021	TG31022-023	TH08019-001
Sample Date								8/8/2018	8/8/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/31/2018	7/31/2018	7/30/2018	7/30/2018	8/7/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<15	<14	<12	<13	<14	<27	<11	<11	<10	<10	<10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<15	<14	<12	<13	<14	<27	<11	<11	<10	<10	<10
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	3.7 [J]	<2.8	2.5 [J]	<2.5	<2.8	<5.4	<2.1	<2.1	16	23	24
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<3	<2.8	<2.3	<2.5	<2.8	<5.4	<2.1	<2.1	6.8	8.6	<2.1
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	7.7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	34	<7	11	45	<7	40	<5.3	<5.4	5.9	8.6	<5.2
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	14	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	15	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	13	20	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	5.2	<5.2
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	92	<7	<5.8	17	<7	55	<5.3	12	8.4	13	<5.2
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***130 [J]***	***12 [J]***	***55***	***82***	<7	***470***	***7.6 [J]***	***80***	***28 [J]***	***54 [J]***	***39***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.5	<7	<5.8	<6.3	<7	<13	<5.3	<5.4	<5	<5	<5.2
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	300	40	69	140	ND	570	7.6	92	65	110	63

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-28	TA-SB-28	TA-SB-29	TA-SB-29	TA-SB-30	TA-SB-30	TA-SB-31	TA-SB-31	TA-SB-32	TA-SB-32	TA-SB-33
Sample Name								TA-SB-28(2-3)	TA-SB-28(6-7)	TA-SB-29 (2-3)	TA-SB-29 (9-10)	TA-SB-30 (2-3)	TA-SB-30 (13-14)	TA-SB-31(2-3)	TA-SB-31(7-8)	TA-SB-32(2-3)	TA-SB-32(9-10)	TA-SB-33(1-2)
Depth Interval (Feet below ground surface)								2 - 3	6 - 7	2 - 3	9 - 10	2 - 3	13 - 14	2 - 3	7 - 8	2 - 3	9 - 10	1 - 2
Laboratory Sample ID(s)								TG28004-004	TG28004-005	TG31022-018	TG31022-019	TH01025-001	TG31022-020	TG28004-002	TG28004-003	TG28004-006	TG28004-008	TG28004-023
Sample Date								7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018	7/27/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<9.8	<10	<10	<8.9	<11	<11	<12	<23	<10	<10	<13
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<9.8	<10	<10	<8.9	<11	<11	<12	<23	<10	<10	<13
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2	2.5	21 [J]	<1.8	4.9	<2.1	<2.4	<4.6	<2.1	<2	<2.5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2	<2	33 [J]	<1.8	6.2	<2.1	<2.4	<4.6	<2.1	<2	<2.5
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	9.7	<4.5	37	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	6.2	<5.3	<5.9	<12	<5.2	<5.1	6.8
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	5.8	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	240	8	780	<5.3	<5.9	<12	<5.2	<5.1	17
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	5.8	<5.3	<5.9	25	<5.2	<5.1	6.5
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	19	<5.3	<5.9	29	<5.2	<5.1	21
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	<4.9	***43***	***130***	***8.5***	***570***	***31***	***21***	***24 [J]***	<5.2	<5.1	***850***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.9	<5	<5.2	<4.5	<5.5	<5.3	<5.9	<12	<5.2	<5.1	<6.3
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	46	430	17	1400	31	21	78	ND	ND	900

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-33	TA-SB-34	TA-SB-34	TA-SB-35	TA-SB-35	TA-SB-36	TA-SB-36	TA-SB-37	TA-SB-37	TA-SB-38
Sample Name								TA-SB-33(7-8)	TA-SB-34(3-4)	TA-SB-34(6-7)	TA-SB-35 (2-3)	TA-SB-35 (6-7)	TA-SB-36 (2-3)	TA-SB-36 (5-6)	TA-SB-37(1-2)	TA-SB-37(6-7)	TA-SB-38 (0.5-1.5)
Depth Interval (Feet below ground surface)								7 - 8	3 - 4	6 - 7	2 - 3	6 - 7	2 - 3	5 - 6	1 - 2	6 - 7	0.5 - 1.5
Laboratory Sample ID(s)								TG28004-024	TG28004-020	TG28004-019	TG27014-001	TG27014-002	TG27014-003	TG27014-004	TG28004-016	TG28004-017	TG27014-011
Sample Date								7/27/2018	7/27/2018	7/27/2018	7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/27/2018	7/26/2018
Parameter (µg/kg)																	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<17	<20	<14	<12	<13	<14	<16	<12	<16	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<17	<20	<14	<12	<13	<14	<16	<12	<16	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<3.5	<4	<2.8	<2.3	<2.7	<2.8	<3.2	<2.4	<3.2	8.4 [J]
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<3.5	<4	<2.8	<2.3	<2.7	<2.8	<3.2	<2.4	<3.2	2.1
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	6.9
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	8	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	9.7	<8	<6	19	120 [J]
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	13	<5.9	<6.7	<7.1	<8	<6	<8.1	6.1 [J]
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	18	<10	12	<5.9	12	<7.1	13	<6	<8.1	12 [J]
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***190***	<10	***480 [J]***	***9.5***	***75 [J]***	***660***	***660***	***28***	***81***	***540***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<10	<6.9	<5.9	<6.7	<7.1	<8	<6	<8.1	<5.3
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	210	ND	510	9.5	87	670	670	28	100	700

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-38	TA-SB-38	TA-SB-39	TA-SB-39	TA-SB-40	TA-SB-40	TA-SB-41	TA-SB-41	TA-SB-42	TA-SB-42	TA-SB-43
Sample Name								TA-SB-38 (0.5-1.5) DUP	TA-SB-38 (6-7)	TA-SB-39 (1-2)	TA-SB-39 (6-7)	TA-SB-40(2-3)	TA-SB-40(6-7)	TA-SB-41 (2-3)	TA-SB-41 (5-6)	TA-SB-42 (1-2)	TA-SB-42 (6-7)	TA-SB-43 (1-2)
Depth Interval (Feet below ground surface)								0.5 - 1.5	6 - 7	1 - 2	6 - 7	2 - 3	6 - 7	2 - 3	5 - 6	1 - 2	6 - 7	1 - 2
Laboratory Sample ID(s)								TG27014-012	TG27014-013	TG27014-015	TG27014-014	TG28004-011	TG28004-012	TG31022-003	TG31022-004	TG31022-007	TG31022-008	TG19003-022
Sample Date								7/26/2018	7/26/2018	7/26/2018	7/26/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/19/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<23	<9.1	<11	<11	<17	<12	<11	<8.8	<8.8	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<23	<9.1	<11	<11	<17	<12	<11	<8.8	<8.8	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	66 [J]	<4.6	2	<2.2	<2.2	<3.4	<2.3	<2.2	<1.8	<1.8	<2.2
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	3.8	<4.6	<1.8	<2.2	<2.2	<3.4	<2.3	<2.2	<1.8	<1.8	<2.2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	21	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	9.8	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	29	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	300 [J]	<12	11	<5.4	8.9	44	<5.9	<5.6	<4.4	<4.4	10
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	12 [J]	110	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	20 [J]	170	6.7	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***820***	***130 [J]***	***52***	***12***	***80***	***130***	***53***	***6.3***	<4.4	***99***	***70***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.4	<12	<4.5	<5.4	<5.6	<8.5	<5.9	<5.6	<4.4	<4.4	<5.5
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1200	460	72	12	89	170	53	6.3	ND	99	80

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-43	TA-SB-44	TA-SB-44	TA-SB-45	TA-SB-45	TA-SB-45	TA-SB-46	TA-SB-46	TA-SB-47	TA-SB-47	TA-SB-48
Sample Name								TA-SB-43 (7-8)	TA-SB-44 (1-2)	TA-SB-44 (7-8)	TA-SB-45 (2-3)	TA-SB-45 (6-7)	TA-SB-45 (6-7) DUP	TA-SB-46(8-9)	TA-SB-46(9-10)	TA-SB-47 (3-4)	TA-SB-47 (5-6)	TA-SB-48(1-2)
Depth Interval (Feet below ground surface)								7 - 8	1 - 2	7 - 8	2 - 3	6 - 7	6 - 7	8 - 9	9 - 10	3 - 4	5 - 6	1 - 2
Laboratory Sample ID(s)								TG19003-023	TG31022-011	TG31022-012	TH01025-010	TH01025-008	TH01025-009	TG28004-009	TG28004-010	TG31022-016	TG31022-017	TG28004-014
Sample Date								7/19/2018	7/30/2018	7/30/2018	7/31/2018	7/31/2018	7/31/2018	7/27/2018	7/27/2018	7/30/2018	7/30/2018	7/27/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<9.9	<8.6	<11	<10	<11	<11	<11	<11	<11	<9.2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<9.9	<8.6	<11	<10	<11	<11	<11	<11	<11	<9.2
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.7	<2	<1.7	<2.1	<2	<2.2	<2.1	<2.3	<2.2	<2.2	<1.8
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.7	<2	<1.7	<2.1	<2	<2.2	<2.1	<2.3	<2.2	<2.2	<1.8
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	27	<5.5	<4.6
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<6.7	7.8	<4.3	6.1	<5	<5.5	<5.3	<5.6	<5.4	6.5	<4.6
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***92***	***120 [J]***	***6.5***	***51 [J]***	***8***	***7.6***	<5.3	<5.6	***150***	***150***	***110***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<4.9	<4.3	<5.3	<5	<5.5	<5.3	<5.6	<5.4	<5.5	<4.6
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	92	130	6.5	57	8	7.6	ND	ND	180	160	110

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-48	TA-SB-49	TA-SB-49	TA-SB-50	TA-SB-50	TA-SB-51	TA-SB-51	TA-SB-52	TA-SB-52	TA-SB-53	TA-SB-53
Sample Name								TA-SB-48(10-11)	TA-SB-49 (3-4)	TA-SB-49 (7-8)	TA-SB-50 (2-3)	TA-SB-50 (7-8)	TA-SB-51 (2-3)	TA-SB-51 (6-7)	TA-SB-52 (1-2)	TA-SB-52 (6-7)	TA-SB-53 (0-1)	TA-SB-53 (5-6)
Depth Interval (Feet below ground surface)								10 - 11	3 - 4	7 - 8	2 - 3	7 - 8	2 - 3	6 - 7	1 - 2	6 - 7	0 - 1	5 - 6
Laboratory Sample ID(s)								TG28004-013	TG31022-009	TG31022-010	TH01025-019	TH01025-020	TG31022-001	TG31022-002	TG31022-013	TG31022-014	TG19003-017	TG19003-021
Sample Date								7/27/2018	7/30/2018	7/30/2018	7/31/2018	7/31/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/19/2018	7/19/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<9	<9.6	<11	<9.9	<9.3	<9.8	<9.1	<9.5	<9.5 [UJ]	<12 [UJ]
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<8.7	<9	<9.6	<11	<9.9	<9.3	<9.8	<9.1	<9.5	<9.5	<12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1.7	<1.8	<1.9	<2.2	<2	<1.9	<2	<1.8	<1.9	<1.9	<2.3
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1.7	<1.8	<1.9	<2.2	<2	<1.9	<2	<1.8	<1.9	<1.9	<2.3
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	37	<4.8	<4.7	<5.8
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	4.6	<4.8	<4.7	<5.8
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***20***	<4.5	<4.8	***20***	<5	<4.6	<4.9	***200***	***22***	***11***	***6.1***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.4	<4.5	<4.8	<5.6	<5	<4.6	<4.9	<4.6	<4.8	<4.7	<5.8
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	20	ND	ND	20	ND	ND	ND	240	22	11	6.1

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-53	TA-SB-54	TA-SB-54	TA-SB-55	TA-SB-55	TA-SB-56	TA-SB-56	TA-SB-57	TA-SB-57	TA-SB-58	TA-SB-58
Sample Name								TA-SB-53(7-8)	TA-SB-54 (0-1)	TA-SB-54 (3-4)	TA-SB-55 (1-2)	TA-SB-55 (5-6)	TA-SB-56 (1-2)	TA-SB-56 (6-7)	TA-SB-57 (2-3)	TA-SB-57 (6-7)	TA-SB-58 (7-8)	TA-SB-58 (12-13)
Depth Interval (Feet below ground surface)								7 - 8	0 - 1	3 - 4	1 - 2	5 - 6	1 - 2	6 - 7	2 - 3	6 - 7	7 - 8	12 - 13
Laboratory Sample ID(s)								TG19003-019	TG19003-002	TG19003-005	TG19003-006	TG19003-007	TG19003-001	TH02019-001	TG31022-005	TG31022-006	TH08019-002	TH08019-003
Sample Date								7/19/2018	7/18/2018	7/18/2018	7/18/2018	7/18/2018	7/18/2018	8/1/2018	7/30/2018	7/30/2018	8/7/2018	8/7/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<11	<8.9	<11	<10	<11	<11	<9.9	<9.8	<11	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<11	<8.9	<11	<10	<11	<11	<9.9	<9.8	<11	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.3	<2.2	<1.8	<2.1	<2.1	<2.2	<2.3	<2	<2	<2.2	<2.3
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.3	<2.2	<1.8	<2.1	<2.1	<2.2	<2.3	<2	<2	<2.2	<2.3
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	19	<4.4	<5.3	<5.1	<5.6	<5.7	6.7	<4.9	<5.5	<5.7
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<5.8	5.7	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***18***	***170***	<4.4	***17***	***54***	***25***	<5.7	***22***	***11***	<5.5	<5.7
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.5	<4.4	<5.3	<5.1	<5.6	<5.7	<4.9	<4.9	<5.5	<5.7
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	18	190	ND	17	54	25	ND	29	11	ND	ND

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-59	TA-SB-59	TA-SB-60	TA-SB-60	TA-SB-61	TA-SB-61	TA-SB-62	TA-SB-62	TA-SB-63	TA-SB-63	TA-SB-64
Sample Name								TA-SB-59(2-3)	TA-SB-59(11-12)	TA-SB-60 (7-8)	TA-SB-60 (8-9)	TA-SB-61 (5-6)	TA-SB-61 (7-8)	TA-SB-62 (3-4)	TA-SB-62 (5-6)	TA-SB-63 (1-2)	TA-SB-63 (7-8)	TA-SB-64 (0-1)
Depth Interval (Feet below ground surface)								2 - 3	11 - 12	7 - 8	8 - 9	5 - 6	7 - 8	3 - 4	5 - 6	1 - 2	7 - 8	0 - 1
Laboratory Sample ID(s)								TG28004-025	TG28004-026	TG19003-009	TG19003-010	TG17025-011	TG17025-012	TG17025-013	TG17025-014	TG17025-017	TG17025-018	TG19003-018
Sample Date								7/27/2018	7/27/2018	7/18/2018	7/18/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/19/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13 [UJ]	<23	<11	<17	<11	<11	<18 [UJ]	<56	<9.3	<15 [UJ]	<9.7
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<23	<11	<17	<11	<11	<18	<56	<9.3	<15	<9.7
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.6	<4.6	<2.2	<3.4	<2.3	<2.3	<3.7	<11	<1.9	<3	<1.9
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.6	<4.6	<2.2	<3.4	<2.3	<2.3	<3.7	<11	<1.9	<3	<1.9
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	16	<28	<4.6	<7.4	<4.8
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	14	<28	<4.6	10	<4.8
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	120	<11	<5.4	<8.4	6.1	<5.7	<9.2	<28	6.3	<7.4	8.5
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	46	<28	<4.6	<7.4	<4.8
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	13	<5.4	<8.4	<5.7	<5.7	120	<28	<4.6	18	<4.8
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	56	<28	<4.6	<7.4	<4.8
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	35	<28	<4.6	<7.4	<4.8
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<46	<28	<4.6	<7.4	<4.8
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<6.5	17	<5.4	<8.4	7.9	<5.7	130	<28	<4.6	78	<4.8
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***300***	***27 [J]***	***32 [J]***	***55***	***470***	***8.9***	***310***	<28	***100***	***340***	***100***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.5	<11	<5.4	<8.4	<5.7	<5.7	<9.2	<28	<4.6	<7.4	<4.8
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	420	57	32	55	480	8.9	730	ND	110	450	110

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-64	TA-SB-65	TA-SB-65	TA-SB-65	TA-SB-66	TA-SB-66	TA-SB-67	TA-SB-67	TA-SB-68	TA-SB-68
Sample Name								TA-SB-64 (4-5)	TA-SB-65 (1-2)	TA-SB-65 (1-2) DUP	TA-SB-65 (4-5)	TA-SB-66(0-1)	TA-SB-66(2-3)	TA-SB-67 (0-1)	TA-SB-67 (5-6)	TA-SB-68 (1-2)	TA-SB-68 (3-4)
Depth Interval (Feet below ground surface)								4 - 5	1 - 2	1 - 2	4 - 5	0 - 1	2 - 3	0 - 1	5 - 6	1 - 2	3 - 4
Laboratory Sample ID(s)								TG19003-020	TG19003-012	TG19003-013	TG19003-014	TG28004-021	TG28004-022	TG24017-001	TG24017-002	TG11005-003	TG11005-004
Sample Date								7/19/2018	7/18/2018	7/18/2018	7/18/2018	7/27/2018	7/27/2018	7/23/2018	7/23/2018	7/10/2018	7/10/2018
Parameter (µg/kg)																	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<26 [UJ]	<14 [UJ]	<18 [UJ]	<18 [UJ]	<9.3	<67	<11	<11	<14	<12
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<26 [UJ]	<14	<18	<18	<9.3	<67	<11	<11	<14	<12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3 [UJ]	<2.9	<3.5	<3.7	<1.9	<13	<2.2	<2.2	<2.8	<2.3
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<2.9	<3.5	<3.7	<1.9	<13	<2.2	<2.2	<2.8	<2.3
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	9.4	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	33	<7.2	<8.9	35	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	11	<34	<5.6	<5.6	<7.1	<5.8
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	31	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	32	<7.2	<8.9	120	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	57	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	28	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	16	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	160 [J]	17 [J]	27 [J]	***360***	<4.7	79	<5.6	<5.6	<7.1	<5.8
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***1,000***	***600***	***890***	***750***	***55***	***2,600***	***29***	***11***	***13***	***160***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<7.2	<8.9	<9.2	<4.7	<34	<5.6	<5.6	<7.1	<5.8
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	1200	620	920	1400	66	2700	29	11	13	160

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-69	TA-SB-69	TA-SB-70	TA-SB-70	TA-SB-71	TA-SB-71	TA-SB-72	TA-SB-72	TA-SB-72	TA-SB-73
Sample Name								TA-SB-69 (2-3)	TA-SB-69 (4-5)	TA-SB-70 (0-1)	TA-SB-70 (5-6)	TA-SB-71(1-2)	TA-SB-71(3-4)	TA-SB-72(1-2)	TA-SB-72(1-2) DUP	TA-SB-72(3-4))	TA-SB-73(1-2)
Depth Interval (Feet below ground surface)								2 - 3	4 - 5	0 - 1	5 - 6	1 - 2	3 - 4	1 - 2	1 - 2	3 - 4	1 - 2
Laboratory Sample ID(s)								TG11005-009	TG11005-010	TG17025-015	TG17025-016	TG21001-001	TG21001-002	TG21001-003	TG21001-004	TG21001-005	TG21001-006
Sample Date								7/10/2018	7/10/2018	7/17/2018	7/17/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018	7/20/2018
Parameter (µg/kg)																	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<10	<10	<13	<9.8	<9.4	<12	<12	<10	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<13	<10	<10	<13	<9.8	<9.4	<12	<12	<10	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.7	<2	<2.1	<2.6	<2	<1.9	<2.3	<2.4	<2	<2.1
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.7	<2	<2.1	<2.6	<2	<1.9	<2.3	<2.4	<2	<2.1
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	7.3	<5	<5.3
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	7.5	8.7	<5	5.9
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	5.6	<5.8	<6	<5	12
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***87***	***110***	***5.3***	***98***	***41***	***69***	***290 [J]***	***560 [J]***	***41***	***160***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.7	<5	<5.2	<6.6	<4.9	<4.7	<5.8	<6	<5	<5.3
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	87	110	5.3	98	41	75	300	580	41	180

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-73	TA-SB-74	TA-SB-74	TA-SB-75	TA-SB-75	TA-SB-75	TA-SB-76	TA-SB-76	TA-SB-77	TA-SB-77
Sample Name								TA-SB-73(6-7)	TA-SB-74(1-2)	TA-SB-74(5-6)	TA-SB-75 (5-6)	TA-SB-75 (5-6) DUP	TA-SB-75 (7-8)	TA-SB-76 (1-2)	TA-SB-76 (7-8)	TA-SB-77 (2-3)	TA-SB-77 (5-6)
Depth Interval (Feet below ground surface)								6 - 7	1 - 2	5 - 6	5 - 6	5 - 6	7 - 8	1 - 2	7 - 8	2 - 3	5 - 6
Laboratory Sample ID(s)								TG21001-007	TG21001-008	TG21001-009	TG19003-003	TG19003-004	TG19003-008	TG17025-008	TG19003-011	TG17025-020	TG17025-019
Sample Date								7/20/2018	7/20/2018	7/20/2018	7/18/2018	7/18/2018	7/18/2018	7/16/2018	7/18/2018	7/17/2018	7/17/2018
Parameter (µg/kg)																	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<12	<11	<19	<18	<9.1	<18 [UJ]	<12	<24	<12
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<12	<11	<19	<18	<9.1	<18	<12	<24	<12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.1	<2.4	<2.3	<3.8	<3.7	<1.8	<3.5	<2.5	<4.9	<2.4
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.1	<2.4	<2.3	<3.8	<3.7	<1.8	<3.5	<2.5	<4.9	<2.4
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	10	<5.7	11	14	<4.6	<8.8	<6.2	<12	<6
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	13	<5.7	21	25	<4.6	<8.8	<6.2	<12	<6
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<5.3	22	<5.7	48	49	<4.6	12	<6.2	<12	8.6
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	<5.3	***350***	***14***	***320***	***360***	<4.6	***120***	***9.1***	***33***	***34***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.9	<5.7	<9.6	<9.1	<4.6	<8.8	<6.2	<12	<6
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	400	14	400	450	ND	130	9.1	33	43

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-78	TA-SB-78	TA-SB-79	TA-SB-79	TA-SB-80	TA-SB-80	TA-SB-81	TA-SB-81	TA-SB-82	TA-SB-82	TA-SB-83
Sample Name								TA-SB-78 (5-6)	TA-SB-78 (6-7)	TA-SB-79 (2-3)	TA-SB-79 (4-5)	TA-SB-80 (2-3)	TA-SB-80 (3-4)	TA-SB-81 (4-5)	TA-SB-81 (5-6)	TA-SB-82 (0-1)	TA-SB-82 (6-7)	TA-SB-83 (1-2)
Depth Interval (Feet below ground surface)								5 - 6	6 - 7	2 - 3	4 - 5	2 - 3	3 - 4	4 - 5	5 - 6	0 - 1	6 - 7	1 - 2
Laboratory Sample ID(s)								TG17025-005	TG17025-006	TG17025-003	TG17025-004	TG17025-001	TG17025-002	TG17025-010	TG17025-007	TG19003-024	TG19003-025	TG17025-021
Sample Date								7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/17/2018	7/16/2018	7/19/2018	7/19/2018	7/17/2018
Parameter (µg/kg)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<13	<11	<13	<13	<13	<17	<19	<11	<14	<10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<13	<11	<13	<13	<13	<17	<19	<11	<14	<10
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.4	<2.6	<2.1	<2.7	<2.7	<2.5	<3.5	<3.7	<2.1	<2.9	<2
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.4	<2.6	<2.1	<2.7	<2.7	<2.5	<3.5	<3.7	<2.1	<2.9	<2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	13	13	11	9.5	5.9	<7.2	<5.1
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<430	<9.3	<5.3	<7.2	<5.1
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	45	21	<5.3	<7.2	<5.1
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<430	<9.3	<5.3	<7.2	<5.1
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	12	<6.3	14	<9.3	35	<7.2	<5.1
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	7.9	<6.5	<5.4	<6.7	<6.7	<6.3	16	13	6.1	8.8	<5.1
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<430	<9.3	<5.3	<7.2	<5.1
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	8.1	<6.5	5.5	10	10	13	54	39	11	27	<5.1
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***18 [J]***	<6.5	***35***	<6.7	***390***	***380***	***4,400***	***2,600***	***310***	<7.2	***14***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6	<6.5	<5.4	<6.7	<6.7	<6.3	<8.7	<9.3	<5.3	<7.2	<5.1
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	34	ND	41	10	430	410	4500	2700	370	36	14

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-83	TA-SB-AOC-B-01	TA-SB-AOC-B-01	TA-SB-AOC-B-02	TA-SB-AOC-B-02	TA-SB-AOC-C-01	TA-SB-AOC-C-01	TA-SB-AOC-C-01
Sample Name								TA-SB-83 (4-5)	TA-SB-AOC-B-01 (2-3)	TA-SB-AOC-B-01 (7-8)	TA-SB-AOC-B-02 (2-3)	TA-SB-AOC-B-02 (4-5)	TA-SB-C-01 (2-3)	TA-SB-C-01 (2-3) DUP	TA-SB-C-01 (11-12)
Depth Interval (Feet below ground surface)								4 - 5	2 - 3	7 - 8	2 - 3	4 - 5	2 - 3	2 - 3	11 - 12
Laboratory Sample ID(s)								TG17025-022	TH02019-006	TH02019-007	TH02019-008	TH02019-009	TH02019-021	TH02019-023	TH02019-022
Sample Date								7/17/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)															
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<12	<11	<11	<10	<11	<10	<10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<12	<11	<11	<10	<11 [UJ]	<50 [UJ]	<10
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.5	<2.4	<2.1	94	<2	8.6 [J]	12	<2
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.5	<2.4	<2.1	9.3	<2	<2.1 [UJ]	<10	<2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	5.7	<5	<5.3	<5	<5
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3	<5	<5
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3	<5	<5
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3	<5	<5
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	42	7.5	17 [J]	<25	<5
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3	<5	<5
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	8.8	<5	<5.3	<5	<5
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3	<5	<5
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3	<5	<5
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3 [UJ]	<25	<5
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	7.4	<5	<5.3	<5	<5
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	17	<5	<5.3	<5	<5
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3	<5	<5
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	22	<5	22	21	<5
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3	<5	<5
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3 [UJ]	<25	<5
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3 [UJ]	<25	<5
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	<6.2	***150***	***19***	***110***	<5	***87***	***120***	***15***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.2	<5.9	<5.4	<5.7	<5	<5.3 [UJ]	<25	<5
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	150	19	320	7.5	130	150	15

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-AOC-C-02	TA-SB-AOC-C-02	TA-SB-AOC-D-01	TA-SB-AOC-D-01	TA-SB-AOC-D-02	TA-SB-AOC-D-02	TA-SB-AOC-E-01
Sample Name								TA-SB-AOC-C-02(2-3)	TA-SB-AOC-C-02(9-10)	TA-SB-AOC-D-01 (2-3)	TA-SB-AOC-D-01 (8-9)	TA-SB-AOC-D-02 (2-3)	TA-SB-AOC-D-02 (6-7)	TA-SB-AOC-E-01 (3-4)
Depth Interval (Feet below ground surface)								2 - 3	9 - 10	2 - 3	8 - 9	2 - 3	6 - 7	3 - 4
Laboratory Sample ID(s)								TH03007-003	TH03007-004	TH02019-002	TH02019-003	TH02019-004	TH02019-005	TH02019-013
Sample Date								8/2/2018	8/2/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018
Parameter (µg/kg)														
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<10	<11	<10	<10	<11	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<10	<11	<10	<10	<11	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	34	<2	<2.2	<2.1	<2.1	<2.3	46
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.3	<2	<2.2	<2.1	<2.1	<2.3	3.2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	19
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	6.1
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	310	<5.1	<5.4	<5.1	<5.2	<5.6	720
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	9.2
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	11	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	30	<5.1	<5.4	<5.1	<5.2	<5.6	33
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***300***	<5.1	***21***	<5.1	***42***	***10***	***880***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.8	<5.1	<5.4	<5.1	<5.2	<5.6	<5.5
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	690	ND	21	ND	42	10	1700

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-AOC-E-01	TA-SB-AOC-E-02	TA-SB-AOC-E-02	TA-SB-AOC-G-01	TA-SB-AOC-G-01	TA-SB-AOC-G-02	TA-SB-AOC-G-02
Sample Name								TA-SB-AOC-E-01 (10-11)	TA-SB-AOC-E-02 (5-6)	TA-SB-AOC-E-02 (10-11)	TA-SB-AOC-G-01 (1-2)	TA-SB-AOC-G-01 (5-6)	TA-SB-AOC-G-02 (1-2)	TA-SB-AOC-G-02 (6-7)
Depth Interval (Feet below ground surface)								10 - 11	5 - 6	10 - 11	1 - 2	5 - 6	1 - 2	6 - 7
Laboratory Sample ID(s)								TH02019-014	TH02019-017	TH02019-018	TG24017-003	TG24017-004	TG24017-005	TG24017-006
Sample Date								8/1/2018	8/1/2018	8/1/2018	7/23/2018	7/23/2018	7/23/2018	7/23/2018
Parameter (µg/kg)														
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<15	<11	<12	<12	<12	<12	<13
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<15	<11	<12	<12	<12	<12	<13
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.9	<2.2	4.3	<2.4	<2.3	<2.4	<2.6
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.9	<2.2	<2.3	<2.4	<2.3	3.4	<2.6
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	9	<6.4
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	14	<6.4
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	12	<6.4
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	36	79	<5.8	160	<6.4
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	25	<6.4
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	8.1	<6.4
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	18	36	<5.8	94	<6.4
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	***480***	***90***	***16***	***850***	***22***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.4	<5.5	<5.8	<5.9	<5.8	<6	<6.4
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	ND	ND	540	210	16	1200	22

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-AOC-H-01	TA-SB-AOC-H-01	TA-SB-AOC-H-02	TA-SB-AOC-H-02	TA-SB-AOC-H-03	TA-SB-AOC-H-03	TA-SB-AOC-J-01
Sample Name								TA-SB-AOC-H-01 (2-3)	TA-SB-AOC-H-01 (4-5)	TA-SB-AOC-H-02 (2-3)	TA-SB-AOC-H-02 (6-7)	TA-SB-AOC-H-03 (2-2.5)	TA-SB-AOC-H-03 (5-6)	TA-SB-AOC-J-01 (2-3)
Depth Interval (Feet below ground surface)								2 - 3	4 - 5	2 - 3	6 - 7	2 - 2.5	5 - 6	2 - 3
Laboratory Sample ID(s)								TG11005-007	TG11005-008	TG11005-005	TG11005-006	TG11005-001	TG11005-002	TH02019-010
Sample Date								7/10/2018	7/10/2018	7/10/2018	7/10/2018	7/10/2018	7/10/2018	8/1/2018
Parameter (µg/kg)														
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<11	<11	<12	<16 [UJ]	<12	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<12	<11	<11	<12	<16 [UJ]	<12	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.4	<2.3	<2.1	<2.4	<3.1	<2.4	4.1 [J]
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.4	<2.3	<2.1	<2.4	<3.1	<2.4	3.5 [J]
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	31	<5.7	29	<6	<7.8	<5.9	44
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	17	<5.7	10	<6	89	<5.9	<5.3
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	53	<5.7	34	<6	42	<5.9	<5.3
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***480***	***110***	***410***	<6	***200***	***13***	***51***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<6.1	<5.7	<5.4	<6	<7.8	<5.9	<5.3
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	580	110	480	ND	330	13	100

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-AOC-J-01	TA-SB-AOC-J-02	TA-SB-AOC-J-02	TA-SB-GW-01	TA-SB-GW-01	TA-SB-GW-02	TA-SB-GW-02	TA-SB-GW-04
Sample Name								TA-SB-AOC-J-01 (5-6)	TA-SB-AOC-J-02 (9-10)	TA-SB-AOC-J-02 (13-14)	TA-SB-MW-01 (2-3)	TA-SB-MW-01 (6-7)	TA-SB-MW-02 (1-2)	TA-SB-MW-02 (4-5)	TA-SB-MW-04 (1-2)
Depth Interval (Feet below ground surface)								5 - 6	9 - 10	13 - 14	2 - 3	6 - 7	1 - 2	4 - 5	1 - 2
Laboratory Sample ID(s)								TH02019-011	TH02019-015	TH02019-016	TF29012-001	TF29012-002	TF29012-012	TF29012-013	TF29012-009
Sample Date								8/1/2018	8/1/2018	8/1/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	6/29/2018
Parameter (µg/kg)															
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<13	<11	<10	<12	<10	<9.8	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<13	<11	<10	<12	<10	<9.8	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	6.7	510	<2.1	140	2.4	<2.1	<2	<2.2
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.2	39	<2.1	<2	<2.3	<2.1	<2	<2.2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	7.1	6.5	<5.1	<4.9	<5.4
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	35 [J]	<5.9 [UJ]	<5.1	<4.9	<5.4
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	9.2	6.6	<5.1	<4.9	<5.4
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	25 [J]	<5.9 [UJ]	<5.1	<4.9	<5.4
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	130	<5.3	150 [J]	16	<5.1	<4.9	8.9
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	<5.1	<5.9	<5.1	<4.9	<5.4
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	5.9	<5.9	<5.1	<4.9	<5.4
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	<5.1	<5.9	<5.1	<4.9	<5.4
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	53	<5.3	<5.1	<5.9	<5.1	<4.9	<5.4
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	20	<5.3	<5.1	<5.9	<5.1	<4.9	<5.4
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	5.6	<5.9	<5.1	<4.9	<5.4
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	<5.1	<5.9	<5.1	<4.9	<5.4
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	7.7	<5.3	<5.1 [UJ]	<5.9 [UJ]	<5.1	<4.9	<5.4
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<5.6	66	<5.3	42	12	<5.1	<4.9	8.1
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	<5.1	<5.9	<5.1	<4.9	<5.4
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	11	<5.3	<5.1	<5.9	<5.1	<4.9	<5.4
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<6.4	<5.3	<5.1	<5.9	<5.1	<4.9	<5.4
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	<5.6	***490***	***57***	***3,300***	***2,800***	<5.1	***19***	***120 [J]***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.6	<64	<5.3	<5.1 [UJ]	<5.9	<5.1	<4.9	<5.4
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	6.7	1300	57	3700	2800	ND	19	140

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-GW-04	TA-SB-GW-04	TA-SB-GW-05	TA-SB-GW-05	TA-SB-GW-06	TA-SB-GW-06	TA-SB-GW-07	TA-SB-GW-07
Sample Name								TA-SB-MW-04DUP (1-2)	TA-SB-MW-04 (5-6)	TA-SB-MW-05 (1-2)	TA-SB-MW-05 (4-5)	TA-SB-MW-06 (2-3)	TA-SB-MW-06 (4-5)	TA-SB-MW-07 (4-5)	TA-SB-MW-07 (6-7)
Depth Interval (Feet below ground surface)								1 - 2	5 - 6	1 - 2	4 - 5	2 - 3	4 - 5	4 - 5	6 - 7
Laboratory Sample ID(s)								TF29012-010	TF29012-011	TF29012-017	TF29012-018	TF29012-005	TF29012-006	TF29012-003	TF29012-004
Sample Date								6/29/2018	6/29/2018	7/2/2018	7/2/2018	6/29/2018	6/29/2018	6/28/2018	6/28/2018
Parameter (µg/kg)															
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<9.7	<10	<12	<12	<10	<14	<10	<11
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<9.7	<10	<12	<12	<10	<14	<10	<11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1.9	<2.1	<2.3	<2.4	<2	<2.8	<2.1	<2.3
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<1.9	<2.1	<2.3	<2.4	<2	<2.8	<2.1	<2.3
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	10	<5.2	65	7.7	8.9	17	<5.2	<5.6
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	4.9	<5.2	6.7	6.1	<5.1	<6.9	<5.2	<5.6
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	11	13	19	7.2	6.9	9.5	<5.2	<5.6
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***190 [J]***	***120***	***630***	***310***	***14***	***130***	***99***	***9.1***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<4.8	<5.2	<5.8	<5.9	<5.1	<6.9	<5.2	<5.6
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	220	130	720	330	30	160	99	9.1

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-GW-08	TA-SB-GW-08	TA-SB-MA-01	TA-SB-MA-01	TA-SB-MA-02	TA-SB-MA-02	TA-SB-MA-03	TA-SB-MA-03
Sample Name								TA-SB-MW-08 (2-3)	TA-SB-MW-08 (5-6)	TA-SB-MA-01 (7-8)	TA-SB-MA-01 (11-12)	TA-SB-MA-02 (7-8)	TA-SB-MA-02 (11-12)	TA-SB-MA-03(7-8)	TA-SB-MA-03(13-14)
Depth Interval (Feet below ground surface)								2 - 3	5 - 6	7 - 8	11 - 12	7 - 8	11 - 12	7 - 8	13 - 14
Laboratory Sample ID(s)								TF29012-007	TF29012-008	TH02019-019	TH02019-020	TH02019-024	TH02019-025	TH03007-002	TH03007-001
Sample Date								6/29/2018	6/29/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/2/2018	8/2/2018
Parameter (µg/kg)															
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<11	<16	<11	<17	<11	<12	<12
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<11	<11	<16	<11	<17	<11	<12	<12
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.1	<2.3	<3.1	<2.2	<3.4	<2.2	2.8	<2.5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.1	<2.3	<3.1	<2.2	<3.4	<2.2	<2.5	<2.5
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	11	<5.6	24	<5.5	6.4	<6.2
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	16	<5.5	<6.2	<6.2
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	9.9	<5.5	<6.2	<6.2
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	11	<5.5	<6.2	6.2
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	<5.3	6.9	34	7.6	56	8.4	12	16
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***74***	***250***	***1,100***	***56***	***990***	***13***	***100***	***69***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<5.3	<5.6	<7.9	<5.6	<8.5	<5.5	<6.2	<6.2
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	74	260	1100	64	1100	21	120	91

TABLE 5E
SUMMARY OF SOIL SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Soil Cleanup Criteria – Drinking Water Protection	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Soil Cleanup Criteria – Soil Volatilization to Indoor Air Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Infinite Source Volatile Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Particulate Soil Inhalation	Part 201 Generic Residential Soil Cleanup Criteria – Direct Contact	Residential Soil Recommended Interim Action Screening Level	TA-SB-MA-04	TA-SB-MA-04	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T4-ISLAND	TA-SED-T7-ISLAND	TA-SED-T9-ISLAND
Sample Name								TA-SB-MW-04(8-9)	TA-SB-MW-04(10-11)	TA-SED-T10-ISLAND(0-1)	TA-SED-T10-ISLAND(2-3)	TA-SED-T4-ISLAND(0-0.5)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T9-ISLAND(0-0.5)
Depth Interval (Feet below ground surface)								8 - 9	10 - 11	0 - 1	2 - 3	0 - 0.5	0 - 0.5	0 - 0.5
Laboratory Sample ID(s)								TH09090-003	TH09090-004	TG24016-002	TG24016-003	TG14035-001	TG11006-001	TG14035-007
Sample Date								8/8/2018	8/8/2018	7/23/2018	7/23/2018	7/11/2018	7/9/2018	7/13/2018
Parameter (µg/kg)														
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<14	<12	<1.5	<1.7	<4.5 [UJ]	<1.5	<3.1
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<14	<12	<1.5	<1.7	<4.5 [UJ]	<1.5	<3.1
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.8	<2.4	<1.5	<1.7	<4.5 [UJ]	<1.5	<3.1
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<2.8	<2.4	<1.5	<1.7	<4.5 [UJ]	<1.5	<3.1
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	19	<0.74	3	<2.2 [UJ]	<0.73	<1.5
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	0.85	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorooctanoic acid (PFOA)	NCL	350 (X)	NCL	NCL	NCL	NCL	NCL	28	8.8	1.3	<0.87	3.7 [J]	<0.73	2.4
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Perfluorooctane sulfonic acid (PFOS)	NCL	0.22 (X)	NCL	NCL	NCL	NCL	NCL	***170***	***110***	***20***	***14***	***55 [J]***	***3.7***	***15***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	<7.1	<6	<0.74	<0.87	<2.2 [UJ]	<0.73	<1.5
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	NCL	NCL	200	140	22	17	59	3.7	17

TABLES 5A through 5E
NOTES
Former Tannery
Rockford, Kent County, Michigan

NOTES:

1. Concentration and criteria units are micrograms per kilogram (µg/kg) or parts per billion (ppb). Calculated criteria and concentrations are rounded to two significant digits and "ND" indicates the parameters used in the calculation were not detected.
2. Michigan Part 201 Groundwater Cleanup Criteria are based on "Table 2, Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels," Michigan Administrative Code, Cleanup Criteria Requirements for Response Activity, Rules 299.46 and 299.49, effective December 30, 2013; updated June 25, 2018.
   Abbreviations Include:
   "ID" indicates insufficient data to develop criterion.
   "NA" indicates a criterion or value is not available or, in the case of background, not applicable.
   "NCL" indicates no criterion listed in MDEQ Table 2.
   "NLL" indicates the substance is not likely to leach under most soil conditions.
   "NLV" indicates the substance is not likely to volatilize under most conditions.
   Footnotes Include:
   (B) - Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
   (C) - The criterion developed under R 299.20 to R 299.26 exceeds the chemical-specific soil saturation screening level (C_{sat}).
   (D) - The calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 ppb.
   (F) - Criterion is based on adverse impacts to plant life and phytotoxicity.
   (G) - Groundwater surface water interface protection (GSIP) criterion depends on the pH or water hardness, or both, of the receiving surface water.
   MDEQ's Footnote (G) GSI/GSIPC Calculation spreadsheet was utilized to calculate GSI criterion presented. The Rogue River is the receiving surface water for the Site. Hardness (220 mg $CaCO_3$/L) and pH (7.5 standard units) used in the calculations were the lowest (most-conservative) of the calculated mean and median of the Rogue River surface water samples (TA-SW-01, TA-SW-02, TA-SW-03, TA-SW-05, and TA-SW-07) rounded to two significant digits and water hardness or pH for the Rogue River near Rockford published in United States Geological Survey Circular 323, "Water Resources of the Grand Rapids Area, Michigan," Table 1, 1954.
   (M) - Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
   (N) - Where leaching to groundwater is a relevant pathway, soil concentrations of all potential sources of nitrate-nitrogen (e.g., ammonia-N, nitrite-N, nitrate-N) shall not, when added together, exceed the nitrate drinking water protection criterion of 2.0E+5 µg/kg.
   (P) - Total cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with soil criteria.
   (W) - Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the drinking water protection criterion of 1,600 µg/kg.
   (X) - Soil GSI protection criteria base z
   times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote.
   (CC) - The generic soil GSI protection criteria for unionized ammonia are 580 µg/kg and 1,100 µg/kg for cold water and warm water surface water, respectively. The percent conversion factor in the table for cold water (20°C or 68°F) and pH (8.0 standard units) is 3.82%.
   (DD) - Residential direct contact criteria are protective of both prenatal and postnatal exposure.
   (EE) - The applicable GSI criteria for phosphorus is 1,000 µg/L. The footnote does not specify a GSIP criterion, however, the GSIP for phosphorus refers to Footnote EE. Conservatively, a value of 20 times the GSI criterion (20,000 µg/kg) was used.
3. Residential Soil Recommended Interim Action Screening Levels for were based on MDEQ's Toxics Steering Group's "Media-Specific Interim Action Screening Levels," published in August 2017.
   Abbreviations Include:
   "NCL" indicates no value listed in the Media-Specific Interim Action Screening Levels table.
4. U.S. EPA Residential Soil Regional Removal Management Levels (RMLs) were based on "Generic RML Tables," updated November 2018.
5. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Part 201 Soil Cleanup Criteria or Media-Specific Interim Action Screening Levels. For metals, bold, italic number indicates that the parameter was detected at a concentration greater than both the statewide default background, if available, and the most-restrictive Michigan Part 201 Cleanup Criteria in accordance with Footnote B. U.S. EPA RMLs are provided for reference only and results detected above the EPA RMLs are not bolded or italicized.
6. Abbreviations include:
   "< RL" indicates the parameter was analyzed for but not detected above the method detection limit; RL = Reporting Limit.
   "DUP" indicates a duplicate sample.
   "J" indicates the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
   "J+" indicates the result is an estimated quantity. The associated numerical value is possibly biased high.
   "J-" indicates the result is an estimated quantity. The associated numerical value is possibly biased low.
   "UB" indicates the analyte was analyzed for and detected below the laboratory reporting limit. As a result of associated blank contamination, the analyte was considered a non-detect result at the laboratory reporting limit.
   "UJ" indicates the analyte was analyzed for but was not detected. The reported quantitation limit is approximate.
   "UR" indicates the analyte was analyzed for but was not detected. The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

TABLE 5F
SUMMARY OF SOIL SAMPLE ANALYSIS - TCLP METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	RCRA Maximum Concentration	TA-SB-01	TA-SB-02	TA-SB-02	TA-SB-03	TA-SB-05	TA-SB-07	TA-SB-08	TA-SB-08	TA-SB-08	TA-SB-12	TA-SB-20	TA-SB-23	TA-SB-23	TA-SB-24	TA-SB-24
Sample Name		TA-SB-01(2-3)	TA-SB-02(2-3)	TA-SB-02(7-8)	TA-SB-03(12-13)	TA-SB-05 (2-3)	TA-SB-07 (9-10)	TA-SB-08(3-4)	TA-SB-08(7-8)	TA-SB-08(7-8)DUP	TA-SB-12 (0-1)	TA-SB-20(5-6)	TA-SB-23(6-7)	TA-SB-23(9-10)	TA-SB-24(0-1)	TA-SB-24(5-6)
Depth Interval (Feet below ground surface)		2 - 3	2 - 3	7 - 8	12 - 13	2 - 3	9 - 10	3 - 4	7 - 8	7 - 8	0 - 1	5 - 6	6 - 7	9 - 10	0 - 1	5 - 6
Laboratory Sample ID(s)		TH03007-005	TH03007-009	TH03007-010	TH03007-016	TH08019-006	TH08019-005	TH03007-011	TH03007-012	TH03007-013	TH01025-016	TG28004-018	TH09090-001	TH09090-002	TG28004-027	TG28004-028
Sample Date		08/02/2018	08/02/2018	08/02/2018	08/02/2018	08/03/2018	08/07/2018	08/02/2018	08/02/2018	08/02/2018	07/31/2018	07/27/2018	08/08/2018	08/08/2018	07/27/2018	07/27/2018
Parameter (µg/L)																
Chromium	5,000	260	92	18	<100	<100	13	25	<100	<100	<100	550	***18,000***	2,700	1,600	37
Lead	5,000	1,700	350						<100	<100		140				
Mercury	200															

TABLE 5F
SUMMARY OF SOIL SAMPLE ANALYSIS - TCLP METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	RCRA Maximum Concentration	TA-SB-25	TA-SB-26	TA-SB-27	TA-SB-27	TA-SB-30	TA-SB-31	TA-SB-31	TA-SB-33	TA-SB-33	TA-SB-34	TA-SB-34	TA-SB-35	TA-SB-35	TA-SB-36	TA-SB-36
Sample Name		TA-SB-25(7-8)	TA-SB-26 (5-6)	TA-SB-27 (1-2)	TA-SB-27 (1-2) DUP	TA-SB-30 (2-3)	TA-SB-31(2-3)	TA-SB-31(7-8)	TA-SB-33(1-2)	TA-SB-33(7-8)	TA-SB-34(3-4)	TA-SB-34(6-7)	TA-SB-35 (2-3)	TA-SB-35 (6-7)	TA-SB-36 (2-3)	TA-SB-36 (5-6)
Depth Interval (Feet below ground surface)		7 - 8	5 - 6	1 - 2	1 - 2	2 - 3	2 - 3	7 - 8	1 - 2	7 - 8	3 - 4	6 - 7	2 - 3	6 - 7	2 - 3	5 - 6
Laboratory Sample ID(s)		TG28004-001	TH01025-002	TG31022-021	TG31022-023	TH01025-001	TG28004-002	TG28004-003	TG28004-023	TG28004-024	TG28004-020	TG28004-019	TG27014-001	TG27014-002	TG27014-003	TG27014-004
Sample Date		07/27/2018	07/31/2018	07/30/2018	07/30/2018	07/30/2018	07/27/2018	07/27/2018	07/27/2018	07/27/2018	07/27/2018	07/27/2018	07/26/2018	07/26/2018	07/26/2018	07/26/2018
Parameter (µg/L)																
Chromium	5,000	<100	46	370	200	13	<100	<100	76	360		<100	<100	78		
Lead	5,000					<100	<100	530	<100	<100		<100	150		<100	48
Mercury	200										<2				<2	

TABLE 5F
SUMMARY OF SOIL SAMPLE ANALYSIS - TCLP METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	RCRA Maximum Concentration	TA-SB-37	TA-SB-38	TA-SB-38	TA-SB-38	TA-SB-39	TA-SB-40	TA-SB-40	TA-SB-43	TA-SB-44	TA-SB-54	TA-SB-56	TA-SB-59	TA-SB-61	TA-SB-62	TA-SB-62
Sample Name		TA-SB-37(6-7)	TA-SB-38 (0.5-1.5)	TA-SB-38 (0.5-1.5) DUP	TA-SB-38 (6-7)	TA-SB-39 (6-7)	TA-SB-40(2-3)	TA-SB-40(6-7)	TA-SB-43 (1-2)	TA-SB-44 (1-2)	TA-SB-54 (0-1)	TA-SB-56 (1-2)	TA-SB-59(2-3)	TA-SB-61 (5-6)	TA-SB-62 (3-4)	TA-SB-62 (5-6)
Depth Interval (Feet below ground surface)		6 - 7	0.5 - 1.5	0.5 - 1.5	6 - 7	6 - 7	2 - 3	6 - 7	1 - 2	1 - 2	0 - 1	1 - 2	2 - 3	5 - 6	3 - 4	5 - 6
Laboratory Sample ID(s)		TG28004-017	TG27014-011	TG27014-012	TG27014-013	TG27014-014	TG28004-011	TG28004-012	TG19003-022	TG31022-011	TG19003-002	TG19003-001	TG28004-025	TG17025-011	TG17025-013	TG17025-014
Sample Date		07/27/2018	07/26/2018	07/26/2018	07/26/2018	07/26/2018	07/27/2018	07/27/2018	07/19/2018	07/30/2018	07/18/2018	07/18/2018	07/27/2018	07/17/2018	07/17/2018	07/17/2018
Parameter (µg/L)																
Chromium	5,000	<100	19	<100	20	37	<100	<100					30	78	650	40
Lead	5,000	<100					110	74	<100	130	<100	<100	110			
Mercury	200				<2											

TABLE 5F
SUMMARY OF SOIL SAMPLE ANALYSIS - TCLP METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	RCRA Maximum Concentration	TA-SB-63	TA-SB-64	TA-SB-65	TA-SB-65	TA-SB-65	TA-SB-66	TA-SB-66	TA-SB-68	TA-SB-68	TA-SB-69	TA-SB-70	TA-SB-70	TA-SB-71	TA-SB-72	TA-SB-72
Sample Name		TA-SB-63 (7-8)	TA-SB-64 (4-5)	TA-SB-65 (1-2)	TA-SB-65 (1-2) DUP	TA-SB-65 (4-5)	TA-SB-66(0-1)	TA-SB-66(2-3)	TA-SB-68 (1-2)	TA-SB-68 (3-4)	TA-SB-69 (2-3)	TA-SB-70 (0-1)	TA-SB-70 (5-6)	TA-SB-71(1-2)	TA-SB-72(1-2)	TA-SB-72(1-2) DUP
Depth Interval (Feet below ground surface)		7 - 8	4 - 5	1 - 2	1 - 2	4 - 5	0 - 1	2 - 3	1 - 2	3 - 4	2 - 3	0 - 1	5 - 6	1 - 2	1 - 2	1 - 2
Laboratory Sample ID(s)		TG17025-018	TG19003-020	TG19003-012	TG19003-013	TG19003-014	TG28004-021	TG28004-022	TG11005-003	TG11005-004	TG11005-009	TG17025-015	TG17025-016	TG21001-001	TG21001-003	TG21001-004
Sample Date		07/17/2018	07/19/2018	07/18/2018	07/18/2018	07/18/2018	07/27/2018	07/27/2018	07/10/2018	07/10/2018	07/10/2018	07/17/2018	07/17/2018	07/20/2018	07/20/2018	07/20/2018
Parameter (µg/L)																
Chromium	5,000	430	3,400	2,500	1,700	250	<100	280	<100		84	<100			25	20
Lead	5,000		200	83	54	55		<100		2,900	180		240	<100		
Mercury	200															

TABLE 5F
SUMMARY OF SOIL SAMPLE ANALYSIS - TCLP METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	RCRA Maximum Concentration	TA-SB-75	TA-SB-75	TA-SB-76	TA-SB-76	TA-SB-77	TA-SB-78	TA-SB-78	TA-SB-79	TA-SB-79	TA-SB-80	TA-SB-81	TA-SB-81	TA-SB-AOC-B-02	TA-SB-AOC-C-02
Sample Name		TA-SB-75 (5-6)	TA-SB-75 (5-6) DUP	TA-SB-76 (1-2)	TA-SB-76 (7-8)	TA-SB-77 (2-3)	TA-SB-78 (5-6)	TA-SB-78 (6-7)	TA-SB-79 (2-3)	TA-SB-79 (4-5)	TA-SB-80 (2-3)	TA-SB-81 (4-5)	TA-SB-81 (5-6)	TA-SB-AOC-B-02 (2-3)	TA-SB-AOC-C-02(2-3)
Depth Interval (Feet below ground surface)		5 - 6	5 - 6	1 - 2	7 - 8	2 - 3	5 - 6	6 - 7	2 - 3	4 - 5	2 - 3	4 - 5	5 - 6	2 - 3	2 - 3
Laboratory Sample ID(s)		TG19003-003	TG19003-004	TG17025-008	TG19003-011	TG17025-020	TG17025-005	TG17025-006	TG17025-003	TG17025-004	TG17025-001	TG17025-010	TG17025-007	TH02019-008	TH03007-003
Sample Date		07/18/2018	07/18/2018	07/16/2018	07/18/2018	07/17/2018	07/16/2018	07/16/2018	07/16/2018	07/16/2018	07/16/2018	07/17/2018	07/16/2018	08/01/2018	08/02/2018
Parameter (µg/L)															
Chromium	5,000	420	1,300	320	87	96	28	<100	<100	76	24	<100	<100	16	27
Lead	5,000	120	210	300	190	<100			89						
Mercury	200												<2		

TABLE 5F
SUMMARY OF SOIL SAMPLE ANALYSIS - TCLP METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	RCRA Maximum Concentration	TA-SB-AOC-C-02	TA-SB-AOC-E-01	TA-SB-AOC-G-01	TA-SB-AOC-G-02	TA-SB-AOC-H-01	TA-SB-AOC-H-01	TA-SB-AOC-H-02	TA-SB-AOC-H-03	TA-SB-AOC-J-02	TA-SB-GW-01
Sample Name		TA-SB-AOC-C-02(9-10)	TA-SB-AOC-E-01 (3-4)	TA-SB-AOC-G-01 (1-2)	TA-SB-AOC-G-02 (1-2)	TA-SB-AOC-H-01 (2-3)	TA-SB-AOC-H-01 (4-5)	TA-SB-AOC-H-02 (2-3)	TA-SB-AOC-H-03 (2-2.5)	TA-SB-AOC-J-02 (9-10)	TA-SB-MW-01 (2-3)
Depth Interval (Feet below ground surface)		9 - 10	3 - 4	1 - 2	1 - 2	2 - 3	4 - 5	2 - 3	2 - 2.5	9 - 10	2 - 3
Laboratory Sample ID(s)		TH03007-004	TH02019-013	TG24017-003	TG24017-005	TG11005-007	TG11005-008	TG11005-005	TG11005-001	TH02019-015	TF29012-001
Sample Date		08/02/2018	08/01/2018	07/23/2018	07/23/2018	07/10/2018	07/10/2018	07/10/2018	07/10/2018	08/01/2018	06/28/2018
Parameter (µg/L)											
Chromium	5,000	<100	27	15	19	560	17	17	160 [J]	82	<100
Lead	5,000		<100					70	***14,000***		
Mercury	200										

TABLE 5F
SUMMARY OF SOIL SAMPLE ANALYSIS - TCLP METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	RCRA Maximum Concentration	TA-SB-GW-02	TA-SB-GW-05	TA-SB-GW-06	TA-SB-MA-02	TA-SB-MA-04	TA-SED-RC ACCESS	TA-SED-RC ACCESS	TA-SED-RC-1	TA-SED-RC-2	TA-SED-T2-3	TA-SED-T3-2
Sample Name		TA-SB-MW-02 (1-2)	TA-SB-MW-05 (1-2)	TA-SB-MW-06 (2-3)	TA-SB-MA-02 (7-8)	TA-SB-MW-04(10-11)	TA-SED-RC ACCESS (0-1)	TA-SED-RC ACCESS (1.5-2.5)	TA-SED-RC-1 (1.2-2.2)	TA-SED-RC-2 (2-3)	TA-SED-T2-3 (2-3)	TA-SED-T3-2 (1.7-2.7)
Depth Interval (Feet below ground surface)		1 - 2	1 - 2	2 - 3	7 - 8	10 - 11	0 - 1	1.5 - 2.5	1.2 - 2.2	2 - 3	2 - 3	1.7 - 2.7
Laboratory Sample ID(s)		TF29012-012	TF29012-015	TF29012-005	TH02019-024	TH09090-004	TG03001-010	TG03001-011	TG03001-004	TG03001-007	TF22021-015	TF22021-005
Sample Date		06/29/2018	07/02/2018	06/29/2018	08/01/2018	08/08/2018	07/02/2018	07/02/2018	07/02/2018	07/02/2018	06/22/2018	06/21/2018
Parameter (µg/L)												
Chromium	5,000	<100	<100		640	480	2,700	<100	<100	<100	<100	<100
Lead	5,000		610	64	<100					<100		
Mercury	200											<2

TABLE 5F
SUMMARY OF SOIL SAMPLE ANALYSIS - TCLP METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	RCRA Maximum Concentration	TA-SED-T3-2	TA-SED-T3-3	TA-SED-T4-1	TA-SED-T4-2	TA-SED-T4-3	TA-SED-T4-3	TA-SED-T4-ISLAND	TA-SED-T5-2	TA-SED-T5-3	TA-SED-T6-3
Sample Name		TA-SED-T3-2 (4-5)	TA-SED-T3-3 (2-3)	TA-SED-T4-1 (2.5-3.5)	TA-SED-4-2 (2-3)	TA-SED-T4-3 (0-1)	TA-SED-T4-3 (1-1.7)	TA-SED-T4-ISLAND(4-5)	TA-SED-T5-2 (3.7-4.7)	TA-SED-T5-3 (4-5)	TA-SED-T6-3 (3.8-4.8)
Depth Interval (Feet below ground surface)		4 - 5	2 - 3	2.5 - 3.5	2 - 3	0 - 1	1 - 1.7	4 - 5	3.7 - 4.7	4 - 5	3.8 - 4.8
Laboratory Sample ID(s)		TF22021-006	TF22021-002	TF22021-021	TG03001-018	TG03001-001	TG03001-002	TG14035-002	TF26016-013	TF26016-009	TF26016-019
Sample Date		06/21/2018	06/21/2018	06/25/2018	06/29/2018	07/02/2018	07/02/2018	07/12/2018	06/26/2018	06/26/2018	06/26/2018
Parameter (µg/L)											
Chromium	5,000	<100	<100	<100	320	<100 [UJ]	<100 [UJ]	540	<100	<100	<100
Lead	5,000					210 [J]	140 [J]				
Mercury	200		<2					<2			

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06	TA-GW-07	TA-GW-07
Sample Name						TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06	TA-GW-07	TA-GW-07
Laboratory Sample ID(s)						TH15011-003	TK02073-003	TH11003-020	TJ23010-007	TH15011-006	TJ25084-018	TH15011-005	TK02006-002	TH15011-002	TJ23010-002	TH15011-004	TK01001-001	TH11003-021	TJ17030-012
Sample Date						08/14/2018	11/01/2018	08/13/2018	10/22/2018	08/14/2018	10/25/2018	08/14/2018	10/31/2018	08/14/2018	10/22/2018	08/14/2018	10/30/2018	08/13/2018	10/18/2018
Parameter (µg/L)																			
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	<20 [UB]	3.5 [J]	2.1	4.4 [J]	<20 [UB]	2.4 [J]	<20 [UB]	2.2 [J]	<20 [UB]	<20	<20	2.8 [J]	<20	<20
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<1	<1	<1	<1	0.41	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	<2	<2	<2	<2	<2	<2	<2	0.89 [J]	<2	<2	<2	<2	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.7	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	<1	<1	<1	<1	<1	<1	<1	<1	1.9	1.3	<1	<1	<1	<1
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	12	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	2.2 [J]	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<1	<1	<1	<1	<1	<1	2.3	19	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	<1	<1	<1	<1	<1	<1	***0.43***	***1***	<1	<1	<1	<1	<1	<1
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-GW-08	TA-GW-08	TA-GW-09	TA-GW-09	TA-MW-1	TA-MW-1	TA-MW-2	TA-MW-2	TA-MW-3	TA-MW-3	TA-MW-4	TA-MW-4	TA-MW-5	TA-MW-5
Sample Name						TA-GW-08	TA-GW-08	TA-GW-09	TA-GW-09	TA-MW-1	TA-MW-1	TA-MW-2	TA-MW-2	TA-MW-3	TA-MW-3	TA-MW-4	TA-MW-4	TA-MW-5	TA-MW-5
Laboratory Sample ID(s)						TH15011-001	TJ23010-015	TH29014-001	TJ25084-002	TH08014-013	TJ17030-017	TH11003-003	TJ27020-014	TH08014-017	TJ23010-014	TH11003-014	TK02006-005	TH10023-011	TJ25084-009
Sample Date						08/14/2018	10/23/2018	08/28/2018	10/24/2018	08/08/2018	10/19/2018	08/10/2018	10/29/2018	08/08/2018	10/23/2018	08/13/2018	10/31/2018	08/09/2018	10/24/2018
Parameter (µg/L)																			
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	<20 [UB]	<20	<20 [UB]	<20	4.5	2.3 [J]	2.3	4.4 [J]	2.8	3.2 [J]	3.1	3.3 [J]	<20	<20
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.95	0.42 [J]	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2	<2	<2	<2	<2 [UJ]	<2	<2	<2	<2 [UJ]	<2	<2	<2	<2	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	<1	<1	<1	<1	<1	<1	<1	<1	0.55	0.57 [J]	0.77	0.92 [J]	3	3.2
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	6	4.2	<1	<1
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.45	0.4 [J]	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10	<10	<10	<10	<10	<10	<10 [UJ]	<10	<10	<10	<10	<10	<10	<10
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<1	<1	<1	<1	***0.47***	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	***4.9***	***4.7***	<1	<1
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	<1	<1	<1	<1	<1	0.9 [J]	<1	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	0.45 [J]	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	<1	<1	<1	<1	<1	0.45 [J]	<1	<1	<1	<1	<1	<1	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-301B	TA-MW-301B	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B	TA-MW-302B	TA-MW-303A	TA-MW-303A	TA-MW-303B
Sample Name						TA-MW-301B	TA-MW-301B	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301 D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B DUP	TA-MW-302B	TA-MW-303A	TW-MW-303A	TA-MW-303B
Laboratory Sample ID(s)						TH11003-005	TK01001-004	TH11003-019	TK02073-001	TH08014-005	TJ17030-007	TH11003-015	TJ23010-013	TH10023-001	TH10023-002	TJ23010-012	TH11003-012	TJ27020-012	TH11003-006
Sample Date						08/10/2018	10/30/2018	08/13/2018	11/01/2018	08/07/2018	10/17/2018	08/13/2018	10/23/2018	08/09/2018	08/09/2018	10/23/2018	08/13/2018	10/29/2018	08/10/2018
Parameter (µg/L)																			
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	<20	2.6 [J]	<20	<20	2.2 [J-]	<20	2.2 [J-]	3 [J]	<20 [UB]	<20 [UB]	<20	2.4	<20	2.6
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<10	<10	<10	<10	<10 [UJ]	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<2	<2	<2	<2	<2 [UJ]	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	<2	<2	<2	<2	<2	<2	<2 [UJ]	<2	<2	<2	<2	<2	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2	<2	<2	<2	<2 [UJ]	<2	<2 [UJ]	<2	<2	<2	<2	<2	<2	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	0.69	0.52 [J]	0.7	0.7 [J]	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<10	<10	<10	<10	<10 [UJ]	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1 [UJ]	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1 [UJ]
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10 [UJ]	<10	<10	<10	<10	<10	<10 [UJ]	<10	<10	<10	<10	<10	<10	<10 [UJ]
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<5	<5 [UJ]	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-303B	TA-MW-303C	TA-MW-303C	TA-MW-303D	TA-MW-303D	TA-MW-303E	TA-MW-303E	TA-MW-303E	TA-MW-304A	TA-MW-304A	TA-MW-304B	TA-MW-304B	TA-MW-305B	TA-MW-305B
Sample Name						TA-MW-303B	TA-MW-303C	TA-MW-303C	TA-MW-303D	TA-MW-303 D	TA-MW-303E	TA-MW-303E DUP	TA-MW-303 E	TA-MW-304A	TA-MW-304A	TA-MW-304B	TA-MW-304-B	TA-MW-305B	TA-MW-305B
Laboratory Sample ID(s)						TJ27020-004	TH11003-009	TJ27020-003	TH08014-003	TJ17030-006	TH08014-001	TH08014-002	TJ17030-005	TH15011-014	TK02006-001	TH08014-010	TJ17030-013	TH11003-008	TK01001-002
Sample Date						10/26/2018	08/10/2018	10/26/2018	08/07/2018	10/17/2018	08/07/2018	08/07/2018	10/17/2018	08/15/2018	10/31/2018	08/08/2018	10/18/2018	08/10/2018	10/30/2018
Parameter (µg/L)																			
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	3.1 [J]	6.8	3.2 [J]	8.1	6.7 [J]	3.1	3.5	<20	6	2.4 [J]	<20 [UJ]	<20	5.1	<20
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<1	1.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2	<2	<2	<2 [UJ]	<2	<2 [UJ]	<2 [UJ]	<2	<2	<2	<2 [UJ]	<2	<2	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	***5***	3.4
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.1	3.4
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<1	<1	0.41 [J]	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	***4***	***3.8***
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A	TA-MW-306A	TA-MW-306B	TA-MW-306B	TA-MW-307A	TA-MW-307A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A
Sample Name						TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A	TA-MW-306A DUP	TA-MW-306B	TA-MW-306B	TA-MW-307A	TA-MW-307-A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A DUP
Laboratory Sample ID(s)						TH11003-013	TK01001-003	TH10023-008	TJ23010-017	TJ23010-016	TH10023-005	TJ25084-005	TH10023-007	TJ17030-011	TH10023-006	TJ23010-004	TH11003-010	TJ25084-015	TJ25084-016
Sample Date						08/13/2018	10/30/2018	08/09/2018	10/23/2018	10/23/2018	08/09/2018	10/24/2018	08/09/2018	10/18/2018	08/09/2018	10/22/2018	08/10/2018	10/25/2018	10/25/2018
Parameter (µg/L)																			
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	2.7	2.2 [J]	<20 [UB]	3 [J]	3.3 [J]	<20 [UB]	<20	<20 [UB]	<20	<20 [UB]	<20	<20	<20	<20
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	2	2.1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2	<2	7.5	27	26	38 [J-]	6	2.7	2.4	1.7	0.56 [J]	<2	<2	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	***7.5***	***9.5***	<1	0.75 [J]	0.76 [J]	0.73	<1	<1	<1	<1	<1	0.48	0.49 [J]	0.49 [J]
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	3.7	4.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.42	<1	<1	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	***3.8***	***4.3***	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-308B	TA-MW-308B	TA-MW-308C	TA-MW-308C	TA-MW-309A	TA-MW-309A	TA-MW-309B	TA-MW-309B	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309D	TA-MW-309D	TA-MW-310A
Sample Name						TA-MW-308B	TA-MW-308 B	TA-MW-308C	TA-MW-308 C	TA-MW-309A	TA-MW-309A	TA-MW-309B	TA-MW-309B DUP	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309D	TA-MW-309D	TA-MW-310A
Laboratory Sample ID(s)						TH08014-004	TJ17030-001	TH08014-006	TJ17030-004	TH10023-004	TJ25084-007	TH11003-001	TH11003-002	TJ25084-003	TH10023-009	TJ25084-024	TH11003-007	TK02006-004	TH08014-011
Sample Date						08/07/2018	10/16/2018	08/07/2018	10/17/2018	08/09/2018	10/24/2018	08/10/2018	08/10/2018	10/24/2018	08/09/2018	10/25/2018	08/10/2018	10/31/2018	08/08/2018
Parameter (µg/L)																			
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	3.6	<20	<20 [UJ]	<20	<20	<20	<20	<20	<20	<20 [UB]	<20	9.7	7 [J]	2.9
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.41	1.2	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2 [UJ]	<2	<2 [UJ]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	<1	<1	<1	<1	0.63	<1	<1	<1	<1	<1	<1	0.53	<1	<1
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1	<1	<1	<1	<1 [UJ]	<1	<1 [UJ]	<1	<1	<1	<1	<1 [UJ]	<1	<1
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10	<10	<10	<10	<10	<10	<10 [UJ]	<10 [UJ]	<10	<10	<10	<10 [UJ]	<10	<10
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<1	<1	<1	<1	***0.74***	***0.56***	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-310A	TA-MW-310B	TA-MW-310B	TA-MW-310C	TA-MW-310C	TA-P-1	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4	TA-P-5
Sample Name						TA-MW-310-A	TA-MW-310B	TA-MW-310-B	TA-MW-310C	TA-MW-310-C	TA-P-1	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4	TA-P-5
Laboratory Sample ID(s)						TJ17030-016	TH08014-009	TJ17030-018	TH08014-007	TJ17030-010	TH15011-007	TJ25084-017	TH15011-008	TJ25084-020	TH15011-009	TJ25084-001	TH15011-015	TJ27020-013	TH15011-016
Sample Date						10/19/2018	08/08/2018	10/19/2018	08/07/2018	10/18/2018	08/14/2018	10/25/2018	08/14/2018	10/25/2018	08/14/2018	10/24/2018	08/15/2018	10/29/2018	08/15/2018
Parameter (µg/L)																			
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	<20	<20 [UJ]	<20	3.2 [J-]	<20	<20 [UB]	<20	<20 [UB]	2.5 [J]	<20 [UB]	<20	3.1	5.1 [J]	2.7
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2	<2 [UJ]	<2	<2 [UJ]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102	TA-TMW-102	TA-TMW-103	TA-TMW-103	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105	TA-TMW-108	TA-TMW-108
Sample Name						TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102	TA-TMW-102	TA-TMW-103	TA-TMW-103	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105 DUP	TA-TMW-108	TA-TMW-108
Laboratory Sample ID(s)						TJ25084-014	TH11003-016	TK02006-003	TH11003-018	TJ23010-011	TH08014-014	TJ23010-006	TH08014-015	TJ25084-019	TH11003-004	TJ27020-009	TJ27020-010	TH10023-003	TJ23010-005
Sample Date						10/25/2018	08/13/2018	10/31/2018	08/13/2018	10/23/2018	08/08/2018	10/22/2018	08/08/2018	10/25/2018	08/10/2018	10/29/2018	10/29/2018	08/09/2018	10/22/2018
Parameter (µg/L)																			
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	<20	<20	2.4 [J]	3.1	<20	4.9	3.8 [J]	7.2	<20	2.4	4.2 [J]	4.8 [J]	<20 [UB]	<20
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.54	0.6 [J]	0.61 [J]	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2	<2	<2	1.2 [J+]	<2	<2 [UJ]	<2	<2 [UJ]	<2	<2	<2	<2	2.9	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	<1	<1	<1	0.41	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	<1	0.45	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1	<1	<1
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10 [UJ]	<10	<10	<10	<10
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	0.95 [J]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	2.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	0.65 [J]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	2.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6A
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-TMW-109	TA-TMW-109	TA-TMW-110	TA-TMW-110	TA-TMW-111	TA-TMW-111
Sample Name						TA-TMW-109	TA-TMW-109	TA-TMW-110	TA-TMW-110	TA-TMW-111	TA-MW-111
Laboratory Sample ID(s)						TH08014-012	TJ23010-001	TH10023-010	TJ27020-011	TH08014-016	TJ23010-003
Sample Date						08/08/2018	10/22/2018	08/09/2018	10/29/2018	08/08/2018	10/22/2018
Parameter (µg/L)											
Acetone	730	1,700	1,000,000,000 (D,S)	50,000	42,000	3.2	2.3 [J]	<100 [UB]	15 [J]	<20	2.7 [J]
Benzene	5.0 (A)	12 (X)	5,600	1	46	<1	<1	<5	<5	<1	<1
Bromodichloromethane	80 (A,W)	ID	4,800	NCL	13	<1	<1	<5	<5	<1	<1
Bromoform	80 (A,W)	ID	470,000	NCL	330	<1	<1	<5	<5	<1	<1
Methyl ethyl ketone (2-Butanone)	13,000	2,200	240,000,000 (S)	NCL	17,000	<10	<10	<50	<50	<10	<10
Bromomethane (Methyl bromide)	10	5.0 (M)	4,000	NCL	23	<2	<2	<10	<10	<2	<2
Carbon disulfide	800	ID	250,000	NCL	2,400	<1	<1	<5	<5	<1	<1
Carbon tetrachloride	5.0 (A)	4.7 (X)	370	NCL	46	<1	<1	<5	<5	<1	<1
Chlorobenzene	100 (A)	25	210,000	33	230	<1	<1	<5	<5	<1	<1
Chloroethane	430	170 (X)	5,700,000 (S)	620	63,000	<2	<2	<10	<10	<2	<2
Chloroform	80 (A,W)	350	28,000	0.49	22	<1	<1	<5	<5	<1	<1
Chloromethane (Methyl chloride)	260	ID	8,600	15	560	<1	<1	<5	<5	<1	<1
Cyclohexane	NCL	NCL	NCL	NCL	38,000	<1	<1	<5	<5	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.20 (A)	ID	220	NCL	0.033	<1	<1	<5	<5	<1	<1
Dibromochloromethane	80 (A,W)	ID	14,000	NCL	87	<1	<1	<5	<5	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	0.050 (A)	0.17 (X)	2,400	NCL	0.75	<1	<1	<5	<5	<1	<1
1,2-Dichlorobenzene	600 (A)	13	160,000 (S)	NCL	910	<1	<1	<5	<5	<1	<1
1,3-Dichlorobenzene	6.6	28	18,000	2.6	NCL	<1	<1	<5	<5	<1	<1
1,4-Dichlorobenzene	75 (A)	17	16,000	5.9	48	<1	<1	<5	<5	<1	<1
Dichlorodifluoromethane	1,700	ID	220,000	NCL	590	<2 [UJ]	<2	<10	<10	<2 [UJ]	<2
1,1-Dichloroethane	880	740	1,000,000	4.7	280	<1	<1	<5	<5	0.95	1.7
1,2-Dichloroethane	5.0 (A)	6.0 (X)	9,600	NCL	17	<1	<1	<5	<5	<1	<1
1,1-Dichloroethylene	7.0 (A)	130	200	18	850	<1	<1	<5	<5	<1	<1
cis-1,2-Dichloroethylene	70 (A)	620	93,000	3.4	110	<1	<1	<5	<5	<1	<1
trans-1,2-Dichloroethylene	100 (A)	470 (X)	85,000	27	1,100	<1	<1	<5	<5	<1	<1
1,2-Dichloropropane	5.0 (A)	9.1 (X)	16,000	NCL	25	<1	<1	<5	<5	<1	<1
cis-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<5	<5	<1	<1
trans-1,3-Dichloropropene	NCL	NCL	NCL	NCL	NCL	<1	<1	<5	<5	<1	<1
1,3-Dichlorpropene (Calculated: cis + trans)	8.5	3.3 (X)	3,900	NCL	47	ND	ND	ND	ND	ND	ND
Ethylbenzene	74 (E)	18	110,000	2.8	150	<1	<1	<5	<5	<1	<1
2-Hexanone	1,000	ID	4,200,000	NCL	110	<10	<10	<50	<50	<10	<10
Isopropyl benzene	800	28	56,000 (S)	NCL	1,400	<1	<1	<5	<5	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	60,000	<1	<1	<5	<5	<1	<1
Methyl tertiary butyl ether (MTBE)	40 (E)	100 (X)	47,000,000 (S)	250	1,400	<1	<1	<5	<5	<1	<1
Methyl isobutyl ketone	1,800	ID	20,000,000 (S)	NCL	19,000	<10	<10	<50	<50	<10	<10
Methylcyclohexane	NCL	NCL	NCL	NCL	NCL	<5	<5	<25	<25	<5	<5
Methylene Chloride	5.0 (A)	47 (X)	220,000	79	320	<1	<1	<5	<5	<1	<1
Styrene	100 (A)	20 (X)	170,000	NCL	3,600	<1	<1	<5	<5	<1	<1
1,1,2,2-Tetrachloroethane	8.5	3.2 (X)	12,000	NCL	7.6	<1	<1	<5	<5	<1	<1
Tetrachloroethylene	5.0 (A)	11 (X)	25,000	1.5	120	<1	<1	<5	<5	<1	<1
Toluene	790 (E)	270	530,000 (S)	300	3,300	<1	<1	<5	<5	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	170,000 (S)	32	170,000 (S)	NCL	31,000	<1	<1	<5	<5	<1	<1
1,2,4-Trichlorobenzene	70 (A)	80 (X)	300,000 (S)	3.8	12	<1	<1	<5	<5	<1	<1
1,1,1-Trichloroethane	200 (A)	89	660,000	180	24,000	<1	<1	<5	<5	<1	<1
1,1,2-Trichloroethane	5.0 (A)	12 (X)	17,000	NCL	1.2	<1	<1	<5	<5	<1	<1
Trichloroethylene	5.0 (A)	29 (X)	2,200	0.073	8.5	<1	<1	<5	<5	<1	<1
Trichlorofluoromethane	2,600	NA	1,100,000 (S)	NCL	15,000	<1	<1	<5	<5	<1	<1
Vinyl Chloride	2.0 (A)	1.0 (X)	1,100	0.12	1.9	<1	<1	<5	<5	<1	<1
Xylenes (Total)	280 (E)	49	190,000 (S)	75	580	<1	<1	<5	<5	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	<1	<1	<5	<5	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	580	<1	<1	<5	<5	<1	<1
Trihalomethanes (Calculation: Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane)	80 (W)	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND

TABLE 6B
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06	TA-GW-07	TA-GW-07
Sample Name						TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06	TA-GW-07	TA-GW-07
Laboratory Sample ID(s)						TH15011-003	TK02073-003	TH11003-020	TJ23010-007	TH15011-006	TJ25084-018	TH15011-005	TK02006-002	TH15011-002	TJ23010-002	TH15011-004	TK01001-001	TH11003-021	TJ17030-012
Sample Date						08/14/2018	11/01/2018	08/13/2018	10/22/2018	08/14/2018	10/25/2018	08/14/2018	10/31/2018	08/14/2018	10/22/2018	08/14/2018	10/30/2018	08/13/2018	10/18/2018
Parameter (µg/L)																			
Acenaphthene	1,300	38	4,200 (S)	NCL	1,600	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	2	<0.2 [UJ]	<0.2
Acenaphthylene	52	ID	3,900 (S)	NCL	NCL	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Acetophenone	1,500	ID	6,100,000 (S)	NCL	5,800	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Anthracene	43 (S)	ID	43 (S)	NCL	5,300	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	0.44	<0.2 [UJ]	<0.2
Atrazine	3.0 (A)	7.3	NLV	NCL	30	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Azobenzene	23	ID	6,400 (S)	NCL	12	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Benzidine	0.30 (M)	0.30 (M)	NLV	NCL	0.011	<100	<20	<20	<20	<20	<20	<100	<20	<20 [UR]	<20	<20	<20	<20 [UJ]	<20
Benzo[a]anthracene	2.1	ID	NLV	NCL	3	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Benzo[a]pyrene	5.0 (A)	ID	NLV	NCL	2.5	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	1.5 (S,AA)	ID	ID	NCL	25	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Benzo[g,h,i]perylene	1.0 (M,S)	ID	NLV	NCL	NCL	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Benzo[k]fluoranthene	1.0 (M,S)	NA	NLV	NCL	250	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Butyl benzyl phthalate	1,200	6.9 (X)	NLV	NCL	1,600	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Caprolactam	5,800	NA	NLV	NCL	30,000	<8	8.7	<1.6	<1.6	2.7	<1.6	<8	1.6	1.1	1.6	<1.6	<1.6	1.1 [J-]	<1.6
Carbazole	85	10 (M)	NLV	NCL	NCL	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
p-Chloro-m-cresol	150	7.4	NLV	NCL	4,300	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
bis(2-chloroethyl)ether	2.0	1.0 (M)	38,000	NCL	1.4	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
2-Chloronaphthalene	1,800	NA	ID	NCL	2,200	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
2-Chlorophenol	45	18	490,000	NCL	270	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Chrysene	1.6 (S)	ID	ID	NCL	2,500	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Dibenzo[a,h]anthracene	2 (M)	ID	NLV	NCL	2.5	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Dibenzofuran	ID	4.0	10,000 (S)	NCL	24	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	1.3	<0.8 [UJ]	<0.8
3,3'-Dichlorobenzidine	1.1	0.30 (M)	NLV	NCL	13	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
2,4-Dichlorophenol	73	11	NLV	NCL	140	<8	<1.6	<1.6	<1.6	<1.6	<1.6	<8	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Diethyl phthalate	5,500	110	NLV	NCL	45,000	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Dimethyl phthalate	73,000	NA	NLV	NCL	NCL	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
2,4-Dimethylphenol	370	380	NLV	NCL	1,100	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Di-n-butyl phthalate	880	9.7	NLV	NCL	2,700	<4	<0.8	<0.8	<0.8	0.52	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
4,6-Dinitro-o-cresol	20 (M)	NA	NLV	NCL	4.5	<20	<4	<4	<4	<4	<4	<20	<4	<4	<4	<4	<4	<4	<4
2,4-Dinitrotoluene	7.7	NA	NLV	NCL	24	<8	<1.6	<1.6	<1.6	<1.6	<1.6	<8	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 [UJ]	<1.6
Di-n-octyl phthalate	130	ID	NLV	NCL	600	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
bis(2-Ethylhexyl)phthalate	6.0 (A)	14	NLV	NCL	560	<20	<4	1.1	0.55 [J]	0.55	<4	<20	<4	<4	<4	0.68	0.71 [BJ]	<4 [UJ]	<4
Fluoranthene	210 (S)	1.6	210 (S)	NCL	2,400	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	0.46	<0.2 [UJ]	<0.2
Fluorene	880	12	2,000 (S)	NCL	880	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	2.9	<0.2 [UJ]	<0.2
Hexachlorobenzene	1.0 (A)	0.20 (M)	440	NCL	0.98	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Hexachlorobutadiene	15	0.053	1,600	NCL	14	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Hexachlorocyclopentadiene	50 (A)	ID	130	NCL	1.2	<20 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<20 [UJ]	<4	<4 [UR]	<4	<4 [UJ]	<4	<4 [UJ]	<4
Hexachloroethane	7.3	5.3 (X)	27,000	NCL	19	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Indeno[1,2,3-cd]pyrene	2 (M,S)	ID	NLV	NCL	25	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2
Isophorone	770	310 (X)	NLV	NCL	7,800	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
2-Methylnaphthalene	260	19	25,000 (S)	NCL	110	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	3.1	<0.2 [UJ]	<0.2
2-Methylphenol	NCL	NCL	NCL	NCL	2,800	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4-Methylphenol	NCL	NCL	NCL	NCL	5,600	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Naphthalene	520	11	31,000 (S)	NCL	17	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	0.26	5	<0.2 [UJ]	<0.2
Nitrobenzene	3.4	4.7 (X)	280,000	NCL	14	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
2-Nitrophenol	20	ID	NLV	NCL	NCL	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitroso-di-n-propylamine	5.0 (M)	NA	NLV	NCL	1.1	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
n-Nitrosodiphenylamine	270	NA	NLV	NCL	1,200	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8
Pentachlorophenol	1.0 (A)	1.8 (G,X)	NLV	NCL	4.1	<20	<4	<4 [UJ]	<4	<4	<4	<20	<4	<4	<4	<4	<4	<4 [UJ]	<4
Phenanthrene	52	2 (M)	1000 (S)	NCL	NCL	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	***2.4***	<0.2 [UJ]	<0.2
Phenol	4,400.00	450	NLV	NCL	17,000	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pyrene	140 (S)	ID	140 (S)	NCL	360	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	0.31	<0.2 [UJ]	<0.2
2,4,5-Trichlorophenol	730	NA	NLV	NCL	3,500	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4,6-Trichlorophenol	120	5.0	NLV	NCL	36	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8

TABLE 6B
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-301B	TA-MW-301B	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B	TA-MW-302B	TA-MW-303A	TA-MW-303A	TA-MW-303B
Sample Name						TA-MW-301B	TA-MW-301B	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301 D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B DUP	TA-MW-302B	TA-MW-303A	TW-MW-303A	TA-MW-303B
Laboratory Sample ID(s)						TH11003-005	TK01001-004	TH11003-019	TK02073-001	TH08014-005	TJ17030-007	TH11003-015	TJ23010-013	TH10023-001	TH10023-002	TJ23010-012	TH11003-012	TJ27020-012	TH11003-006
Sample Date						08/10/2018	10/30/2018	08/13/2018	11/01/2018	08/07/2018	10/17/2018	08/13/2018	10/23/2018	08/09/2018	08/09/2018	10/23/2018	08/13/2018	10/29/2018	08/10/2018
Parameter (µg/L)																			
Acenaphthene	1,300	38	4,200 (S)	NCL	1,600	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1.5	1.6	<0.2
Acenaphthylene	52	ID	3,900 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acetophenone	1,500	ID	6,100,000 (S)	NCL	5,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Anthracene	43 (S)	ID	43 (S)	NCL	5,300	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Atrazine	3.0 (A)	7.3	NLV	NCL	30	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Azobenzene	23	ID	6,400 (S)	NCL	12	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Benzidine	0.30 (M)	0.30 (M)	NLV	NCL	0.011	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzo[a]anthracene	2.1	ID	NLV	NCL	3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.31	<0.2
Benzo[a]pyrene	5.0 (A)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.4	<0.2
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	1.5 (S,AA)	ID	ID	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.48	<0.2
Benzo[g,h,i]perylene	1.0 (M,S)	ID	NLV	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[k]fluoranthene	1.0 (M,S)	NA	NLV	NCL	250	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2
Butyl benzyl phthalate	1,200	6.9 (X)	NLV	NCL	1,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Caprolactam	5,800	NA	NLV	NCL	30,000	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Carbazole	85	10 (M)	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
p-Chloro-m-cresol	150	7.4	NLV	NCL	4,300	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
bis(2-chloroethyl)ether	2.0	1.0 (M)	38,000	NCL	1.4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chloronaphthalene	1,800	NA	ID	NCL	2,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chlorophenol	45	18	490,000	NCL	270	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Chrysene	1.6 (S)	ID	ID	NCL	2,500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.51	<0.2
Dibenzo[a,h]anthracene	2 (M)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenzofuran	ID	4.0	10,000 (S)	NCL	24	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
3,3'-Dichlorobenzidine	1.1	0.30 (M)	NLV	NCL	13	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dichlorophenol	73	11	NLV	NCL	140	<1.6 [UJ]	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Diethyl phthalate	5,500	110	NLV	NCL	45,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Dimethyl phthalate	73,000	NA	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dimethylphenol	370	380	NLV	NCL	1,100	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Di-n-butyl phthalate	880	9.7	NLV	NCL	2,700	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4,6-Dinitro-o-cresol	20 (M)	NA	NLV	NCL	4.5	<4 [UJ]	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
2,4-Dinitrotoluene	7.7	NA	NLV	NCL	24	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Di-n-octyl phthalate	130	ID	NLV	NCL	600	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
bis(2-Ethylhexyl)phthalate	6.0 (A)	14	NLV	NCL	560	<4	0.66 [BJ]	<4	<4	<4 [UB]	<4	<4	0.6 [J]	<4	<4	0.54 [J]	<4	<4	<4
Fluoranthene	210 (S)	1.6	210 (S)	NCL	2,400	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.41	<0.2
Fluorene	880	12	2,000 (S)	NCL	880	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.92	0.93	<0.2
Hexachlorobenzene	1.0 (A)	0.20 (M)	440	NCL	0.98	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorobutadiene	15	0.053	1,600	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorocyclopentadiene	50 (A)	ID	130	NCL	1.2	<4 [UJ]	<4	<4 [UJ]	<4	<4	<4	<4 [UJ]	<4	<4	<4	<4	<4	<4	<4 [UJ]
Hexachloroethane	7.3	5.3 (X)	27,000	NCL	19	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Indeno[1,2,3-cd]pyrene	2 (M,S)	ID	NLV	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Isophorone	770	310 (X)	NLV	NCL	7,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Methylnaphthalene	260	19	25,000 (S)	NCL	110	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2-Methylphenol	NCL	NCL	NCL	NCL	2,800	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4-Methylphenol	NCL	NCL	NCL	NCL	5,600	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	1.6	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Naphthalene	520	11	31,000 (S)	NCL	17	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	3.4	4.7 (X)	280,000	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Nitrophenol	20	ID	NLV	NCL	NCL	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitroso-di-n-propylamine	5.0 (M)	NA	NLV	NCL	1.1	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitrosodiphenylamine	270	NA	NLV	NCL	1,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pentachlorophenol	1.0 (A)	1.8 (G,X)	NLV	NCL	4.1	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4	<4	<4	<4 [UJ]	<4	<4
Phenanthrene	52	2 (M)	1000 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.96	0.5	<0.2
Phenol	4,400.00	450	NLV	NCL	17,000	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pyrene	140 (S)	ID	140 (S)	NCL	360	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.36	<0.2
2,4,5-Trichlorophenol	730	NA	NLV	NCL	3,500	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4,6-Trichlorophenol	120	5.0	NLV	NCL	36	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8

TABLE 6B
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-303B	TA-MW-303C	TA-MW-303C	TA-MW-303D	TA-MW-303D	TA-MW-303E	TA-MW-303E	TA-MW-303E	TA-MW-304A	TA-MW-304A	TA-MW-304B	TA-MW-304B	TA-MW-305B	TA-MW-305B
Sample Name						TA-MW-303B	TA-MW-303C	TA-MW-303C	TA-MW-303D	TA-MW-303 D	TA-MW-303E	TA-MW-303E DUP	TA-MW-303 E	TA-MW-304A	TA-MW-304A	TA-MW-304B	TA-MW-304-B	TA-MW-305B	TA-MW-305B
Laboratory Sample ID(s)						TJ27020-004	TH11003-009	TJ27020-003	TH08014-003	TJ17030-006	TH08014-001	TH08014-002	TJ17030-005	TH15011-014	TK02006-001	TH08014-010	TJ17030-013	TH11003-008	TK01001-002
Sample Date						10/26/2018	08/10/2018	10/26/2018	08/07/2018	10/17/2018	08/07/2018	08/07/2018	10/17/2018	08/15/2018	10/31/2018	08/08/2018	10/18/2018	08/10/2018	10/30/2018
Parameter (µg/L)																			
Acenaphthene	1,300	38	4,200 (S)	NCL	1,600	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Acenaphthylene	52	ID	3,900 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Acetophenone	1,500	ID	6,100,000 (S)	NCL	5,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Anthracene	43 (S)	ID	43 (S)	NCL	5,300	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Atrazine	3.0 (A)	7.3	NLV	NCL	30	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Azobenzene	23	ID	6,400 (S)	NCL	12	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Benzidine	0.30 (M)	0.30 (M)	NLV	NCL	0.011	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<40	<20
Benzo[a]anthracene	2.1	ID	NLV	NCL	3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Benzo[a]pyrene	5.0 (A)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	1.5 (S,AA)	ID	ID	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Benzo[g,h,i]perylene	1.0 (M,S)	ID	NLV	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Benzo[k]fluoranthene	1.0 (M,S)	NA	NLV	NCL	250	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Butyl benzyl phthalate	1,200	6.9 (X)	NLV	NCL	1,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Caprolactam	5,800	NA	NLV	NCL	30,000	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<3.2	<1.6
Carbazole	85	10 (M)	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
p-Chloro-m-cresol	150	7.4	NLV	NCL	4,300	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
bis(2-chloroethyl)ether	2.0	1.0 (M)	38,000	NCL	1.4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
2-Chloronaphthalene	1,800	NA	ID	NCL	2,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
2-Chlorophenol	45	18	490,000	NCL	270	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6 [UJ]	<0.8
Chrysene	1.6 (S)	ID	ID	NCL	2,500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Dibenzo[a,h]anthracene	2 (M)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Dibenzofuran	ID	4.0	10,000 (S)	NCL	24	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
3,3'-Dichlorobenzidine	1.1	0.30 (M)	NLV	NCL	13	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
2,4-Dichlorophenol	73	11	NLV	NCL	140	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<3.2	<1.6
Diethyl phthalate	5,500	110	NLV	NCL	45,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Dimethyl phthalate	73,000	NA	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
2,4-Dimethylphenol	370	380	NLV	NCL	1,100	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Di-n-butyl phthalate	880	9.7	NLV	NCL	2,700	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
4,6-Dinitro-o-cresol	20 (M)	NA	NLV	NCL	4.5	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<8	<4
2,4-Dinitrotoluene	7.7	NA	NLV	NCL	24	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<3.2	<1.6
Di-n-octyl phthalate	130	ID	NLV	NCL	600	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6 [UJ]	<0.8
bis(2-Ethylhexyl)phthalate	6.0 (A)	14	NLV	NCL	560	0.76 [BJ]	1.1	0.82 [BJ]	<4 [UB]	<4	<4 [UB]	<4 [UB]	<4	<4	<4	<4	<4	<8	0.57 [J]
Fluoranthene	210 (S)	1.6	210 (S)	NCL	2,400	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Fluorene	880	12	2,000 (S)	NCL	880	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Hexachlorobenzene	1.0 (A)	0.20 (M)	440	NCL	0.98	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Hexachlorobutadiene	15	0.053	1,600	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Hexachlorocyclopentadiene	50 (A)	ID	130	NCL	1.2	<4	<4 [UJ]	<4	<4	<4	<4	<4	<4	<4 [UJ]	<4	<4 [UJ]	<4	<8 [UJ]	<4
Hexachloroethane	7.3	5.3 (X)	27,000	NCL	19	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Indeno[1,2,3-cd]pyrene	2 (M,S)	ID	NLV	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Isophorone	770	310 (X)	NLV	NCL	7,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
2-Methylnaphthalene	260	19	25,000 (S)	NCL	110	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
2-Methylphenol	NCL	NCL	NCL	NCL	2,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
4-Methylphenol	NCL	NCL	NCL	NCL	5,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Naphthalene	520	11	31,000 (S)	NCL	17	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.31	<0.2	<0.2	<0.2	<0.4	<0.2
Nitrobenzene	3.4	4.7 (X)	280,000	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
2-Nitrophenol	20	ID	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
n-Nitroso-di-n-propylamine	5.0 (M)	NA	NLV	NCL	1.1	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
n-Nitrosodiphenylamine	270	NA	NLV	NCL	1,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Pentachlorophenol	1.0 (A)	1.8 (G,X)	NLV	NCL	4.1	<4	<4	<4	<4 [UJ]	<4	<4 [UJ]	<4 [UJ]	<4	<4	<4	<4	<4	<8	<4
Phenanthrene	52	2 (M)	1000 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Phenol	4,400.00	450	NLV	NCL	17,000	<0.8	<0.8	<0.8	<0.8	0.94	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
Pyrene	140 (S)	ID	140 (S)	NCL	360	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
2,4,5-Trichlorophenol	730	NA	NLV	NCL	3,500	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8
2,4,6-Trichlorophenol	120	5.0	NLV	NCL	36	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1.6	<0.8

TABLE 6B
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A	TA-MW-306A	TA-MW-306B	TA-MW-306B	TA-MW-307A	TA-MW-307A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A
Sample Name						TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A	TA-MW-306A DUP	TA-MW-306B	TA-MW-306B	TA-MW-307A	TA-MW-307-A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A DUP
Laboratory Sample ID(s)						TH11003-013	TK01001-003	TH10023-008	TJ23010-017	TJ23010-016	TH10023-005	TJ25084-005	TH10023-007	TJ17030-011	TH10023-006	TJ23010-004	TH11003-010	TJ25084-015	TJ25084-016
Sample Date						08/13/2018	10/30/2018	08/09/2018	10/23/2018	10/23/2018	08/09/2018	10/24/2018	08/09/2018	10/18/2018	08/09/2018	10/22/2018	08/10/2018	10/25/2018	10/25/2018
Parameter (µg/L)																			
Acenaphthene	1,300	38	4,200 (S)	NCL	1,600	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	52	ID	3,900 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acetophenone	1,500	ID	6,100,000 (S)	NCL	5,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Anthracene	43 (S)	ID	43 (S)	NCL	5,300	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Atrazine	3.0 (A)	7.3	NLV	NCL	30	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Azobenzene	23	ID	6,400 (S)	NCL	12	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Benzidine	0.30 (M)	0.30 (M)	NLV	NCL	0.011	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20 [UR]	<20	<20	<20	<20
Benzo[a]anthracene	2.1	ID	NLV	NCL	3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[a]pyrene	5.0 (A)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	1.5 (S,AA)	ID	ID	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[g,h,i]perylene	1.0 (M,S)	ID	NLV	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[k]fluoranthene	1.0 (M,S)	NA	NLV	NCL	250	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2
Butyl benzyl phthalate	1,200	6.9 (X)	NLV	NCL	1,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Caprolactam	5,800	NA	NLV	NCL	30,000	<1.6	<1.6	1.8	<1.6	<1.6	<1.6	<1.6	1.2	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Carbazole	85	10 (M)	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
p-Chloro-m-cresol	150	7.4	NLV	NCL	4,300	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
bis(2-chloroethyl)ether	2.0	1.0 (M)	38,000	NCL	1.4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chloronaphthalene	1,800	NA	ID	NCL	2,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chlorophenol	45	18	490,000	NCL	270	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<0.8
Chrysene	1.6 (S)	ID	ID	NCL	2,500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenzo[a,h]anthracene	2 (M)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2
Dibenzofuran	ID	4.0	10,000 (S)	NCL	24	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
3,3'-Dichlorobenzidine	1.1	0.30 (M)	NLV	NCL	13	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UR]	<0.8	<0.8	<0.8	<0.8
2,4-Dichlorophenol	73	11	NLV	NCL	140	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Diethyl phthalate	5,500	110	NLV	NCL	45,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Dimethyl phthalate	73,000	NA	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dimethylphenol	370	380	NLV	NCL	1,100	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Di-n-butyl phthalate	880	9.7	NLV	NCL	2,700	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4,6-Dinitro-o-cresol	20 (M)	NA	NLV	NCL	4.5	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
2,4-Dinitrotoluene	7.7	NA	NLV	NCL	24	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Di-n-octyl phthalate	130	ID	NLV	NCL	600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<0.8
bis(2-Ethylhexyl)phthalate	6.0 (A)	14	NLV	NCL	560	<4	0.63 [BJ]	<4	<4	<4	<4	0.53 [J]	<4	<4	<4 [UJ]	<4	<4	<4	<4
Fluoranthene	210 (S)	1.6	210 (S)	NCL	2,400	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	880	12	2,000 (S)	NCL	880	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexachlorobenzene	1.0 (A)	0.20 (M)	440	NCL	0.98	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorobutadiene	15	0.053	1,600	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorocyclopentadiene	50 (A)	ID	130	NCL	1.2	<4 [UJ]	<4	<4	<4	<4	<4	<4	<4	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4
Hexachloroethane	7.3	5.3 (X)	27,000	NCL	19	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Indeno[1,2,3-cd]pyrene	2 (M,S)	ID	NLV	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2
Isophorone	770	310 (X)	NLV	NCL	7,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Methylnaphthalene	260	19	25,000 (S)	NCL	110	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2-Methylphenol	NCL	NCL	NCL	NCL	2,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4-Methylphenol	NCL	NCL	NCL	NCL	5,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Naphthalene	520	11	31,000 (S)	NCL	17	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	3.4	4.7 (X)	280,000	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Nitrophenol	20	ID	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitroso-di-n-propylamine	5.0 (M)	NA	NLV	NCL	1.1	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitrosodiphenylamine	270	NA	NLV	NCL	1,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pentachlorophenol	1.0 (A)	1.8 (G,X)	NLV	NCL	4.1	<4 [UJ]	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Phenanthrene	52	2 (M)	1000 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenol	4,400.00	450	NLV	NCL	17,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pyrene	140 (S)	ID	140 (S)	NCL	360	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	730	NA	NLV	NCL	3,500	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4,6-Trichlorophenol	120	5.0	NLV	NCL	36	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8

TABLE 6B
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-308B	TA-MW-308B	TA-MW-308C	TA-MW-308C	TA-MW-309A	TA-MW-309A	TA-MW-309B	TA-MW-309B	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309D	TA-MW-309D	TA-MW-310A
Sample Name						TA-MW-308B	TA-MW-308 B	TA-MW-308C	TA-MW-308 C	TA-MW-309A	TA-MW-309A	TA-MW-309B	TA-MW-309B DUP	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309D	TA-MW-309D	TA-MW-310A
Laboratory Sample ID(s)						TH08014-004	TJ17030-001	TH08014-006	TJ17030-004	TH10023-004	TJ25084-007	TH11003-001	TH11003-002	TJ25084-003	TH10023-009	TJ25084-024	TH11003-007	TK02006-004	TH08014-011
Sample Date						08/07/2018	10/16/2018	08/07/2018	10/17/2018	08/09/2018	10/24/2018	08/10/2018	08/10/2018	10/24/2018	08/09/2018	10/25/2018	08/10/2018	10/31/2018	08/08/2018
Parameter (µg/L)																			
Acenaphthene	1,300	38	4,200 (S)	NCL	1,600	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	52	ID	3,900 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acetophenone	1,500	ID	6,100,000 (S)	NCL	5,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Anthracene	43 (S)	ID	43 (S)	NCL	5,300	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Atrazine	3.0 (A)	7.3	NLV	NCL	30	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Azobenzene	23	ID	6,400 (S)	NCL	12	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Benzidine	0.30 (M)	0.30 (M)	NLV	NCL	0.011	<20	<20	<20	<20	<20 [UR]	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzo[a]anthracene	2.1	ID	NLV	NCL	3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[a]pyrene	5.0 (A)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	1.5 (S,AA)	ID	ID	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[g,h,i]perylene	1.0 (M,S)	ID	NLV	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[k]fluoranthene	1.0 (M,S)	NA	NLV	NCL	250	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Butyl benzyl phthalate	1,200	6.9 (X)	NLV	NCL	1,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Caprolactam	5,800	NA	NLV	NCL	30,000	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Carbazole	85	10 (M)	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
p-Chloro-m-cresol	150	7.4	NLV	NCL	4,300	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
bis(2-chloroethyl)ether	2.0	1.0 (M)	38,000	NCL	1.4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chloronaphthalene	1,800	NA	ID	NCL	2,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chlorophenol	45	18	490,000	NCL	270	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8
Chrysene	1.6 (S)	ID	ID	NCL	2,500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenzo[a,h]anthracene	2 (M)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenzofuran	ID	4.0	10,000 (S)	NCL	24	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
3,3'-Dichlorobenzidine	1.1	0.30 (M)	NLV	NCL	13	<0.8	<0.8	<0.8	<0.8	<0.8 [UR]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dichlorophenol	73	11	NLV	NCL	140	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 [UJ]	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Diethyl phthalate	5,500	110	NLV	NCL	45,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Dimethyl phthalate	73,000	NA	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dimethylphenol	370	380	NLV	NCL	1,100	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Di-n-butyl phthalate	880	9.7	NLV	NCL	2,700	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4,6-Dinitro-o-cresol	20 (M)	NA	NLV	NCL	4.5	<4	<4	<4	<4	<4	<4	<4	<4 [UJ]	<4	<4	<4	<4	<4	<4
2,4-Dinitrotoluene	7.7	NA	NLV	NCL	24	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Di-n-octyl phthalate	130	ID	NLV	NCL	600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8
bis(2-Ethylhexyl)phthalate	6.0 (A)	14	NLV	NCL	560	<4 [UB]	<4	<4 [UB]	<4	<4	<4	<4	<4	<4	0.5	<4	<4	<4	<4
Fluoranthene	210 (S)	1.6	210 (S)	NCL	2,400	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	880	12	2,000 (S)	NCL	880	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexachlorobenzene	1.0 (A)	0.20 (M)	440	NCL	0.98	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorobutadiene	15	0.053	1,600	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorocyclopentadiene	50 (A)	ID	130	NCL	1.2	<4	<4	<4	<4	<4 [UR]	<4	<4 [UJ]	<4 [UJ]	<4	<4	<4	<4 [UJ]	<4	<4 [UJ]
Hexachloroethane	7.3	5.3 (X)	27,000	NCL	19	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Indeno[1,2,3-cd]pyrene	2 (M,S)	ID	NLV	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Isophorone	770	310 (X)	NLV	NCL	7,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Methylnaphthalene	260	19	25,000 (S)	NCL	110	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2-Methylphenol	NCL	NCL	NCL	NCL	2,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4-Methylphenol	NCL	NCL	NCL	NCL	5,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Naphthalene	520	11	31,000 (S)	NCL	17	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	3.4	4.7 (X)	280,000	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Nitrophenol	20	ID	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitroso-di-n-propylamine	5.0 (M)	NA	NLV	NCL	1.1	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitrosodiphenylamine	270	NA	NLV	NCL	1,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pentachlorophenol	1.0 (A)	1.8 (G,X)	NLV	NCL	4.1	<4 [UJ]	<4	<4 [UJ]	<4	<4	<4	<4	<4 [UJ]	<4	<4	<4	<4	<4	<4
Phenanthrene	52	2 (M)	1000 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenol	4,400.00	450	NLV	NCL	17,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pyrene	140 (S)	ID	140 (S)	NCL	360	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	730	NA	NLV	NCL	3,500	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4,6-Trichlorophenol	120	5.0	NLV	NCL	36	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8

TABLE 6B
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-310A	TA-MW-310B	TA-MW-310B	TA-MW-310C	TA-MW-310C	TA-P-1	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4	TA-P-5
Sample Name						TA-MW-310-A	TA-MW-310B	TA-MW-310-B	TA-MW-310C	TA-MW-310-C	TA-P-1	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4	TA-P-5
Laboratory Sample ID(s)						TJ17030-016	TH08014-009	TJ17030-018	TH08014-007	TJ17030-010	TH15011-007	TJ25084-017	TH15011-008	TJ25084-020	TH15011-009	TJ25084-001	TH15011-015	TJ27020-013	TH15011-016
Sample Date						10/19/2018	08/08/2018	10/19/2018	08/07/2018	10/18/2018	08/14/2018	10/25/2018	08/14/2018	10/25/2018	08/14/2018	10/24/2018	08/15/2018	10/29/2018	08/15/2018
Parameter (µg/L)																			
Acenaphthene	1,300	38	4,200 (S)	NCL	1,600	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Acenaphthylene	52	ID	3,900 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Acetophenone	1,500	ID	6,100,000 (S)	NCL	5,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Anthracene	43 (S)	ID	43 (S)	NCL	5,300	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Atrazine	3.0 (A)	7.3	NLV	NCL	30	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Azobenzene	23	ID	6,400 (S)	NCL	12	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Benzidine	0.30 (M)	0.30 (M)	NLV	NCL	0.011	<20	<20	<20	<20	<20	<20 [UJ]	<20	<20	<20	<20	<20	<20	<20	<20 [UJ]
Benzo[a]anthracene	2.1	ID	NLV	NCL	3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Benzo[a]pyrene	5.0 (A)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	1.5 (S,AA)	ID	ID	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Benzo[g,h,i]perylene	1.0 (M,S)	ID	NLV	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Benzo[k]fluoranthene	1.0 (M,S)	NA	NLV	NCL	250	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Butyl benzyl phthalate	1,200	6.9 (X)	NLV	NCL	1,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Caprolactam	5,800	NA	NLV	NCL	30,000	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 [UJ]	2.4	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 [UJ]
Carbazole	85	10 (M)	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.59 [J-]
p-Chloro-m-cresol	150	7.4	NLV	NCL	4,300	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	1.7 [J-]
bis(2-chloroethyl)ether	2.0	1.0 (M)	38,000	NCL	1.4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
2-Chloronaphthalene	1,800	NA	ID	NCL	2,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
2-Chlorophenol	45	18	490,000	NCL	270	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Chrysene	1.6 (S)	ID	ID	NCL	2,500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Dibenzo[a,h]anthracene	2 (M)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Dibenzofuran	ID	4.0	10,000 (S)	NCL	24	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
3,3'-Dichlorobenzidine	1.1	0.30 (M)	NLV	NCL	13	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
2,4-Dichlorophenol	73	11	NLV	NCL	140	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 [UJ]	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 [UJ]
Diethyl phthalate	5,500	110	NLV	NCL	45,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Dimethyl phthalate	73,000	NA	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
2,4-Dimethylphenol	370	380	NLV	NCL	1,100	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Di-n-butyl phthalate	880	9.7	NLV	NCL	2,700	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
4,6-Dinitro-o-cresol	20 (M)	NA	NLV	NCL	4.5	<4	<4	<4	<4	<4	<4 [UJ]	<4	<4	<4	<4	<4	<4	<4	<4 [UJ]
2,4-Dinitrotoluene	7.7	NA	NLV	NCL	24	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 [UJ]	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 [UJ]
Di-n-octyl phthalate	130	ID	NLV	NCL	600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
bis(2-Ethylhexyl)phthalate	6.0 (A)	14	NLV	NCL	560	<4	<4 [UB]	<4	<4 [UB]	<4	<4 [UJ]	0.69 [J]	<4	<4	<4	0.5 [J]	0.98	<4	<4 [UJ]
Fluoranthene	210 (S)	1.6	210 (S)	NCL	2,400	<0.2	<0.2	<0.2	<0.2	<0.2	0.26 [J]	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Fluorene	880	12	2,000 (S)	NCL	880	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Hexachlorobenzene	1.0 (A)	0.20 (M)	440	NCL	0.98	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Hexachlorobutadiene	15	0.053	1,600	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Hexachlorocyclopentadiene	50 (A)	ID	130	NCL	1.2	<4	<4	<4	<4	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]
Hexachloroethane	7.3	5.3 (X)	27,000	NCL	19	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Indeno[1,2,3-cd]pyrene	2 (M,S)	ID	NLV	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
Isophorone	770	310 (X)	NLV	NCL	7,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
2-Methylnaphthalene	260	19	25,000 (S)	NCL	110	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
2-Methylphenol	NCL	NCL	NCL	NCL	2,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
4-Methylphenol	NCL	NCL	NCL	NCL	5,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Naphthalene	520	11	31,000 (S)	NCL	17	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	1.1	<0.2	<0.2	<0.2	<0.2	<0.2	0.28 [J-]
Nitrobenzene	3.4	4.7 (X)	280,000	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
2-Nitrophenol	20	ID	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
n-Nitroso-di-n-propylamine	5.0 (M)	NA	NLV	NCL	1.1	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
n-Nitrosodiphenylamine	270	NA	NLV	NCL	1,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Pentachlorophenol	1.0 (A)	1.8 (G,X)	NLV	NCL	4.1	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4	<4	<4	<4	<4	<4	<4 [UJ]
Phenanthrene	52	2 (M)	1000 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.38 [J-]
Phenol	4,400.00	450	NLV	NCL	17,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
Pyrene	140 (S)	ID	140 (S)	NCL	360	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 [UJ]
2,4,5-Trichlorophenol	730	NA	NLV	NCL	3,500	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]
2,4,6-Trichlorophenol	120	5.0	NLV	NCL	36	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]

TABLE 6B
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102	TA-TMW-102	TA-TMW-103	TA-TMW-103	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105	TA-TMW-108	TA-TMW-108
Sample Name						TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102	TA-TMW-102	TA-TMW-103	TA-TMW-103	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105 DUP	TA-TMW-108	TA-TMW-108
Laboratory Sample ID(s)						TJ25084-014	TH11003-016	TK02006-003	TH11003-018	TJ23010-011	TH08014-014	TJ23010-006	TH08014-015	TJ25084-019	TH11003-004	TJ27020-009	TJ27020-010	TH10023-003	TJ23010-005
Sample Date						10/25/2018	08/13/2018	10/31/2018	08/13/2018	10/23/2018	08/08/2018	10/22/2018	08/08/2018	10/25/2018	08/10/2018	10/29/2018	10/29/2018	08/09/2018	10/22/2018
Parameter (µg/L)																			
Acenaphthene	1,300	38	4,200 (S)	NCL	1,600	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	52	ID	3,900 (S)	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acetophenone	1,500	ID	6,100,000 (S)	NCL	5,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Anthracene	43 (S)	ID	43 (S)	NCL	5,300	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Atrazine	3.0 (A)	7.3	NLV	NCL	30	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Azobenzene	23	ID	6,400 (S)	NCL	12	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Benzidine	0.30 (M)	0.30 (M)	NLV	NCL	0.011	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzo[a]anthracene	2.1	ID	NLV	NCL	3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[a]pyrene	5.0 (A)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	1.5 (S,AA)	ID	ID	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[g,h,i]perylene	1.0 (M,S)	ID	NLV	NCL	NCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo[k]fluoranthene	1.0 (M,S)	NA	NLV	NCL	250	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Butyl benzyl phthalate	1,200	6.9 (X)	NLV	NCL	1,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Caprolactam	5,800	NA	NLV	NCL	30,000	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	1.4	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Carbazole	85	10 (M)	NLV	NCL	NCL	0.54 [J]	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
p-Chloro-m-cresol	150	7.4	NLV	NCL	4,300	2.9	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
bis(2-chloroethyl)ether	2.0	1.0 (M)	38,000	NCL	1.4	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chloronaphthalene	1,800	NA	ID	NCL	2,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Chlorophenol	45	18	490,000	NCL	270	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8
Chrysene	1.6 (S)	ID	ID	NCL	2,500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenzo[a,h]anthracene	2 (M)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenzofuran	ID	4.0	10,000 (S)	NCL	24	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
3,3'-Dichlorobenzidine	1.1	0.30 (M)	NLV	NCL	13	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dichlorophenol	73	11	NLV	NCL	140	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Diethyl phthalate	5,500	110	NLV	NCL	45,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Dimethyl phthalate	73,000	NA	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4-Dimethylphenol	370	380	NLV	NCL	1,100	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Di-n-butyl phthalate	880	9.7	NLV	NCL	2,700	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4,6-Dinitro-o-cresol	20 (M)	NA	NLV	NCL	4.5	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
2,4-Dinitrotoluene	7.7	NA	NLV	NCL	24	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Di-n-octyl phthalate	130	ID	NLV	NCL	600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8 [UJ]	<0.8	<0.8	<0.8	<0.8
bis(2-Ethylhexyl)phthalate	6.0 (A)	14	NLV	NCL	560	<4	<4	<4	1	<4	<4	<4	<4	<4	<4	0.78 [BJ]	0.72 [BJ]	0.8	0.88 [J]
Fluoranthene	210 (S)	1.6	210 (S)	NCL	2,400	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	880	12	2,000 (S)	NCL	880	0.24	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexachlorobenzene	1.0 (A)	0.20 (M)	440	NCL	0.98	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorobutadiene	15	0.053	1,600	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorocyclopentadiene	50 (A)	ID	130	NCL	1.2	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4	<4	<4
Hexachloroethane	7.3	5.3 (X)	27,000	NCL	19	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Indeno[1,2,3-cd]pyrene	2 (M,S)	ID	NLV	NCL	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Isophorone	770	310 (X)	NLV	NCL	7,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Methylnaphthalene	260	19	25,000 (S)	NCL	110	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2-Methylphenol	NCL	NCL	NCL	NCL	2,800	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
4-Methylphenol	NCL	NCL	NCL	NCL	5,600	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Naphthalene	520	11	31,000 (S)	NCL	17	0.67	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	3.4	4.7 (X)	280,000	NCL	14	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2-Nitrophenol	20	ID	NLV	NCL	NCL	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitroso-di-n-propylamine	5.0 (M)	NA	NLV	NCL	1.1	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
n-Nitrosodiphenylamine	270	NA	NLV	NCL	1,200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pentachlorophenol	1.0 (A)	1.8 (G,X)	NLV	NCL	4.1	<4	<4 [UJ]	<4	<4 [UJ]	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Phenanthrene	52	2 (M)	1000 (S)	NCL	NCL	0.41	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenol	4,400.00	450	NLV	NCL	17,000	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Pyrene	140 (S)	ID	140 (S)	NCL	360	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	730	NA	NLV	NCL	3,500	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
2,4,6-Trichlorophenol	120	5.0	NLV	NCL	36	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8

TABLE 6B
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-TMW-109	TA-TMW-109	TA-TMW-110	TA-TMW-110	TA-TMW-111	TA-TMW-111
Sample Name						TA-TMW-109	TA-TMW-109	TA-TMW-110	TA-TMW-110	TA-TMW-111	TA-MW-111
Laboratory Sample ID(s)						TH08014-012	TJ23010-001	TH10023-010	TJ27020-011	TH08014-016	TJ23010-003
Sample Date						08/08/2018	10/22/2018	08/09/2018	10/29/2018	08/08/2018	10/22/2018
Parameter (µg/L)											
Acenaphthene	1,300	38	4,200 (S)	NCL	1,600	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Acenaphthylene	52	ID	3,900 (S)	NCL	NCL	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Acetophenone	1,500	ID	6,100,000 (S)	NCL	5,800	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Anthracene	43 (S)	ID	43 (S)	NCL	5,300	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Atrazine	3.0 (A)	7.3	NLV	NCL	30	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Azobenzene	23	ID	6,400 (S)	NCL	12	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Benzidine	0.30 (M)	0.30 (M)	NLV	NCL	0.011	<20	<20	<40	<100	<20	<20
Benzo[a]anthracene	2.1	ID	NLV	NCL	3	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Benzo[a]pyrene	5.0 (A)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	1.5 (S,AA)	ID	ID	NCL	25	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Benzo[g,h,i]perylene	1.0 (M,S)	ID	NLV	NCL	NCL	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Benzo[k]fluoranthene	1.0 (M,S)	NA	NLV	NCL	250	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Butyl benzyl phthalate	1,200	6.9 (X)	NLV	NCL	1,600	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Caprolactam	5,800	NA	NLV	NCL	30,000	1	<1.6	<3.2	<8	<1.6	<1.6
Carbazole	85	10 (M)	NLV	NCL	NCL	<0.8	<0.8	<1.6	<4	<0.8	<0.8
p-Chloro-m-cresol	150	7.4	NLV	NCL	4,300	<0.8	<0.8	<1.6	<4	<0.8	<0.8
bis(2-chloroethyl)ether	2.0	1.0 (M)	38,000	NCL	1.4	<0.8	<0.8	<1.6	<4	<0.8	<0.8
2-Chloronaphthalene	1,800	NA	ID	NCL	2,200	<0.8	<0.8	<1.6	<4	<0.8	<0.8
2-Chlorophenol	45	18	490,000	NCL	270	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Chrysene	1.6 (S)	ID	ID	NCL	2,500	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Dibenzo[a,h]anthracene	2 (M)	ID	NLV	NCL	2.5	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Dibenzofuran	ID	4.0	10,000 (S)	NCL	24	<0.8	<0.8	<1.6	<4	<0.8	<0.8
3,3'-Dichlorobenzidine	1.1	0.30 (M)	NLV	NCL	13	<0.8	<0.8	<1.6	<4	<0.8	<0.8
2,4-Dichlorophenol	73	11	NLV	NCL	140	<1.6	<1.6	<3.2	<8	<1.6	<1.6
Diethyl phthalate	5,500	110	NLV	NCL	45,000	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Dimethyl phthalate	73,000	NA	NLV	NCL	NCL	<0.8	<0.8	<1.6	<4	<0.8	<0.8
2,4-Dimethylphenol	370	380	NLV	NCL	1,100	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Di-n-butyl phthalate	880	9.7	NLV	NCL	2,700	<0.8	<0.8	<1.6	<4	<0.8	<0.8
4,6-Dinitro-o-cresol	20 (M)	NA	NLV	NCL	4.5	<4	<4	<8	<20	<4	<4
2,4-Dinitrotoluene	7.7	NA	NLV	NCL	24	<1.6	<1.6	<3.2	<8	<1.6	<1.6
Di-n-octyl phthalate	130	ID	NLV	NCL	600	<0.8	<0.8	<1.6	<4	<0.8	<0.8
bis(2-Ethylhexyl)phthalate	6.0 (A)	14	NLV	NCL	560	<4 [UB]	<4	<8	<20	<4	<4
Fluoranthene	210 (S)	1.6	210 (S)	NCL	2,400	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Fluorene	880	12	2,000 (S)	NCL	880	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Hexachlorobenzene	1.0 (A)	0.20 (M)	440	NCL	0.98	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Hexachlorobutadiene	15	0.053	1,600	NCL	14	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Hexachlorocyclopentadiene	50 (A)	ID	130	NCL	1.2	<4 [UJ]	<4	<8	<20	<4 [UJ]	<4
Hexachloroethane	7.3	5.3 (X)	27,000	NCL	19	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Indeno[1,2,3-cd]pyrene	2 (M,S)	ID	NLV	NCL	25	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Isophorone	770	310 (X)	NLV	NCL	7,800	<0.8	<0.8	<1.6	<4	<0.8	<0.8
2-Methylnaphthalene	260	19	25,000 (S)	NCL	110	<0.2	<0.2	<0.4	<1	<0.2	<0.2
2-Methylphenol	NCL	NCL	NCL	NCL	2,800	<0.8	<0.8	1.2	<4	<0.8	<0.8
4-Methylphenol	NCL	NCL	NCL	NCL	5,600	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Naphthalene	520	11	31,000 (S)	NCL	17	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Nitrobenzene	3.4	4.7 (X)	280,000	NCL	14	<0.8	<0.8	<1.6	<4	<0.8	<0.8
2-Nitrophenol	20	ID	NLV	NCL	NCL	<0.8	<0.8	<1.6	<4	<0.8	<0.8
n-Nitroso-di-n-propylamine	5.0 (M)	NA	NLV	NCL	1.1	<0.8	<0.8	<1.6	<4	<0.8	<0.8
n-Nitrosodiphenylamine	270	NA	NLV	NCL	1,200	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Pentachlorophenol	1.0 (A)	1.8 (G,X)	NLV	NCL	4.1	<4	<4	<8	<20	<4	<4
Phenanthrene	52	2 (M)	1000 (S)	NCL	NCL	<0.2	<0.2	<0.4	<1	<0.2	<0.2
Phenol	4,400.00	450	NLV	NCL	17,000	<0.8	<0.8	<1.6	<4	<0.8	<0.8
Pyrene	140 (S)	ID	140 (S)	NCL	360	<0.2	<0.2	<0.4	<1	<0.2	<0.2
2,4,5-Trichlorophenol	730	NA	NLV	NCL	3,500	<0.8	<0.8	<1.6	<4	<0.8	<0.8
2,4,6-Trichlorophenol	120	5.0	NLV	NCL	36	<0.8	<0.8	<1.6	<4	<0.8	<0.8

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06	TA-GW-07
Sample Name						TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06	TA-GW-07
Laboratory Sample ID(s)						TH15011-003 & 1808899-03A	TK02073-003 & 1811072-03B	TH11003-020 & 1808813-09A	TJ23010-007 & 18101428-07C	TH15011-006 & 1808899-06A	TJ25084-018 & 18101716-06C	TH15011-005 & 1808899-05A	TK02006-002 & 18102066-02B	TH15011-002 & 1808899-02A	TJ23010-002 & 18101428-02C	TH15011-004 & 1808899-04A	TK01001-001 & 18101976-01B	TH11003-021 & 1808813-10A
Sample Date						08/14/2018	11/01/2018	08/13/2018	10/22/2018	08/14/2018	10/25/2018	08/14/2018	10/31/2018	08/14/2018	10/22/2018	08/14/2018	10/30/2018	08/13/2018
Parameter (µg/L)																		
Aluminum	50 (V)	NA	NLV	NCL	60,000	43	<40	***55***	<40	13	<40	<40	<40	<40	<40	***64***	<40	10
Antimony	6.0 (A)	2.0 (X)	NLV	NCL	23	<2	<2	<2	0.61 [J]	<2	<2	<2	<2	<2	1.3 [J]	<2	<2	<2
Arsenic	10 (A)	10	NLV	NCL	5.2	<2	1.8 [J]	<2	<2	4.4	3.1	<2	<2	4.5	<2	***22***	4.1	3.6
Barium	2,000 (A)	1,000 (G)	NLV	NCL	11,000	580	270	120	140	68	63	55	52	110	67	90	240	89
Beryllium	4.0 (A)	25 (G)	NLV	NCL	74	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL	12,000	250	280	110 [J+]	50	230	230	210	260	130	38 [J]	410	440	***580 [J+]***
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL	28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Total	NCL	NCL	NCL	NCL	NCL	6.9	18	7.2	4.2 [J]	2.7	2 [J]	1.5	<5	<5	6.6	49	4.3 [J]	<5
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	67,000	6.9	18	7.2	4.2	2.7	2	1.5	ND	ND	0.7	49	4.3	ND
Chromium VI	100 (A)	11	NLV	NCL	3.5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5.9	<25	<5	<5
Cobalt	40	100	NLV	NCL	18	1.6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Copper	1000 (E)	18 (G)	NLV	NCL	2,400	<5	<5	3.1	1.7 [J]	<5	<5	1.8	1.8 [J]	<5	<5	<5	<5	<5
Iron	300 (E)	NA	NLV	NCL	42,000	***24,000 [J+]***	***6,100***	***620***	***610***	***2,100 [J+]***	***2,200***	***410 [J+]***	220	***11,000 [J+]***	240	***7,800 [J+]***	***1,400***	***1,700***
Lead	4.0 (L)	14 (G,X)	NLV	NCL	15	0.42	<1	<1	<1	0.65	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	400,000	NA	NLV	NCL	NCL	50,000	22,000	110,000	89,000	8,700	9,200	26,000	33,000	14,000	8,400	12,000	13,000	28,000
Mercury	2.0 (A)	0.0013	56 (S)	0.088	1.9	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	73	120 (X)	NLV	NCL	300	<10	2.7 [J]	6.7	5.4 [J]	<10	<10	<10	<10	<10	2.6 [J]	<10	<10	<10
Nickel	100 (A)	100 (G)	NLV	NCL	1,200	2.8	2 [J]	9.5	5.2	1.3	<5	2.4	3.2 [J]	2.1	4.9 [J]	<5	<5	2.2
Selenium	50 (A)	5.0	NLV	NCL	300	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silver	34	0.20 (M)	NLV	NCL	280	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	NCL	NCL	NCL	NCL	NCL	970,000	370,000	810,000	860,000	200,000	200,000	190,000	130,000	66,000 [J]	38,000	500,000	75,000	90,000
Thallium	2.0 (A)	2.0 (X)	NLV	NCL	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL	NCL	11	3.3 [J]	2.4	<5	5.8	5.2	<5	<5	<5	<5	52	4.2 [J]	<5
Vanadium	4.5	27	NLV	NCL	260	<5	2.5 [J]	2.6	3.7 [J]	<5	<5	<5	<5	<5	***5***	***7.5***	<5	<5
Zinc	2,400	230 (G)	NLV	NCL	18,000	3.3	<10	5.2	3 [J]	<10	<10	3.3	<10	17	***720***	<10	<10	2.6

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-GW-07	TA-GW-08	TA-GW-08	TA-GW-09	TA-GW-09	TA-MW-1	TA-MW-1	TA-MW-2	TA-MW-2	TA-MW-3	TA-MW-3	TA-MW-4	TA-MW-4	TA-MW-5	TA-MW-5
Sample Name					TA-GW-07	TA-GW-08	TA-GW-08	TA-GW-09	TA-GW-09	TA-MW-1	TA-MW-1	TA-MW-2	TA-MW-2	TA-MW-3	TA-MW-3	TA-MW-4	TA-MW-4	TA-MW-5	TA-MW-5
Laboratory Sample ID(s)					TJ17030-012 & 18101294-03C	TH15011-001 & 1808899-01A	TJ23010-015 & 18101529-05C	TH29014-001 & 18081718-01A	TJ25084-002 & 18101637-02C	TH08014-013 & 1808539-05A	TJ17030-017 & 18101361-02C	TH11003-003 & 1808742-03A	TJ27020-014 & 18101912-06B	TH08014-017 & 1808539-09A	TJ23010-014 & 18101529-04C	TH11003-014 & 1808813-03A	TK02006-005 & 18102066-05B	TH10023-011 & 1808639-02A	TJ25084-009 & 18101637-09C
Sample Date					10/18/2018	08/14/2018	10/23/2018	08/28/2018	10/24/2018	08/08/2018	10/19/2018	08/10/2018	10/29/2018	08/08/2018	10/23/2018	08/13/2018	10/31/2018	08/09/2018	10/24/2018
Parameter (µg/L)																			
Aluminum	50 (V)	NA	NLV	NCL	<40	13	<40	14	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
Antimony	6.0 (A)	2.0 (X)	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	10 (A)	10	NLV	NCL	5.5	***13***	6.3	<2	1.5 [J]	***40***	***30***	3.2	3.2	1.9	3.5	1.8	1.7 [J]	3.3	1.8 [J]
Barium	2,000 (A)	1,000 (G)	NLV	NCL	85	52	70	230	250	22	17	280 [J]	350	71	120	47	47	43	52
Beryllium	4.0 (A)	25 (G)	NLV	NCL	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL	190	110	120	230 [J-]	240	170	150	440 [J]	380	220	87	230 [J+]	320	220	110
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL	<0.5	<0.5	<0.5	0.44	0.39 [J]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Total	NCL	NCL	NCL	NCL	<5	<5	<5	1.5	1.7 [J]	<5	<5	3.6	2 [J]	2.4	2.4 [J]	3.8	12	4.3	4 [J]
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	ND	ND	ND	1.5	1.7	ND	ND	3.6	2	2.4	2.4	3.8	6.1	4.3	4
Chromium VI	100 (A)	11	NLV	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5.9	<5	<5
Cobalt	40	100	NLV	NCL	<5	<5	<5	1.4	1.4 [J]	<5	<5	<5	<5	<5	2.9 [J]	<5	<5	<5	<5
Copper	1000 (E)	18 (G)	NLV	NCL	<5	<5	<5	2.5 [J-]	2.5 [J]	<5	<5	<5	<5	2.7	<5	<5	<5	<5	<5
Iron	300 (E)	NA	NLV	NCL	***6,500***	***6,200 [J+]***	***6,200***	***1,100***	***1,600***	***1,600***	***960***	***1,600 [J]***	***3,200***	***660***	***3,400***	***2,600***	***1,400***	***4,900***	***3,300***
Lead	4.0 (L)	14 (G,X)	NLV	NCL	<1	<1	<1	0.29	<1	<1	<1	<1	0.38 [J]	<1	<1	<1	0.31 [J]	<1	<1
Magnesium	400,000	NA	NLV	NCL	16,000	8,900	11,000	39,000	42,000	11,000	11,000	11,000 [J]	8,400	19,000	36,000	36,000	17,000	6,300	7,600
Mercury	2.0 (A)	0.0013	56 (S)	0.088	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	73	120 (X)	NLV	NCL	2.7 [J]	3.5	3.9 [J]	3	<10	<10	<10	<10	<10	<10	<10	<10	9.9 [J]	<10	<10
Nickel	100 (A)	100 (G)	NLV	NCL	<5	<5	<5	4.1	3.5 [J]	1.3	<5	<5	<5	3.7	6.5	2.3	3.3 [J]	1.7	<5
Selenium	50 (A)	5.0	NLV	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silver	34	0.20 (M)	NLV	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	NCL	NCL	NCL	NCL	73,000	200,000	80,000	700,000 [J-]	660,000	3,600	5,200	100,000	59,000	20,000	18,000	270,000	170,000	17,000	9,700
Thallium	2.0 (A)	2.0 (X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL	1.3 [J]	<5	<5	<5	<5	3.3	1.7 [J]	4	2.8 [J]	<5	<5	<5	2.4 [J]	3	1.8 [J]
Vanadium	4.5	27	NLV	NCL	<5	<5	<5	<5	2.5 [J]	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc	2,400	230 (G)	NLV	NCL	<10	2.7	<10	32	11	<10	<10	<10	5.1 [J]	8.7	9.7 [J]	2.9	<10	23	9.3 [J]

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-301B	TA-MW-301B	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B	TA-MW-302B	TA-MW-303A	TA-MW-303A	TA-MW-303B
Sample Name					TA-MW-301B	TA-MW-301B	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301 D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B DUP	TA-MW-302B	TA-MW-303A	TW-MW-303A	TA-MW-303B
Laboratory Sample ID(s)					TH11003-005 & 1808742-05A	TK01001-004 & 18101976-04B	TH11003-019 & 1808813-08A	TK02073-001 & 1811072-01B	TH08014-005 & 1808446-05A	TJ17030-007 & 18101189-02C	TH11003-015 & 1808813-04A	TJ23010-013 & 18101529-03C	TH10023-001 & 1808636-01A	TH10023-002 & 1808636-02A	TJ23010-012 & 18101529-02C	TH11003-012 & 1808813-01A	TJ27020-012 & 18101912-04B	TH11003-006 & 1808742-06A
Sample Date					08/10/2018	10/30/2018	08/13/2018	11/01/2018	08/07/2018	10/17/2018	08/13/2018	10/23/2018	08/09/2018	08/09/2018	10/23/2018	08/13/2018	10/29/2018	08/10/2018
Parameter (µg/L)																		
Aluminum	50 (V)	NA	NLV	NCL	<40	11 [J]	<40	<40	<200	<40	15	<40	<200	<40	<40	<40	11 [J]	12
Antimony	6.0 (A)	2.0 (X)	NLV	NCL	<2	<2	<2	<2	<2	<2	***3.3***	<2	<2	<2	<2	<2	<2	<2
Arsenic	10 (A)	10	NLV	NCL	2.6	<2	<2	<2	<2	<2	8.3	8.4	***16***	***18***	***18***	<2	1.3 [J]	2
Barium	2,000 (A)	1,000 (G)	NLV	NCL	40	34	19	22	11	11	180	150	78	79	100	280	270	170
Beryllium	4.0 (A)	25 (G)	NLV	NCL	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL	200 [J+]	170	180 [J+]	150	***1,100***	***1,100***	150 [J+]	93	160	170	160	230 [J+]	210	220 [J+]
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Total	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<25	<5	2	2.9 [J]	<25	1.3	1.3 [J]	2	5.1	1.5
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	ND	ND	ND	ND	ND	#VALUE!	2	2.9	ND	1.3	1.3	2	5.1	1.5
Chromium VI	100 (A)	11	NLV	NCL	<5	<5	<5	<5	<5	10	<5	<5	<5	<5	<5	<5	<5	<5
Cobalt	40	100	NLV	NCL	<5	<5	1.7	2 [J]	<25	<5	<5	1.5 [J]	<25	<5	<5	<5	<5	<5
Copper	1000 (E)	18 (G)	NLV	NCL	1.4	1.9 [J]	2	2.4 [J]	<25	<5	2.1	1.7 [J]	<25	<5	<5	<5	2.1 [J]	<5
Iron	300 (E)	NA	NLV	NCL	***640***	280	<160 [UB]	140	***4,000***	***3,400***	***4,000***	***5,100***	***19,000***	***17,000***	***14,000***	***22,000***	***13,000***	***32,000***
Lead	4.0 (L)	14 (G,X)	NLV	NCL	<1	<1	<1	<1	<1	<1	<1	0.59 [J]	<1	<1	<1	<1	<1	<1
Magnesium	400,000	NA	NLV	NCL	12,000	9,600	14,000	9,400	28,000	38,000	21,000	20,000	11,000	8,900	10,000	32,000	18,000	28,000
Mercury	2.0 (A)	0.0013	56 (S)	0.088	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	73	120 (X)	NLV	NCL	7.7	7.2 [J]	<10	3.5 [J]	<10	<10	5.8	7.6 [J]	<10	<10	2.8 [J]	<10	<10	<10
Nickel	100 (A)	100 (G)	NLV	NCL	3.6	2.5 [J]	2.2	1.7 [J]	10	2.3 [J]	4	5.4	<25	1.3	<5	1.8	1.8 [J]	1.6
Selenium	50 (A)	5.0	NLV	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silver	34	0.20 (M)	NLV	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	NCL	NCL	NCL	NCL	230,000	160,000	140,000	95,000	32,000	41,000	58,000	37,000	350,000	360,000	370,000	520,000 [J+]	240,000	530,000
Thallium	2.0 (A)	2.0 (X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL	<5	1.3 [J]	<5	3.1 [J]	<25	<5	2.1	1.7 [J]	<25	5.5	3 [J]	6	4.9 [J]	3.6
Vanadium	4.5	27	NLV	NCL	<5	<5	<5	<5	<25	<5	***4.9***	<5	<25	<5	<5	<5	<5	<5
Zinc	2,400	230 (G)	NLV	NCL	4	3.3 [J]	2.9	12	3.2	<10	9	11	<10	<10	<10	<10	<10	<10

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-303B	TA-MW-303C	TA-MW-303C	TA-MW-303D	TA-MW-303D	TA-MW-303E	TA-MW-303E	TA-MW-303E	TA-MW-304A	TA-MW-304A	TA-MW-304B	TA-MW-304B	TA-MW-305B	TA-MW-305B
Sample Name					TA-MW-303B	TA-MW-303C	TA-MW-303C	TA-MW-303D	TA-MW-303 D	TA-MW-303E	TA-MW-303E DUP	TA-MW-303 E	TA-MW-304A	TA-MW-304A	TA-MW-304B	TA-MW-304-B	TA-MW-305B	TA-MW-305B
Laboratory Sample ID(s)					TJ27020-004 & 18101808-04C	TH11003-009 & 1808742-09A	TJ27020-003 & 18101808-03C	TH08014-003 & 1808446-03A	TJ17030-006 & 18101189-01C	TH08014-001 & 1808446-01A	TH08014-002 & 1808446-02A	TJ17030-005 & 18101177-02C	TH15011-014 & 1808986-01A	TK02006-001 & 18102066-01B	TH08014-010 & 1808539-02A	TJ17030-013 & 18101294-04C	TH11003-008 & 1808742-08A	TK01001-002 & 18101976-02B
Sample Date					10/26/2018	08/10/2018	10/26/2018	08/07/2018	10/17/2018	08/07/2018	08/07/2018	10/17/2018	08/15/2018	10/31/2018	08/08/2018	10/18/2018	08/10/2018	10/30/2018
Parameter (µg/L)																		
Aluminum	50 (V)	NA	NLV	NCL	19 [J]	<40	<40	<200	<40	<40	<40	<40	***160***	***77***	<40	<40	13	<40
Antimony	6.0 (A)	2.0 (X)	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	10 (A)	10	NLV	NCL	2.9	5.5	2.5	1.7	1.8 [J]	2.4	1.8	1.9 [J]	***23***	2.9	<2	<2	<2	<2
Barium	2,000 (A)	1,000 (G)	NLV	NCL	240	120	86	17	22	13	14	13	200	96	24	25	110	120
Beryllium	4.0 (A)	25 (G)	NLV	NCL	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL	190	***640 [J+]***	***510***	***1,400***	***1,400***	***1,600***	***1,700***	***1,600***	***510***	***540***	***1,900***	***2,300***	350 [J+]	370
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium, Total	NCL	NCL	NCL	NCL	2.3 [J]	<5	<5	<25	<5	<5	<5	<5	110	12	1.5	1.5 [J]	4.4	4.6 [J]
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	2.3	ND	ND	ND	ND	ND	ND	ND	***110***	3.5	1.5	1.5	4.4	4.6
Chromium VI	100 (A)	11	NLV	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<25	8.5	<5	<5	<5	<5
Cobalt	40	100	NLV	NCL	<5	1.6	1.4 [J]	<25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Copper	1000 (E)	18 (G)	NLV	NCL	<5	<5	<5	<25	<5	1.4	<5	<5	<5	1.5 [J]	<5	<5	<5	<5
Iron	300 (E)	NA	NLV	NCL	***42,000***	***21,000***	***12,000***	***3,200***	***2,600***	***4,600***	***4,700***	***4,400***	***2,700 [J+]***	***3,000***	***4,300***	***3,500***	***1,800***	***1,900***
Lead	4.0 (L)	14 (G,X)	NLV	NCL	<1	<1	<1	<1	<1	<1	<1	<1	0.52	1.2	<1	<1	<1	<1
Magnesium	400,000	NA	NLV	NCL	21,000	33,000	15,000	30,000	43,000	31,000	30,000	59,000	6,300	5,200	25,000	41,000	42,000	41,000
Mercury	2.0 (A)	0.0013	56 (S)	0.088	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	73	120 (X)	NLV	NCL	<10	4.5	7.1 [J]	10	10	<10	<10	<10	5.2	<10	<10	<10	<10	<10
Nickel	100 (A)	100 (G)	NLV	NCL	1.4 [J]	2.1	2.1 [J]	11	2.9 [J]	5.6	5.4	2.4 [J]	1.4	2.2 [J]	3.7	1.6 [J]	4.1	3.4 [J]
Selenium	50 (A)	5.0	NLV	NCL	<5	1.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silver	34	0.20 (M)	NLV	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	NCL	NCL	NCL	NCL	420,000	500,000	450,000	86,000	160,000	75,000	75,000	91,000	350,000	250,000	260,000	410,000	250,000 [J+]	220,000
Thallium	2.0 (A)	2.0 (X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL	4.5 [J]	1.5	1.7 [J]	<25	<5	<5	1.3	<5	95	10	5.6	5.6	<5	<5
Vanadium	4.5	27	NLV	NCL	<5	<5	<5	<25	<5	<5	<5	<5	***11***	<5	<5	<5	<5	<5
Zinc	2,400	230 (G)	NLV	NCL	<10	4.4	3.3 [J]	2.9	3.4 [J]	4.3	3.8	<10	4.5	3.3 [J]	<10	<10	<10	<10

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A	TA-MW-306A	TA-MW-306B	TA-MW-306B	TA-MW-307A	TA-MW-307A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A
Sample Name					TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A	TA-MW-306A DUP	TA-MW-306B	TA-MW-306B	TA-MW-307A	TA-MW-307-A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A DUP
Laboratory Sample ID(s)					TH11003-013 & 1808813-02A	TK01001-003 & 18101976-03B	TH10023-008 & 1808638-02A	TJ23010-017 & 18101529-07C	TJ23010-016 & 18101529-06C	TH10023-005 & 1808636-05A	TJ25084-005 & 18101637-05C	TH10023-007 & 1808638-01A	TJ17030-011 & 18101294-02C	TH10023-006 & 1808636-06A	TJ23010-004 & 18101428-04C	TH11003-010 & 1808742-10A	TJ25084-015 & 18101716-03C	TJ25084-016 & 18101716-04C
Sample Date					08/13/2018	10/30/2018	08/09/2018	10/23/2018	10/23/2018	08/09/2018	10/24/2018	08/09/2018	10/18/2018	08/09/2018	10/22/2018	08/10/2018	10/25/2018	10/25/2018
Parameter (µg/L)																		
Aluminum	50 (V)	NA	NLV	NCL	<40	<40	***270***	<40	<40	<400	***130***	<40	<40	***210 [J+]***	45	32	28 [J]	27 [J]
Antimony	6.0 (A)	2.0 (X)	NLV	NCL	<2	<2	1.1	<2	<2	<2	1.6 [J]	<2	<2	0.69	0.52 [J]	<2	<2	<2
Arsenic	10 (A)	10	NLV	NCL	1.5	<2	2.4	3.5	3.4	3.7	1.7 [J]	<2	<2	2.7	2.9	6.2	5.1	5.3
Barium	2,000 (A)	1,000 (G)	NLV	NCL	71	77	130	58	58	66	93	53	62	97	68	79	81	79
Beryllium	4.0 (A)	25 (G)	NLV	NCL	<0.4	<0.4	<0.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL	290 [J+]	280	350	***730***	***730***	***1,500***	230	***540***	***550***	280	140	360 [J+]	320	310
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	***4.7***	2.3	<0.5	<0.5	<0.5
Chromium, Total	NCL	NCL	NCL	NCL	1.8	1.9 [J]	3.1	2.9 [J]	3.1 [J]	<50	2.4 [J]	<5	<5	940	460	4.2	4.6 [J]	4.6 [J]
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	1.8	1.9	3.1	2.9	3.1	ND	2.4	ND	ND	***940***	***450***	4.2	4.6	4.6
Chromium VI	100 (A)	11	NLV	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	7.2	<5	<5	<5
Cobalt	40	100	NLV	NCL	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Copper	1000 (E)	18 (G)	NLV	NCL	<5	<5	<5	1.3 [J]	1.3 [J]	<50	<5	<5	<5	***40***	18	<5	<5	<5
Iron	300 (E)	NA	NLV	NCL	***1,900***	***1,800***	***13,000***	***1,900***	***2,000***	***3,600***	***11,000***	***2,600***	***2,300***	***950 [J]***	***620***	***14,000***	***15,000***	***14,000***
Lead	4.0 (L)	14 (G,X)	NLV	NCL	<1	<1	0.6	<1	<1	<1	<1	<1	<1	***12***	***4.5***	<1	<1	<1
Magnesium	400,000	NA	NLV	NCL	45,000	45,000	11,000	12,000	12,000	14,000	9,900	26,000	45,000	16,000 [J]	15,000	13,000	13,000	13,000
Mercury	2.0 (A)	0.0013	56 (S)	0.088	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	73	120 (X)	NLV	NCL	<10	<10	4.2	4.7 [J]	4.6 [J]	<10	2.8 [J]	<10	<10	<10	<10	<10	<10	<10
Nickel	100 (A)	100 (G)	NLV	NCL	3.7	3 [J]	1.4	4.9 [J]	4.8 [J]	<50	<5	3.6	2.4 [J]	5.5	3.4 [J]	<5	<5	<5
Selenium	50 (A)	5.0	NLV	NCL	<5	<5	<5	<5	<5	1.4	<5	<5	<5	<5	<5	<5	<5	<5
Silver	34	0.20 (M)	NLV	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	NCL	NCL	NCL	NCL	220,000 [J+]	190,000	200,000	770,000	990,000	900,000	120,000	150,000	200,000	300,000 [J]	140,000	180,000 [J+]	180,000	180,000
Thallium	2.0 (A)	2.0 (X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL	<5	<5	10	1.3 [J]	1.3 [J]	<50	5.8	<5	<5	6.7	1.3 [J]	<5	1.3 [J]	1.3 [J]
Vanadium	4.5	27	NLV	NCL	<5	<5	<5	<5	<5	<50	<5	<5	<5	***5.9***	<5	<5	<5	<5
Zinc	2,400	230 (G)	NLV	NCL	30	<10	<10 [UB]	4.2 [J]	<10	<10 [UB]	<10	37	25	***1,300 [J]***	***1,000***	<10	<10	<10

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-308B	TA-MW-308B	TA-MW-308B	TA-MW-308C	TA-MW-308C	TA-MW-309A	TA-MW-309A	TA-MW-309B	TA-MW-309B	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309C	TA-MW-309D
Sample Name					TA-MW-308B	TA-MW-308B	TA-MW-308 B	TA-MW-308C	TA-MW-308 C	TA-MW-309A	TA-MW-309A	TA-MW-309B	TA-MW-309B DUP	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309C	TA-MW-309D
Laboratory Sample ID(s)					1808446-04A	TH08014-004	TJ17030-001 & 18101074-01C	TH08014-006 & 1808448-01A	TJ17030-004 & 18101177-01C	TH10023-004 & 1808636-04A	TJ25084-007 & 18101637-07C	TH11003-001 & 1808742-01A	TH11003-002 & 1808742-02A	TJ25084-003 & 18101637-03C	TH10023-009 & 1808638-03A	1808813-06A	TJ25084-024 & 18101716-08C	TH11003-007 & 1808742-07A
Sample Date					08/07/2018	08/07/2018	10/16/2018	08/07/2018	10/17/2018	08/09/2018	10/24/2018	08/10/2018	08/10/2018	10/24/2018	08/09/2018	08/13/2018	10/25/2018	08/10/2018
Parameter (µg/L)																		
Aluminum	50 (V)	NA	NLV	NCL		<40	<40	<200	10 [J]	17	13 [J]	<40	<40	<40	19		34 [J]	16
Antimony	6.0 (A)	2.0 (X)	NLV	NCL		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2
Arsenic	10 (A)	10	NLV	NCL		<2	<2	<2	<2	5.6	4.9	***42***	***42***	***36***	***28***		***29***	<2
Barium	2,000 (A)	1,000 (G)	NLV	NCL		43	47	32	39	48	65	63	63	62	33		35	28
Beryllium	4.0 (A)	25 (G)	NLV	NCL		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL		460	440	440	420	180	130	110 [J+]	100 [J+]	100	200		110	150 [J+]
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Chromium, Total	NCL	NCL	NCL	NCL		<5	<5	<25	<5	<5	<5	<5	<5	<5	<5		<5	<5
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium VI	100 (A)	11	NLV	NCL	<5	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cobalt	40	100	NLV	NCL		<5	<5	<25	<5	<5	1.5 [J]	<5	<5	<5	<5		1.3 [J]	5.7
Copper	1000 (E)	18 (G)	NLV	NCL		<5	<5	<25	<5	<5	<5	<5	<5	<5	<5		<5	<5
Iron	300 (E)	NA	NLV	NCL		***2,500***	***1,800***	***2,800***	***1,900***	***4,900 [J]***	***6,000***	***4,100***	***4,000***	***3,600***	***4,100***		***3,800***	190
Lead	4.0 (L)	14 (G,X)	NLV	NCL		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Magnesium	400,000	NA	NLV	NCL		18,000	31,000	24,000	28,000	8,100 [J]	10,000	8,300	8,300	7,200	6,900		6,400	9,100
Mercury	2.0 (A)	0.0013	56 (S)	0.088		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2
Molybdenum	73	120 (X)	NLV	NCL		<10	<10	<10	<10	2.5	2.6 [J]	5.8	5.5	4.9 [J]	<10		<10	3.6
Nickel	100 (A)	100 (G)	NLV	NCL		2.4	<5	6.3	<5	1.5	1.7 [J]	3.9	4	3.9 [J]	3		2.4 [J]	2.7
Selenium	50 (A)	5.0	NLV	NCL		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5
Silver	34	0.20 (M)	NLV	NCL		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Sodium	NCL	NCL	NCL	NCL		37,000	45,000	46,000	53,000	230,000 [J]	160,000	270,000	280,000	250,000	190,000		120,000	160,000
Thallium	2.0 (A)	2.0 (X)	NLV	NCL		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL		<5	<5	<25	<5	2.4	1.6 [J]	<5	<5	<5	1.7		2.4 [J]	<5
Vanadium	4.5	27	NLV	NCL		<5	<5	<25	<5	<5	<5	<5	<5	<5	<5		<5	<5
Zinc	2,400	230 (G)	NLV	NCL		3.1	<10	16	43	<10 [UB]	11	2.5	2.7	<10	<10 [UB]		3 [J]	2.5

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-309D	TA-MW-310A	TA-MW-310A	TA-MW-310B	TA-MW-310B	TA-MW-310C	TA-MW-310C	TA-P-1	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4
Sample Name					TA-MW-309D	TA-MW-310A	TA-MW-310-A	TA-MW-310B	TA-MW-310-B	TA-MW-310C	TA-MW-310-C	TA-P-1	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4
Laboratory Sample ID(s)					TK02006-004 & 18102066-03B	TH08014-011 & 1808539-03A	TJ17030-016 & 18101361-01C	TH08014-009 & 1808539-01A	TJ17030-018 & 18101361-03C	TH08014-007 & 1808448-02A	TJ17030-010 & 18101294-01C	TH15011-007 & 1808899-07A	TJ25084-017 & 18101716-05C	TH15011-008 & 1808899-08A	TJ25084-020 & 18101716-09C	TH15011-009 & 1808899-09A	TJ25084-001 & 18101637-01C	TH15011-015 & 1808986-02A	TJ27020-013 & 18101912-05B
Sample Date					10/31/2018	08/08/2018	10/19/2018	08/08/2018	10/19/2018	08/07/2018	10/18/2018	08/14/2018	10/25/2018	08/14/2018	10/25/2018	08/14/2018	10/24/2018	08/15/2018	10/29/2018
Parameter (µg/L)																			
Aluminum	50 (V)	NA	NLV	NCL	<40	<40	<40	10	<40	<1,000	<40	<40	<40	***160***	***110***	46	25 [J]	***220***	12 [J]
Antimony	6.0 (A)	2.0 (X)	NLV	NCL	<2	0.58	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	10 (A)	10	NLV	NCL	<2	<2	<2	<2	<2	<10	1.6 [J]	7	3.1	4	4.2	1.9	1.5 [J]	2.8	<2
Barium	2,000 (A)	1,000 (G)	NLV	NCL	21	27	26	16	15	110	110	190	180	110	96	170	120	160	170
Beryllium	4.0 (A)	25 (G)	NLV	NCL	<0.4	<0.4	<0.4	<0.4	<0.4	<2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL	160	83	110	100	120	240	180	190	160	320	410	250	250	400	390
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5	<0.5	<0.5	<0.5	0.29	0.15 [J]	0.22	<0.5	<0.5	<0.5
Chromium, Total	NCL	NCL	NCL	NCL	1.7 [J]	4	7	2.4	3.1 [J]	<130	<5	<5	<5	5	4.9 [J]	11	6.5	36	2.8 [J]
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	1.7	4	NC	2.4	3.1	ND	ND	ND	NC	5	4.9	11	6.5	36	2.8
Chromium VI	100 (A)	11	NLV	NCL	<5	<5	7.2	<5	<5	<5	<5	<5	***14***	<25	<5	<5	<5	<25	<5
Cobalt	40	100	NLV	NCL	4.4 [J]	<5	<5	<5	<5	<130	1.5 [J]	<5	<5	<5	<5	<5	<5	<5	<5
Copper	1000 (E)	18 (G)	NLV	NCL	<5	2	2.1 [J]	1.9	1.9 [J]	<130	1.4 [J]	<5	<5	<5	<5	<5	<5	1.6	3.2 [J]
Iron	300 (E)	NA	NLV	NCL	96	210	220	250	190	***20,000***	***19,000***	***5,300 [J+]***	***2,600***	***13,000 [J+]***	***12,000***	***17,000 [J+]***	***12,000***	***2,200 [J+]***	***950***
Lead	4.0 (L)	14 (G,X)	NLV	NCL	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	0.51	0.51 [J]
Magnesium	400,000	NA	NLV	NCL	4,700	10,000 [J]	13,000	9,000	11,000	200,000	290,000	16,000	15,000	11,000	10,000	15,000	12,000	8,000	6,800
Mercury	2.0 (A)	0.0013	56 (S)	0.088	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum	73	120 (X)	NLV	NCL	4.6 [J]	3.6	3.5 [J]	6.2	5.2 [J]	<50	3.9 [J]	<10	<10	<10	<10	<10	<10	<10	<10
Nickel	100 (A)	100 (G)	NLV	NCL	3.2 [J]	1.4	<5	1.5	<5	<130	8.8	<5	<5	<5	<5	<5	<5	1.6	2.2 [J]
Selenium	50 (A)	5.0	NLV	NCL	<5	2	<5	<5	<5	<25	2.4 [J]	<5	<5	<5	<5	<5	<5	<5	<5
Silver	34	0.20 (M)	NLV	NCL	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	NCL	NCL	NCL	NCL	92,000	9,400 [J]	18,000	18,000	23,000	3,700,000	4,000,000	390,000	360,000	410,000	450,000	390,000	280,000	280,000	96,000
Thallium	2.0 (A)	2.0 (X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL	<5	<5	<5	<5	<5	<130	<5	2.2	3.2 [J]	20	18	15	14	170	4.7 [J]
Vanadium	4.5	27	NLV	NCL	<5	<5	<5	<5	<5	<130	<5	<5	<5	<5	<5	<5	<5	***15***	<5
Zinc	2,400	230 (G)	NLV	NCL	<10	<10	<10	<10	<10	14	4 [J]	4	4.7 [J]	14	6.3 [J]	9.6	<10	4.4	27

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-P-5	TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102	TA-TMW-102	TA-TMW-103	TA-TMW-103	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105	TA-TMW-108	TA-TMW-108
Sample Name					TA-P-5	TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102	TA-TMW-102	TA-TMW-103	TA-TMW-103	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105 DUP	TA-TMW-108	TA-TMW-108
Laboratory Sample ID(s)					TH15011-016 & 1808986-03A	TJ25084-014 & 18101716-02C	TH11003-016 & 1808813-05A	TK02006-003 & 18102066-04B	TH11003-018 & 1808813-07A	TJ23010-011 & 18101529-01C	TH08014-014 & 1808539-06A	TJ23010-006 & 18101428-06C	TH08014-015 & 1808539-07A	TJ25084-019 & 18101716-07C	TH11003-004 & 1808742-04A	TJ27020-009 & 18101912-01B	TJ27020-010 & 18101912-02B	TH10023-003 & 1808636-03A	TJ23010-005 & 18101428-05C
Sample Date					08/15/2018	10/25/2018	08/13/2018	10/31/2018	08/13/2018	10/23/2018	08/08/2018	10/22/2018	08/08/2018	10/25/2018	08/10/2018	10/29/2018	10/29/2018	08/09/2018	10/22/2018
Parameter (µg/L)																			
Aluminum	50 (V)	NA	NLV	NCL	***92 [J+]***	***67***	<40	<40	***140***	***63***	***500***	29 [J]	***190***	<40	<40	12 [J]	12 [J]	<200	38 [J]
Antimony	6.0 (A)	2.0 (X)	NLV	NCL	1.6	0.58 [J]	0.66	0.61 [J]	0.66	<2	<2	<2	<2	<2	<2	<2	<2	0.77	0.59 [J]
Arsenic	10 (A)	10	NLV	NCL	***11***	***12***	<2	<2	***18***	6.5	<2	<2	<2	<2	6.9	7.1	6.9	1.5	2.6
Barium	2,000 (A)	1,000 (G)	NLV	NCL	54	41	28	35	170	150	46	32	49	81	70	94	96	190	210
Beryllium	4.0 (A)	25 (G)	NLV	NCL	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL	350 [J]	300	170 [J+]	150	320 [J+]	120	76	71	150	110	340 [J+]	360	360	310	92
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL	<0.5	<0.5	<0.5	0.19 [J]	<0.5	0.18 [J]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.1	2.4
Chromium, Total	NCL	NCL	NCL	NCL	1.8	4.4 [J]	3.3	4.3 [J]	1,800	1,100	3.1	1.9 [J]	3.3	7.3	3.6	5	5	380	580
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	1.8	-33	3.3	NC	***1800***	***1100***	3.1	1.9	3.3	NC	3.6	5	5	***380***	***570***
Chromium VI	100 (A)	11	NLV	NCL	<5	***37***	<5	***40***	<25	7.2	<5	<5	<5	8.5	<5	<5	<5	<5	***14***
Cobalt	40	100	NLV	NCL	6.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<25	<5
Copper	1000 (E)	18 (G)	NLV	NCL	<5	3.1 [J]	2.6	2.7 [J]	6.7	8.2	<5	<5	<5	2.5 [J]	<5	<5	<5	13	***28***
Iron	300 (E)	NA	NLV	NCL	***3,700 [J+]***	***780***	240	120	***11,000***	***9,800***	***1,600***	***700***	***1,400***	230	***1,800***	***3,400***	***3,300***	***940***	***1,300***
Lead	4.0 (L)	14 (G,X)	NLV	NCL	<1	0.36 [J]	<1	<1	***7.1***	***7.1***	0.62	<1	0.39	<1	***6.1***	1.4	1.4	2.1	***7.1***
Magnesium	400,000	NA	NLV	NCL	17,000	14,000	13,000	13,000	20,000	21,000	14,000	13,000	13,000	21,000	16,000	12,000	12,000	26,000	23,000
Mercury	2.0 (A)	0.0013	56 (S)	0.088	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.29***
Molybdenum	73	120 (X)	NLV	NCL	4.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nickel	100 (A)	100 (G)	NLV	NCL	9.5	2.1 [J]	2.9	4.7 [J]	3.5	1.8 [J]	2.1	<5	1.7	<5	2.8	2.3 [J]	2.4 [J]	<25	2.8 [J]
Selenium	50 (A)	5.0	NLV	NCL	<5	<5	<5	<5	<5	<5	<5	<5	<5	2.9 [J]	<5	<5	<5	<5	<5
Silver	34	0.20 (M)	NLV	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	NCL	NCL	NCL	NCL	21,000	8,200	100,000	37,000	370,000 [J+]	170,000	19,000	17,000	240,000	74,000	250,000	190,000	190,000	380,000	200,000
Thallium	2.0 (A)	2.0 (X)	NLV	NCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL	3.2	2.7 [J]	<5	<5	14	4.2 [J]	19	2.7 [J]	5.2	<5	2.9	4.7 [J]	5.1	<25	2.5 [J]
Vanadium	4.5	27	NLV	NCL	<5	<5	<5	<5	<5	<5	3.3	<5	3.6	<5	<5	<5	<5	<25	2.7 [J]
Zinc	2,400	230 (G)	NLV	NCL	4.9	2.5 [J]	4.6	9.1 [J]	6.8	9.5 [J]	3.8	3.1 [J]	3.6	3.5 [J]	16	8.6 [J]	10	***270***	***320***

TABLE 6C
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-TMW-109	TA-TMW-109	TA-TMW-110	TA-TMW-110	TA-TMW-111	TA-TMW-111
Sample Name					TA-TMW-109	TA-TMW-109	TA-TMW-110	TA-TMW-110	TA-TMW-111	TA-MW-111
Laboratory Sample ID(s)					TH08014-012 & 1808539-04A	TJ23010-001 & 18101428-01C	TH10023-010 & 1808639-01A	TJ27020-011 & 18101912-03B	TH08014-016 & 1808539-08A	TJ23010-003 & 18101428-03C
Sample Date					08/08/2018	10/22/2018	08/09/2018	10/29/2018	08/08/2018	10/22/2018
Parameter (µg/L)										
Aluminum	50 (V)	NA	NLV	NCL	***68***	17 [J]	***190***	***170 [J]***	<40	<40
Antimony	6.0 (A)	2.0 (X)	NLV	NCL	<2	0.81 [J]	<10	<10	<2	<2
Arsenic	10 (A)	10	NLV	NCL	<2	<2	***110***	***140***	3.8	3.6
Barium	2,000 (A)	1,000 (G)	NLV	NCL	55	80	450	490	120	150
Beryllium	4.0 (A)	25 (G)	NLV	NCL	<0.4	<0.4	<2	<2	<0.4	<0.4
Boron (Boron and Borates only)	500 (F)	4,000 (X)	NLV	NCL	280	210	390	430	210	140
Cadmium	5.0 (A)	2.5 (G,X)	NLV	NCL	0.21	0.31 [J]	<2.5	<2.5	<0.5	<0.5
Chromium, Total	NCL	NCL	NCL	NCL	<25	<5	5,600	5,000	3.3	3.3 [J]
Chromium III (Calculated: Total - Chromium VI)	100 (A)	120 (G,X)	NLV	NCL	ND	ND	***5600***	***5000***	3.3	3.3
Chromium VI	100 (A)	11	NLV	NCL	<5	<5	<25	<25	<5	<5
Cobalt	40	100	NLV	NCL	<25	<5	<25	<25	2.1	1.9 [J]
Copper	1000 (E)	18 (G)	NLV	NCL	<25	<5	<25	<25	<5	<5
Iron	300 (E)	NA	NLV	NCL	***1,200***	***440***	***5,800***	***4,400***	***2,800***	***3,800***
Lead	4.0 (L)	14 (G,X)	NLV	NCL	<1	<1	1.5	1.5 [J]	<1	<1
Magnesium	400,000	NA	NLV	NCL	12,000	14,000	18,000	14,000	14,000	20,000
Mercury	2.0 (A)	0.0013	56 (S)	0.088	<0.2	<0.2	<0.2	<1	<0.2	<0.2
Molybdenum	73	120 (X)	NLV	NCL	3.7	3.2 [J]	<50	<50	<10	<10
Nickel	100 (A)	100 (G)	NLV	NCL	7.2	1.3 [J]	22	15 [J]	4.9	4.1 [J]
Selenium	50 (A)	5.0	NLV	NCL	<5	<5	<25	<25	<5	<5
Silver	34	0.20 (M)	NLV	NCL	<1	<1	<5	<5	<1	<1
Sodium	NCL	NCL	NCL	NCL	210,000	170,000	290,000	230,000	210,000	200,000
Thallium	2.0 (A)	2.0 (X)	NLV	NCL	<0.5	<0.5	<2.5	<2.5	<0.5	<0.5
Titanium	NCL	NCL	NCL	NCL	<25	<5	79	79	1.4	<5
Vanadium	4.5	27	NLV	NCL	<25	<5	***67***	***94***	<5	<5
Zinc	2,400	230 (G)	NLV	NCL	2.8	<10	<50 [UB]	16 [J]	140	86

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06
Sample Name						TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06
Laboratory Sample ID(s)						TH15011-003 & 1808899-03B/C	TK02073-003 & 1811072-03A/C	TH11003-020 & 1808813-09B/C	TJ23010-007 & 18101428-07A/B	TH15011-006 & 1808899-06B/C	TJ25084-018 & 18101716-06A/B	TH15011-005 & 1808899-05B/C	TK02006-002 & 18102066-02A/C	TH15011-002 & 1808899-02B/C	TJ23010-002 & 18101428-02A/B	TH15011-004 & 1808899-04B/C	TK01001-001 & 18101976-01A/C
Sample Date						08/14/2018	11/01/2018	08/13/2018	10/22/2018	08/14/2018	10/25/2018	08/14/2018	10/31/2018	08/14/2018	10/22/2018	08/14/2018	10/30/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	NCL	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000
Formic acid	10,000	ID	7,700,000	NCL	1.9	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000
Cyanide	200 (A)	5.2	NLV	NCL	4.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cyanide, Available	200 (A)	5.2	NLV	NCL	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2 [UR]	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	NCL	56,000	11,000 [B]	<150 [UB]	<100	23,000	20,000 [B]	<100 [UB]	<100	550	<100	61,000	9,700 [B]
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	NCL	<20 [UB]	19 [J]	5,700	5,000	<20 [UB]	20	310	100	<25 [UB]	680	<20 [UB]	10 [J]
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	96,000	***56,000***	***11,000***	5,700	5,000	***23,000***	***20,000***	310	100	550	680	***61,000***	9,700
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	NCL	***2,100***	***420***	ND	ND	***880***	***760***	ND	ND	21	ND	***2,300***	***370***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	NCL	***1,900,000***	***360,000***	***2,000,000***	***1,600,000***	***130,000***	***110,000***	***71,000***	***110,000***	***64,000***	40,000	***320,000***	***55,000***
Hardness (total)	NCL	NCL	NCL	NCL	NCL	980,000	570,000	1,000,000	890,000	240,000	240,000	430,000	490,000	350,000	240,000	170,000	270,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	NCL	***2,200***	320	6.4	31 [J]	***1,200***	***1,200***	17	9.4 [J]	6.8	7.3 [J]	***3,500***	430
Sulfate	250,000 (E)	NA	NLV	NCL	NCL	<10,000	16,000	240,000	190,000	22,000	41,000	***290,000***	***320,000***	3,000	14,000	<1,000	220 [J]
Sulfide	NCL	NCL	NCL	NCL	NCL	<1,000	<1,000	6,300	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-GW-07	TA-GW-07	TA-GW-08	TA-GW-08	TA-GW-09	TA-GW-09	TA-MW-1	TA-MW-1	TA-MW-2	TA-MW-2	TA-MW-3	TA-MW-3	TA-MW-4
Sample Name					TA-GW-07	TA-GW-07	TA-GW-08	TA-GW-08	TA-GW-09	TA-GW-09	TA-MW-1	TA-MW-1	TA-MW-2	TA-MW-2	TA-MW-3	TA-MW-3	TA-MW-4
Laboratory Sample ID(s)					TH11003-021 & 1808813-10B/C	TJ17030-012 & 18101294-03A/B	TH15011-001 & 1808899-01B/C	TJ23010-015 & 18101529-05A/B	TH29014-001 & 18081718-01B/C	TJ25084-002 & 18101637-02A/B	TH08014-013 & 1808539-05B/C	TJ17030-017 & 18101361-02A/B	TH11003-003 & 1808742-03B/C	TJ27020-014 & 18101912-06A/C	TH08014-017 & 1808539-09B/C	TJ23010-014 & 18101529-04A/B	TH11003-014 & 1808813-03B/C
Sample Date					08/13/2018	10/18/2018	08/14/2018	10/23/2018	08/28/2018	10/24/2018	08/08/2018	10/19/2018	08/10/2018	10/29/2018	08/08/2018	10/23/2018	08/13/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]
Formic acid	10,000	ID	7,700,000	NCL	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]
Cyanide	200 (A)	5.2	NLV	NCL	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	1,200	450 [B]	500	620 [B]	1,400	1,000 [B]	5,200	3,300 [B]	20,000	16,000 [B]	480	190 [B]	6,700
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	<37 [UB]	12 [J]	<25 [UB]	13 [J]	520	860	<20 [UB]	<20	34	38	24	16 [J]	60
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	1,200	460	500	630	1,900	1,900	5,200	3,300	***20,000***	***16,000***	500	210	6,800
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	***46***	17	19	24	***53***	***38***	***200***	***130***	***760***	***610***	18	7.3	***260***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***64,000***	25,000	***110,000***	25,000	***1,200,000***	***1,300,000***	2,400	26,000	***51,000***	40,000	12,000	12,000	***330,000***
Hardness (total)	NCL	NCL	NCL	NCL	490,000	320,000	210,000	260,000	900,000	950,000	260,000	230,000	210,000	220,000	540,000	710,000	440,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	32	480	160	200	8.2	12 [J]	690	670	470	480	11	28 [J]	41
Sulfate	250,000 (E)	NA	NLV	NCL	***310,000***	70,000	32,000	24,000	120,000	130,000	3,700	19,000	730	<1,000	***270,000***	***410,000***	180,000
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-4	TA-MW-5	TA-MW-5	TA-MW-301B	TA-MW-301B	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B
Sample Name					TA-MW-4	TA-MW-5	TA-MW-5	TA-MW-301B	TA-MW-301B	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301 D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B DUP
Laboratory Sample ID(s)					TK02006-005 & 18102066-05A/C	TH10023-011 & 1808639-02B/C	TJ25084-009 & 18101637-09A/B	TH11003-005 & 1808742-05B/C	TK01001-004 & 18101976-04A/C	TH11003-019 & 1808813-08B/C	TK02073-001 & 1811072-01A/C	TH08014-005 & 1808446-05B/C	TJ17030-007 & 18101189-02A/B	TH11003-015 & 1808813-04B/C	TJ23010-013 & 18101529-03A/B	TH10023-001 & 1808636-01B/C	TH10023-002 & 1808636-02B/C
Sample Date					10/31/2018	08/09/2018	10/24/2018	08/10/2018	10/30/2018	08/13/2018	11/01/2018	08/07/2018	10/17/2018	08/13/2018	10/23/2018	08/09/2018	08/09/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000 [UJ]
Formic acid	10,000	ID	7,700,000	NCL	<25,000	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000 [UJ]
Cyanide	200 (A)	5.2	NLV	NCL	<10	<10	<10	<10	<10	<10	<10	<10	***11***	<10	<10	<10	<10
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	12,000 [B]	1,300	910 [B]	440	190 [B]	<130 [UB]	53 [BJ]	580	570 [B]	900	430 [B]	9,100	9,800
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	160	73	32	25	51	2,100	2,300	<20 [UB]	<20	86	20	<20	<20
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	***12,000***	1,400	940	470	240	2,100	2,400	580	570	990	450	9,100	9,800
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	***460***	***50***	***35***	17	7.3	ND	2.0	22	22	***34***	16	***350***	***370***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***220,000***	9,500	5,600	***160,000***	***120,000***	35,000	34,000	19,000	20,000	49,000	14,000	***370,000***	***370,000***
Hardness (total)	NCL	NCL	NCL	NCL	280,000	230,000	290,000	220,000	170,000	200,000	180,000	1,100,000	1,100,000	440,000	400,000	180,000	170,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	88	410	250	<50	5.9 [J]	<50	15 [J]	15	15 [J]	98	200	840	930
Sulfate	250,000 (E)	NA	NLV	NCL	240,000	21,000	22,000	55,000	43,000	26,000	26,000	***1,100,000***	***980,000***	15,000	31,000	<5,000	<5,000
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-302B	TA-MW-303A	TA-MW-303A	TA-MW-303B	TA-MW-303B	TA-MW-303C	TA-MW-303C	TA-MW-303D	TA-MW-303D	TA-MW-303E	TA-MW-303E	TA-MW-303E	TA-MW-304A
Sample Name					TA-MW-302B	TA-MW-303A	TW-MW-303A	TA-MW-303B	TA-MW-303B	TA-MW-303C	TA-MW-303C	TA-MW-303D	TA-MW-303 D	TA-MW-303E	TA-MW-303E DUP	TA-MW-303 E	TA-MW-304A
Laboratory Sample ID(s)					TJ23010-012 & 18101529-02A/B	TH11003-012 & 1808813-01B/C	TJ27020-012 & 18101912-04A/C	TH11003-006 & 1808742-06B/C	TJ27020-004 & 18101808-04A/B	TH11003-009 & 1808742-09B/C	TJ27020-003 & 18101808-03A/B	TH08014-003 & 1808446-03B/C	TJ17030-006 & 18101189-01A/B	TH08014-001 & 1808446-01B/C	TH08014-002 & 1808446-02B/C	TJ17030-005 & 18101177-02A/B	TH15011-014 & 1808986-01B/C
Sample Date					10/23/2018	08/13/2018	10/29/2018	08/10/2018	10/26/2018	08/10/2018	10/26/2018	08/07/2018	10/17/2018	08/07/2018	08/07/2018	10/17/2018	08/15/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000 [UJ]	<25,000	<25,000 [UJ]
Formic acid	10,000	ID	7,700,000	NCL	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000 [UJ]	<25,000	<25,000 [UJ]
Cyanide	200 (A)	5.2	NLV	NCL	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	9,100 [B]	23,000	14,000 [B]	23,000	24,000 [B]	35,000	31,000 [B]	1,600	2,200 [B]	970	950	930 [B]	45,000
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	23	80	65	22	48	96	49	<20 [UB]	1,100	<20 [UB]	<20 [UB]	72	<20 [UB]
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	9,100	***23,000***	***14,000***	***23,000***	***24,000***	***35,000***	***31,000***	1,600	3,300	970	950	1,000	***45,000***
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	***350***	***880***	***530***	***880***	***920***	***1,300***	***1,200***	***61***	***84***	***37***	***36***	***36***	***1,700***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***380,000***	***880,000***	***560,000***	***730,000***	***840,000***	***730,000***	***570,000***	***83,000***	***140,000***	***59,000***	***59,000***	***62,000***	***150,000***
Hardness (total)	NCL	NCL	NCL	NCL	170,000	690,000	640,000	490,000	510,000	450,000	330,000	1,000,000	1,000,000	1,300,000	1,300,000	1,300,000	130,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	670	***1,100***	620	530	620	110	60	15	16 [J]	21	21	23 [J]	***1,900***
Sulfate	250,000 (E)	NA	NLV	NCL	<1,000	1,000	3,300	<5,000	<10,000	160,000	73,000	***1,000,000***	***960,000***	***1,300,000***	***1,400,000***	***1,200,000***	16,000
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-304A	TA-MW-304B	TA-MW-304B	TA-MW-305B	TA-MW-305B	TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A	TA-MW-306A	TA-MW-306B	TA-MW-306B	TA-MW-307A
Sample Name					TA-MW-304A	TA-MW-304B	TA-MW-304-B	TA-MW-305B	TA-MW-305B	TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A	TA-MW-306A DUP	TA-MW-306B	TA-MW-306B	TA-MW-307A
Laboratory Sample ID(s)					TK02006-001 & 18102066-01A/C	TH08014-010 & 1808539-02B/C	TJ17030-013 & 18101294-04A/B	TH11003-008 & 1808742-08B/C	TK01001-002 & 18101976-02A/C	TH11003-013 & 1808813-02B/C	TK01001-003 & 18101976-03A/C	TH10023-008 & 1808638-02B/C	TJ23010-017 & 18101529-07A/B	TJ23010-016 & 18101529-06A/B	TH10023-005 & 1808636-05B/C	TJ25084-005 & 18101637-05A/B	TH10023-007 & 1808638-01B/C
Sample Date					10/31/2018	08/08/2018	10/18/2018	08/10/2018	10/30/2018	08/13/2018	10/30/2018	08/09/2018	10/23/2018	10/23/2018	08/09/2018	10/24/2018	08/09/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	***28,000***	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]
Formic acid	10,000	ID	7,700,000	NCL	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]
Cyanide	200 (A)	5.2	NLV	NCL	***13***	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	12,000 [B]	18,000	21,000 [B]	8,300 [J-]	8,100 [B]	8,800	9,300 [B]	2,700	9,300 [B]	8,600 [B]	9,300	2,100 [B]	820
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	27	<20 [UB]	9.4 [J]	27	24	35	6.7 [J]	27	8.4 [J]	21	<20 [UB]	150	<20 [UB]
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	***12,000***	***18,000***	***21,000***	8,300	8,100	8,800	9,300	2,700	9,300	8,600	9,300	2,300	820
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	***460***	***690***	***800***	***320***	***310***	***340***	***360***	***100***	***360***	***330***	***360***	***80***	***31***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***79,000***	***210,000***	***260,000***	***230,000***	***220,000***	***180,000***	***170,000***	***170,000***	***930,000***	***930,000***	***1,100,000***	***120,000***	***390,000***
Hardness (total)	NCL	NCL	NCL	NCL	120,000	1,000,000	860,000	550,000	560,000	550,000	550,000	220,000	190,000	190,000	250,000	220,000	760,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	860	680	720	11	20 [J]	9.7	10 [J]	260	49 [J]	47 [J]	37	200	23
Sulfate	250,000 (E)	NA	NLV	NCL	29,000	***940,000***	***730,000***	***350,000***	***330,000***	***420,000***	***420,000***	170,000	230,000	230,000	240,000	100,000	***380,000***
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-307A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A	TA-MW-308B	TA-MW-308B	TA-MW-308C	TA-MW-308C	TA-MW-309A	TA-MW-309A	TA-MW-309B
Sample Name					TA-MW-307-A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A DUP	TA-MW-308B	TA-MW-308 B	TA-MW-308C	TA-MW-308 C	TA-MW-309A	TA-MW-309A	TA-MW-309B
Laboratory Sample ID(s)					TJ17030-011 & 18101294-02A/B	TH10023-006 & 1808636-06B/C	TJ23010-004 & 18101428-04A/B	TH11003-010 & 1808742-10B/C	TJ25084-015 & 18101716-03A/B	TJ25084-016 & 18101716-04A/B	TH08014-004 & 1808446-04B/C	TJ17030-001 & 18101074-01A/B	TH08014-006 & 1808448-01B/C	TJ17030-004 & 18101177-01A/B	TH10023-004 & 1808636-04B/C	TJ25084-007 & 18101637-07A/B	TH11003-001 & 1808742-01B/C
Sample Date					10/18/2018	08/09/2018	10/22/2018	08/10/2018	10/25/2018	10/25/2018	08/07/2018	10/16/2018	08/07/2018	10/17/2018	08/09/2018	10/24/2018	08/10/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]
Formic acid	10,000	ID	7,700,000	NCL	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]
Cyanide	200 (A)	5.2	NLV	NCL	<10	<10	<10	<10	<10	<10	<10	<10	<10	***11***	<10	<10	<10
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	760 [B]	49,000	20,000	2,700	2,400 [B]	2,300 [B]	500	520 [B]	600	560 [B]	340	570 [B]	770
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	7.4 [J]	650	39	97	38	37	<20 [UB]	<20	<20 [UB]	1,000	<20	21	52
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	770	***50,000***	***20,000***	2,800	2,400	2,300	500	520	600	1,600	340	590	820
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	29	***1,900***	***760***	***100***	***92***	***88***	19	20	23	21	13	22	29
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***370,000***	***470,000 [J-]***	***210,000***	***88,000***	***83,000***	***86,000***	***63,000***	***71,000***	***80,000***	***87,000***	***63,000***	***55,000***	***64,000***
Hardness (total)	NCL	NCL	NCL	NCL	760,000	390,000	250,000	250,000	270,000	260,000	540,000	530,000	540,000	530,000	190,000	240,000	120,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	24 [J]	25	28 [J]	33	36 [J]	35 [J]	37	21 [J]	28	31 [J]	260	200	15
Sulfate	250,000 (E)	NA	NLV	NCL	***350,000***	4,800 [J-]	9,300	25,000	22,000	23,000	***350,000***	***320,000***	***350,000***	***310,000***	33,000	19,000	39,000
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000 [UJ]	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 [UJ]	<1,000	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-MW-309B	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309C	TA-MW-309D	TA-MW-309D	TA-MW-310A	TA-MW-310A	TA-MW-310B	TA-MW-310B	TA-MW-310C	TA-MW-310C
Sample Name					TA-MW-309B DUP	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309C	TA-MW-309D	TA-MW-309D	TA-MW-310A	TA-MW-310-A	TA-MW-310B	TA-MW-310-B	TA-MW-310C	TA-MW-310-C
Laboratory Sample ID(s)					TH11003-002 & 1808742-02B/C	TJ25084-003 & 18101637-03A/B	TH10023-009 & 1808638-03B/C	TH11003-017 & 1808813-06B/C	TJ25084-024 & 18101716-08A/B	TH11003-007 & 1808742-07B/C	TK02006-004 & 18102066-03A/C	TH08014-011 & 1808539-03B/C	TJ17030-016 & 18101361-01A/B	TH08014-009 & 1808539-01B/C	TJ17030-018 & 18101361-03A/B	TH08014-007 & 1808448-02B/C	TJ17030-010 & 18101294-01A/B
Sample Date					08/10/2018	10/24/2018	08/09/2018	08/13/2018	10/25/2018	08/10/2018	10/31/2018	08/08/2018	10/19/2018	08/08/2018	10/19/2018	08/07/2018	10/18/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000
Formic acid	10,000	ID	7,700,000	NCL	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000
Cyanide	200 (A)	5.2	NLV	NCL	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	3.2	3.3
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	760	720 [B]	1,500		1,000 [B]	910 [J+]	910 [B]	<100 [UB]	<100	<100	<100	1,100	1,200 [B]
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	61	13 [J]	56		13 [J]	22	<20	2,700	13,000	1,900	14,000	<20	140
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	820	730	1,600		1,000	930	910	2,700	***13,000***	1,900	***14,000***	1,100	1,300
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	29	28	***57***		***38***	***35***	***35***	ND	ND	ND	ND	***42***	***46***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***65,000***	46,000	***90,000***	***84,000***	***58,000***	***74,000***	***63,000***	24,000	5,000	44,000	32,000 [B]	***9,700,000***	***9,300,000***
Hardness (total)	NCL	NCL	NCL	NCL	120,000	120,000	180,000		170,000	180,000	140,000	260,000 [J-]	260,000	230,000	240,000	5,400,000	5,000,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	13	15 [J]	9.9		13 [J]	<50	7.4 [J]	30	48 [J]	<50	<50	5.7	8.1 [J]
Sulfate	250,000 (E)	NA	NLV	NCL	39,000	38,000	40,000	45,000	33,000	35,000	29,000	17,000	13,000	25,000	17,000	***370,000***	***340,000***
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000		<1,000	<1,000	1,100	<1,000 [UJ]	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-P-1	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4	TA-P-5	TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102
Sample Name					TA-P-1	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4	TA-P-5	TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102
Laboratory Sample ID(s)					TH15011-007 & 1808899-07B/C	TJ25084-017 & 18101716-05A/B	TH15011-008 & 1808899-08B/C	TJ25084-020 & 18101716-09A/B	TH15011-009 & 1808899-09B/C	TJ25084-001 & 18101637-01A/B	TH15011-015 & 1808986-02B/C	TJ27020-013 & 18101912-05A/C	TH15011-016 & 1808986-03B/C	TJ25084-014 & 18101716-02A/B	TH11003-016 & 1808813-05B/C	TK02006-003 & 18102066-04A/C	TH11003-018 & 1808813-07B/C
Sample Date					08/14/2018	10/25/2018	08/14/2018	10/25/2018	08/14/2018	10/24/2018	08/15/2018	10/29/2018	08/15/2018	10/25/2018	08/13/2018	10/31/2018	08/13/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]
Formic acid	10,000	ID	7,700,000	NCL	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]
Cyanide	200 (A)	5.2	NLV	NCL	<10	<10	<10	<10	<10	<10	<10	<10	***12***	<10	<10	<10	***9.9***
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	6,800	5,800 [B]	46,000	43,000 [B]	33,000	27,000 [B]	37,000	19,000 [B]	790	1,300 [B]	<100 [UB]	<100	370,000
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	<20 [UB]	21	<20 [UB]	5.6 [J]	<20 [UB]	22	<20 [UB]	23	170	24	600	2,700	86
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	6,800	5,800	***46,000***	***43,000***	***33,000***	***27,000***	***37,000***	***19,000***	960	1,300	600	2,700	***370,000***
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	***260***	***220***	***1,800***	***1,600***	***1,300***	***1,000***	***1,400***	***730***	***30***	***50***	ND	ND	***14,000***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***430,000***	***410,000***	***470,000***	***400,000***	***340,000***	***190,000***	***160,000***	***56,000***	3,900	4,900	22,000	15,000	***460,000***
Hardness (total)	NCL	NCL	NCL	NCL	240,000	260,000	170,000	150,000	270,000	220,000	220,000	170,000	430,000	370,000	210,000	260,000	330,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	250	490	***2,600***	***2,300***	***3,600***	***3,400***	***2,100***	170	66	140	5.3	7.2 [J]	140
Sulfate	250,000 (E)	NA	NLV	NCL	17,000	24,000	<5,000	<1,000	<1,000	<1,000	<1,000	27,000	250,000 [J-]	230,000	29,000	47,000	4,900
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	2,600	<1,000	2,100	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-TMW-102	TA-TMW-103	TA-TMW-103	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105	TA-TMW-108	TA-TMW-108	TA-TMW-109	TA-TMW-109	TA-TMW-110
Sample Name					TA-TMW-102	TA-TMW-103	TA-TMW-103	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105 DUP	TA-TMW-108	TA-TMW-108	TA-TMW-109	TA-TMW-109	TA-TMW-110
Laboratory Sample ID(s)					TJ23010-011 & 18101529-01A/B	TH08014-014 & 1808539-06B/C	TJ23010-006 & 18101428-06A/B	TH08014-015 & 1808539-07B/C	TJ25084-019 & 18101716-07A/B	TH11003-004 & 1808742-04B/C	TJ27020-009 & 18101912-01A/C	TJ27020-010 & 18101912-02A/C	TH10023-003 & 1808636-03B/C	TJ23010-005 & 18101428-05A/B	TH08014-012 & 1808539-04B/C	TJ23010-001 & 18101428-01A/B	TH10023-010 & 1808639-01B/C
Sample Date					10/23/2018	08/08/2018	10/22/2018	08/08/2018	10/25/2018	08/10/2018	10/29/2018	10/29/2018	08/09/2018	10/22/2018	08/08/2018	10/22/2018	08/09/2018
Parameter (µg/L)																	
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000
Formic acid	10,000	ID	7,700,000	NCL	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000
Cyanide	200 (A)	5.2	NLV	NCL	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<30
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2 [UJ]
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	98,000 [B]	2,600 [J-]	3,000 [B]	680	<100	17,000	14,000 [B]	15,000 [B]	41,000	59,000 [B]	380	200	110,000
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	<20	71	53	<20	14,000	40	63	26	720	710	<20	4,400	130
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	***98,000***	2,700	3,100	680	***14,000***	***17,000***	***14,000***	***15,000***	***42,000***	***60,000***	380	4,600	***110,000***
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	***3,700***	***99***	***110***	26	ND	***650***	***530***	***570***	***1,600***	***2,300***	15	7.6	***4,200***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***350,000***	13,000	12,000	27,000	23,000	***190,000***	***190,000***	***180,000***	***730,000***	***420,000***	***130,000***	***150,000***	***350,000***
Hardness (total)	NCL	NCL	NCL	NCL	350,000	310,000	240,000	250,000	350,000	310,000	350,000	340,000	470,000	400,000	210,000	290,000	250,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	79	220	240	45	52	180	220	220	35	24 [J]	6.9	13 [J]	580
Sulfate	250,000 (E)	NA	NLV	NCL	640 [J]	<1,000	2,000	1,100	13,000	47,000	75,000	76,000	64,000	4,200	98,000	73,000	<5,000
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 6D
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	TA-TMW-110	TA-TMW-111	TA-TMW-111
Sample Name					TA-TMW-110	TA-TMW-111	TA-MW-111
Laboratory Sample ID(s)					TJ27020-011 & 18101912-03A/C	TH08014-016 & 1808539-08B/C	TJ23010-003 & 18101428-03A/B
Sample Date					10/29/2018	08/08/2018	10/22/2018
Parameter (µg/L)							
Acetic Acid	4,200	8,800 (G)	NLV	NCL	<25,000	<25,000 [UJ]	<25,000
Formic acid	10,000	ID	7,700,000	NCL	<25,000	<25,000 [UJ]	<25,000
Cyanide	200 (A)	5.2	NLV	NCL	<20	<10	<10
Cyanide, Available	200 (A)	5.2	NLV	NCL	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	2,000,000 [B]	840	860
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	69	<20	9.9 [J]
Nitrate-Nitrite (as N) + Nitrogen, Ammonia (As N) (Calculated)	10,000 (N)	NCL	NCL	NCL	***2,000,000***	840	870
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	NCL	29 (CC)	NCL	NCL	***76,000***	***32***	***33***
Chloride	250,000 (E)	50,000 (FF)	NLV	NCL	***190,000***	***180,000***	***200,000***
Hardness (total)	NCL	NCL	NCL	NCL	210,000	380,000	400,000
Phosphorous (total)	63,000	1,000 (EE)	NLV	NCL	650	24	26 [J]
Sulfate	250,000 (E)	NA	NLV	NCL	470 [J]	18,000	24,000
Sulfide	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000

TABLE 6E
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06	TA-GW-07	TA-GW-07	TA-GW-08
Sample Name						TA-GW-01	TA-GW-01	TA-GW-02	TA-GW-02	TA-GW-03	TA-GW-03	TA-GW-04	TA-GW-04	TA-GW-05	TA-GW-05	TA-GW-06	TA-GW-06	TA-GW-07	TA-GW-07	TA-GW-08
Laboratory Sample ID(s)						TH15011-003	TK02073-003	TH11003-020	TJ23010-007	TH15011-006	TJ25084-018	TH15011-005	TK02006-002	TH15011-002	TJ23010-002	TH15011-004	TK01001-001	TH11003-021	TJ17030-012	TH15011-001
Sample Date						08/14/2018	11/01/2018	08/13/2018	10/22/2018	08/14/2018	10/25/2018	08/14/2018	10/31/2018	08/14/2018	10/22/2018	08/14/2018	10/30/2018	08/13/2018	10/18/2018	08/14/2018
Parameter (µg/L)																				
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	<0.037	<0.039	<0.075	<0.07	<0.0038	<0.0037	<0.075	<0.037	<0.0038	<0.018	<0.019
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<1.5	<0.35	<0.0074	<0.0036	<0.074	<0.039	0.52	0.43	<0.0075	<0.0037	<0.15	<0.037	<0.0076	<0.018	<0.019
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	<0.037	<0.039	<0.075	<0.07	<0.0038	<0.0037	<0.075	<0.037	<0.0038	<0.018	<0.019
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<1.5	<0.71	<0.0074	<0.0073	<0.074	<0.078	<0.15	<0.14	<0.0075	<0.0073	<0.15	<0.074	<0.0076	<0.036	<0.037
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	14	14	0.83	0.86 [H]	2.1	2.4	9.7	11	0.5	0.59 [H]	4.8	2.4	0.28	0.71	0.5
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	<0.037	<0.039	<0.075	<0.07	<0.0038	<0.0037	<0.075	<0.037	<0.0038	<0.018	<0.019
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	10	1.5	0.024	0.028 [H]	0.33	0.39	1.1	0.92	0.21	0.18 [H]	0.8	0.38	0.037	0.18	0.22
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<1.5	<0.71	<0.0074	<0.0073	<0.074	<0.078	<0.15	<0.14	<0.0075	<0.0073	<0.15	<0.074	<0.0076	<0.036	<0.037
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.75	1.6	<0.0037	<0.0036	0.31	0.3	<0.075	<0.07	<0.0038	0.012 [H]	0.43	0.6	<0.0038	<0.018	0.047
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	2.9	1.2	0.36	0.36 [H]	0.37	0.44	4	4	0.15	0.14 [H]	0.78	0.5	0.045	0.12	0.16
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	20	3.7	0.8	0.96 [H]	1.2	1.4	12	10	0.73	0.68 [H]	4.9	2.1	0.17	0.43	0.62
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	1.7	0.57	0.17	0.18 [H]	0.39	0.43	3.1	3.5	0.053	0.051 [H]	0.94	0.48	0.088	0.16	0.11
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	0.41	0.5	<0.075 [UJ]	<0.07	<0.0038	0.025 [H]	0.084	0.28	<0.0038	<0.018	<0.019
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	<0.037	<0.039	<0.075 [UJ]	<0.07	<0.0038	<0.0037	<0.075	<0.037	<0.0038	<0.018	<0.019
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	3.7	1.5	0.79	0.89 [H]	0.87	1.1	7.9	7.9	0.21	0.15 [H]	1.8	1.2	0.11	0.3	0.31
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	3.2	1.1	0.96	0.99 [H]	1.2	1.4	14	15	0.12	0.11 [H]	2.4	1.5	0.2	0.41	0.29
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	0.15	0.18	0.25	0.2	0.028	0.046 [H]	0.18	0.36	<0.0038	0.041	0.051
Perfluorooctanoic acid (PFOA)	0.07	0.42 (X)	NCL	NCL	NCL	***49***	***12***	***3.3***	***4.3 [H]***	***5.7***	***6.1***	***40 [J]***	***53***	***2.5***	***1.6 [H]***	***11***	***8***	***0.63***	***2.1***	***3.4***
Perfluorooctane sulfonic acid (PFOS)	0.07	0.011 (X)	NCL	NCL	NCL	***310***	***150***	***0.38***	***0.52 [H]***	***24***	***27***	***76***	***56***	***3.6 [J]***	***6.7 [H]***	***45***	***46***	***0.41***	***14***	***12***
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	***360***	***160***	***3.7***	***4.8***	***30***	***33***	***120***	***110***	***6.1***	***8.3***	***56***	***54***	***1***	***16***	***15***
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	1.5	0.63	0.19	0.2 [H]	0.46	0.5	4	4.6	0.047	0.038 [H]	0.8	0.61	0.073	0.14	0.14
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	<0.037	<0.039	<0.075 [UJ]	<0.07	<0.0038	<0.0037	<0.075	<0.037	<0.0038	<0.018	<0.019
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	<0.037	<0.039	<0.075 [UJ]	<0.07	<0.0038	<0.0037	<0.075	<0.037	<0.0038	<0.018	<0.019
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.35	<0.0037	<0.0036	<0.037	<0.039	<0.075 [UJ]	<0.07	<0.0038	<0.0037	<0.075	<0.037	<0.0038	<0.018	<0.019
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	420	190	7.8	9.3	37	42	170	170	8.1	10	74	64	2	19	18

TABLE 6E
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-GW-08	TA-GW-09	TA-GW-09	TA-MW-1	TA-MW-1	TA-MW-2	TA-MW-2	TA-MW-3	TA-MW-3	TA-MW-4	TA-MW-4	TA-MW-5	TA-MW-5	TA-MW-301B	TA-MW-301B
Sample Name						TA-GW-08	TA-GW-09	TA-GW-09	TA-MW-1	TA-MW-1	TA-MW-2	TA-MW-2	TA-MW-3	TA-MW-3	TA-MW-4	TA-MW-4	TA-MW-5	TA-MW-5	TA-MW-301B	TA-MW-301B
Laboratory Sample ID(s)						TJ23010-015	TH29014-001	TJ25084-002	TH08014-013	TJ17030-017	TH11003-003	TJ27020-014	TH08014-017	TJ23010-014	TH11003-014	TK02006-005	TH10023-011	TJ25084-009	TH11003-005	TK01001-004
Sample Date						10/23/2018	08/28/2018	10/24/2018	08/08/2018	10/19/2018	08/10/2018	10/29/2018	08/08/2018	10/23/2018	08/13/2018	10/31/2018	08/09/2018	10/24/2018	08/10/2018	10/30/2018
Parameter (µg/L)																				
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	<0.0037	<0.0036	<0.18	<0.19	<0.019	<0.0035	<0.074	<0.072	<0.036	<0.018	<0.074	<0.074
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	<0.0073	<0.0036	<0.37	<0.19	<0.038	0.0049	0.43	0.24	<0.073	<0.018	<0.15	<0.074
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	0.0059 [J]	0.017	<0.18	<0.19	<0.019	<0.0035	0.22	0.24	<0.036	<0.018	<0.074	<0.074
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.037	<0.0074	<0.007	<0.0073	<0.0073	<0.37	<0.38	<0.038	<0.007	<0.15	<0.14	<0.073	<0.036	<0.15	<0.15
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	0.23	4	3.5	1.5	2.4	1.4	1.3	0.49	0.86	17	11	0.12	0.24	0.89	0.66
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	<0.0037	0.0055	<0.18	<0.19	<0.019	0.0069	<0.074	<0.072	<0.036	<0.018	<0.074	<0.074
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	0.15	0.14	0.3	0.1	0.11	0.35	0.4	0.14	0.13	0.81	0.8	0.15	0.11	0.49	0.28
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.037	<0.0074	<0.007	<0.0073	<0.0073	<0.37	<0.38	<0.038	<0.007	<0.15	<0.14	<0.073	<0.036	<0.15	<0.15
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	0.024	<0.0037	<0.0035	0.24	0.31	0.78	0.87	0.46	0.42	0.37	2.6	0.92	1	<0.074	<0.074
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	0.089	0.46	0.45	0.046	0.084	0.25	0.26	0.065	0.17	1.8	1.4	0.057	0.067	0.39	0.26
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	0.38	1.6	1.6	0.26	0.35	1.1	1	0.41	0.77	3.9	3.8	0.61	0.65	1.9	1.1
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	0.042	0.24	0.28	0.052	0.11	0.3	0.26	0.12	0.16	6.1	4	<0.036 [UJ]	0.042	0.32	0.2
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	0.04	0.049	0.18	0.19	<0.019 [UJ]	0.0097	<0.074 [UJ]	<0.072	0.047 [J]	0.036	<0.074	<0.074
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	<0.0037	<0.0036	<0.18	<0.19	<0.019 [UJ]	<0.0035	<0.074	<0.072	<0.036	<0.018	<0.074	<0.074
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	0.12	0.82	0.81	0.074	0.13	0.45	0.48	0.19	0.63	6.1	4.5	0.19	0.26	1.6	0.8
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	0.11	0.78	0.81	0.064	0.12	0.64	0.63	0.31	0.54	15	11	0.18	0.23	2.6	1.3
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	0.033	0.0092	0.04	0.029	0.039	<0.18	<0.19	0.032	0.039	0.3	0.3	0.038 [J]	0.031	0.077	<0.074
Perfluorooctanoic acid (PFOA)	0.07	0.42 (X)	NCL	NCL	NCL	***1.4***	***5.2***	***6***	***0.69***	***0.67***	***3***	***2.8***	***3.1***	***3.6***	***36***	***28***	***2.2***	***1.9***	***21***	***8.1***
Perfluorooctane sulfonic acid (PFOS)	0.07	0.011 (X)	NCL	NCL	NCL	***17***	***0.3 [J]***	***1.8***	***2.5***	***2.9***	***61***	***90***	***11***	***7.3***	***40***	***55***	***20***	***13***	***48***	***31***
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	***18***	***5.5***	***7.8***	***3.2***	***3.6***	***64***	***93***	***14***	***11***	***76***	***83***	***22***	***15***	***69***	***39***
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	0.05	0.3	0.32	0.051	0.092	0.27	0.26	0.12	0.15	4.1	3.2	0.041	0.065	0.58	0.36
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	<0.0037	<0.0036	<0.18	<0.19	<0.019 [UJ]	<0.0035	<0.074 [UJ]	<0.072	<0.036	<0.018	<0.074	<0.074
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	<0.0037	0.011	<0.18	<0.19	<0.019 [UJ]	<0.0035	<0.074	<0.072	<0.036	<0.018	<0.074	<0.074
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.0037	<0.0035	<0.0037	<0.0036	<0.18	<0.19	<0.019	0.25	<0.074 [UJ]	<0.072	<0.036	<0.018	<0.074	<0.074
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	20	14	16	5.7	7.4	70	98	16	15	130	130	25	18	78	44

TABLE 6E
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B	TA-MW-302B	TA-MW-303A	TA-MW-303A	TA-MW-303B	TA-MW-303B	TA-MW-303C	TA-MW-303C
Sample Name						TA-MW-301C	TA-MW-301C	TA-MW-301D	TA-MW-301 D	TA-MW-302A	TA-MW-302A	TA-MW-302B	TA-MW-302B DUP	TA-MW-302B	TA-MW-303A	TW-MW-303A	TA-MW-303B	TA-MW-303B	TA-MW-303C	TA-MW-303C
Laboratory Sample ID(s)						TH11003-019	TK02073-001	TH08014-005	TJ17030-007	TH11003-015	TJ23010-013	TH10023-001	TH10023-002	TJ23010-012	TH11003-012	TJ27020-012	TH11003-006	TJ27020-004	TH11003-009	TJ27020-003
Sample Date						08/13/2018	11/01/2018	08/07/2018	10/17/2018	08/13/2018	10/23/2018	08/09/2018	08/09/2018	10/23/2018	08/13/2018	10/29/2018	08/10/2018	10/26/2018	08/10/2018	10/26/2018
Parameter (µg/L)																				
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	<0.02	<0.019	<0.037	<0.037	<0.036	<0.075	<0.073	<0.038	<0.038	<0.038 [UJ]	<0.036
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<1.5	<0.18	<0.0074	<0.0038	<0.039	<0.019	<0.075	<0.074	<0.036	<0.15	<0.073	<0.075	<0.038	0.086 [J-]	0.11
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	<0.02	<0.019	<0.037	<0.037	<0.036	<0.075	<0.073	<0.038	<0.038	<0.038 [UJ]	<0.036
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<1.5	<0.36	<0.0074	<0.0077	<0.039	<0.038	<0.075	<0.074	<0.071	<0.15	<0.15	<0.075	<0.076	<0.076 [UJ]	<0.071
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	1.2	0.97	<0.0037	<0.0038	2.9	2.9	2.8	2.6	2.8	17	17	12	11	7.5 [J-]	8.1
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	<0.02	<0.019	<0.037	<0.037	<0.036	<0.075	<0.073	<0.038	<0.038	<0.038 [UJ]	<0.036
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	2.5	1.4	<0.0037	<0.0038	0.13	0.11	0.23	0.24	0.26	0.7	0.7	0.59	0.53	0.41 [J-]	0.43
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<1.5	0.57	<0.0074	<0.0077	<0.039	<0.038	<0.075	<0.074	<0.071	<0.15	<0.15	<0.075	<0.076	<0.076 [UJ]	<0.071
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	0.3	0.41	0.98	1	1.3	0.38	0.57	0.14	0.15	0.23 [J-]	0.3
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	0.92	0.66	<0.0037	<0.0038	0.16	0.12	0.5	0.47	0.57	0.95	0.72	0.79	0.75	0.7 [J-]	0.75
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	6.1	4.3	<0.0037	<0.0038	0.5	0.46	1.3	1.4	1.8	2.5	2	2.4	2.6	2.2 [J-]	2.3
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.75	0.59	<0.0037	<0.0038	0.22	0.17	0.49	0.48	0.59	0.78	0.68	1.1	0.8	1.9 [J-]	1.9
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	0.055	0.078	<0.037	<0.037	<0.036	<0.075	<0.073	<0.038	<0.038	<0.038 [UJ]	<0.036
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	<0.02	<0.019	<0.037	<0.037	<0.036	<0.075	<0.073	<0.038	<0.038	<0.038 [UJ]	<0.036
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	10	6.6	<0.0037	<0.0038	0.25	0.2	0.91	0.81	1.1	1.1	0.95	1.2	1.1	1.6 [J-]	2.1
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	9.8	6.7	<0.0037	<0.0038	0.29	0.22	0.99	0.91	1.1	1.3	1	1.8	1.4	3.2 [J-]	3.7
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	0.047	0.043	0.061	0.057	0.058	0.075	<0.073	0.12	0.086	0.13 [J-]	0.18
Perfluorooctanoic acid (PFOA)	0.07	0.42 (X)	NCL	NCL	NCL	***99***	***69***	0.0024	<0.0019	***1.7***	***1.3***	***6.6***	***6.3***	***7.4***	***5.5***	***4.9***	***7.9***	***6.1***	***9.3 [J-]***	***8.4***
Perfluorooctane sulfonic acid (PFOS)	0.07	0.011 (X)	NCL	NCL	NCL	***320***	***230***	0.0079	0.0056	***8.8***	***9.6***	***20***	***20***	***20***	***45***	***50***	***29***	***24***	***23 [J-]***	***23***
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	***420***	***300***	0.01	0.0056	***11***	***11***	***27***	***26***	***27***	***51***	***55***	***37***	***30***	***32***	***31***
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	1.8	1.2	<0.0037	<0.0038	0.13	0.16	0.34	0.34	0.41	0.55	0.51	0.69	0.53	1.1 [J-]	1.2
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	<0.02	<0.019	<0.037	<0.037	<0.036	<0.075	<0.073	<0.038	<0.038	<0.038 [UJ]	<0.036
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	<0.02	<0.019	<0.037	<0.037	<0.036	<0.075	<0.073	<0.038	<0.038	<0.038 [UJ]	<0.036
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.75	<0.18	<0.0037	<0.0038	<0.02	<0.019	<0.037	<0.037	<0.036	<0.075	<0.073	<0.038	<0.038	<0.038 [UJ]	<0.036
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	450	320	0.01	0.0056	15	16	35	35	37	76	79	58	49	51	52

TABLE 6E
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-303D	TA-MW-303D	TA-MW-303E	TA-MW-303E	TA-MW-303E	TA-MW-304A	TA-MW-304A	TA-MW-304B	TA-MW-304B	TA-MW-305B	TA-MW-305B	TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A
Sample Name						TA-MW-303D	TA-MW-303 D	TA-MW-303E	TA-MW-303E DUP	TA-MW-303 E	TA-MW-304A	TA-MW-304A	TA-MW-304B	TA-MW-304-B	TA-MW-305B	TA-MW-305B	TA-MW-305C	TA-MW-305C	TA-MW-306A	TA-MW-306A
Laboratory Sample ID(s)						TH08014-003	TJ17030-006	TH08014-001	TH08014-002	TJ17030-005	TH15011-013	TK02006-001	TH08014-010	TJ17030-013	TH11003-008	TK01001-002	TH11003-013	TK01001-003	TH10023-008	TJ23010-017
Sample Date						08/07/2018	10/17/2018	08/07/2018	08/07/2018	10/17/2018	08/14/2018	10/31/2018	08/08/2018	10/18/2018	08/10/2018	10/30/2018	08/13/2018	10/30/2018	08/09/2018	10/23/2018
Parameter (µg/L)																				
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	<0.004	<0.0036	<0.038	<0.037	<0.076	<0.074	<0.019	<0.018
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0074	<0.0038	<0.0075	<0.0075	<0.0037	<0.36	<0.071	<0.008	<0.0036	0.23	0.19	0.49	0.32	<0.038	0.039
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	<0.004	<0.0036	<0.038	<0.037	<0.076	<0.074	<0.019	<0.018
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0074	<0.0075	<0.0075	<0.0075	<0.0074	<0.36	<0.14	<0.008	<0.0073	<0.075	<0.074	<0.15	<0.15	<0.038	<0.037
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	0.0043	0.0089	<0.0037	<0.0037	<0.0037	2.6	2.1	0.14	0.28	16	17	18	18	1.3	3.1
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	<0.004	<0.0036	<0.038	<0.037	<0.076	<0.074	<0.019	<0.018
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	0.81	0.37	0.011	0.014	0.75	0.64	0.97	0.93	0.17	0.17
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.0074	<0.0075	<0.0075	<0.0075	<0.0074	<0.36	<0.14	<0.008	<0.0073	<0.075	<0.074	<0.15	<0.15	<0.038	<0.037
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0037	0.0039	<0.0037	<0.0037	<0.0037	0.3	0.18	0.013	0.018	<0.038	<0.037	<0.076	<0.074	0.23	0.035
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	0.37	0.53	0.031	0.062	2.7	2.3	2.9	2.6	0.2	0.33
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	1.4	3.3	0.11	0.18	5.4	5.4	6.3	6.4	0.93	1.3
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	0.51	0.24	0.086	0.17	5.7	5.8	6.4	6.5	0.29	0.63
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	<0.004	0.0054	<0.038	<0.037	0.085	0.075	0.069	0.027
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	<0.004	<0.0036	<0.038	<0.037	<0.076	<0.074	<0.019	<0.018
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	0.88	0.61	0.06	0.11	10	11	11	11	0.44	1.1
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0037	0.0039	<0.0037	<0.0037	<0.0037	1.3	0.64	0.2	0.39	33	35	27	32	0.59	1.7
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	0.0061	0.0083	0.12	0.1	0.24	0.26	0.11	0.065
Perfluorooctanoic acid (PFOA)	0.07	0.42 (X)	NCL	NCL	NCL	0.003	0.0051	<0.0019	<0.0019	<0.0018	***5.1***	***4.4***	***0.24***	***0.4***	***35***	***32***	***47***	***42***	***3.7***	***9***
Perfluorooctane sulfonic acid (PFOS)	0.07	0.011 (X)	NCL	NCL	NCL	0.0079	***0.017***	<0.0037	<0.0037	<0.0037	***79***	***43***	***0.86***	***0.95***	***29***	***30***	***43***	***43***	***9.5***	***11***
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	0.011	0.022	ND	ND	ND	***84***	***47***	***1.1***	***1.4***	***64***	***62***	***90***	***85***	***13***	***20***
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	0.47	0.24	0.043	0.077	6.7	6.4	5.7	5.5	0.27	0.52
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	<0.004	<0.0036	<0.038	<0.037	<0.076	<0.074	<0.019	<0.018
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	<0.004	<0.0036	<0.038	<0.037	<0.076	<0.074	<0.019	<0.018
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0037	<0.0037	<0.18	<0.071	<0.004	<0.0036	<0.038	<0.037	<0.076	<0.074	<0.019	<0.018
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	0.015	0.039	ND	ND	ND	93	56	1.8	2.7	140	150	170	170	18	29

TABLE 6E
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-306A	TA-MW-306B	TA-MW-306B	TA-MW-307A	TA-MW-307A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A	TA-MW-308B	TA-MW-308B	TA-MW-308C	TA-MW-308C	TA-MW-309A
Sample Name						TA-MW-306A DUP	TA-MW-306B	TA-MW-306B	TA-MW-307A	TA-MW-307-A	TA-MW-307B	TA-MW-307B	TA-MW-308A	TA-MW-308A	TA-MW-308A DUP	TA-MW-308B	TA-MW-308 B	TA-MW-308C	TA-MW-308 C	TA-MW-309A
Laboratory Sample ID(s)						TJ23010-016	TH10023-005	TJ25084-005	TH10023-007	TJ17030-011	TH10023-006	TJ23010-004	TH11003-010	TJ25084-015	TJ25084-016	TH08014-004	TJ17030-001	TH08014-006	TJ17030-004	TH10023-004
Sample Date						10/23/2018	08/09/2018	10/24/2018	08/09/2018	10/18/2018	08/09/2018	10/22/2018	08/10/2018	10/25/2018	10/25/2018	08/07/2018	10/16/2018	08/07/2018	10/17/2018	08/09/2018
Parameter (µg/L)																				
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.018	<0.018	<0.0037	<0.0036	<0.0038	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	<0.019
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	0.042	0.04	<0.018	<0.0074	<0.0036	<0.0076	<0.0036	<0.075	<0.018	<0.018	<0.0075	<0.0035	<0.0074	<0.0038	<0.038
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.018	<0.018	<0.0037	<0.0036	<0.0038	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	<0.019
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.039	<0.037	<0.037	<0.0074	<0.0072	<0.0076	<0.0072	<0.075	<0.036	<0.037	<0.0075	<0.007	<0.0074	<0.0075	<0.038
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	3.2	3.4	0.87	0.15	0.18	0.66	0.54 [H]	0.31	0.36	0.48	<0.0037	<0.0035	<0.0037	<0.0038	0.34
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.018	<0.018	<0.0037	<0.0036	<0.0038	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	<0.019
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	0.18	0.16	0.14	<0.0037	<0.0036	0.26	0.35 [H]	0.41	0.31	0.33	<0.0037	<0.0035	<0.0037	<0.0038	0.3
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.039	<0.037	<0.037	<0.0074	<0.0072	<0.0076	<0.0072	<0.075	<0.036	<0.037	<0.0075	<0.007	<0.0074	<0.0075	<0.038
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	0.034	<0.018	0.2	<0.0037	<0.0036	<0.0038	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	0.15
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	0.33	0.36	0.16	0.016	0.02	0.34	0.27 [H]	0.16	0.12	0.13	<0.0037	<0.0035	<0.0037	<0.0038	0.12
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	1.4	1.4	0.67	0.031	0.038	1.3	1.4 [H]	1	0.84	0.95	<0.0037	<0.0035	<0.0037	<0.0038	0.54
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	0.62	0.72	0.23	0.067	0.075	0.1	0.091 [H]	0.35	0.3	0.31	<0.0037	<0.0035	<0.0037	<0.0038	0.072
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	0.025	0.023	0.074	<0.0037	<0.0036	<0.0038	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	<0.019
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.018	<0.018	<0.0037	<0.0036	<0.0038	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	<0.019
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	1.1	1.2	0.39	0.065	0.079	0.54	0.51 [H]	1.3	1.1	1	<0.0037	<0.0035	<0.0037	<0.0038	0.23
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	1.6	1.6	0.49	0.13	0.16	0.44	0.39 [H]	1.2	1.1	1	<0.0037	<0.0035	<0.0037	<0.0038	0.23
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	0.051	0.056	0.11	<0.0037	<0.0036	0.033	0.05 [H]	0.1	0.11	0.11	<0.0037	<0.0035	<0.0037	<0.0038	0.057
Perfluorooctanoic acid (PFOA)	0.07	0.42 (X)	NCL	NCL	NCL	***9.2***	***8.9***	***2.9***	***0.17***	***0.2***	***4.5***	***4.8 [H]***	***11***	***8.5***	***8***	<0.0019	<0.0017	0.0033	0.0035	***4***
Perfluorooctane sulfonic acid (PFOS)	0.07	0.011 (X)	NCL	NCL	NCL	***10***	***9.3***	***13***	***0.012 [J]***	***0.013***	***4 [J]***	***5.4 [H]***	***19***	***15***	***15***	<0.0037	<0.0035	0.0047 [J]	0.0064	***13 [J]***
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	***19***	***18***	***16***	***0.18***	***0.21***	***8.5***	***10***	***30***	***24***	***23***	ND	ND	0.008	0.0099	***17***
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	0.55	0.62	0.21	0.06	0.063	0.15	0.12 [H]	1.2	1	1	<0.0037	<0.0035	<0.0037	<0.0038	0.1
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.018	<0.018	<0.0037	<0.0036	<0.076	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	<0.019
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.018	<0.018	<0.0037	<0.0036	<0.0038 [UJ]	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	<0.019
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.018	<0.018	<0.0037	<0.0036	<0.0038	<0.0036	<0.037	<0.018	<0.018	<0.0037	<0.0035	<0.0037	<0.0038	<0.019
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	28	28	19	0.7	0.83	12	14	36	29	28	ND	ND	0.008	0.0099	19

TABLE 6E
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-MW-309A	TA-MW-309B	TA-MW-309B	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309D	TA-MW-309D	TA-MW-310A	TA-MW-310A	TA-MW-310B	TA-MW-310B	TA-MW-310C	TA-MW-310C	TA-P-1
Sample Name						TA-MW-309A	TA-MW-309B	TA-MW-309B DUP	TA-MW-309B	TA-MW-309C	TA-MW-309C	TA-MW-309D	TA-MW-309D	TA-MW-310A	TA-MW-310-A	TA-MW-310B	TA-MW-310-B	TA-MW-310C	TA-MW-310-C	TA-P-1
Laboratory Sample ID(s)						TJ25084-007	TH11003-001	TH11003-002	TJ25084-003	TH10023-009	TJ25084-024	TH11003-007	TK02006-004	TH08014-011	TJ17030-016	TH08014-009	TJ17030-018	TH08014-007	TJ17030-010	TH15011-007
Sample Date						10/24/2018	08/10/2018	08/10/2018	10/24/2018	08/09/2018	10/25/2018	08/10/2018	10/31/2018	08/08/2018	10/19/2018	08/08/2018	10/19/2018	08/07/2018	10/18/2018	08/14/2018
Parameter (µg/L)																				
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	<0.0036	<0.0037	<0.0037	<0.0036	<0.0037	<0.0035	<0.019
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.074	<0.074	<0.036	<0.075	<0.019	<0.15	<0.074	<0.0073	<0.0037	<0.0074	<0.0036	<0.0074	<0.0035	<0.038
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	<0.0036	<0.0037	<0.0037	<0.0036	<0.0037	<0.0035	<0.019
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.074	<0.074	<0.071	<0.075	<0.038	<0.15	<0.15	<0.0073	<0.0073	<0.0074	<0.0072	<0.0074	<0.007	<0.038
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	0.29	0.35	0.36	0.31	0.71	0.51	0.61	0.6	0.23	0.34	0.13	0.24	0.17	0.2	2.2
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	<0.0036	<0.0037	<0.0037	<0.0036	<0.0037	<0.0035	<0.019
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	0.25	0.24	0.25	0.23	0.39	0.35	0.41	0.32	0.029	0.063	0.04	0.078	<0.0037	<0.0035	0.36
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.074	<0.074	<0.071	<0.075	<0.038	<0.15	<0.15	<0.0073	<0.0073	<0.0074	<0.0072	<0.0074	<0.007	<0.038
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	0.26	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	0.75	0.93	0.95	1.2	<0.0037	<0.0035	0.06
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	0.08	0.13	0.13	0.13	0.25	0.19	0.24	0.26	0.061	0.1	0.053	0.081	0.046	0.062	0.56
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	0.41	0.55	0.56	0.62	1.2	0.98	1.2	1.2	0.19	0.34	0.22	0.34	0.016	0.02	1.6
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	0.053	0.077	0.077	0.071	0.18	0.12	0.15	0.17	0.045	0.066	0.036	0.048	0.15	0.18	0.46
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	0.02	0.037	0.031	0.065	<0.0037	<0.0035	<0.019
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	<0.0036	<0.0037	<0.0037	<0.0036	<0.0037	<0.0035	<0.019
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	0.16	0.23	0.23	0.26	0.5	0.41	0.82	1	0.095	0.15	0.082	0.12	0.12	0.15	1.1
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	0.16	0.21	0.21	0.23	0.65	0.46	1	1.4	0.1	0.15	0.083	0.12	0.3	0.37	1.3
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	0.048	0.065	0.063	0.089	0.066	0.067	0.09	0.097	0.007	0.012	0.013	0.019	<0.0037	<0.0035	0.061
Perfluorooctanoic acid (PFOA)	0.07	0.42 (X)	NCL	NCL	NCL	***2.3***	***2.8***	***2.8***	***3.2***	***8.1***	***5.8***	***11***	***11***	***0.62***	***0.94***	***0.68***	***1.1***	***0.083 [J]***	***0.1***	***9.5***
Perfluorooctane sulfonic acid (PFOS)	0.07	0.011 (X)	NCL	NCL	NCL	***11***	***21***	***23***	***24***	***21***	***19***	***62***	***52***	***1.3***	***2.1***	***2.1***	***3.3***	0.006 [J]	0.0051	***12***
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	***13***	***24***	***26***	***27***	***29***	***25***	***73***	***63***	***1.9***	***3***	***2.8***	***4.4***	***0.089***	***0.11***	***22***
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	0.078	0.092	0.088	0.097	0.27	0.17	0.25	0.3	0.084	0.12	0.068	0.079	0.18	0.19	0.48
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	<0.0036	<0.0037	<0.0037	<0.0036	<0.0037	<0.0035	<0.019
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	<0.0036	<0.0037	<0.0037	<0.0036	<0.0037	<0.0035	<0.019
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.037	<0.037	<0.036	<0.038	<0.019	<0.074	<0.074	<0.0036	<0.0037	<0.0037	<0.0036	<0.0037	<0.0035	<0.019
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	15	26	28	29	33	28	78	68	3.5	5.3	4.5	6.8	1.1	1.3	30

TABLE 6E
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4	TA-P-5	TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102	TA-TMW-102	TA-TMW-103	TA-TMW-103
Sample Name						TA-P-1	TA-P-2	TA-P-2	TA-P-3	TA-P-3	TA-P-4	TA-P-4	TA-P-5	TA-P-5	TA-TMW-101	TA-TMW-101	TA-TMW-102	TA-TMW-102	TA-TMW-103	TA-TMW-103
Laboratory Sample ID(s)						TJ25084-017	TH15011-008	TJ25084-020	TH15011-009	TJ25084-001	TH15011-015	TJ27020-013	TH15011-016	TJ25084-014	TH11003-016	TK02006-003	TH11003-018	TJ23010-011	TH08014-014	TJ23010-006
Sample Date						10/25/2018	08/14/2018	10/25/2018	08/14/2018	10/24/2018	08/15/2018	10/29/2018	08/15/2018	10/25/2018	08/13/2018	10/31/2018	08/13/2018	10/23/2018	08/08/2018	10/22/2018
Parameter (µg/L)																				
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.039	<0.036	<0.038	<0.035	<0.076	<0.035	0.046	0.066	<0.19	<0.19	<0.0036	<0.0037	<0.0041	0.0037 [H]
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.078	0.038	<0.075	0.063	<0.15	<0.035	<0.08	<0.02	<0.39	<0.19	<0.0072	<0.074	<0.0081	0.0051 [H]
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.039	<0.036	<0.038	<0.035	<0.076	<0.035	<0.04	<0.02	<0.19	<0.19	<0.0036	<0.0037	<0.0041	<0.0037
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.037	<0.078	<0.072	<0.075	<0.071	<0.15	<0.071	<0.08	<0.039	<0.39	<0.37	<0.0072	<0.0074	<0.0081	<0.0075
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	2.8	3.7	4.9	5.8	5.9	2	1.2	1.4	2.4	0.53	0.61	0.57	0.69 [H]	0.91	0.49 [H]
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.039	<0.036	<0.038	<0.035	<0.076	<0.035	<0.04	<0.02	<0.19	<0.19	<0.0036	<0.0037	<0.0041	<0.0037
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	0.32	1.2	1.2	0.35	0.32	0.47	0.24	0.46	0.063	0.67	0.54	0.28	0.28 [H]	0.14	0.14 [H]
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.037	<0.078	<0.072	<0.075	<0.071	<0.15	<0.071	<0.08	<0.039	<0.39	<0.37	<0.0072	<0.0074	<0.0081	<0.0075
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	0.32	<0.039	0.075	<0.038	0.057	0.56	0.76	0.48	0.74	<0.19	<0.19	<0.0036	<0.0037	0.21	0.34 [H]
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	0.6	0.76	0.79	0.63	0.8	0.31	0.15	0.27	0.11	0.22	0.29	0.36	0.28 [H]	0.22	0.2 [H]
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	1.7	3.9	4.3	2.9	4.1	1.5	0.69	1.1	0.31	1.3	1.6	1.6	1.1 [H]	0.72	0.62 [H]
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	0.53	0.79	0.82	1.3	1.4	0.47	0.22	0.24	0.38	<0.19	0.23	0.1	0.12 [H]	0.13	0.074 [H]
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.039	<0.036	<0.038	<0.035	0.15	0.14	0.086	0.21	<0.19	<0.19	0.0051	0.0078 [H]	0.012	0.019 [H]
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.039	<0.036	<0.038	<0.035	<0.076	<0.035	<0.04	<0.02	<0.19	<0.19	<0.0036	<0.0037	<0.0041	<0.0037
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	1.2	1.3	1.4	1.5	2	0.69	0.4	0.38	0.43	0.82	1.6	0.68	0.47 [H]	0.38	0.33 [H]
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	1.7	1.7	1.9	2.8	3.3	1.3	0.49	0.72	0.83	0.7	1.6	0.62	0.41 [H]	0.51	0.34 [H]
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	0.06	0.12	0.16	0.087	0.13	0.11	0.042	0.052	0.052	<0.19	<0.19	0.029	0.044 [H]	0.033	0.037 [H]
Perfluorooctanoic acid (PFOA)	0.07	0.42 (X)	NCL	NCL	NCL	***7.9***	***11***	***11***	***7.7***	***7.9***	***4.6***	***2.4***	***3.2***	***2.1***	***16***	***24***	***5.1***	***3.7 [H]***	***2.9***	***2.2 [H]***
Perfluorooctane sulfonic acid (PFOS)	0.07	0.011 (X)	NCL	NCL	NCL	***11***	***21 [I]***	***28***	***16***	***19***	***45***	***25***	***21***	***13***	***150***	***100***	***5.5***	***6 [H]***	***6.5***	***6.6 [H]***
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	***19***	***32***	***39***	***24***	***27***	***50***	***27***	***24***	***15***	***170***	***120***	***11***	***9.7***	***9.4***	***8.8***
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	0.55	0.53	0.55	1	1.2	0.42	0.21	0.36	0.57	<0.19	0.41	0.14	0.15 [H]	0.23	0.12 [H]
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.039	<0.036	<0.038	<0.035	<0.076	<0.035	<0.04	<0.02	<0.19	<0.19	<0.072 [UJ]	<0.074	<0.0041	<0.0037
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.039	<0.036	<0.038	<0.035	<0.076	<0.035	<0.04	<0.02	<0.19	<0.19	<0.0036	<0.0037	<0.0041	<0.0037
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.019	<0.039	<0.036	<0.038	<0.035	<0.076	<0.035	<0.04	<0.02	<0.19	<0.19	<0.0036	<0.0037	<0.0041	<0.0037
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	29	46	55	40	46	58	32	30	21	170	130	15	13	13	12

TABLE 6E
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation	Residential Recommended Interim Action Screening Level - Shallow Groundwater	U.S. EPA Residential Tap Water Regional Removal Management Levels	TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105	TA-TMW-108	TA-TMW-108	TA-TMW-109	TA-TMW-109	TA-TMW-110	TA-TMW-110	TA-TMW-111	TA-TMW-111
Sample Name						TA-TMW-104	TA-TMW-104	TA-TMW-105	TA-TMW-105	TA-TMW-105 DUP	TA-TMW-108	TA-TMW-108	TA-TMW-109	TA-TMW-109	TA-MW-110	TA-TMW-110	TA-TMW-111	TA-MW-111
Laboratory Sample ID(s)						TH08014-015	TJ25084-019	TH11003-004	TJ27020-009	TJ27020-010	TH10023-003	TJ23010-005	TH08014-012	TJ23010-001	TH10023-010	TJ27020-011	TH08014-016	TJ23010-003
Sample Date						08/08/2018	10/25/2018	08/10/2018	10/29/2018	10/29/2018	08/09/2018	10/22/2018	08/08/2018	10/22/2018	08/09/2018	10/29/2018	08/08/2018	10/22/2018
Parameter (µg/L)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.018	<0.035	<0.075	<0.075	<0.0038	<0.0036	<0.0037	<0.0039	<0.073	<0.074	<0.0037	<0.0036
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.075	<0.018	<0.071	<0.075	<0.075	<0.0075	<0.0036	<0.0074	<0.0039	<0.15	<0.074	<0.0074	<0.0036
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.018	<0.035	<0.075	<0.075	<0.0038	<0.0036	<0.0037	<0.0039	<0.073	<0.074	<0.0037	<0.0036
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.075	<0.037	<0.071	<0.15	<0.15	<0.0075	<0.0072	<0.0074	<0.0078	<0.15	<0.15	<0.0074	<0.0072
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	0.9	0.43	1.9	2.2	2.1	1	0.76 [H]	0.37	0.35 [H]	0.48	0.38	0.55	0.61 [H]
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.018	<0.035	<0.075	<0.075	<0.0038	<0.0036	<0.0037	<0.0039	<0.073	<0.074	<0.0037	<0.0036
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	0.31	0.17	0.37	0.57	0.57	0.24	0.22 [H]	0.052	0.12 [H]	0.8	0.8	0.17	0.19 [H]
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.075	<0.037	<0.071	<0.15	<0.15	<0.0075	<0.0072	<0.0074	<0.0078	<0.15	<0.15	<0.0074	<0.0072
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.018	0.54	0.68	0.69	<0.0038	<0.0036	0.079	0.048 [H]	<0.073	<0.074	<0.0037	0.004 [H]
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	0.34	0.18	0.41	0.47	0.45	0.38	0.3 [H]	0.058	0.066 [H]	0.52	0.57	0.26	0.3 [H]
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	1.1	0.7	1.2	1.7	1.7	1.4	1 [H]	0.25	0.28 [H]	2.7	2.4	1	1.2 [H]
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	0.1	0.05	0.47	0.47	0.46	0.25	0.15 [H]	0.069	0.06 [H]	<0.073	<0.074	0.085	0.1 [H]
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.038	0.019	0.31	0.27	0.25	0.0056	0.011 [H]	<0.0037	<0.0039	<0.073	<0.074	<0.0037	0.0044 [H]
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.018	<0.035	<0.075	<0.075	<0.0038	<0.0036	<0.0037	<0.0039	<0.073	<0.074	<0.0037	<0.0036
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	0.35	0.18	1	1.2	1.1	0.71	0.47 [H]	0.17	0.2 [H]	1	0.96	0.39	0.48 [H]
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	0.35	0.14	1.4	1.4	1.4	0.8	0.5 [H]	0.21	0.21 [H]	1	0.82	0.27	0.33 [H]
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	0.059	0.037	0.12	0.15	0.15	0.034	0.036 [H]	0.017	0.033 [H]	<0.073	<0.074	<0.0037	0.033 [H]
Perfluorooctanoic acid (PFOA)	0.07	0.42 (X)	NCL	NCL	NCL	***3.6***	***2.6***	***7.4***	***6.4***	***6.4***	***4.4***	***3.5 [H]***	***0.98***	***1.2 [H]***	***9.7***	***7.3***	***3.1***	***3.8 [H]***
Perfluorooctane sulfonic acid (PFOS)	0.07	0.011 (X)	NCL	NCL	NCL	***27***	***10***	***32***	***48***	***50***	***4.2 [J]***	***5.5 [H]***	***3.6***	***5.6 [H]***	***36 [J]***	***47***	***3.5***	***3.9 [H]***
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	***31***	***13***	***39***	***54***	***56***	***8.6***	***9***	***4.6***	***6.8***	***46***	***54***	***6.6***	***7.7***
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	0.12	0.066	0.48	0.54	0.53	0.27	0.19 [H]	0.15	0.096 [H]	0.17	0.11	0.086	0.1 [H]
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.018	<0.035	<0.075	<0.075	<0.0038	<0.0036	<0.0037	<0.0039	<0.073	<0.074	<0.0037	<0.0036
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.018	<0.035	<0.075	<0.075	<0.0038	<0.0036	<0.0037	<0.0039	<0.073	<0.074	<0.0037	<0.0036
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.038	<0.018	<0.035	<0.075	<0.075	<0.0038	<0.0036	<0.0037	<0.0039	<0.073	<0.074	<0.0037	<0.0036
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	34	15	48	64	66	14	13	6	8.3	52	60	9.4	11

TABLE 6A through 6E
NOTES
Former Tannery
Rockford, Kent County, Michigan

NOTES:

1. Concentration and criteria units are micrograms per Liter (µg/L) or parts per billion (ppb). Calculated criteria and concentrations are rounded to two significant digits. "ND" indicates the parameters used in the calculation were not detected. "NC" indicates not calculated.
2. Michigan Part 201 Groundwater Cleanup Criteria are based on "Table 1, Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels," Michigan Administrative Code, Cleanup Criteria Requirements for Response Activity, Rules 299.44 and 299.49, effective December 30, 2013; updated June 25, 2018.
   Abbreviations Include:
   "ID" indicates insufficient data to develop criterion.
   "NA" indicates a criterion or value is not available or, in the case of background, not applicable.
   "NCL" indicates no criterion listed in MDEQ Table 1.
   "NLV" indicates the substance is not likely to volatilize under most conditions.
   Footnotes Include:
   (A) - The criterion is the State of Michigan drinking water standard.
   (D) - The calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 ppb.
   (E) - Criterion is the aesthetic drinking water value.
   (F) - Criterion is based on adverse impacts to plant life and phytotoxicity.
   (G) - Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.
   MDEQ's Footnote (G) GSI/GSIPC Calculation spreadsheet was utilized to calculate GSI criterion presented. The Rogue River is the receiving surface water for the Site. Hardness (220 mg $CaCO_3$/L) and pH (7.5 standard units) used in the calculations were the lowest (most-conservative) of the calculated mean and median of the Rogue River surface water samples (TA-SW-01, TA-SW-02, TA-SW-03, TA-SW-05, and TA-SW-07) rounded to two significant digits and water hardness or pH for the Rogue River near Rockford published in United States Geological Survey Circular 323, "Water Resources of the Grand Rapids Area, Michigan," Table 1, 1954.
   (L) - Criteria for lead are derived using a biologically based model. The generic residential drinking water criterion of 4 µg/L is linked to the generic residential soil direct contact criterion of 400 mg/kg.
   (M) - Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
   (N) - The concentrations of all potential sources of nitrate-nitrogen (e.g., ammonia-N, nitrite-N, nitrate-N) in groundwater that is used as a source of drinking water shall not, when added together, exceed the nitrate drinking water criterion of 10,000 ug/L.
   (P) - Amenable cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with all groundwater criteria.
   (S) - Criterion defaults to the hazardous substance-specific water solubility limit.
   (V) - Criterion is the aesthetic drinking water value.
   (W) - Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 µg/L.
   (X) - For groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value (HDV) listed in the table of this footnote except for those HDV indicated with an asterisk. For HDV with an asterisk, the generic GSI criterion shall be the lowest of the HDV, the wildlife value (WV), and the calculated final chronic value (FCV). Criterion listed have been updated to the HDV, WV, or FCV.
   (AA) - Use 10,000 µg/L where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 µg/L for all other uses.
   (CC) - The generic GSI criteria are based on the toxicity of unionized ammonia (NH_3); the criteria are 29 µg/L and 53 µg/L for cold water and warm water surface water, respectively. As a result, the GSI criterion shall be compared to the percent of the total ammonia concentration in the groundwater that will become NH_3 in the surface water. This percent NH_3 is a function of the pH and temperature of the receiving surface water and was estimated using the table of this footnote titled "Percent NH_3 in Aqueous Ammonia Solutions for 0-30°C and pH 6-10." This approach uses a default temperature of 68°F and 85°F for cold water and warm water surface water, respectively. The percent conversion factor in the table for cold water (20°C or 68°F) and pH (8.0 standard units) is 3.82%.
   (EE) - The applicable GSI criteria for phosphorus is 1,000 µg/L.
   (FF) - The chloride GSI criterion shall be 50,000 µg/L when the discharge is to the Great Lakes or connecting waters.
   (JJ) - Compliance with the drinking water criteria shall require comparing the sum of the PFOA and PFOS groundwater concentrations to the drinking water criterion of 0.07 µg/L.
3. Residential Recommended Interim Action Screening Levels for shallow groundwater were based on MDEQ's Toxics Steering Group's "Media-Specific Interim Action Screening Levels," published in August 2017.
   Abbreviations Include:
   "NCL" indicates no value listed in the Media-Specific Interim Action Screening Levels table.
4. U.S. EPA Residential Tap Water Regional Removal Management Levels (RMLs) were based on "Generic RML Tables," updated November 2018.
5. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Part 201 Groundwater Cleanup Criteria or Media-Specific Interim Action Screening Levels. U.S. EPA RMLs are provided for reference only and results detected above the EPA RMLs are not bolded or italicized.
6. Abbreviations include:
   "< RL" indicates the parameter was analyzed for but not detected above the method detection limit; RL = Reporting Limit.
   "DUP" indicates a duplicate sample.
   Laboratory Qualifiers
   "B" indicates the parameter was also detected in the method blank.
   "J" indicates the parameter was detected at a concentration greater than the limit of quantitation (LOQ) but less than the detection limit (DL) and the result is estimated.
   "H" indicates the sample was analyzed outside of holding time.
   Validator Qualifiers
   "J" indicates the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
   "J+" indicates the result is an estimated quantity. The associated numerical value is possibly biased high.
   "J-" indicates the result is an estimated quantity. The associated numerical value is possibly biased low.
   "UB" indicates the analyte was analyzed for and detected below the laboratory reporting limit. As a result of associated blank contamination, the analyte was considered a non-detect result at the laboratory reporting limit.
   "UJ" indicates the analyte was analyzed for but was not detected. The reported quantitation limit is approximate.
   "UR" indicates the analyte was analyzed for but was not detected. The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
7. Data from samples collected prior to October 1, 2018 have been validated and validator qualifiers are presented. Data from samples collected after October 1, 2018 have not been validated and original laboratory qualifiers are presented.
8. Sample names presented are from Shealy Environmental Services, Inc. laboratory reports. Sample names presented in ALS Environmental lab reports may have minor differences based on laboratory interpretation of the chains of custody.

TABLE 6F
SUMMARY OF GROUNDWATER FIELD PARAMETERS
Former Tannery
Rockford, Kent County, Michigan

Sample Location		TA-GW-01	TA-GW-02	TA-GW-03	TA-GW-04	TA-GW-05	TA-GW-06	TA-GW-07	TA-GW-08	TA-GW-09	TA-MW-1	TA-MW-2	TA-MW-3	TA-MW-4	TA-MW-5	TA-MW-301B
Sample Name		TA-GW-01	TA-GW-02	TA-GW-03	TA-GW-04	TA-GW-05	TA-GW-06	TA-GW-07	TA-GW-08	TA-GW-09	TA-MW-1	TA-MW-2	TA-MW-3	TA-MW-4	TA-MW-5	TA-MW-301B *
Sample Date		08/14/2018	08/13/2018	08/14/2018	08/14/2018	08/14/2018	08/14/2018	08/13/2018	08/14/2018	08/28/2018	08/08/2018	08/10/2018	08/08/2018	08/13/2018	08/09/2018	08/10/2018
Parameter	**Units**															
Specific Conductivity	µS/cm	7324	7226	1522	1533	929	2899	1268	1255	5156	540	1020	1170	2013	555	1359
Dissolved Oxygen	mg/L	0.41	2.96	0.38	0.91	0.64	0.38	0.8	0.41	5.81	0.052	0.24	1.44	0.07	0.4	0.51
pH	SU	6.9	6.95	7.25	6.95	6.69	7.31	7.13	6.9	6.73	7.34	7.04	7.19	7.18	6.89	7.25
ORP	mV	-130.6	49.5	-108.3	25.3	-59.2	-118.7	-81.1	-140.3	106	-151.3	-207.8	13.2	-122.5	-88.7	-31.8
Turbidity	NTU	18.4	0.02	1.87	0.02	0.02	0.02	0.02	0.02	2.92	0.02	0.02	0.02	3.07	0.02	0.02

Notes: TA-P-5 sampled without purging.

TABLE 6F
SUMMARY OF GROUNDWATER FIELD PARAMETERS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	TA-MW-301C	TA-MW-301D	TA-MW-302A	TA-MW-302B	TA-MW-302B	TA-MW-303A	TA-MW-303B	TA-MW-303C	TA-MW-303D	TA-MW-303E	TA-MW-303E	TA-MW-304A	TA-MW-304B	TA-MW-305B	TA-MW-305C
Sample Name	TA-MW-301C	TA-MW-301D	TA-MW-302A	TA-MW-302B	TA-MW-302B DUP	TA-MW-303A	TA-MW-303B	TA-MW-303C	TA-MW-303D	TA-MW-303E	TA-MW-303E DUP	TA-MW-304A	TA-MW-304B	TA-MW-305B	TA-MW-305C
Sample Date	08/13/2018	08/07/2018	08/13/2018	08/09/2018	08/09/2018	08/13/2018	08/10/2018	08/10/2018	08/07/2018	08/07/2018	08/07/2018	08/15/2018	08/08/2018	08/10/2018	08/13/2018
Parameter															
Specific Conductivity	876	1923	1019	2056	2056	3917	3347	3984	2053	2349	2349	2521	2836	2120	1921
Dissolved Oxygen	0.38	4.7	0.49	0.56	0.56	0.64	0.12	0.18	0.33	0.02	0.02	0.96	0.22	0.36	0.95
pH	7.26	7	7.01	7.28	7.28	6.79	6.55	6.9	7.18	7.14	7.14	7.41	7.07	7.06	6.89
ORP	27.8	-48.1	-106.2	-138.2	-138.2	-99.9	-137.3	-158.2	-129	-88.2	-88.2	-97.8	-114.8	-62.1	-60.4
Turbidity	0.02	0.02	8.71	0.02	0.02	0.02	1.53	0.77	0.02	0.02	0.02	0.02	0.02	2.9	3.23

Notes: TA-P-5 sampled without purging.

TABLE 6F
SUMMARY OF GROUNDWATER FIELD PARAMETERS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	TA-MW-306A	TA-MW-306B	TA-MW-307A	TA-MW-307B	TA-MW-308A	TA-MW-308B	TA-MW-308C	TA-MW-309A	TA-MW-309B	TA-MW-309B	TA-MW-309C	TA-MW-309D	TA-MW-310A	TA-MW-310B	TA-MW-310C
Sample Name	TA-MW-306A	TA-MW-306B	TA-MW-307A	TA-MW-307B	TA-MW-308A	TA-MW-308B	TA-MW-308C	TA-MW-309A	TA-MW-309B	TA-MW-309B DUP	TA-MW-309C	TA-MW-309D	TA-MW-310A	TA-MW-310B	TA-MW-310C
Sample Date	08/09/2018	08/09/2018	08/09/2018	08/09/2018	08/10/2018	08/07/2018	08/07/2018	08/09/2018	08/10/2018	08/10/2018	08/09/2018	08/10/2018	08/08/2018	08/08/2018	08/07/2018
Parameter															
Specific Conductivity	1486	5171	2344	2563	1225	1134	1185	1228	1225	1225	1118	995	568	566	26087
Dissolved Oxygen	0.43	0.5	0.38	0.93	0.66	0.05	0	0.52	0.29	0.29	0.1	1.12	4.47	48.6	8.8
pH	7.28	7.39	6.96	6.2	6.97	7.43	7.43	6.9	7.16	7.16	7.18	7.42	7.36	7.35	6.96
ORP	-150.9	-96.7	-47	83.8	-86.4	-143	-136.2	-123.4	-153.6	-153.6	-159.6	-30.6	81	146.3	-58.3
Turbidity	0.02	0.02	0.75	0.57	0.02	20.9	0.02	4.51	36.1	36.1	8.8	0.02	0.02	0.02	0.02

Notes: TA-P-5 sampled without purging.

TABLE 6F
SUMMARY OF GROUNDWATER FIELD PARAMETERS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	TA-TMW-101	TA-TMW-102	TA-TMW-103	TA-TMW-104	TA-TMW-105	TA-TMW-108	TA-TMW-109	TA-TMW-110	TA-TMW-111	TA-P-1	TA-P-2	TA-P-3	TA-P-4	TA-P-5
Sample Name	TA-TMW-101	TA-TMW-102	TA-TMW-103	TA-MW-104	TA-TMW-105	TA-TMW-108	TA-TMW-109	TA-MW-110	TA-MW-111	TA-P-1	TA-P-2	TA-P-3	TA-P-4	TA-P-5
Sample Date	08/13/2018	08/13/2018	08/08/2018	08/08/2018	08/10/2018	08/09/2018	08/08/2018	08/09/2018	08/08/2018	08/14/2018	08/14/2018	08/14/2018	08/15/2018	08/15/2018
Parameter														
Specific Conductivity	793	4257	627	1435	1708	2892	1195	14841	1502	2313	2581	2539	2338	-
Dissolved Oxygen	0.19	0.32	0.35	3.07	0.75	1.74	0.24	0.29	0.15	0.31	0.12	0.41	0.33	-
pH	7.05	6.69	7.48	7.55	7.46	6.31	7.19	7.34	6.56	7.44	6.7	6.75	7.08	-
ORP	35.4	-73.9	-145.6	-73.9	-105	86.7	-73	-191.4	-53.1	-119.9	-160.6	-118.3	-89.6	-
Turbidity	0.69	3.16	6.54	23.1	0.02	0.02	3.9	5.67	0.02	0.02	18.2	5.99	0.02	-

Notes: TA-P-5 sampled without purging.

TABLE 7A
SUMMARY OF SURFACE WATER SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Surface Water Body	Rule 57 Human Noncancer Value (HNV) Drinking Water	Rule 57 Wildlife Value (WV)	Rule 57 Human Cancer Value (HCV) Drinking Water	Rule 57 Final Chronic Value (FCV)	Rule 57 Aquatic Maximum Value (AMV)	Rule 57 Final Accute Value (FAV)	Rum Creek	Rum Creek	Rum Creek	Rum Creek	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River
Sample Location							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07
Sample Name							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01 (DUP)	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07 DUP
Laboratory Sample ID(s)							TG24017-009	TJ25084-006	TG26015-001	TJ25084-004	TG26015-002	TG26015-003	TJ25084-013	TG24017-010	TJ27020-006	TG24017-008	TJ25084-008	TG26015-006	TJ27020-005	TG26015-004	TJ27020-001	TJ27020-002
Sample Date							07/24/2018	10/24/2018	07/25/2018	10/24/2018	07/25/2018	07/25/2018	10/25/2018	07/24/2018	10/26/2018	07/24/2018	10/24/2018	07/26/2018	10/26/2018	07/25/2018	10/26/2018	10/26/2018
Parameter (µg/L)																						
Acetone	5,600	NA	NA	1,700	15,000	30,000	3.1	2.7 [J]	2.8 [J+]	<20	5.8 [J+]	23 [J+]	<20	2.6	3.9 [J]	3.6	<20	8.6	3.5 [J]	6.9 [J+]	4.3 [J]	2.7 [J]
Benzene	19	NA	12	200	950	1,900	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	170	NA	6.8	ID	ID	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	470	NA	52	ID	ID	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone (2-Butanone)	17,000	NA	NA	2,200	20,000	40,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane (Methyl bromide)	39	NA	NA	4.2	38	75	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon disulfide	1,000	NA	NA	ID	ID	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	18	NA	4.7	77	690	1,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	470	NA	NA	25	220	450	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	500,000	NA	170	1,100	10,000	20,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chloroform	350	NA	*	630	5,700	11,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (Methyl chloride)	3,500	NA	110	ID	ID	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	ID	NA	NA	ID	ID	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	ID*	NA	0.24	ID	ID	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	570	NA	6.8	ID	ID	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane (Ethylene dibromide)	250	NA	0.17	15	140	280	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	2,000	NA	NA	13	120	240	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	37	NA	NA	28	100	200	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	1,100	NA	24	17	100	210	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	2,900	NA	NA	ID	ID	ID	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1-Dichloroethane	9,800	NA	NA	740	6,600	13,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	6,900	NA	6	2,000	8,200	16,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene	1,200	NA	NA	130	1,200	2,300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	880	NA	NA	620	5,500	11,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	470	NA	NA	1,500	14,000	28,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	12,000	NA	9.1	230	2,000	4,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	930	NA	3.3	9	81	160	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	930	NA	3.3	9	81	160	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	2,100	NA	25	18	160	320	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	9,700	NA	NA	ID	ID	ID	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Isopropyl benzene	1,700	NA	NA	28	250	500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl acetate	NCL	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tertiary butyl ether (MTBE)	920	NA	100	32,000	210,000	420,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl isobutyl ketone	ID	NA	NA	ID	ID	ID	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylcyclohexane	ID	NA	NA	ID	ID	ID	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	1,600	NA	47	1,500	8,500	17,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.77	<1	<1
Styrene	4,200	NA	20	160	1,400	2,900	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	180	NA	3.2	200	910	1,800	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	320	NA	11	190	1,400	2,900	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	5,600	NA	NA	270	1,300	2,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloro-1,2,2-trifluoroethane	444,000	NA	NA	32	280	570	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	80	NA	NA	130	420	850	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	62,000	NA	NA	89	800	1,600	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	110	NA	12	730	3,200	6,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	44	NA	29	200	1,800	3,500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	NCL	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	83	NA	0.25	930	8,400	17,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (Total)	3,800	NA	NA	49	440	890	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p - Xylenes	NCL	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	NCL	NCL	NCL	NCL	NCL	NCL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 7B
SUMMARY OF SURFACE WATER SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Surface Water Body	Rule 57 Human Noncancer Value (HNV) Drinking Water	Rule 57 Wildlife Value (WV)	Rule 57 Human Cancer Value (HCV) Drinking Water	Rule 57 Final Chronic Value (FCV)	Rule 57 Aquatic Maximum Value (AMV)	Rule 57 Final Accute Value (FAV)	Rum Creek	Rum Creek	Rum Creek	Rum Creek	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River
Sample Location							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07
Sample Name							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01	TA-SW-01 (DUP)	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07 DUP
Laboratory Sample ID(s)							TG24017-009	TJ25084-006	TG26015-001	TJ25084-004	TG26015-002	TJ25084-013	TG26015-003	TG24017-010	TJ27020-006	TG24017-008	TJ25084-008	TG26015-006	TJ27020-005	TG26015-004	TJ27020-001	TJ27020-002
Sample Date							07/24/2018	10/24/2018	07/25/2018	10/24/2018	07/25/2018	10/25/2018	07/25/2018	07/24/2018	10/26/2018	07/24/2018	10/24/2018	07/26/2018	10/26/2018	07/25/2018	10/26/2018	10/26/2018
Parameter (µg/L)																						
Acenaphthene	580	NA	NA	38	100	200	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	ID	NA	NA	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Acetophenone	ID	NA	NA	ID	ID	ID	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Anthracene	1,900	NA	NA	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Atrazine	880	NA	NA	7.3	50	100	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Benzidine	74	NA	0.0015	2.7	25	49	<20 [UJ]	<20	<20 [UJ]	<20	<100	<20	<100	<20	<20	<20	<20	<100	<20	<20	<20	<20
Benzo[a]anthracene	NLS	NA	NLS	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Benzo[a]pyrene	NLS	NA	NLS	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Benzo[b]fluoranthene (3,4-Benzofluoranthene)	NLS	NA	NLS	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Benzo[g,h,i]perylene	ID	NA	NA	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Benzo[k]fluoranthene	NCL	NCL	NCL	NCL	NCL	NCL	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Butyl benzyl phthalate	6.9	NA	NA	67	310	630	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Caprolactam	NCL	NCL	NCL	NCL	NCL	NCL	<1.6 [UJ]	<1.6	<1.6	<1.6	<8	<1.6	<8	<1.6	<1.6	<1.6	<1.6	<8	<1.6	<1.6	<1.6	<1.6
Carbazole	ID*	NA	19	4	36	72	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
p-Chloro-m-cresol	6,900	NA	NA	7.4	67	130	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<4	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<0.8 [UJ]	<0.8	<0.8
bis(2-chloroethyl)ether	ID*	NA	0.79	ID*	ID	ID	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
2-Chloronaphthalene	NCL	NCL	NCL	NCL	NCL	NCL	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
2-Chlorophenol	190	NA	NA	18	160	320	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<4	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<0.8 [UJ]	<0.8	<0.8
Chrysene	ID	NA	ID	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Dibenzo[a,h]anthracene	NLS	NA	NLS	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Dibenzofuran	ID*	NA	NA	4	36	72	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
3,3'-Dichlorobenzidine	650	NA	0.14	4.5	41	81	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
2,4-Dichlorophenol	220	NA	NA	11	92	180	<1.6 [UJ]	<1.6	<1.6 [UJ]	<1.6	<8	<1.6	<8	<1.6 [UJ]	<1.6	<1.6 [UJ]	<1.6	<8	<1.6	<1.6 [UJ]	<1.6	<1.6
Diethyl phthalate	14,000	NA	NA	110	980	2,000	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Dimethyl phthalate	NCL	NCL	NCL	NCL	NCL	NCL	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
2,4-Dimethylphenol	450	NA	NA	380	1,300	2,700	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<4	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<0.8 [UJ]	<0.8	<0.8
Di-n-butyl phthalate	640	NA	NA	9.7	38	75	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
4,6-Dinitro-o-cresol	NCL	NCL	NCL	NCL	NCL	NCL	<4 [UJ]	<4	<4 [UJ]	<4	<20	<4	<20	<4 [UJ]	<4	<4 [UJ]	<4	<20	<4	<4 [UJ]	<4	<4
2,4-Dinitrotoluene	NCL	NCL	NCL	NCL	NCL	NCL	<1.6 [UJ]	<1.6	<1.6	<1.6	<8	<1.6	<8	<1.6	<1.6	<1.6	<1.6	<8	<1.6	<1.6	<1.6	<1.6
Di-n-octyl phthalate	240	NA	NA	ID	ID	ID	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Azobenzene	ID*	NA	3.7	ID	ID	ID	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
bis(2-Ethylhexyl)phthalate	120	NA	14	ID*	285	285	<4 [UJ]	<4	<4	<4	<20	<4	<20	<4	0.69 [BJ]	<4	<4	<20	0.73 [BJ]	<4	0.76 [BJ]	0.69 [BJ]
Fluoranthene	18	NA	NA	1.6	14	28	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Fluorene	140	NA	NA	12	110	220	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Hexachlorobenzene	0.046	0.0003	0.00045	ID*	ID	ID	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Hexachlorobutadiene	0.093	0.053	0.33	1	7	15	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Hexachlorocyclopentadiene	140	NA	NA	ID	ID	ID	<4 [UJ]	<4	<4 [UR]	<4	<20 [UJ]	<4	<20 [UJ]	<4 [UJ]	<4	<4 [UJ]	<4	<20 [UJ]	<4	<4 [UJ]	<4	<4
Hexachloroethane	6	NA	5.3	13	110	210	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Indeno[1,2,3-cd]pyrene	NLS	NA	NLS	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Isophorone	4,100	NA	310	1,300	4,600	9,200	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
2-Methylnaphthalene	600	NA	NA	19	170	340	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
2-Methylphenol	1,400	NA	NA	76	690	1,400	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<4	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<0.8 [UJ]	<0.8	<0.8
4-Methylphenol	1,400	NA	NA	25	230	450	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8 [UJ]	<0.8	<0.8
Naphthalene	1,100	NA	NA	11	100	200	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Nitrobenzene	26	NA	4.7	230	1,000	2,100	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
2-Nitrophenol	ID	NA	NA	56	510	1,000	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<0.8 [UJ]	<0.8	<0.8
n-Nitroso-di-n-propylamine	NCL	NCL	NCL	NCL	NCL	NCL	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
n-Nitrosodiphenylamine	NCL	NCL	NCL	NCL	NCL	NCL	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8	<0.8	<0.8	<0.8	<4	<0.8	<0.8	<0.8	<0.8
Pentachlorophenol	300	NA	1.8	11	14	29	<4 [UJ]	<4	<4 [UJ]	<4	<20	<4	<20	<4 [UJ]	<4	<4 [UJ]	<4	<20	<4	<4 [UJ]	<4	<4
Phenanthrene	ID*	NA	NA	1.7	5.7	11	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
Phenol	1,100	NA	NA	450	3,400	6,800	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<4	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<0.8 [UJ]	<0.8	<0.8
Pyrene	15	NA	NA	ID	ID	ID	<0.2 [UJ]	<0.2	<0.2	<0.2	<1	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	NCL	NCL	NCL	NCL	NCL	NCL	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<4	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<0.8 [UJ]	<0.8	<0.8
2,4,6-Trichlorophenol	1,900	NA	41	5	39	79	<0.8 [UJ]	<0.8	<0.8	<0.8	<4	<0.8	<4	<0.8 [UJ]	<0.8	<0.8 [UJ]	<0.8	<4	<0.8	<0.8	<0.8	<0.8

TABLE 7C
SUMMARY OF SURFACE WATER SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Surface Water Body	Rule 57 Human Noncancer Value (HNV) Drinking Water	Rule 57 Wildlife Value (WV)	Rule 57 Human Cancer Value (HCV) Drinking Water	Rule 57 Final Chronic Value (FCV)	Rule 57 Aquatic Maximum Value (AMV)	Rule 57 Final Accute Value (FAV)	Rum Creek	Rum Creek	Rum Creek	Rum Creek	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River
Sample Location							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07
Sample Name							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01 (DUP)	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07 DUP
Laboratory Sample ID(s)							TG24017-009 & 18071494-02A	TJ25084-006 & 18101637-06C	TG26015-001 & 18071606-01A	TJ25084-004 & 18101637-04C	TG26015-002 & 18071606-02A	TG26015-003 & 18071606-03A	TJ25084-013 & 18101716-01C	TG24017-010 & 18071494-03A	TJ27020-006 & 18101808-06C	TG24017-008 & 18071494-01A	TJ25084-008 & 18101637-08C	TG26015-006 & 18071742-01A	TJ27020-005 & 18101808-05C	TG26015-004 & 18071606-04A	TJ27020-001 & 18101808-01C	TJ27020-002 & 18101808-02C
Sample Date							07/24/2018	10/24/2018	07/25/2018	10/24/2018	07/25/2018	07/25/2018	10/25/2018	07/24/2018	10/26/2018	07/24/2018	10/24/2018	07/26/2018	10/26/2018	07/25/2018	10/26/2018	10/26/2018
Parameter (µg/L)																						
Aluminum	NCL	NCL	NCL	NCL	NCL	NCL	20 [J-]	<40	25	<40	35	32	14 [J]	24 [J-]	19 [J]	38 [J-]	23 [J]	90	20 [J]	41	25 [J]	23 [J]
Antimony	1.7	NA	NA	240	1,100	2,300	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	10	NA	10	150	340	680	<2 [UJ]	<2	<2	<2	1.8	1.4	<2	<2 [UJ]	<2	<2 [UJ]	<2	1.8	<2	<2	<2	<2
Barium	1,900	NA	NA	1,000	2,900	5,800	32	29	31	30	3.1	2.7	43	35	36	35	29	52	63	36	34	35
Beryllium	160	NA	NA	25	230	450	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Boron (Boron and Borates only)	4,000	NA	NA	7,200	34,000	69,000	<50 [UB]	21 [J]	<50 [UB]	20 [J]	52	<50 [UB]	31 [J]	<50 [UB]	34 [J]	<50 [UB]	20 [J]	<50 [UB]	59	<50 [UB]	30 [J]	31 [J]
Cadmium	2.5	NA	NA	4	10	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	120	NA	NA	140	1,100	2,200	<5 [UJ]	<5	<5	<5	<5	<5	<5	<5 [UJ]	3 [J]	<5 [UJ]	<5	1.6	3.5 [J]	<5	<5	<5
Chromium+6	120	NA	NA	11	16	32	<5	<5	<5 [UJ]	<5	<5	<5	5.9	<5	<5	<5	<5	<5 [UJ]	<5	<5	<5	<5
Cobalt	ID*	NA	NA	100	370	740	<5 [UJ]	<5	<5	<5	<5	<5	<5	<5 [UJ]	<5	<5 [UJ]	<5	<5	<5	<5	<5	<5
Copper	470	NA	NA	18	28	56	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Iron	NCL	NCL	NCL	NCL	NCL	NCL	220	190	250	200	160	150	240	260	390	280	200	430	1,300	300	380	370
Lead	14	NA	NA	46	220	450	<1	<1	<1	<1	0.31	0.29	<1	<1	<1	<1	<1	0.49	<1	<1	<1	<1
Magnesium	NCL	NCL	NCL	NCL	NCL	NCL	21,000	22,000	23,000	23,000	14,000	14,000	22,000	19,000	23,000	20,000	23,000	20,000	21,000	21,000	23,000	24,000
Molybdenum	120	NA	NA	3,200	29,000	58,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Mercury	0.0018	0.0013	NA	0.77	1.4	2.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	2,600	NA	NA	100	910	1,800	<5	<5	1.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Selenium	120	NA	NA	5	62	120	<5 [UJ]	<5	<5	<5	<5	<5	<5	<5 [UJ]	<5	<5 [UJ]	<5	<5	<5	<5	<5	<5
Silver	130	NA	NA	0.06	0.54	1.1	<1 [UJ]	<1	<1	<1	<1	<1	<1	<1 [UJ]	<1	<1 [UJ]	<1	<1	<1	<1	<1	<1
Sodium	NCL	NCL	NCL	NCL	NCL	NCL	17,000	19,000	18,000	19,000	19,000	19,000	21,000	15,000	18,000	16,000	19,000	21,000	26,000	17,000	19,000	20,000
Thallium	1.2	NA	NA	7.2	47	94	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Titanium	NLS	NA	NA	ID	ID	ID	<5	<5	1.4	<5	2	2.2	<5	1.6	<5	1.6	<5	4.7	1.3 [J]	1.8	1.3 [J]	1.3 [J]
Vanadium	53	NA	NA	27	79	160	<5 [UJ]	<5	<5	<5	<5	<5	<5	<5 [UJ]	<5	<5 [UJ]	<5	<5	<5	<5	<5	<5
Zinc	3,300	NA	NA	230	230	460	<10 [UB]	<10	<10	<10	3.3	<10	<10	<10 [UB]	3 [J]	<10 [UJ]	<10	3.5	<10	<10	<10	<10

TABLE 7D
SUMMARY OF SURFACE WATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Surface Water Body	Rule 57 Human Noncancer Value (HNV) Drinking Water	Rule 57 Wildlife Value (WV)	Rule 57 Human Cancer Value (HCV) Drinking Water	Rule 57 Final Chronic Value (FCV)	Rule 57 Aquatic Maximum Value (AMV)	Rule 57 Final Accute Value (FAV)	Rum Creek	Rum Creek	Rum Creek	Rum Creek	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River
Sample Location							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03
Sample Name							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01 (DUP)	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03
Laboratory Sample ID(s)							TG24017-009 & 18071494-02B/C	TJ25084-006 & 18101637-06A/B	TG26015-001 & 18071606-01B/C	TJ25084-004 & 18101637-04A/B	TG26015-002 & 18071606-02B/C	TG26015-003 & 18071606-03B/C	TJ25084-013 & 18101716-01A/B	TG24017-010 & 18071494-03B?C	TJ27020-006 & 18101808-06A/B	TG24017-008 & 18071494-01B/C	TJ25084-008 & 18101637-08A/B
Sample Date							07/24/2018	10/24/2018	07/25/2018	10/24/2018	07/25/2018	07/25/2018	10/25/2018	07/24/2018	10/26/2018	07/24/2018	10/24/2018
Parameter (µg/L)																	
Acetic Acid	16,000	NA	NA	8,800	79,000	160,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000
Formic acid	38,000	NA	NA	ID	ID	ID	<25,000	<25,000	<25,000 [UJ]	<25,000	<25,000 [UJ]	<25,000 [UJ]	<25,000	<25,000	<25,000	<25,000	<25,000
Cyanide	600	NA	NA	5.2	22	44	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	NCL	NCL	<100	22 [BJ]	<100 [UB]	<100	<100 [UB]	<100 [UB]	39 [BJ]	<100	410 [B]	<100	34 [BJ]
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	NCL	NCL	1,100	1,300	1,200	1,300	<20 [UB]	<20 [UB]	110	1,200	1,400	1,200	1,300
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	ID*	NA	NA	29	160	320	ND	0.84	ND	ND	ND	ND	1.5	ND	16	ND	1.3
Chloride	NCL	NCL	NCL	NCL	NCL	NCL	38,000 [J-]	37,000	36,000	35,000	37,000	37,000	42,000	36,000 [J-]	35,000	36,000 [J-]	37,000
Hardness (total)	NCL	NCL	NCL	NCL	NCL	NCL	280,000	270,000	280,000 [J-]	280,000	130,000	130,000	260,000	270,000	280,000	240,000	270,000
Phosphorous	NCL	NCL	NCL	NCL	NCL	NCL	9.6	6.7 [J]	12	7.4 [J]	77	77	37 [J]	47 [J+]	21 [J]	36	7.1 [J]
Sulfate	NCL	NCL	NCL	NCL	NCL	NCL	14,000	15,000	14,000	14,000	9,300	9,200	39,000	42,000	46,000	40,000	15,000
Sulfide	NCL	NCL	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 7D
SUMMARY OF SURFACE WATER SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Surface Water Body	Rule 57 Human Noncancer Value (HNV) Drinking Water	Rule 57 Wildlife Value (WV)	Rule 57 Human Cancer Value (HCV) Drinking Water	Rule 57 Final Chronic Value (FCV)	Rule 57 Aquatic Maximum Value (AMV)	Rule 57 Final Accute Value (FAV)	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River
Sample Location							TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07
Sample Name							TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07 DUP
Laboratory Sample ID(s)							TG26015-006 & 18071742-01B/C	TJ27020-005 & 18101808-05A/B	TG26015-004 & 18071606-04B/C	TJ27020-001 & 18101808-01A/B	TJ27020-002 & 18101808-02A/B
Sample Date							07/26/2018	10/26/2018	07/25/2018	10/26/2018	10/26/2018
Parameter (µg/L)											
Acetic Acid	16,000	NA	NA	8,800	79,000	160,000	<25,000 [UJ]	<25,000	<5,000 [UJ]	<25,000	<25,000
Formic acid	38,000	NA	NA	ID	ID	ID	<25,000 [UJ]	<25,000	<5,000 [UJ]	<25,000	<25,000
Cyanide	600	NA	NA	5.2	22	44	<10	<10	<10	<10	<10
Cyanide, Available	NCL	NCL	NCL	NCL	NCL	NCL	<2	<2	<2	<2	<2
Nitrogen, Ammonia (As N)	NCL	NCL	NCL	NCL	NCL	NCL	<100 [UB]	290 [B]	<100 [UB]	48 [BJ]	48 [BJ]
Nitrate-Nitrite (as N)	NCL	NCL	NCL	NCL	NCL	NCL	27	810	1,100	1,300	1,300
Unionized Ammonia (Calculated based on pH 8.0, 20°C)	ID*	NA	NA	29	160	320	ND	11	ND	1.8	1.8
Chloride	NCL	NCL	NCL	NCL	NCL	NCL	40,000	37,000	36,000	36,000	36,000
Hardness (total)	NCL	NCL	NCL	NCL	NCL	NCL	190,000	290,000	260,000	270,000	270,000
Phosphorous	NCL	NCL	NCL	NCL	NCL	NCL	160	40 [J]	37	19 [J]	19 [J]
Sulfate	NCL	NCL	NCL	NCL	NCL	NCL	8,100	34,000	39,000	37,000	37,000
Sulfide	NCL	NCL	NCL	NCL	NCL	NCL	<1,000	<1,000	<1,000	<1,000	<1,000

TABLE 7E
SUMMARY OF SURFACE WATER SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Surface Water Body	Rule 57 Human Noncancer Value (HNV) Drinking Water	Rule 57 Wildlife Value (WV)	Rule 57 Human Cancer Value (HCV) Drinking Water	Rule 57 Final Chronic Value (FCV)	Rule 57 Aquatic Maximum Value (AMV)	Rule 57 Final Accute Value (FAV)	Rum Creek	Rum Creek	Rum Creek	Rum Creek	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River
Sample Location							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07
Sample Name							TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01 (DUP)	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-05	TA-SW-07	TA-SW-07	TA-SW-07 DUP
Laboratory Sample ID(s)							TG24017-009	TJ25084-006	TG26015-001	TJ25084-004	TG26015-002	TG26015-003	TJ25084-013	TG24017-010	TJ27020-006	TG24017-008	TJ25084-008	TG26015-006	TJ27020-005	TG26015-004	TJ27020-001	TJ27020-002
Sample Date							07/24/2018	10/24/2018	07/25/2018	10/24/2018	07/25/2018	07/25/2018	10/25/2018	07/24/2018	10/26/2018	07/24/2018	10/24/2018	07/26/2018	10/26/2018	07/25/2018	10/26/2018	10/26/2018
Parameter (µg/L)																						
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	<0.0037	<0.0035	<0.0037	<0.0036	<0.0037
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0074	<0.0038	<0.0073	<0.0038	<0.0072	<0.0074	<0.0037	<0.0074	<0.0036	<0.0075	<0.0037	<0.0074	<0.0035	<0.0074	<0.0036	<0.0037
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	<0.0037	<0.0035	<0.0037	<0.0036	<0.0037
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0074	<0.0076	<0.0073	<0.0075	<0.0072	<0.0074	<0.0075	<0.0074	<0.0073	<0.0075	<0.0074	<0.0074	<0.0071	<0.0074	<0.0072	<0.0074
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	NCL	NCL	0.0055	0.0072	0.0042	0.0046	0.0071	0.007	0.0084	<0.0037	0.0036	<0.0038	0.0074	0.027	0.11	<0.0037	0.0055	0.0053
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	<0.0037	<0.0035	<0.0037	<0.0036	<0.0037
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	0.0075	0.022	<0.0037	<0.0036	<0.0037
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0074	<0.0076	<0.0073	<0.0075	<0.0072	<0.0074	<0.0075	<0.0074	<0.0073	<0.0075	<0.0074	<0.0074	<0.0071	<0.0074	<0.0072	<0.0074
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	0.004	0.03	<0.0037	<0.0036	<0.0037
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	0.0071	0.021	<0.0037	<0.0036	<0.0037
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	0.0047	<0.0036	<0.0038	0.0047	0.0051	0.0051	<0.0037	0.0043	<0.0038	0.0047	0.035	0.078	<0.0037	0.0039	<0.0037
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036 [UJ]	0.004 [J]	0.0081	<0.0037	0.0039	<0.0038	<0.0037	0.0071	0.02	<0.0037	<0.0036	<0.0037
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	<0.0037	0.0036	<0.0037	<0.0036	<0.0037
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	<0.0037	<0.0035	<0.0037	<0.0036	<0.0037
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	0.02	0.057	<0.0037	<0.0036	<0.0037
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	0.005	0.0047	0.0058	<0.0037	<0.0036	<0.0038	<0.0037	0.025	0.064	<0.0037	<0.0036	<0.0037
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	<0.0037	0.0054	<0.0037	<0.0036	<0.0037
Perfluorooctanoic acid (PFOA)	0.42	NA	NA	880	7,700	15,000	0.0081	0.013	0.0048	0.0057	0.02	0.02	0.022	0.0025	0.014	0.0028	0.013	0.18	0.39	0.0021	0.012	0.011
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	0.0038	<0.0037	<0.0036	<0.0038	<0.0037	0.0071	0.019	<0.0037	<0.0036	<0.0037
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037 [UJ]	<0.0038	<0.0036 [UJ]	<0.0038	<0.0036 [UJ]	<0.0037 [UJ]	<0.0037	<0.0037 [UJ]	<0.0036	<0.0038 [UJ]	<0.0037	<0.0037	<0.0035	<0.0037	<0.0036	<0.0037
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	<0.0037	<0.0035	<0.0037	<0.0036	<0.0037
Perfluorooctane sulfonic acid (PFOS)	0.011	NA	NA	140	780	1,600	***0.031***	***0.05***	***0.015***	***0.024***	***0.063***	***0.061***	***0.052***	0.0069	***0.018***	0.0088	***0.058***	***0.36***	***1.2***	0.006	***0.035***	***0.034***
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0036	<0.0038	<0.0036	<0.0037	<0.0037	<0.0037	<0.0036	<0.0038	<0.0037	<0.0037	<0.0035	<0.0037	<0.0036	<0.0037
Total PFAS (Calculated sum of detections)	NCL	NCL	NCL	NCL	NCL	NCL	0.045	0.075	0.024	0.034	0.10	0.10	0.11	0.0094	0.044	0.012	0.083	0.68	2.0	0.0081	0.056	0.050

TABLES 7A TO 7E NOTES
Former Tannery
Rockford, Kent County, Michigan

NOTES:

1. Concentration and criteria units are micrograms per Liter (µg/L) or parts per billion (ppb). Calculated water quality values and concentrations are rounded to two significant digits.
2. Michigan Rule 57 Water Qutality Values are based on MDEQ's "Rule 57 Water Quality Values, Surface Water Assessment Section," which were developed using procedures for calculating water quality values in Michigan Administrative Code, Part 4, Water Quality Standards, Rule 323.1057.

   Abbreviations Include:

   "ID" indicates insufficient data to derive value.

   "NA" indicates not applicable.

   "NCL" indicates no value listed in the Rule 57 Water Quality Values table.

   "NLS" indicates no literature search has been conducted.

   "*" indicates the lowest HNV, WV, HCV, or FCV given for this parameter will adequately protect the uses identified with an ID* or *
3. Values for FCV, AMV, and FAV presented for acetic acid, pentachlorophenol, barium, beryllium, cadmium, chromium, copper, lead, nickel, and zinc were calculated using the provided equations which are based on the hardness and pH of the receiving surface. water. The Rogue River is the receiving surface water for the Site. Hardness (220 mg $CaCO_3$/L) and pH (7.5 standard units) used in the calculations were the lowest (most-conservative) of the calculated mean and median of the Rogue River surface water samples (TA-SW-01, TA-SW-02, TA-SW-03, TA-SW-05, and TA-SW-07) rounded to two significant digits and water hardness or pH for the Rogue River near Rockford published in United States Geological Survey Circular 323, "Water Resources of the Grand Rapids Area, Michigan," Table 1, 1954.
4. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Rule 57 Surface Water Quality Values.
5. Abbreviations include:

   "< RL" indicates the parameter was analyzed for but not detected above the method detection limit; RL = Reporting Limit.

   "DUP" indicates a duplicate sample.

   Laboratory Qualifiers

   "B" indicates the parameter was also detected in the method blank.

   "J" indicates the parameter was detected at a concentration greater than the limit of quantitation (LOQ) but less than the detection limit (DL) and the result is estimated.

   Validator Qualifiers

   "J" indicates the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

   "J+" indicates the result is an estimated quantity. The associated numerical value is possibly biased high.

   "J-" indicates the result is an estimated quantity. The associated numerical value is possibly biased low.

   "UB" indicates the analyte was analyzed for and detected below the laboratory reporting limit. As a result of associated blank contamination, the analyte was considered a non-detect result at the laboratory reporting limit.

   "UJ" indicates the analyte was analyzed for but was not detected. The reported quantitation limit is approximate.

   "UR" indicates the analyte was analyzed for but was not detected. The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
6. Data from samples collected prior to October 1, 2018 have been validated and validator qualifiers are presented. Data from samples collected after October 1, 2018 have not been validated and original laboratory qualifiers are presented.
7. Sample names presented are from Shealy Environmental Services, Inc. laboratory reports. Sample names presented in ALS Environmental lab reports may have minor differences based on laboartory interpretation of the chains of custody.

TABLE 7F
SUMMARY OF SURFACE WATER FIELD PARAMETERS
Former Tannery
Rockford, Kent County, Michigan

Sample Location		Rum Creek	Rum Creek	Rum Creek	Rum Creek	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River	Rogue River
Sample Name		TA-SW-04	TA-SW-04	TA-SW-06	TA-SW-06	TA-SW-01	TA-SW-01	TA-SW-01	TA-SW-01	TA-SW-02	TA-SW-02	TA-SW-03	TA-SW-03	TA-SW-05	TA-SW-07
Sample Date		07/24/2018	07/24/2018	07/25/2018	07/25/2018	07/25/2018	07/25/2018	07/25/2018	07/25/2018	07/24/2018	07/24/2018	07/24/2018	07/24/2018	07/26/2018	07/25/2018
Parameter	**Units**														
Specific Conductivity	µS/cm	606	606	624	624	342	342	342	342	582	582	585	585	472	604
Dissolved Oxygen	mg/L	108.1	108.1	14.88	14.88	9.14	9.14	9.14	9.14	84.5	84.5	107	107	3.27	8.82
pH	SU	8.08	8.08	7.36	7.36	9.31	9.31	9.31	9.31	7.83	7.83	7.64	7.64	7.13	7.97
ORP	mV	120.4	120.4	164.2	164.2	120.1	120.1	120.1	120.1	7.2	7.2	134.3	134.3	118.9	112.8
Turbidity	NTU	0.02	0.02	0.02	0.02	2.46	2.46	2.46	2.46	2.07	2.07	1.08	1.08	4.83	0.02

TABLE 8A
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-BOAT RAMP	TA-SED-BOAT RAMP	TA-SED-EAST DAM	TA-SED-RC ACCESS	TA-SED-RC ACCESS	TA-SED-RC-1	TA-SED-RC-1	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-3	TA-SED-T1-1	TA-SED-T1-1	TA-SED-T1-3
Sample Name				TA-SED-BOAT RAMP (0-1)	TA-SED-BOAT RAMP (1-1.9)	TA-SED-EAST DAM (0-0.5)	TA-SED-RC ACCESS (0-1)	TA-SED-RC ACCESS (1.5-2.5)	TA-SED-RC-1 (0-1)	TA-SED-RC-1 (1.2-2.2)	TA-SED-RC-2 (0-1)	TA-SED-RC-2 (1-2)	TA-SED-RC-2 (2-3)	TA-SED-RC-3 (0-0.4)	TA-SED-T1-1 (0-1)	TA-SED-T1-1 (0-1) DUP	TA-SED-T1-3 (0-1)
Depth Interval (Feet below ground surface)				0 - 1	1 - 1.9	0 - 0.5	0 - 1	1.5 - 2.5	0 - 1	1.2 - 2.2	0 - 1	1 - 2	2 - 3	0 - 0.4	0 - 1	0 - 1	0 - 1
Laboratory Sample ID(s)				TG03001-008	TG03001-009	TG24016-001	TG03001-010	TG03001-011	TG03001-003	TG03001-004	TG03001-005	TG03001-006	TG03001-007	TG03001-012	TG24016-005	TG24016-006	TG24016-007
Sample Date				7/2/2018	7/2/2018	7/23/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/24/2018	7/24/2018	7/24/2018
Parameter (µg/kg)																	
Acetone	NCL	NCL	9.9	***1,100 [J-]***	***1,600 [J-]***	<470	<1,400 [UJ]	<1,200	<680 [UJ]	***1,000 [J-]***	<900 [UJ]	***320 [J-]***	<980 [UJ]	<700	<860 [UJ]	<680 [UJ]	<680 [UJ]
Benzene	NCL	NCL	142	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Bromodichloromethane	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Bromoform	NCL	NCL	492	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Bromomethane (Methyl bromide)	NCL	NCL	1.37	<500	<480	<94	<280	<230	<140	<370	<180	<190	<200	<140	<170	<140	<140
Carbon disulfide	NCL	NCL	23.9	<250	***110***	***26***	<140	<120	<68	***97***	<90	***55***	<98	<70	<86	<68	<68
Carbon tetrachloride	NCL	NCL	1,450	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Chlorobenzene	NCL	NCL	291	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Chloroethane	NCL	NCL	NCL	<500	<480	<94	<280	<230	<140	<370	<180	<190	<200	<140	<170	<140	<140
Chloroform	NCL	NCL	121	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Chloromethane (Methyl chloride)	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Cyclohexane	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,2-Dibromo-3-chloropropane (DBCP)	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Dibromochloromethane	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,2-Dibromoethane (EDB)	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,2-Dichlorobenzene	NCL	NCL	294	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,3-Dichlorobenzene	NCL	NCL	1,315	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,4-Dichlorobenzene	NCL	NCL	318	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Dichlorodifluoromethane	NCL	NCL	NCL	<500	<480	<94	<280	<230	<140	<370	<180	<190	<200	<140	<170	<140	<140
1,1-Dichloroethane	NCL	NCL	0.575	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,2-Dichloroethane	NCL	NCL	260	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,1-Dichloroethene	NCL	NCL	19.4	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
cis-1,2-Dichloroethene	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
trans-1,2-Dichloroethene	NCL	NCL	654	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,2-Dichloropropane	NCL	NCL	333	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
cis-1,3-Dichloropropene	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
trans-1,3-Dichloropropene	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Ethylbenzene	NCL	NCL	175	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
2-Hexanone	NCL	NCL	58.2	<2,500	<2,400	<470	<1,400	<1,200	<680	<1,900	<900	<930	<980	<700	<860	<680	<680
Isopropylbenzene	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Methyl acetate	NCL	NCL	NCL	2,400	3,200	200	530	280 [J+]	170	1,900	110	510	190	240	420	410	190
2-Butanone (MEK)	NCL	NCL	42.4	***560***	***730***	<470 [UJ]	<1,400	***260 [J+]***	<680	***390***	<900	<930	<980	<700	<860 [UJ]	<680 [UJ]	<680 [UJ]
4-Methyl-2-pentanone	NCL	NCL	25.1	<2,500	<2,400	<470	<1,400	<1,200	<680	<1,900	<900	<930	<980	<700	<860	<680	<680
Methyl tertiary butyl ether (MTBE)	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Methylene chloride	NCL	NCL	159	99	100	<47	140	87 [J+]	39	86	89	53	69	45	<86	<68	<68
Methylcyclohexane	NCL	NCL	NCL	<1,200	<1,200	<240	<700	<580	<340	<930	<450	<460	<490	<350	<430	<340	<340
Styrene	NCL	NCL	254	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,1,2,2-Tetrachloroethane	NCL	NCL	850	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Tetrachloroethene	NCL	NCL	990	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Toluene	NCL	NCL	1,220	<250	<240	39	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,1,2-Trichloro-1,2,2-Trifluoroethane	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,2,4-Trichlorobenzene	NCL	NCL	5,062	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,1,1-Trichloroethane	NCL	NCL	213	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
1,1,2-Trichloroethane	NCL	NCL	518	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Trichloroethene	NCL	NCL	112	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Trichlorofluoromethane	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Vinyl chloride	NCL	NCL	202	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
Xylenes (total)	NCL	NCL	433	<500	<480	<94	<280	<230	<140	<370	<180	<190	<200	<140	<170	<140	<140
o - Xylenes	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68
m+p - Xylenes	NCL	NCL	NCL	<250	<240	<47	<140	<120	<68	<190	<90	<93	<98	<70	<86	<68	<68

TABLE 8A
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T1-3	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-2
Sample Name				TA-SED-T1-3 (0-1) DUP	TA-SED-T2-1 (0-1)	TA-SED-T2-1 (2-3)	TA-SED-T2-1 (4-5)	TA-SED-T2-2 (0-1)	TA-SED-T2-2 (0-1) DUP	TA-SED-T2-2 (2-3)	TA-SED-T2-2 (4-5)	TA-SED-T2-3 (0-1)	TA-SED-T2-3 (2-3)	TA-SED-T2-3 (4-5)	TA-SED-T3-1A (0-1)	TA-SED-T3-1A (2-3)	TA-SED-T3-1A (5-6)	TA-SED-T3-2 (0-1.2)
Depth Interval (Feet below ground surface)				0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	5 - 6	0 - 1.2
Laboratory Sample ID(s)				TG24016-008	TF22021-011	TF22021-012	TF22021-013	TF26016-001	TF26016-002	TF26016-003	TF26016-004	TF22021-014	TF22021-015	TF22021-016	TF22021-008	TF22021-009	TF22021-010	TF22021-004
Sample Date				7/24/2018	6/22/2018	6/22/2018	6/22/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/21/2018
Parameter (µg/kg)																		
Acetone	NCL	NCL	9.9	<710 [UJ]	***630***	***450***	***390***	<710	<570	<610	***210***	<710	***250***	***170***	***1,000 [J]***	***470***	***240***	<880
Benzene	NCL	NCL	142	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Bromodichloromethane	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Bromoform	NCL	NCL	492	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Bromomethane (Methyl bromide)	NCL	NCL	1.37	<140	<440	<300	<250	<140	<110	<120	<150	<140	<210	<150	<710 [UJ]	<270	<140	<180
Carbon disulfide	NCL	NCL	23.9	<71	***150***	***88***	<130	<71	***29***	<61	<73	<71	***57***	<75	<350 [UJ]	<130 [UB]	<68	<88
Carbon tetrachloride	NCL	NCL	1,450	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Chlorobenzene	NCL	NCL	291	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Chloroethane	NCL	NCL	NCL	<140	<440	<300	<250	<140	<110	<120	<150	<140	<210	<150	<710 [UJ]	<270	<140	<180
Chloroform	NCL	NCL	121	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Chloromethane (Methyl chloride)	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Cyclohexane	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,2-Dibromo-3-chloropropane (DBCP)	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Dibromochloromethane	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,2-Dibromoethane (EDB)	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,2-Dichlorobenzene	NCL	NCL	294	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,3-Dichlorobenzene	NCL	NCL	1,315	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,4-Dichlorobenzene	NCL	NCL	318	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Dichlorodifluoromethane	NCL	NCL	NCL	<140	<440	<300	<250	<140	<110	<120	<150	<140	<210	<150	<710 [UJ]	<270	<140	<180
1,1-Dichloroethane	NCL	NCL	0.575	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,2-Dichloroethane	NCL	NCL	260	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,1-Dichloroethene	NCL	NCL	19.4	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
cis-1,2-Dichloroethene	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
trans-1,2-Dichloroethene	NCL	NCL	654	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,2-Dichloropropane	NCL	NCL	333	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
cis-1,3-Dichloropropene	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
trans-1,3-Dichloropropene	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Ethylbenzene	NCL	NCL	175	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
2-Hexanone	NCL	NCL	58.2	<710	<2,200	<1,500	<1,300	<710	<570	<610	<730	<710	<1,000	<750	<3,500 [UJ]	<1,300	<680	<880
Isopropylbenzene	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Methyl acetate	NCL	NCL	NCL	150	2,300	760	540	310	230	38	280	190	370	250	3,100 [J]	840	420	120 [J+]
2-Butanone (MEK)	NCL	NCL	42.4	<710 [UJ]	<2,200	<1,500	<1,300	<710	<570	<610	<730	<710	<1,000	<750	<3,500 [UJ]	<1,300	<680	<880
4-Methyl-2-pentanone	NCL	NCL	25.1	<710	<2,200	<1,500	<1,300	<710	<570	<610	<730	<710	<1,000	<750	<3,500 [UJ]	<1,300	<680	<880
Methyl tertiary butyl ether (MTBE)	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Methylene chloride	NCL	NCL	159	<71	88	66	<130	33	35	32	<73	33	<100	<75	150 [J]	54	<68	69 [J+]
Methylcyclohexane	NCL	NCL	NCL	<360	<1,100	<760	<630	<360	<280	<310	<360	<350	<520	<380	<1,800 [UJ]	<670	<340	<440
Styrene	NCL	NCL	254	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,1,2,2-Tetrachloroethane	NCL	NCL	850	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Tetrachloroethene	NCL	NCL	990	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Toluene	NCL	NCL	1,220	<71	<220	<150	<130	<71	<57	<61	<73	<71	43	<75	<350 [UJ]	<130	<68	<88
1,1,2-Trichloro-1,2,2-Trifluoroethane	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,2,4-Trichlorobenzene	NCL	NCL	5,062	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,1,1-Trichloroethane	NCL	NCL	213	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
1,1,2-Trichloroethane	NCL	NCL	518	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Trichloroethene	NCL	NCL	112	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Trichlorofluoromethane	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Vinyl chloride	NCL	NCL	202	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
Xylenes (total)	NCL	NCL	433	<140	<440	<300	<250	<140	<110	<120	46	<140	<210	<150	<710 [UJ]	<270	<140	<180
o - Xylenes	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	<73	<71	<100	<75	<350 [UJ]	<130	<68	<88
m+p - Xylenes	NCL	NCL	NCL	<71	<220	<150	<130	<71	<57	<61	46	<71	<100	<75	<350 [UJ]	<130	<68	<88

TABLE 8A
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-3	TA-SED-T4-3
Sample Name				TA-SED-T3-2 (1.7-2.7)	TA-SED-T3-2 (4-5)	TA-SED-T3-2 (6.2-7.2)	TA-SED-T3-3 (0-1)	TA-SED-T3-3 (2-3)	TA-SED-T3-3 (5-6)	TA-SED-T4-1 (0-1)	TA-SED-T4-1 (2.5-3.5)	TA-SED-T4-1 (3.5-4.5)	TA-SED-T4-2 (0-1)	TA-SED-T4-2 (1-2)	TA-SED-T4-2 (2-3)	TA-SED-T4-3 (0-1)	TA-SED-T4-3 (1-1.7)
Depth Interval (Feet below ground surface)				1.7 - 2.7	4 - 5	6.2 - 7.2	0 - 1	2 - 3	5 - 6	0 - 1	2.5 - 3.5	3.5 - 4.5	0 - 1	1 - 2	2 - 3	0 - 1	1 - 1.7
Laboratory Sample ID(s)				TF22021-005	TF22021-006	TF22021-007	TF22021-001	TF22021-002	TF22021-003	TF22021-020	TF22021-021	TF22021-022	TG03001-016	TG03001-017	TG03001-018	TG03001-001	TG03001-002
Sample Date				6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/25/2018	6/25/2018	6/25/2018	6/29/2018	6/29/2018	6/29/2018	7/2/2018	7/2/2018
Parameter (µg/kg)																	
Acetone	NCL	NCL	9.9	***820 [J+]***	<900	***730 [J]***	***500 [J]***	***1,200 [J+]***	***1,100 [J+]***	<640	***380***	<680	***1,300 [J]***	***940 [J]***	***610***	***1,100 [J]***	<4,400 [UJ]
Benzene	NCL	NCL	142	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Bromodichloromethane	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Bromoform	NCL	NCL	492	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Bromomethane (Methyl bromide)	NCL	NCL	1.37	<370	<180	<340 [UJ]	<290 [UJ]	<420	<290	<130	<190	<140	<1,300 [UJ]	<540 [UJ]	<340	<1,100 [UJ]	<880 [UJ]
Carbon disulfide	NCL	NCL	23.9	<190 [UB]	<90	<170 [UB]	<150 [UJ]	<210 [UB]	<150	<64	<96	<68	***280 [J]***	<270 [UJ]	***79***	***310 [J]***	***400 [J]***
Carbon tetrachloride	NCL	NCL	1,450	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Chlorobenzene	NCL	NCL	291	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Chloroethane	NCL	NCL	NCL	<370	<180	<340 [UJ]	<290 [UJ]	<420	<290	<130	<190	<140	<1,300 [UJ]	<540 [UJ]	<340	<1,100 [UJ]	<880 [UJ]
Chloroform	NCL	NCL	121	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Chloromethane (Methyl chloride)	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Cyclohexane	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,2-Dibromo-3-chloropropane (DBCP)	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Dibromochloromethane	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,2-Dibromoethane (EDB)	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,2-Dichlorobenzene	NCL	NCL	294	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,3-Dichlorobenzene	NCL	NCL	1,315	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,4-Dichlorobenzene	NCL	NCL	318	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Dichlorodifluoromethane	NCL	NCL	NCL	<370	<180	<340 [UJ]	<290 [UJ]	<420	<290	<130 [UJ]	<190	<140	<1,300 [UJ]	<540 [UJ]	<340	<1,100 [UJ]	<880 [UJ]
1,1-Dichloroethane	NCL	NCL	0.575	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,2-Dichloroethane	NCL	NCL	260	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,1-Dichloroethene	NCL	NCL	19.4	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
cis-1,2-Dichloroethene	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
trans-1,2-Dichloroethene	NCL	NCL	654	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,2-Dichloropropane	NCL	NCL	333	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
cis-1,3-Dichloropropene	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
trans-1,3-Dichloropropene	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Ethylbenzene	NCL	NCL	175	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
2-Hexanone	NCL	NCL	58.2	<1,900	<900	<1,700 [UJ]	<1,500 [UJ]	<2,100	<1,500	<640	<960	<680	<6,700 [UJ]	<2,700 [UJ]	<1,700	<5,300 [UJ]	<4,400 [UJ]
Isopropylbenzene	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Methyl acetate	NCL	NCL	NCL	1,300 [J+]	59 [J+]	1,300 [J]	1,600 [J]	2,000 [J+]	1,500 [J+]	77	650	44	4,100 [J]	1,900 [J]	950	5,100 [J]	2,500 [J]
2-Butanone (MEK)	NCL	NCL	42.4	<1,900	<900	***370 [J]***	<1,500 [UJ]	***440 [J+]***	***390 [J+]***	<640	***230***	<680	<6,700 [UJ]	<2,700 [UJ]	<1,700	<5,300 [UJ]	<4,400 [UJ]
4-Methyl-2-pentanone	NCL	NCL	25.1	<1,900	<900	<1,700 [UJ]	<1,500 [UJ]	<2,100	<1,500	<640	<960	<680	<6,700 [UJ]	<2,700 [UJ]	<1,700	<5,300 [UJ]	<4,400 [UJ]
Methyl tertiary butyl ether (MTBE)	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Methylene chloride	NCL	NCL	159	85	37 [J+]	94 [J]	<150 [UJ]	150	<150	47	<96	<68	<670 [UJ]	<270 [UJ]	***180***	***210 [J]***	<440 [UJ]
Methylcyclohexane	NCL	NCL	NCL	<930	<450	<850 [UJ]	<730 [UJ]	<1,100	<740	<320	<480	<340	<3,300 [UJ]	<1,400 [UJ]	<850	<2,600 [UJ]	<2,200 [UJ]
Styrene	NCL	NCL	254	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,1,2,2-Tetrachloroethane	NCL	NCL	850	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Tetrachloroethene	NCL	NCL	990	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Toluene	NCL	NCL	1,220	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,1,2-Trichloro-1,2,2-Trifluoroethane	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,2,4-Trichlorobenzene	NCL	NCL	5,062	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,1,1-Trichloroethane	NCL	NCL	213	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
1,1,2-Trichloroethane	NCL	NCL	518	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Trichloroethene	NCL	NCL	112	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Trichlorofluoromethane	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Vinyl chloride	NCL	NCL	202	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
Xylenes (total)	NCL	NCL	433	<370	<180	<340 [UJ]	<290 [UJ]	<420	<290	<130	39	<140	<1,300 [UJ]	<540 [UJ]	<340	<1,100 [UJ]	<880 [UJ]
o - Xylenes	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	<96	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]
m+p - Xylenes	NCL	NCL	NCL	<190	<90	<170 [UJ]	<150 [UJ]	<210	<150	<64	39	<68	<670 [UJ]	<270 [UJ]	<170	<530 [UJ]	<440 [UJ]

TABLE 8A
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T5-1	TA-SED-T5-1	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T6-1
Sample Name				TA-SED-T4-ISLAND (0-0.5)	TA-SED-T4-ISLAND (4-5)	TA-SED-T4-ISLAND (6-7)	TA-SED-T5-1 (0-1)	TA-SED-T5-1 (1-2)	TA-SED-T5-2 (0-1)	TA-SED-T5-2 (1.7-2.7)	TA-SED-T5-2 (3.7-4.7)	TA-SED-T5-3 (0-1)	TA-SED-T5-3 (2-3)	TA-SED-T5-3 (4-5)	TA-SED-T5-3 (6-7)	TA-SED-T6-1 (0-1)
Depth Interval (Feet below ground surface)				0 - 0.5	4 - 5	6 - 7	0 - 1	1 - 2	0 - 1	1.7 - 2.7	3.7 - 4.7	0 - 1	2 - 3	4 - 5	6 - 7	0 - 1
Laboratory Sample ID(s)				TG14035-001	TG14035-002	TG14035-003	TF22021-023	TF26016-005	TF26016-011	TF26016-012	TF26016-013	TF26016-007	TF26016-008	TF26016-009	TF26016-010	TF26016-014
Sample Date				7/11/2018	7/12/2018	7/12/2018	6/25/2018	6/25/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018
Parameter (µg/kg)																
Acetone	NCL	NCL	9.9	***2,900 [J]***	***1,600***	***180***	<500	<570	<640	<660	<880	***470***	<650	<1,000	<850	***800***
Benzene	NCL	NCL	142	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Bromodichloromethane	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Bromoform	NCL	NCL	492	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Bromomethane (Methyl bromide)	NCL	NCL	1.37	<1,100 [UJ]	<490	<98	<100	<110	<130	<130	<180	<280	<130	<210	<170	<390
Carbon disulfide	NCL	NCL	23.9	***370 [J]***	***100***	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Carbon tetrachloride	NCL	NCL	1,450	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Chlorobenzene	NCL	NCL	291	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Chloroethane	NCL	NCL	NCL	<1,100 [UJ]	<490	<98	<100	<110	<130	<130	<180	<280	<130	<210	<170	<390
Chloroform	NCL	NCL	121	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Chloromethane (Methyl chloride)	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Cyclohexane	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,2-Dibromo-3-chloropropane (DBCP)	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Dibromochloromethane	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,2-Dibromoethane (EDB)	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,2-Dichlorobenzene	NCL	NCL	294	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,3-Dichlorobenzene	NCL	NCL	1,315	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,4-Dichlorobenzene	NCL	NCL	318	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Dichlorodifluoromethane	NCL	NCL	NCL	<1,100 [UJ]	<490	<98	<100	<110	<130	<130	<180	<280	<130	<210	<170	<390
1,1-Dichloroethane	NCL	NCL	0.575	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,2-Dichloroethane	NCL	NCL	260	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,1-Dichloroethene	NCL	NCL	19.4	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
cis-1,2-Dichloroethene	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
trans-1,2-Dichloroethene	NCL	NCL	654	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,2-Dichloropropane	NCL	NCL	333	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
cis-1,3-Dichloropropene	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
trans-1,3-Dichloropropene	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Ethylbenzene	NCL	NCL	175	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
2-Hexanone	NCL	NCL	58.2	<5,500 [UJ]	<2,500	<490	<500	<570	<640	<660	<880	<1,400	<650	<1,000	<850	<1,900
Isopropylbenzene	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Methyl acetate	NCL	NCL	NCL	8,800 [J]	2,000	260	57	<57	55	29	40	2,100	32	<100	59	2,500
2-Butanone (MEK)	NCL	NCL	42.4	***1,200 [J]***	<2,500	<490	<500	<570	<640	<660	<880	<1,400	<650	<1,000	<850	***390***
4-Methyl-2-pentanone	NCL	NCL	25.1	<5,500 [UJ]	<2,500	<490	<500	<570	<640	<660	<880	<1,400	<650	<1,000	<850	<1,900
Methyl tertiary butyl ether (MTBE)	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Methylene chloride	NCL	NCL	159	***260 [J]***	140	<49	24	<57	39	30	61	<140	33	<100	<85	<190
Methylcyclohexane	NCL	NCL	NCL	<2,700 [UJ]	<1,200	<240	<250	<290	<320	<330	<440	<710	<320	<520	<430	<970
Styrene	NCL	NCL	254	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,1,2,2-Tetrachloroethane	NCL	NCL	850	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Tetrachloroethene	NCL	NCL	990	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Toluene	NCL	NCL	1,220	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,1,2-Trichloro-1,2,2-Trifluoroethane	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,2,4-Trichlorobenzene	NCL	NCL	5,062	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,1,1-Trichloroethane	NCL	NCL	213	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
1,1,2-Trichloroethane	NCL	NCL	518	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Trichloroethene	NCL	NCL	112	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Trichlorofluoromethane	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Vinyl chloride	NCL	NCL	202	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
Xylenes (total)	NCL	NCL	433	<1,100 [UJ]	<490	<98	<100	<110	<130	<130	<180	<280	<130	<210	<170	<390
o - Xylenes	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190
m+p - Xylenes	NCL	NCL	NCL	<550 [UJ]	<250	<49	<50	<57	<64	<66	<88	<140	<65	<100	<85	<190

TABLE 8A
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-3	TA-SED-T6-3	TA-SED-T6-3	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-2
Sample Name				TA-SED-T6-1 (2.5-3.5)	TA-SED-T6-1 (4.1-5.1)	TA-SED-T6-2 (0-1)	TA-SED-T6-2 (2-3)	TA-SED-T6-2 (3.6-4.6)	TA-SED-T6-3 (0-1)	TA-SED-T6-3 (2-3)	TA-SED-T6-3 (3.8-4.8)	TA-SED-T7-1 (0-1)	TA-SED-T7-1 (2-3)	TA-SED-T7-1 (4.2-5.2)	TA-SED-T7-1 (6.4-7.4)	TA-SED-T7-2 (0-1)
Depth Interval (Feet below ground surface)				2.5 - 3.5	4.1 - 5.1	0 - 1	2 - 3	3.6 - 4.6	0 - 1	2 - 3	3.8 - 4.8	0 - 1	2 - 3	4.2 - 5.2	6.4 - 7.4	0 - 1
Laboratory Sample ID(s)				TF26016-015	TF26016-016	TF28027-001	TF28027-002	TF28027-003	TF26016-017	TF26016-018	TF26016-019	TF28027-004	TF28027-005	TF28027-006	TF28027-007	TF26016-021
Sample Date				6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/26/2018	6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018
Parameter (µg/kg)																
Acetone	NCL	NCL	9.9	<960 [UJ]	<770	<590	<550	***540 [J+]***	***330 [J-]***	***280***	***790***	<640	***810 [J+]***	***430 [J+]***	***340 [J+]***	***1,600 [J]***
Benzene	NCL	NCL	142	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Bromodichloromethane	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Bromoform	NCL	NCL	492	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Bromomethane (Methyl bromide)	NCL	NCL	1.37	<190 [UJ]	<150	<120	<110	<260	<160 [UJ]	<170	<240	<130	<330	<200	<180	<800 [UJ]
Carbon disulfide	NCL	NCL	23.9	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	***61***	***120***	<64	<160	<100	***91***	<400 [UJ]
Carbon tetrachloride	NCL	NCL	1,450	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Chlorobenzene	NCL	NCL	291	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Chloroethane	NCL	NCL	NCL	<190 [UJ]	<150	<120	<110	<260	<160 [UJ]	<170	<240	<130	<330	<200	<180	<800 [UJ]
Chloroform	NCL	NCL	121	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Chloromethane (Methyl chloride)	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Cyclohexane	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,2-Dibromo-3-chloropropane (DBCP)	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Dibromochloromethane	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,2-Dibromoethane (EDB)	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,2-Dichlorobenzene	NCL	NCL	294	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,3-Dichlorobenzene	NCL	NCL	1,315	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,4-Dichlorobenzene	NCL	NCL	318	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Dichlorodifluoromethane	NCL	NCL	NCL	<190 [UJ]	<150	<120	<110	<260	<160 [UJ]	<170	<240	<130	<330	<200	<180	<800 [UJ]
1,1-Dichloroethane	NCL	NCL	0.575	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,2-Dichloroethane	NCL	NCL	260	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,1-Dichloroethene	NCL	NCL	19.4	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
cis-1,2-Dichloroethene	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
trans-1,2-Dichloroethene	NCL	NCL	654	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,2-Dichloropropane	NCL	NCL	333	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
cis-1,3-Dichloropropene	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
trans-1,3-Dichloropropene	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Ethylbenzene	NCL	NCL	175	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
2-Hexanone	NCL	NCL	58.2	<960 [UJ]	<770	<590	<550	<1,300	<800 [UJ]	<840	<1,200	<640	<1,600	<1,000	<900	<4,000 [UJ]
Isopropylbenzene	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Methyl acetate	NCL	NCL	NCL	470 [J-]	82	33	28	900	690 [J-]	500	730	84	1,300	740	670	6,400 [J]
2-Butanone (MEK)	NCL	NCL	42.4	<960 [UJ]	<770	<590	***130***	***260***	***160 [J-]***	***180***	***430***	***130***	***490***	<1,000	***200***	<4,000 [UJ]
4-Methyl-2-pentanone	NCL	NCL	25.1	<960 [UJ]	<770	<590	<550	<1,300	<800 [UJ]	<840	<1,200	<640	<1,600	<1,000	<900	<4,000 [UJ]
Methyl tertiary butyl ether (MTBE)	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Methylene chloride	NCL	NCL	159	<96 [UJ]	<77	30	31	70	<80 [UJ]	<84	96	38	<160	53	42	<400 [UJ]
Methylcyclohexane	NCL	NCL	NCL	<480 [UJ]	<390	<300	<280	<650	<400 [UJ]	<420	<600	<320	<820	<500	<450	<2,000 [UJ]
Styrene	NCL	NCL	254	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,1,2,2-Tetrachloroethane	NCL	NCL	850	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Tetrachloroethene	NCL	NCL	990	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Toluene	NCL	NCL	1,220	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,1,2-Trichloro-1,2,2-Trifluoroethane	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,2,4-Trichlorobenzene	NCL	NCL	5,062	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,1,1-Trichloroethane	NCL	NCL	213	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
1,1,2-Trichloroethane	NCL	NCL	518	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Trichloroethene	NCL	NCL	112	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Trichlorofluoromethane	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Vinyl chloride	NCL	NCL	202	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
Xylenes (total)	NCL	NCL	433	<190 [UJ]	<150	<120	<110	<260	<160 [UJ]	<170	<240	<130	<330	<200	<180	<800 [UJ]
o - Xylenes	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]
m+p - Xylenes	NCL	NCL	NCL	<96 [UJ]	<77	<59	<55	<130	<80 [UJ]	<84	<120	<64	<160	<100	<90	<400 [UJ]

TABLE 8A
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T7-2	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-3	TA-SED-T8-3
Sample Name				TA-SED-T7-2 (1-2)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T7-ISLAND (1-2)	TA-SED-T7-ISLAND (3-4)	TA-SED-T7-ISLAND (6-7)	TA-SED-T8-1 (0-1)	TA-SED-T8-1 (1.5-2.5)	TA-SED-T8-1 (4-5)	TA-SED-T8-2 (0-1)	TA-SED-T8-2 (1-2)	TA-SED-T8-2 (3-4.1)	TA-SED-T8-3 (0-1)	TA-SED-T8-3 (1.5-2.5)
Depth Interval (Feet below ground surface)				1 - 2	0 - 0.5	1 - 2	3 - 4	6 - 7	0 - 1	1.5 - 2.5	4 - 5	0 - 1	1 - 2	3 - 4.1	0 - 1	1.5 - 2.5
Laboratory Sample ID(s)				TF26016-022	TG11006-001	TG14035-004	TG14035-005	TG14035-006	TF28027-013	TF28027-014	TF28027-015	TG03001-013	TG03001-014	TG03001-015	TF28027-009	TF28027-010
Sample Date				6/27/2018	7/9/2018	7/13/2018	7/13/2018	7/13/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018
Parameter (µg/kg)																
Acetone	NCL	NCL	9.9	***540***	***530 [J]***	***880***	***1,300***	<910	***1,400 [J+]***	***760 [J+]***	***390 [J+]***	<910	***430***	<940	***470 [J+]***	***1,500 [J+]***
Benzene	NCL	NCL	142	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Bromodichloromethane	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Bromoform	NCL	NCL	492	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Bromomethane (Methyl bromide)	NCL	NCL	1.37	<370	<220 [UJ]	<260	<340	<180	<620	<330	<200	<180	<220	<190	<240	<590
Carbon disulfide	NCL	NCL	23.9	***79***	<110	<130	***110***	***55***	<310	<170	<100	<91	***59***	<94	***84***	<290
Carbon tetrachloride	NCL	NCL	1,450	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Chlorobenzene	NCL	NCL	291	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Chloroethane	NCL	NCL	NCL	<370	<220 [UJ]	<260	<340	<180	<620	<330	<200	<180	<220	<190	<240	<590
Chloroform	NCL	NCL	121	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Chloromethane (Methyl chloride)	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Cyclohexane	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,2-Dibromo-3-chloropropane (DBCP)	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Dibromochloromethane	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,2-Dibromoethane (EDB)	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,2-Dichlorobenzene	NCL	NCL	294	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,3-Dichlorobenzene	NCL	NCL	1,315	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,4-Dichlorobenzene	NCL	NCL	318	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Dichlorodifluoromethane	NCL	NCL	NCL	<370	<220	<260	<340	<180	<620	<330	<200	<180	<220	<190	<240	<590
1,1-Dichloroethane	NCL	NCL	0.575	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,2-Dichloroethane	NCL	NCL	260	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,1-Dichloroethene	NCL	NCL	19.4	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
cis-1,2-Dichloroethene	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
trans-1,2-Dichloroethene	NCL	NCL	654	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,2-Dichloropropane	NCL	NCL	333	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
cis-1,3-Dichloropropene	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
trans-1,3-Dichloropropene	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Ethylbenzene	NCL	NCL	175	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
2-Hexanone	NCL	NCL	58.2	<1,900	<1,100	<1,300	<1,700	<910	<3,100	<1,700	<1,000	<910	<1,100	<940	<1,200	<2,900
Isopropylbenzene	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Methyl acetate	NCL	NCL	NCL	1,300	650	1,300	1,600	430	3,100	1,100	540	130	630	200	1,200	2,300
2-Butanone (MEK)	NCL	NCL	42.4	<1,900	***240 [J-]***	***360***	***510***	<910	<3,100	***370***	<1,000	<910	<1,100	<940	***280***	***650***
4-Methyl-2-pentanone	NCL	NCL	25.1	<1,900	<1,100	<1,300	<1,700	<910	<3,100	<1,700	<1,000	<910	<1,100	<940	<1,200	<2,900
Methyl tertiary butyl ether (MTBE)	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Methylene chloride	NCL	NCL	159	<190	53	<130	<170	69	<310	72	53	<91	85	61	60	<290
Methylcyclohexane	NCL	NCL	NCL	<930	<540	<650	<850	<460	<1,600	<840	<500	<460	<540	<470	<600	<1,500
Styrene	NCL	NCL	254	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,1,2,2-Tetrachloroethane	NCL	NCL	850	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Tetrachloroethene	NCL	NCL	990	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Toluene	NCL	NCL	1,220	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,1,2-Trichloro-1,2,2-Trifluoroethane	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,2,4-Trichlorobenzene	NCL	NCL	5,062	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,1,1-Trichloroethane	NCL	NCL	213	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
1,1,2-Trichloroethane	NCL	NCL	518	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Trichloroethene	NCL	NCL	112	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Trichlorofluoromethane	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Vinyl chloride	NCL	NCL	202	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
Xylenes (total)	NCL	NCL	433	<370	<220	<260	<340	<180	<620	<330	<200	<180	<220	<190	<240	<590
o - Xylenes	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290
m+p - Xylenes	NCL	NCL	NCL	<190	<110	<130	<170	<91	<310	<170	<100	<91	<110	<94	<120	<290

TABLE 8A
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-3	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND
Sample Name				TA-SED-T8-3 (1.5-2.5) DUP	TA-SED-T8-3 (3-4)	TA-SED-T9-1 (0-1)	TA-SED-T9-1 (2-3)	TA-SED-T9-1 (4-5)	TA-SED-T9-2 (0-1)	TA-SED-T9-2 (2-3)	TA-SED-T9-2 (4-5)	TA-SED-T9-2 (5-6)	TA-SED-T9-3 (0-1)	TA-SED-T9-ISLAND (0-0.5)	TA-SED-T9-ISLAND (1-2)	TA-SED-T9-ISLAND (4-5)	TA-SED-T9-ISLAND (6.5-7.5)
Depth Interval (Feet below ground surface)				1.5 - 2.5	3 - 4	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	5 - 6	0 - 1	0 - 0.5	1 - 2	4 - 5	6.5 - 7.5
Laboratory Sample ID(s)				TF28027-011	TF28027-012	TG03001-021	TG03001-019	TG03001-022	TF28027-017	TF28027-018	TF28027-019	TF28027-020	TG03032-005	TG14035-007	TG14035-008	TG14035-009	TG14035-010
Sample Date				6/28/2018	6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	7/13/2018	7/13/2018	7/13/2018	7/13/2018
Parameter (µg/kg)																	
Acetone	NCL	NCL	9.9	***930 [J+]***	***850 [J+]***	***1,700 [J]***	***930***	***330***	***640 [J+]***	***580 [J+]***	***400***	***500***	***1,300 [J]***	***2,000***	***1,500 [J]***	***1,300 [J+]***	***510***
Benzene	NCL	NCL	142	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Bromodichloromethane	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Bromoform	NCL	NCL	492	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Bromomethane (Methyl bromide)	NCL	NCL	1.37	<380	<330	<900 [UJ]	<310	<230	<310	<360	<190	<280	<910 [UJ]	<700	<650 [UJ]	<360	<200
Carbon disulfide	NCL	NCL	23.9	***120***	<170	<450 [UJ]	***170***	***65***	***87***	***80***	***56***	***85***	***230 [J]***	***190***	<330 [UJ]	***200 [J+]***	<100
Carbon tetrachloride	NCL	NCL	1,450	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Chlorobenzene	NCL	NCL	291	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Chloroethane	NCL	NCL	NCL	<380	<330	<900 [UJ]	<310	<230	<310	<360	<190	<280	<910 [UJ]	<700	<650 [UJ]	<360	<200
Chloroform	NCL	NCL	121	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Chloromethane (Methyl chloride)	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Cyclohexane	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,2-Dibromo-3-chloropropane (DBCP)	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Dibromochloromethane	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,2-Dibromoethane (EDB)	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,2-Dichlorobenzene	NCL	NCL	294	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,3-Dichlorobenzene	NCL	NCL	1,315	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,4-Dichlorobenzene	NCL	NCL	318	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Dichlorodifluoromethane	NCL	NCL	NCL	<380	<330	<900 [UJ]	<310	<230	<310 [UJ]	<360	<190	<280	<910 [UJ]	<700	<650 [UJ]	<360	<200
1,1-Dichloroethane	NCL	NCL	0.575	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,2-Dichloroethane	NCL	NCL	260	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,1-Dichloroethene	NCL	NCL	19.4	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
cis-1,2-Dichloroethene	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
trans-1,2-Dichloroethene	NCL	NCL	654	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,2-Dichloropropane	NCL	NCL	333	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
cis-1,3-Dichloropropene	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
trans-1,3-Dichloropropene	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Ethylbenzene	NCL	NCL	175	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
2-Hexanone	NCL	NCL	58.2	<1,900	<1,700	<4,500 [UJ]	<1,500	<1,100	<1,500	<1,800	<960	<1,400	<4,600 [UJ]	<3,500	<3,300 [UJ]	<1,800	<1,000
Isopropylbenzene	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Methyl acetate	NCL	NCL	NCL	1,500	1,200	4,300 [J]	1,400	630	1,500	1,300	570	600	4,200 [J]	3,800	2,500 [J]	1,900 [J+]	640
2-Butanone (MEK)	NCL	NCL	42.4	***390***	***330***	***910 [J]***	***470***	<1,100	***310 [J+]***	***410***	***190***	<1,400	<4,600 [UJ]	***1,100***	<3,300 [UJ]	***520 [J+]***	***260***
4-Methyl-2-pentanone	NCL	NCL	25.1	<1,900	<1,700	<4,500 [UJ]	<1,500	<1,100	<1,500	<1,800	<960	<1,400	<4,600 [UJ]	<3,500	<3,300 [UJ]	<1,800	<1,000
Methyl tertiary butyl ether (MTBE)	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Methylene chloride	NCL	NCL	159	<190	<170	<450 [UJ]	72	54	<150	76	<96	<140	<460 [UJ]	<350	<330 [UJ]	110 [J+]	<100
Methylcyclohexane	NCL	NCL	NCL	<950	<830	<2,200 [UJ]	<770	<570	<770	<890	<480	<690	<2,300 [UJ]	<1,700	<1,600 [UJ]	<900	<500
Styrene	NCL	NCL	254	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,1,2,2-Tetrachloroethane	NCL	NCL	850	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Tetrachloroethene	NCL	NCL	990	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Toluene	NCL	NCL	1,220	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,1,2-Trichloro-1,2,2-Trifluoroethane	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,2,4-Trichlorobenzene	NCL	NCL	5,062	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,1,1-Trichloroethane	NCL	NCL	213	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
1,1,2-Trichloroethane	NCL	NCL	518	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Trichloroethene	NCL	NCL	112	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Trichlorofluoromethane	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Vinyl chloride	NCL	NCL	202	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
Xylenes (total)	NCL	NCL	433	<380	<330	<900 [UJ]	<310	<230	<310	<360	<190	<280	<910 [UJ]	<700	<650 [UJ]	<360	<200
o - Xylenes	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100
m+p - Xylenes	NCL	NCL	NCL	<190	<170	<450 [UJ]	<150	<110	<150	<180	<96	<140	<460 [UJ]	<350	<330 [UJ]	<180	<100

TABLE 8A
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-3	TA-SED-T10-3	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND
Sample Name				TA-SED-T10-1 (0-1)	TA-SED-T10-1 (1.5-2.5)	TA-SED-T10-1 (1.5-2.5) DUP	TA-SED-T10-1 (3-4)	TA-SED-T10-3 (0-1)	TA-SED-T10-3 (1-2)	TA-SED-T10-ISLAND (0-1)	TA-SED-T10-ISLAND (2-3)	TA-SED-T10-ISLAND (4-5)
Depth Interval (Feet below ground surface)				0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	1 - 2	0 - 1	2 - 3	4 - 5
Laboratory Sample ID(s)				TG03032-001	TG03032-002	TG03032-003	TG03032-004	TG03032-006	TG03032-007	TG24016-002	TG24016-003	TG24016-004
Sample Date				6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	7/23/2018	7/23/2018	7/23/2018
Parameter (µg/kg)												
Acetone	NCL	NCL	9.9	***1,400 [J]***	***180***	***300***	***1,200***	<3,600 [UJ]	***270 [J-]***	<1,000 [UJ]	***920 [J]***	<800 [UJ]
Benzene	NCL	NCL	142	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Bromodichloromethane	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Bromoform	NCL	NCL	492	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Bromomethane (Methyl bromide)	NCL	NCL	1.37	<530 [UJ]	<170	<140	<480	<730 [UJ]	<240	<200	<450	<160
Carbon disulfide	NCL	NCL	23.9	***220 [J]***	***47***	***120***	<240	<360 [UJ]	***61***	<100	<230	<80
Carbon tetrachloride	NCL	NCL	1,450	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Chlorobenzene	NCL	NCL	291	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Chloroethane	NCL	NCL	NCL	<530 [UJ]	<170	<140	<480	<730 [UJ]	<240	<200	<450	<160
Chloroform	NCL	NCL	121	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Chloromethane (Methyl chloride)	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Cyclohexane	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,2-Dibromo-3-chloropropane (DBCP)	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Dibromochloromethane	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,2-Dibromoethane (EDB)	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,2-Dichlorobenzene	NCL	NCL	294	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,3-Dichlorobenzene	NCL	NCL	1,315	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,4-Dichlorobenzene	NCL	NCL	318	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Dichlorodifluoromethane	NCL	NCL	NCL	<530 [UJ]	<170	<140	<480	<730 [UJ]	<240	<200	<450	<160
1,1-Dichloroethane	NCL	NCL	0.575	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,2-Dichloroethane	NCL	NCL	260	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,1-Dichloroethene	NCL	NCL	19.4	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
cis-1,2-Dichloroethene	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
trans-1,2-Dichloroethene	NCL	NCL	654	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,2-Dichloropropane	NCL	NCL	333	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
cis-1,3-Dichloropropene	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
trans-1,3-Dichloropropene	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Ethylbenzene	NCL	NCL	175	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
2-Hexanone	NCL	NCL	58.2	<2,700 [UJ]	<840	<720	<2,400	<3,600 [UJ]	<1,200 [UJ]	<1,000	<2,300	<800
Isopropylbenzene	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Methyl acetate	NCL	NCL	NCL	5,800 [J]	360	570	1,700	2,600 [J]	580	500	1,500 [J+]	88
2-Butanone (MEK)	NCL	NCL	42.4	***580 [J]***	<840	***140***	***520***	<3,600 [UJ]	<1,200 [UJ]	<1,000 [UJ]	<2,300 [UJ]	<800 [UJ]
4-Methyl-2-pentanone	NCL	NCL	25.1	<2,700 [UJ]	<840	<720	<2,400	<3,600 [UJ]	<1,200	<1,000	<2,300	<800
Methyl tertiary butyl ether (MTBE)	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Methylene chloride	NCL	NCL	159	***170 [J]***	47	32	<240	***200 [J]***	120	<100	<230	<80
Methylcyclohexane	NCL	NCL	NCL	<1,300 [UJ]	<420	<360	<1,200	<1,800 [UJ]	<610	<510	<1,100	<400
Styrene	NCL	NCL	254	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,1,2,2-Tetrachloroethane	NCL	NCL	850	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Tetrachloroethene	NCL	NCL	990	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Toluene	NCL	NCL	1,220	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,1,2-Trichloro-1,2,2-Trifluoroethane	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,2,4-Trichlorobenzene	NCL	NCL	5,062	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,1,1-Trichloroethane	NCL	NCL	213	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
1,1,2-Trichloroethane	NCL	NCL	518	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Trichloroethene	NCL	NCL	112	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Trichlorofluoromethane	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Vinyl chloride	NCL	NCL	202	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
Xylenes (total)	NCL	NCL	433	<530 [UJ]	<170	<140	<480	<730 [UJ]	<240	<200	<450	<160
o - Xylenes	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80
m+p - Xylenes	NCL	NCL	NCL	<270 [UJ]	<84	<72	<240	<360 [UJ]	<120	<100	<230	<80

TABLE 8B
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-BOAT RAMP	TA-SED-BOAT RAMP	TA-SED-EAST DAM	TA-SED-RC ACCESS	TA-SED-RC ACCESS	TA-SED-RC-1	TA-SED-RC-1	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-3	TA-SED-T1-1	TA-SED-T1-1
Sample Name				TA-SED-BOAT RAMP (0-1)	TA-SED-BOAT RAMP (1-1.9)	TA-SED-EAST DAM (0-0.5)	TA-SED-RC ACCESS (0-1)	TA-SED-RC ACCESS (1.5-2.5)	TA-SED-RC-1 (0-1)	TA-SED-RC-1 (1.2-2.2)	TA-SED-RC-2 (0-1)	TA-SED-RC-2 (1-2)	TA-SED-RC-2 (2-3)	TA-SED-RC-3 (0-0.4)	TA-SED-T1-1 (0-1)	TA-SED-T1-1 (0-1) DUP
Depth Interval (Feet below ground surface)				0 - 1	1 - 1.9	0 - 0.5	0 - 1	1.5 - 2.5	0 - 1	1.2 - 2.2	0 - 1	1 - 2	2 - 3	0 - 0.4	0 - 1	0 - 1
Laboratory Sample ID(s)				TG03001-008	TG03001-009	TG24016-001	TG03001-010	TG03001-011	TG03001-003	TG03001-004	TG03001-005	TG03001-006	TG03001-007	TG03001-012	TG24016-005	TG24016-006
Sample Date				7/2/2018	7/2/2018	7/23/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/24/2018	7/24/2018
Parameter (µg/kg)																
Acenaphthene	NCL	NCL	6.71	<170	<160	***48***	<49	<45	***36***	***160***	<81	***69***	***130***	<32	<94	<79
Acenaphthylene	NCL	NCL	5.87	<170	<160	***35***	<49	<45	<77	<120	<81	<92	***53***	<32	<94	<79
Acetophenone	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Anthracene	57.2	845	57.2	<170	***130***	***97***	<49	<45	***64***	***490***	<81	***99***	***330***	<32	<94	<79
Atrazine	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
1,2-Diphenylhydrazine(as azobenzene)	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Benzidine	NCL	NCL	NCL	<1,700	<1,600	<1,800	<490	<450	<770	<1,200	<810	<920	<990	<320	<2,400	<2,000
Benzo(a)anthracene	108	1,050	108	***320***	***500***	***520***	38	45	***330***	***1,200***	***180***	***400***	***890***	51	83	60
Benzo(a)pyrene	150	1,450	150	***500***	***640***	***600***	42	29	***430***	***1,300***	***230***	***430***	***940***	67	60	46
Benzo(b)fluoranthene	NCL	NCL	10,400	690	940	1,000	65	45	690	1,800	330	600	1,300	110	82	69
Benzo(g,h,i)perylene	NCL	NCL	170	***300***	***300***	160	<49	<45	140	***540***	140	***260***	***410***	26	<94	<79
Benzo(k)fluoranthene	NCL	NCL	240	***300***	***360***	***350***	20	15	230	***620***	110	***280***	***510***	30	<94	<79
bis(2-Chloroethyl)ether	NCL	NCL	3,520	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
bis(2-Ethylhexyl)phthalate	NCL	NCL	182	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Butyl benzyl phthalate	NCL	NCL	1,970	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Caprolactam	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	250	<410
Carbazole	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	220	<420	80	160	<170	<490	<410
4-Chloro-3-methyl phenol	NCL	NCL	388	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
2-Chlorophenol	NCL	NCL	31.9	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
2-Chloronaphthalene	NCL	NCL	417	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Chrysene	166	1,290	NCL	***530***	***660***	***710***	37	31	***440***	***1,400***	***240***	***540***	***1,100***	68	54	<79
Di-n-butyl phthalate	NCL	NCL	1,114	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Di-n-octylphthalate	NCL	NCL	40,600	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Dibenzo(a,h)anthracene	33	NCL	33	<170	<160	<71	<49	<45	<77	<120	<81	<92	<99	<32	<94	<79
Dibenzofuran	NCL	NCL	449	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
3,3'-Dichlorobenzidine	NCL	NCL	127	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
2,4-Dichlorophenol	NCL	NCL	81.7	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Diethylphthalate	NCL	NCL	295	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Dimethyl phthalate	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
2,4-Dimethylphenol	NCL	NCL	304	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
4,6-Dinitro-2-methylphenol	NCL	NCL	104	<4,400	<4,100	<1,800	<1,300	<1,100	<2,000	<3,100	<2,100	<2,300	<2,500	<810	<2,400	<2,000
2,4-Dinitrotoluene	NCL	NCL	14.4	<1,700	<1,600	<710	<490	<450	<770	<1,200	<810	<920	<990	<320	<940	<790
Fluoranthene	423	2,230	423	***1,100***	***1,400***	***1,500***	66	64	***1,100***	***3,900***	***590***	***1,300***	***2,700***	160	130	96
Fluorene	77.4	536	77.4	<170	<160	***86***	<49	<45	41	***290***	<81	63	***140***	<32	<94	<79
Hexachlorobenzene	NCL	NCL	20	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Hexachlorobutadiene	NCL	NCL	26.5	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Hexachlorocyclopentadiene	NCL	NCL	901	<4,400	<4,100	<1,800	<1,300	<1,100	<2,000	<3,100	<2,100	<2,300	<2,500	<810	<2,400	<2,000
Hexachloroethane	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Indeno(1,2,3-c,d)pyrene	NCL	NCL	200	***280***	***290***	170	<49	<45	130	***550***	130	***260***	***410***	29	<94	<79
Isophorone	NCL	NCL	432	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
2-Methylnaphthalene	NCL	NCL	20.2	<170	<160	<71	<49	<45	<77	***64***	<81	<92	<99	<32	<94	<79
2-Methylphenol	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
3+4-Methylphenol	NCL	NCL	NCL	<1,700	<1,600	<710	<490	<450	<770	<1,200	<810	<920	<990	<320	<940	<790
Naphthalene	176	561	176	<170	<160	66	<49	<45	<77	***180***	<81	<92	120	<32	<94	<79
Nitrobenzene	NCL	NCL	145	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
2-Nitrophenol	NCL	NCL	NCL	<1,700	<1,600	<710	<490	<450	<770	<1,200	<810	<920	<990	<320	<940	<790
N-Nitrosodi-n-propylamine	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
N-Nitrosodiphenylamine (Diphenylamine)	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
Pentachlorophenol	NCL	NCL	23,000	<4,400	<4,100	<1,800	<1,300	<1,100	<2,000	<3,100	<2,100	<2,300	<2,500	<810	<2,400	<2,000
Phenanthrene	204	1,170	204	***460***	***670***	***240***	38	49	***680***	***2,600***	***260***	***550***	***1,300***	67	<94	<79
Phenol	NCL	NCL	49.1	<890	<840	<360	<260	<230	<400	<630	<420	<470	***140***	<170	<490	<410
Pyrene	195	1,520	195	***840***	***1,100***	***850***	59	47	***810***	***2,700***	***420***	***920***	***1,900***	110	100	78
2,4,5-Trichlorophenol	NCL	NCL	NCL	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410
2,4,6-Trichlorophenol	NCL	NCL	208	<890	<840	<360	<260	<230	<400	<630	<420	<470	<510	<170	<490	<410

TABLE 8B
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T1-3	TA-SED-T1-3	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T3-1A	TA-SED-T3-1A
Sample Name				TA-SED-T1-3 (0-1)	TA-SED-T1-3 (0-1) DUP	TA-SED-T2-1 (0-1)	TA-SED-T2-1 (2-3)	TA-SED-T2-1 (4-5)	TA-SED-T2-2 (0-1)	TA-SED-T2-2 (0-1) DUP	TA-SED-T2-2 (2-3)	TA-SED-T2-2 (4-5)	TA-SED-T2-3 (0-1)	TA-SED-T2-3 (2-3)	TA-SED-T2-3 (4-5)	TA-SED-T3-1A (0-1)	TA-SED-T3-1A (2-3)
Depth Interval (Feet below ground surface)				0 - 1	0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3
Laboratory Sample ID(s)				TG24016-007	TG24016-008	TF22021-011	TF22021-012	TF22021-013	TF26016-001	TF26016-002	TF26016-003	TF26016-004	TF22021-014	TF22021-015	TF22021-016	TF22021-008	TF22021-009
Sample Date				7/24/2018	7/24/2018	6/22/2018	6/22/2018	6/22/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018
Parameter (µg/kg)																	
Acenaphthene	NCL	NCL	6.71	<84	***88***	<140	<110	<100	<16	<14	<13	<17	<85	<100	<16	<230 [UJ]	<110
Acenaphthylene	NCL	NCL	5.87	<84	<77	<140	<110	<100	<16	<14	<13	<17	<85	<100	<16	<230 [UJ]	<110
Acetophenone	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Anthracene	57.2	845	57.2	<84 [UJ]	***280 [J]***	***62***	<110	<100	6.6	4.8	23	12	<85	***160***	<16	<230 [UJ]	<110
Atrazine	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
1,2-Diphenylhydrazine(as azobenzene)	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Benzidine	NCL	NCL	NCL	<2,100	<2,000	<3,400	<2,900	<2,600	<420	<360	<340	<430	<2,200	<2,600	<400	<6,000 [UJ]	<2,800
Benzo(a)anthracene	108	1,050	108	60 [J]	***390 [J]***	***150***	54	<100	15	23	40	24	66	***240***	8	<230 [UJ]	77
Benzo(a)pyrene	150	1,450	150	<84 [UJ]	***310 [J]***	120	<110	<100	23	19	37	15	54	***180***	4.1	92 [J]	49
Benzo(b)fluoranthene	NCL	NCL	10,400	<84 [UJ]	360 [J]	<140	<110	<100	26	20	42	18	79	240	<16	<230 [UJ]	<110
Benzo(g,h,i)perylene	NCL	NCL	170	<84	120	54 [J-]	<110 [UJ]	<100 [UJ]	20	12	23	<17	28 [J-]	53 [J-]	10 [J-]	<230 [UJ]	<110 [UJ]
Benzo(k)fluoranthene	NCL	NCL	240	<84 [UJ]	170 [J]	<140	<110	<100	15	12	17	7.8	37	76	<16	<230 [UJ]	<110
bis(2-Chloroethyl)ether	NCL	NCL	3,520	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
bis(2-Ethylhexyl)phthalate	NCL	NCL	182	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Butyl benzyl phthalate	NCL	NCL	1,970	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Caprolactam	NCL	NCL	NCL	230	210	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Carbazole	NCL	NCL	NCL	<430	100	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
4-Chloro-3-methyl phenol	NCL	NCL	388	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
2-Chlorophenol	NCL	NCL	31.9	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
2-Chloronaphthalene	NCL	NCL	417	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Chrysene	166	1,290	NCL	43 [J]	***360 [J]***	120	<110	<100	32	21	46	20	54	***230***	4.2	<230 [UJ]	47
Di-n-butyl phthalate	NCL	NCL	1,114	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Di-n-octylphthalate	NCL	NCL	40,600	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Dibenzo(a,h)anthracene	33	NCL	33	<84	<77	<140 [UJ]	<110 [UJ]	<100 [UJ]	<16	<14	<13	<17	<85 [UJ]	<100 [UJ]	<16 [UJ]	<230 [UJ]	<110 [UJ]
Dibenzofuran	NCL	NCL	449	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
3,3'-Dichlorobenzidine	NCL	NCL	127	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
2,4-Dichlorophenol	NCL	NCL	81.7	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Diethylphthalate	NCL	NCL	295	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Dimethyl phthalate	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
2,4-Dimethylphenol	NCL	NCL	304	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
4,6-Dinitro-2-methylphenol	NCL	NCL	104	<2,100	<2,000	<3,400	<2,900	<2,600	<420	<360	<340	<430	<2,200	<2,600	<400	<6,000 [UJ]	<2,800
2,4-Dinitrotoluene	NCL	NCL	14.4	<840	<770	<1,400	<1,100	<1,000	<160	<140	<130	<170	<850	<1,000	<160	<2,300 [UJ]	<1,100
Fluoranthene	423	2,230	423	100 [J]	***1,200 [J]***	320	57	<100	86	54	110	51	140	***530***	9.6	160 [J]	120
Fluorene	77.4	536	77.4	<84	***160***	<140	<110	<100	7.4	<14	<13	5.5	<85	58	<16	<230 [UJ]	<110
Hexachlorobenzene	NCL	NCL	20	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Hexachlorobutadiene	NCL	NCL	26.5	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Hexachlorocyclopentadiene	NCL	NCL	901	<2,100	<2,000	<3,400 [UJ]	<2,900 [UJ]	<2,600 [UJ]	<420	<360	<340	<430	<2,200 [UJ]	<2,600 [UJ]	<400 [UJ]	<6,000 [UJ]	<2,800 [UJ]
Hexachloroethane	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Indeno(1,2,3-c,d)pyrene	NCL	NCL	200	<84	130	54 [J-]	<110 [UJ]	<100 [UJ]	16	10	19	<17	28 [J-]	57 [J-]	43 [J-]	<230 [UJ]	<110 [UJ]
Isophorone	NCL	NCL	432	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
2-Methylnaphthalene	NCL	NCL	20.2	<84	<77	<140	<110	<100	<16	<14	<13	<17	<85	***47***	<16	<230 [UJ]	<110
2-Methylphenol	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
3+4-Methylphenol	NCL	NCL	NCL	<840	<770	<1,400	<1,100	<1,000	<160	<140	<130	<170	<850	<1,000	<160	<2,300 [UJ]	<1,100
Naphthalene	176	561	176	<84	<77	<140	<110	<100	<16	<14	<13	24	<85	***460***	<16	<230 [UJ]	<110
Nitrobenzene	NCL	NCL	145	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
2-Nitrophenol	NCL	NCL	NCL	<840	<770	<1,400	<1,100	<1,000	<160	<140	<130	<170	<850	<1,000	<160	<2,300 [UJ]	<1,100
N-Nitrosodi-n-propylamine	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
N-Nitrosodiphenylamine (Diphenylamine)	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Pentachlorophenol	NCL	NCL	23,000	<2,100	<2,000	<3,400	<2,900	<2,600	<420	<360	<340	<430	<2,200	<2,600	<400	<6,000 [UJ]	<2,800
Phenanthrene	204	1,170	204	<84 [UJ]	***1,200 [J]***	190	37	<100	66 [J]	21 [J]	46	38	73	***330***	8.3	<230 [UJ]	88
Phenol	NCL	NCL	49.1	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
Pyrene	195	1,520	195	82 [J]	***830 [J]***	***230***	51	<100	60	38	87	37	100	***450***	7.8	130 [J]	93
2,4,5-Trichlorophenol	NCL	NCL	NCL	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570
2,4,6-Trichlorophenol	NCL	NCL	208	<430	<400	<700	<590	<530	<85	<73	<69	<88	<440	<530	<81	<1,200 [UJ]	<570

TABLE 8B
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T3-1A	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-2
Sample Name				TA-SED-T3-1A (5-6)	TA-SED-T3-2 (0-1.2)	TA-SED-T3-2 (1.7-2.7)	TA-SED-T3-2 (4-5)	TA-SED-T3-2 (6.2-7.2)	TA-SED-T3-3 (0-1)	TA-SED-T3-3 (2-3)	TA-SED-T3-3 (5-6)	TA-SED-T4-1 (0-1)	TA-SED-T4-1 (2.5-3.5)	TA-SED-T4-1 (3.5-4.5)	TA-SED-T4-2 (0-1)	TA-SED-T4-2 (1-2)	TA-SED-T4-2 (2-3)
Depth Interval (Feet below ground surface)				5 - 6	0 - 1.2	1.7 - 2.7	4 - 5	6.2 - 7.2	0 - 1	2 - 3	5 - 6	0 - 1	2.5 - 3.5	3.5 - 4.5	0 - 1	1 - 2	2 - 3
Laboratory Sample ID(s)				TF22021-010	TF22021-004	TF22021-005	TF22021-006	TF22021-007	TF22021-001	TF22021-002	TF22021-003	TF22021-020	TF22021-021	TF22021-022	TG03001-016	TG03001-017	TG03001-018
Sample Date				6/22/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/25/2018	6/25/2018	6/25/2018	6/29/2018	6/29/2018	6/29/2018
Parameter (µg/kg)																	
Acenaphthene	NCL	NCL	6.71	<77	<15	<150	<19	<120	<170	***61***	<22	<15	<19	<15	<150 [UJ]	<180 [UJ]	<46
Acenaphthylene	NCL	NCL	5.87	<77	<15	<150	<19	<120	<170	<27	<22	<15	<19	<15	<150 [UJ]	<180 [UJ]	<46
Acetophenone	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Anthracene	57.2	845	57.2	<77	<15	***72***	17	<120	***120***	***110***	<22	5.1	14	6	<150 [UJ]	***70 [J]***	15
Atrazine	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
1,2-Diphenylhydrazine(as azobenzene)	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Benzidine	NCL	NCL	NCL	<2,000	<390	<3,900	<490	<3,100	<4,200	<680	<550	<380	<470	<380	<1,500 [UJ]	<1,800 [UJ]	<460
Benzo(a)anthracene	108	1,050	108	<77	19	***200***	33	56	***640***	***310***	<22	18	27	13	***150 [J]***	***260 [J]***	46
Benzo(a)pyrene	150	1,450	150	<77	28	120	33	<120	***940***	***340***	<22	38	23	8.7	***210 [J]***	***310 [J]***	38
Benzo(b)fluoranthene	NCL	NCL	10,400	<77	35	<150	56	<120	1,500	570	<22	48	32	<15	420 [J]	610 [J]	86
Benzo(g,h,i)perylene	NCL	NCL	170	<77 [UJ]	10	63 [J-]	13	<120 [UJ]	***540***	93	<22	27	9.8	<15	68 [J]	<180 [UJ]	16
Benzo(k)fluoranthene	NCL	NCL	240	<77	22	<150	20	<120	***620***	160	<22	17	18	<15	120 [J]	180 [J]	19
bis(2-Chloroethyl)ether	NCL	NCL	3,520	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
bis(2-Ethylhexyl)phthalate	NCL	NCL	182	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Butyl benzyl phthalate	NCL	NCL	1,970	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Caprolactam	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Carbazole	NCL	NCL	NCL	<400	<79	<790	<100	<640	110	57	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
4-Chloro-3-methyl phenol	NCL	NCL	388	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
2-Chlorophenol	NCL	NCL	31.9	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
2-Chloronaphthalene	NCL	NCL	417	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Chrysene	166	1,290	NCL	<77	30	150	37	<120	***1,100***	***340***	<22	32	34	12	***180 [J]***	***340 [J]***	38
Di-n-butyl phthalate	NCL	NCL	1,114	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Di-n-octylphthalate	NCL	NCL	40,600	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Dibenzo(a,h)anthracene	33	NCL	33	<77 [UJ]	<15	<150 [UJ]	<19	<120 [UJ]	<170	<27	<22	<15	<19	<15	<150 [UJ]	<180 [UJ]	<46
Dibenzofuran	NCL	NCL	449	<400	<79	<790	<100	<640	<850	36	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
3,3'-Dichlorobenzidine	NCL	NCL	127	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
2,4-Dichlorophenol	NCL	NCL	81.7	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Diethylphthalate	NCL	NCL	295	<400	<79	<790	75	<640	<850	170	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Dimethyl phthalate	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
2,4-Dimethylphenol	NCL	NCL	304	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
4,6-Dinitro-2-methylphenol	NCL	NCL	104	<2,000	<390	<3,900	<490	<3,100	<4,200	<680	<550	<380	<470	<380	<3,700 [UJ]	<4,500 [UJ]	<1,200
2,4-Dinitrotoluene	NCL	NCL	14.4	<770	<150	<1,500	<190	<1,200	<1,700	<270	<220	<150	<190	<150	<1,500 [UJ]	<1,800 [UJ]	<460
Fluoranthene	423	2,230	423	<77	67	260	84	61	***2,200***	***840***	<22	53	50	22	390 [J]	***800 [J]***	84
Fluorene	77.4	536	77.4	<77	<15	<150	12	<120	<170	65	<22	<15	8.4	5.4	<150 [UJ]	<180 [UJ]	<46
Hexachlorobenzene	NCL	NCL	20	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Hexachlorobutadiene	NCL	NCL	26.5	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Hexachlorocyclopentadiene	NCL	NCL	901	<2,000 [UJ]	<390	<3,900 [UJ]	<490	<3,100 [UJ]	<4,200	<680	<550	<380 [UR]	<470	<380	<3,700 [UJ]	<4,500 [UJ]	<1,200
Hexachloroethane	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Indeno(1,2,3-c,d)pyrene	NCL	NCL	200	<77 [UJ]	11	59 [J-]	12	<120 [UJ]	***500***	94	<22	23	9.8	<15	72 [J]	89 [J]	13
Isophorone	NCL	NCL	432	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
2-Methylnaphthalene	NCL	NCL	20.2	<77	<15	<150	<19	<120	<170	***30***	<22	<15	<19	<15	<150 [UJ]	<180 [UJ]	<46
2-Methylphenol	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
3+4-Methylphenol	NCL	NCL	NCL	<770	<150	<1,500	87 [J+]	<1,200	<1,700	70 [J+]	<220	<150	24	<150	<1,500 [UJ]	<1,800 [UJ]	<460
Naphthalene	176	561	176	<77	<15	***1,000***	21	<120	<170	89	<22	<15	32	57	<150 [UJ]	<180 [UJ]	38
Nitrobenzene	NCL	NCL	145	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
2-Nitrophenol	NCL	NCL	NCL	<770	<150	<1,500	<190	<1,200	<1,700	<270	<220	<150	<190	<150	<1,500 [UJ]	<1,800 [UJ]	<460
N-Nitrosodi-n-propylamine	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
N-Nitrosodiphenylamine (Diphenylamine)	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Pentachlorophenol	NCL	NCL	23,000	<2,000	<390	<3,900	<490	<3,100	<4,200	<680	<550	<380	<470	<380	<3,700 [UJ]	<4,500 [UJ]	<1,200
Phenanthrene	204	1,170	204	<77	40	***240***	66	46	***760***	***470***	<22	17	47	23	150 [J]	***370 [J]***	47
Phenol	NCL	NCL	49.1	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
Pyrene	195	1,520	195	<77	48	***240***	70	49	***1,700***	***670***	<22	44	45	17	***290 [J]***	***580 [J]***	65
2,4,5-Trichlorophenol	NCL	NCL	NCL	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240
2,4,6-Trichlorophenol	NCL	NCL	208	<400	<79	<790	<100	<640	<850	<140	<110	<77	<96	<77	<750 [UJ]	<910 [UJ]	<240

TABLE 8B
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T4-3	TA-SED-T4-3	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T5-1	TA-SED-T5-1	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3
Sample Name				TA-SED-T4-3 (0-1)	TA-SED-T4-3 (1-1.7)	TA-SED-T4-ISLAND (0-0.5)	TA-SED-T4-ISLAND (4-5)	TA-SED-T4-ISLAND (6-7)	TA-SED-T5-1 (0-1)	TA-SED-T5-1 (1-2)	TA-SED-T5-2 (0-1)	TA-SED-T5-2 (1.7-2.7)	TA-SED-T5-2 (3.7-4.7)	TA-SED-T5-3 (0-1)	TA-SED-T5-3 (2-3)	TA-SED-T5-3 (4-5)
Depth Interval (Feet below ground surface)				0 - 1	1 - 1.7	0 - 0.5	4 - 5	6 - 7	0 - 1	1 - 2	0 - 1	1.7 - 2.7	3.7 - 4.7	0 - 1	2 - 3	4 - 5
Laboratory Sample ID(s)				TG03001-001	TG03001-002	TG14035-001	TG14035-002	TG14035-003	TF22021-023	TF26016-005	TF26016-011	TF26016-012	TF26016-013	TF26016-007	TF26016-008	TF26016-009
Sample Date				7/2/2018	7/2/2018	7/11/2018	7/12/2018	7/12/2018	6/25/2018	6/25/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018
Parameter (µg/kg)																
Acenaphthene	NCL	NCL	6.71	***930 [J]***	***620 [J]***	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	<110	***14***	<100
Acenaphthylene	NCL	NCL	5.87	<310 [UJ]	<270 [UJ]	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	<110	<14	<100
Acetophenone	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Anthracene	57.2	845	57.2	***120 [J]***	***100 [J]***	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	***98***	53	<100
Atrazine	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
1,2-Diphenylhydrazine(as azobenzene)	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Benzidine	NCL	NCL	NCL	<3,100 [UJ]	<2,700 [UJ]	<3,200 [UJ]	<4,100	<670	<350	<370	<140 [UJ]	<150 [UJ]	<930 [UJ]	<1,100 [UJ]	<140 [UJ]	<1,000 [UJ]
Benzo(a)anthracene	108	1,050	108	***530 [J]***	***390 [J]***	***120 [J]***	***200***	<26	9.7	9.5	<14	12	77	***270***	***130***	<100
Benzo(a)pyrene	150	1,450	150	***600 [J]***	***430 [J]***	99 [J]	***160***	<26	6.4	6.9	<14	9	<93	***240***	130	<100
Benzo(b)fluoranthene	NCL	NCL	10,400	1,000 [J]	690 [J]	150 [J]	220	<26	<14	8.6	<14	12	<93	350	190	<100
Benzo(g,h,i)perylene	NCL	NCL	170	***220 [J]***	160 [J]	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	94	42	<100
Benzo(k)fluoranthene	NCL	NCL	240	***300 [J]***	***280 [J]***	45 [J]	82	<26	<14	<15	<14	4.6	<93	120	64	<100
bis(2-Chloroethyl)ether	NCL	NCL	3,520	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
bis(2-Ethylhexyl)phthalate	NCL	NCL	182	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Butyl benzyl phthalate	NCL	NCL	1,970	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Caprolactam	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Carbazole	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	55	<530
4-Chloro-3-methyl phenol	NCL	NCL	388	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
2-Chlorophenol	NCL	NCL	31.9	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
2-Chloronaphthalene	NCL	NCL	417	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Chrysene	166	1,290	NCL	***680 [J]***	***470 [J]***	76 [J]	160	<26	6.5	6.4	<14	8	50	***280***	150	<100
Di-n-butyl phthalate	NCL	NCL	1,114	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Di-n-octylphthalate	NCL	NCL	40,600	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Dibenzo(a,h)anthracene	33	NCL	33	<310 [UJ]	<270 [UJ]	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	<110	<14	<100
Dibenzofuran	NCL	NCL	449	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
3,3'-Dichlorobenzidine	NCL	NCL	127	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
2,4-Dichlorophenol	NCL	NCL	81.7	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Diethylphthalate	NCL	NCL	295	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Dimethyl phthalate	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
2,4-Dimethylphenol	NCL	NCL	304	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
4,6-Dinitro-2-methylphenol	NCL	NCL	104	<7,700 [UJ]	<6,800 [UJ]	<3,200 [UJ]	<4,100	<670	<350	<370	<360	<380	<2,400	<2,800	<360	<2,600
2,4-Dinitrotoluene	NCL	NCL	14.4	<3,100 [UJ]	<2,700 [UJ]	<1,300 [UJ]	<1,600	<260	<140	<150	<140	<150	<930	<1,100	<140	<1,000
Fluoranthene	423	2,230	423	***1,400 [J]***	***1,000 [J]***	200 [J]	380	14	14	23	10	26	100	***650***	400	61
Fluorene	77.4	536	77.4	<310 [UJ]	<270 [UJ]	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	<110	21	<100
Hexachlorobenzene	NCL	NCL	20	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Hexachlorobutadiene	NCL	NCL	26.5	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Hexachlorocyclopentadiene	NCL	NCL	901	<7,700 [UJ]	<6,800 [UJ]	<3,200 [UJ]	<4,100	<670	<350	<370	<360	<380	<2,400	<2,800	<360	<2,600
Hexachloroethane	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Indeno(1,2,3-c,d)pyrene	NCL	NCL	200	***220 [J]***	170 [J]	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	98	47	<100
Isophorone	NCL	NCL	432	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
2-Methylnaphthalene	NCL	NCL	20.2	<310 [UJ]	<270 [UJ]	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	<110	<14	<100
2-Methylphenol	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
3+4-Methylphenol	NCL	NCL	NCL	<3,100 [UJ]	<2,700 [UJ]	<1,300 [UJ]	<1,600	<260	<140	<150	<140	<150	<930	<1,100	<140	<1,000
Naphthalene	176	561	176	***250 [J]***	150 [J]	<130 [UJ]	<160	<26	<14	<15	<14	<15	<93	<110	15	<100
Nitrobenzene	NCL	NCL	145	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
2-Nitrophenol	NCL	NCL	NCL	<3,100 [UJ]	<2,700 [UJ]	<1,300 [UJ]	<1,600	<260	<140	<150	<140	<150	<930	<1,100	<140	<1,000
N-Nitrosodi-n-propylamine	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
N-Nitrosodiphenylamine (Diphenylamine)	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Pentachlorophenol	NCL	NCL	23,000	<7,700 [UJ]	<6,800 [UJ]	<3,200 [UJ]	<4,100	<670	<350	<370	<360	<380	<2,400	<2,800	<360	<2,600
Phenanthrene	204	1,170	204	***480 [J]***	***340 [J]***	74 [J]	***240***	<26	8.1	18	<14	22	100	***380***	***290***	61
Phenol	NCL	NCL	49.1	<1,600 [UJ]	***770 [J]***	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
Pyrene	195	1,520	195	***1,000 [J]***	***750 [J]***	150 [J]	***290***	<26	11	16	<14	19	88	***490***	***270***	53
2,4,5-Trichlorophenol	NCL	NCL	NCL	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530
2,4,6-Trichlorophenol	NCL	NCL	208	<1,600 [UJ]	<1,400 [UJ]	<650 [UJ]	<830	<140	<72	<75	<74	<78	<480	<570	<74	<530

TABLE 8B
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T5-3	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-3	TA-SED-T6-3	TA-SED-T6-3	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1
Sample Name				TA-SED-T5-3 (6-7)	TA-SED-T6-1 (0-1)	TA-SED-T6-1 (2.5-3.5)	TA-SED-T6-1 (4.1-5.1)	TA-SED-T6-2 (0-1)	TA-SED-T6-2 (2-3)	TA-SED-T6-2 (3.6-4.6)	TA-SED-T6-3 (0-1)	TA-SED-T6-3 (2-3)	TA-SED-T6-3 (3.8-4.8)	TA-SED-T7-1 (0-1)	TA-SED-T7-1 (2-3)	TA-SED-T7-1 (4.2-5.2)	TA-SED-T7-1 (6.4-7.4)
Depth Interval (Feet below ground surface)				6 - 7	0 - 1	2.5 - 3.5	4.1 - 5.1	0 - 1	2 - 3	3.6 - 4.6	0 - 1	2 - 3	3.8 - 4.8	0 - 1	2 - 3	4.2 - 5.2	6.4 - 7.4
Laboratory Sample ID(s)				TF26016-010	TF26016-014	TF26016-015	TF26016-016	TF28027-001	TF28027-002	TF28027-003	TF26016-017	TF26016-018	TF26016-019	TF28027-004	TF28027-005	TF28027-006	TF28027-007
Sample Date				6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/26/2018	6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018
Parameter (µg/kg)																	
Acenaphthene	NCL	NCL	6.71	<92	<120	<87	<85	<15	<14	<120	<79	<190	<220	<69	<140	<89	<92
Acenaphthylene	NCL	NCL	5.87	<92	<120	<87	<85	<15	<14	<120	<79	<190	<220	<69	<140	<89	<92
Acetophenone	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Anthracene	57.2	845	57.2	<92	<120	<87	<85	4.8	<14	<120	<79	***110***	<220	<69	<140	<89	<92
Atrazine	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
1,2-Diphenylhydrazine(as azobenzene)	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Benzidine	NCL	NCL	NCL	<920 [UJ]	<1,200 [UJ]	<870 [UJ]	<850 [UJ]	<150	<140	<1,200	<790 [UJ]	<1,900 [UJ]	<2,200 [UJ]	<690	<1,400	<890	<920
Benzo(a)anthracene	108	1,050	108	<92	84	<87	<85	30	<14	<120	<79	***360***	<220	<69	<140	<89	<92
Benzo(a)pyrene	150	1,450	150	<92	<120	<87	<85	25	<14	<120	<79	***310***	<220	<69	<140	<89	<92
Benzo(b)fluoranthene	NCL	NCL	10,400	<92	120	<87	<85	34	<14	<120	<79	460	<220	<69	<140	<89	<92
Benzo(g,h,i)perylene	NCL	NCL	170	<92	<120	<87	<85	12	<14	<120	<79	<190	<220	<69	<140	<89	<92
Benzo(k)fluoranthene	NCL	NCL	240	<92	<120	<87	<85	14	<14	<120	<79	130	<220	<69	<140	<89	<92
bis(2-Chloroethyl)ether	NCL	NCL	3,520	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
bis(2-Ethylhexyl)phthalate	NCL	NCL	182	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Butyl benzyl phthalate	NCL	NCL	1,970	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Caprolactam	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Carbazole	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
4-Chloro-3-methyl phenol	NCL	NCL	388	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
2-Chlorophenol	NCL	NCL	31.9	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
2-Chloronaphthalene	NCL	NCL	417	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Chrysene	166	1,290	NCL	<92	<120	<87	<85	34	<14	<120	<79	***300***	<220	<69	<140	<89	<92
Di-n-butyl phthalate	NCL	NCL	1,114	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Di-n-octylphthalate	NCL	NCL	40,600	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Dibenzo(a,h)anthracene	33	NCL	33	<92	<120	<87	<85	<15	<14	<120	<79	<190	<220	<69	<140	<89	<92
Dibenzofuran	NCL	NCL	449	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
3,3'-Dichlorobenzidine	NCL	NCL	127	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
2,4-Dichlorophenol	NCL	NCL	81.7	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Diethylphthalate	NCL	NCL	295	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Dimethyl phthalate	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
2,4-Dimethylphenol	NCL	NCL	304	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
4,6-Dinitro-2-methylphenol	NCL	NCL	104	<2,300	<3,000	<2,200	<2,200	<370	<350	<3,000	<2,000	<4,900	<5,700	<1,800	<3,400	<2,300	<2,300
2,4-Dinitrotoluene	NCL	NCL	14.4	<920	<1,200	<870	<850	<150	<140	<1,200	<790	<1,900	<2,200	<690	<1,400	<890	<920
Fluoranthene	423	2,230	423	<92	130	<87	<85	71	<14	<120	<79	***780***	140	<69	73	<89	<92
Fluorene	77.4	536	77.4	<92	<120	<87	<85	<15	<14	<120	<79	<190	<220	<69	<140	<89	<92
Hexachlorobenzene	NCL	NCL	20	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Hexachlorobutadiene	NCL	NCL	26.5	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Hexachlorocyclopentadiene	NCL	NCL	901	<2,300	<3,000	<2,200	<2,200	<370	<350	<3,000	<2,000	<4,900	<5,700	<1,800	<3,400	<2,300	<2,300
Hexachloroethane	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Indeno(1,2,3-c,d)pyrene	NCL	NCL	200	<92	<120	<87	<85	12	<14	<120	<79	100	<220	<69	<140	<89	<92
Isophorone	NCL	NCL	432	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
2-Methylnaphthalene	NCL	NCL	20.2	<92	<120	<87	<85	<15	<14	<120	<79	<190	<220	<69	<140	<89	<92
2-Methylphenol	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
3+4-Methylphenol	NCL	NCL	NCL	<920	<1,200	<870	<850	<150	<140	<1,200	<790	<1,900	<2,200	<690	<1,400	<890	<920
Naphthalene	176	561	176	<92	<120	<87	<85	<15	<14	<120	<79	<190	<220	<69	<140	<89	<92
Nitrobenzene	NCL	NCL	145	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
2-Nitrophenol	NCL	NCL	NCL	<920	<1,200	<870	<850	<150	<140	<1,200	<790	<1,900	<2,200	<690	<1,400	<890	<920
N-Nitrosodi-n-propylamine	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
N-Nitrosodiphenylamine (Diphenylamine)	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Pentachlorophenol	NCL	NCL	23,000	<2,300	<3,000	<2,200	<2,200	<370	<350 [UJ]	<3,000 [UJ]	<2,000	<4,900	<5,700	<1,800 [UJ]	<3,400 [UJ]	<2,300 [UJ]	<2,300 [UJ]
Phenanthrene	204	1,170	204	<92	<120	<87	<85	36	<14	<120	<79	***430***	<220	<69	54	<89	<92
Phenol	NCL	NCL	49.1	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
Pyrene	195	1,520	195	<92	94	<87	<85	50	<14	<120	<79	***560***	<220	<69	63	<89	<92
2,4,5-Trichlorophenol	NCL	NCL	NCL	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480
2,4,6-Trichlorophenol	NCL	NCL	208	<470	<610	<450	<440	<76	<71	<600	<410	<1,000	<1,200	<360	<700	<460	<480

TABLE 8B
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T7-2	TA-SED-T7-2	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-3
Sample Name				TA-SED-T7-2 (0-1)	TA-SED-T7-2 (1-2)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T7-ISLAND (1-2)	TA-SED-T7-ISLAND (3-4)	TA-SED-T7-ISLAND (6-7)	TA-SED-T8-1 (0-1)	TA-SED-T8-1 (1.5-2.5)	TA-SED-T8-1 (4-5)	TA-SED-T8-2 (0-1)	TA-SED-T8-2 (1-2)	TA-SED-T8-2 (3-4.1)	TA-SED-T8-3 (0-1)
Depth Interval (Feet below ground surface)				0 - 1	1 - 2	0 - 0.5	1 - 2	3 - 4	6 - 7	0 - 1	1.5 - 2.5	4 - 5	0 - 1	1 - 2	3 - 4.1	0 - 1
Laboratory Sample ID(s)				TF26016-021	TF26016-022	TG11006-001	TG14035-004	TG14035-005	TG14035-006	TF28027-013	TF28027-014	TF28027-015	TG03001-013	TG03001-014	TG03001-015	TF28027-009
Sample Date				6/27/2018	6/27/2018	7/9/2018	7/13/2018	7/13/2018	7/13/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018
Parameter (µg/kg)																
Acenaphthene	NCL	NCL	6.71	<960 [UJ]	<160	<97	<41	<50	<36	<210	<120	<90	<39	<39	<38	<100
Acenaphthylene	NCL	NCL	5.87	<960 [UJ]	<160	<97	<41	<50	<36	<210	<120	<90	<39	<39	<38	<100
Acetophenone	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Anthracene	57.2	845	57.2	<960 [UJ]	<160	<97	27	<50	<36	<210	<120	<90	<39	<39	<38	<100
Atrazine	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
1,2-Diphenylhydrazine(as azobenzene)	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Benzidine	NCL	NCL	NCL	<9,600 [UJ]	<1,600 [UJ]	<2,500	<1,000	<1,300	<910	<5,200	<3,100	<2,300	<390	<390	<380	<1,000
Benzo(a)anthracene	108	1,050	108	<960 [UJ]	<160	71	61	41	22	<210	58	<90	<39	14	<38	36
Benzo(a)pyrene	150	1,450	150	<960 [UJ]	<160	61	45	36	<36	<210	<120	<90	<39	<39	<38	66
Benzo(b)fluoranthene	NCL	NCL	10,400	<960 [UJ]	<160	110	57	56	25	<210	<120	<90	17	<39	<38	110
Benzo(g,h,i)perylene	NCL	NCL	170	<960 [UJ]	<160	<97	<41	<50	<36	<210	<120	<90	<39	<39	<38	<100
Benzo(k)fluoranthene	NCL	NCL	240	<960 [UJ]	<160	36	23	16	<36	<210	<120	<90	<39	<39	<38	28
bis(2-Chloroethyl)ether	NCL	NCL	3,520	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
bis(2-Ethylhexyl)phthalate	NCL	NCL	182	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Butyl benzyl phthalate	NCL	NCL	1,970	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Caprolactam	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Carbazole	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
4-Chloro-3-methyl phenol	NCL	NCL	388	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
2-Chlorophenol	NCL	NCL	31.9	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
2-Chloronaphthalene	NCL	NCL	417	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Chrysene	166	1,290	NCL	<960 [UJ]	<160	50	38	32	<36	<210	<120	<90	<39	<39	<38	48
Di-n-butyl phthalate	NCL	NCL	1,114	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Di-n-octylphthalate	NCL	NCL	40,600	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Dibenzo(a,h)anthracene	33	NCL	33	<960 [UJ]	<160	<97	<41	<50	<36	<210	<120	<90	<39	<39	<38	<100
Dibenzofuran	NCL	NCL	449	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
3,3'-Dichlorobenzidine	NCL	NCL	127	<4,900 [UR]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
2,4-Dichlorophenol	NCL	NCL	81.7	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Diethylphthalate	NCL	NCL	295	<4,900 [UJ]	<810	<500	<210	<260	47	<1,100	<630	<460	<200	<200	<200	<540
Dimethyl phthalate	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
2,4-Dimethylphenol	NCL	NCL	304	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
4,6-Dinitro-2-methylphenol	NCL	NCL	104	<24,000 [UJ]	<4,000	<2,500	<1,000	<1,300	<910	<5,200	<3,100	<2,300	<980	<1,000	<980	<2,700
2,4-Dinitrotoluene	NCL	NCL	14.4	<9,600 [UR]	<1,600	<970	<410	<500	<360	<2,100	<1,200	<900	<390	<390	<380	<1,000
Fluoranthene	423	2,230	423	310 [J]	<160	150	120	86	39	75	67	<90	<39	11	<38	150
Fluorene	77.4	536	77.4	<960 [UJ]	<160	<97	<41	<50	<36	<210	<120	<90	<39	<39	<38	<100
Hexachlorobenzene	NCL	NCL	20	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Hexachlorobutadiene	NCL	NCL	26.5	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Hexachlorocyclopentadiene	NCL	NCL	901	<24,000 [UR]	<4,000	<2,500	<1,000	<1,300	<910	<5,200	<3,100	<2,300	<980	<1,000	<980	<2,700
Hexachloroethane	NCL	NCL	NCL	<4,900 [UR]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Indeno(1,2,3-c,d)pyrene	NCL	NCL	200	<960 [UJ]	<160	<97	<41	<50	<36	<210	<120	<90	<39	<39	<38	<100
Isophorone	NCL	NCL	432	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
2-Methylnaphthalene	NCL	NCL	20.2	<960 [UJ]	<160	<97	<41	<50	<36	<210	<120	<90	<39	<39	<38	<100
2-Methylphenol	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
3+4-Methylphenol	NCL	NCL	NCL	<9,600 [UJ]	<1,600	<970	<410	<500	<360	<2,100	<1,200	<900	<390	<390	<380	<1,000
Naphthalene	176	561	176	<960 [UJ]	<160	<97	<41	<50	<36	<210	<120	<90	<39	<39	<38	<100
Nitrobenzene	NCL	NCL	145	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
2-Nitrophenol	NCL	NCL	NCL	<9,600 [UR]	<1,600	<970	<410	<500	<360	<2,100	<1,200	<900	<390	<390	<380	<1,000
N-Nitrosodi-n-propylamine	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
N-Nitrosodiphenylamine (Diphenylamine)	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Pentachlorophenol	NCL	NCL	23,000	<24,000 [UJ]	<4,000	<2,500	<1,000	<1,300	<910	<5,200	<3,100	<2,300	<980	<1,000	<980	<2,700
Phenanthrene	204	1,170	204	<960 [UJ]	<160	77	83	46	19	<210	<120	<90	<39	<39	<38	91
Phenol	NCL	NCL	49.1	<4,900 [UR]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
Pyrene	195	1,520	195	***260 [J]***	<160	110	91	63	29	71	57	<90	<39	<39	<38	120
2,4,5-Trichlorophenol	NCL	NCL	NCL	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540
2,4,6-Trichlorophenol	NCL	NCL	208	<4,900 [UJ]	<810	<500	<210	<260	<180	<1,100	<630	<460	<200	<200	<200	<540

TABLE 8B
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-3	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND
Sample Name				TA-SED-T8-3 (1.5-2.5)	TA-SED-T8-3 (1.5-2.5) DUP	TA-SED-T8-3 (3-4)	TA-SED-T9-1 (0-1)	TA-SED-T9-1 (2-3)	TA-SED-T9-1 (4-5)	TA-SED-T9-2 (0-1)	TA-SED-T9-2 (2-3)	TA-SED-T9-2 (4-5)	TA-SED-T9-2 (5-6)	TA-SED-T9-3 (0-1)	TA-SED-T9-ISLAND (0-0.5)	TA-SED-T9-ISLAND (1-2)
Depth Interval (Feet below ground surface)				1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	5 - 6	0 - 1	0 - 0.5	1 - 2
Laboratory Sample ID(s)				TF28027-010	TF28027-011	TF28027-012	TG03001-021	TG03001-019	TG03001-022	TF28027-017	TF28027-018	TF28027-019	TF28027-020	TG03032-005	TG14035-007	TG14035-008
Sample Date				6/28/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	7/13/2018	7/13/2018
Parameter (µg/kg)																
Acenaphthene	NCL	NCL	6.71	<190	<140	<120	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	<87 [UJ]
Acenaphthylene	NCL	NCL	5.87	<190	<140	<120	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	<87 [UJ]
Acetophenone	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Anthracene	57.2	845	57.2	<190	36	<120	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	51 [J]
Atrazine	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
1,2-Diphenylhydrazine(as azobenzene)	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Benzidine	NCL	NCL	NCL	<1,900	<1,400	<3,100	<2,500 [UJ]	<1,300	<450	<6,200	<3,300	<2,300	<480	<2,600 [UJ]	<2,100	<2,200 [UJ]
Benzo(a)anthracene	108	1,050	108	***150***	***150***	34	<250 [UJ]	<130	20	<240	63	<91	<48	***200 [J]***	65	***110 [J]***
Benzo(a)pyrene	150	1,450	150	140	120	53	<250 [UJ]	43	<45	<240	<130	<91	<48	150 [J]	53	120 [J]
Benzo(b)fluoranthene	NCL	NCL	10,400	260	<140	<120	<250 [UJ]	99	<45	<240	<130	<91	<48	280 [J]	87	170 [J]
Benzo(g,h,i)perylene	NCL	NCL	170	<190	<140	<120	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	57 [J]
Benzo(k)fluoranthene	NCL	NCL	240	<190	<140	<120	<250 [UJ]	21	<45	<240	<130	<91	<48	84 [J]	34	57 [J]
bis(2-Chloroethyl)ether	NCL	NCL	3,520	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
bis(2-Ethylhexyl)phthalate	NCL	NCL	182	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Butyl benzyl phthalate	NCL	NCL	1,970	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Caprolactam	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Carbazole	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
4-Chloro-3-methyl phenol	NCL	NCL	388	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
2-Chlorophenol	NCL	NCL	31.9	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
2-Chloronaphthalene	NCL	NCL	417	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Chrysene	166	1,290	NCL	100	120	55	<250 [UJ]	<130	<45	<240	<130	<91	<48	110 [J]	<81	120 [J]
Di-n-butyl phthalate	NCL	NCL	1,114	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Di-n-octylphthalate	NCL	NCL	40,600	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Dibenzo(a,h)anthracene	33	NCL	33	<190	<140	<120	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	<87 [UJ]
Dibenzofuran	NCL	NCL	449	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
3,3'-Dichlorobenzidine	NCL	NCL	127	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
2,4-Dichlorophenol	NCL	NCL	81.7	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Diethylphthalate	NCL	NCL	295	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Dimethyl phthalate	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
2,4-Dimethylphenol	NCL	NCL	304	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
4,6-Dinitro-2-methylphenol	NCL	NCL	104	<4,800	<3,500	<3,100	<6,400 [UJ]	<3,300	<1,100	<6,200	<3,300	<2,300	<1,200	<6,500 [UJ]	<2,100	<2,200 [UJ]
2,4-Dinitrotoluene	NCL	NCL	14.4	<1,900	<1,400	<1,200	<2,500 [UJ]	<1,300	<450	<2,400	<1,300	<910	<480	<2,600 [UJ]	<810	<870 [UJ]
Fluoranthene	423	2,230	423	230	260	140	<250 [UJ]	83	23	120	54	<91	<48	300 [J]	100	290 [J]
Fluorene	77.4	536	77.4	<190	<140	<120	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	<87 [UJ]
Hexachlorobenzene	NCL	NCL	20	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Hexachlorobutadiene	NCL	NCL	26.5	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Hexachlorocyclopentadiene	NCL	NCL	901	<4,800	<3,500	<3,100	<6,400 [UJ]	<3,300	<1,100	<6,200	<3,300	<2,300	<1,200	<6,500 [UJ]	<2,100	<2,200 [UJ]
Hexachloroethane	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Indeno(1,2,3-c,d)pyrene	NCL	NCL	200	<190	<140	32	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	55 [J]
Isophorone	NCL	NCL	432	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
2-Methylnaphthalene	NCL	NCL	20.2	<190	<140	<120	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	<87 [UJ]
2-Methylphenol	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
3+4-Methylphenol	NCL	NCL	NCL	<1,900	<1,400	<1,200	<2,500 [UJ]	<1,300	<450	<2,400	<1,300	<910	<480	<2,600 [UJ]	<810	<870 [UJ]
Naphthalene	176	561	176	<190	<140	<120	<250 [UJ]	<130	<45	<240	<130	<91	<48	<260 [UJ]	<81	<87 [UJ]
Nitrobenzene	NCL	NCL	145	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
2-Nitrophenol	NCL	NCL	NCL	<1,900	<1,400	<1,200	<2,500 [UJ]	<1,300	<450	<2,400	<1,300	<910	<480	<2,600 [UJ]	<810	<870 [UJ]
N-Nitrosodi-n-propylamine	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
N-Nitrosodiphenylamine (Diphenylamine)	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Pentachlorophenol	NCL	NCL	23,000	<4,800	<3,500	<3,100	<6,400 [UJ]	<3,300	<1,100	<6,200	<3,300	<2,300	<1,200	<6,500 [UJ]	<2,100	<2,200 [UJ]
Phenanthrene	204	1,170	204	150	160	110	<250 [UJ]	60	19	84	<130	<91	<48	130 [J]	44	140 [J]
Phenol	NCL	NCL	49.1	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
Pyrene	195	1,520	195	***200***	***220***	130	<250 [UJ]	72	20	120	43	<91	<48	***230 [J]***	76	***210 [J]***
2,4,5-Trichlorophenol	NCL	NCL	NCL	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]
2,4,6-Trichlorophenol	NCL	NCL	208	<980	<710	<640	<1,300 [UJ]	<660	<230	<1,300	<670	<470	<250	<1,300 [UJ]	<420	<450 [UJ]

TABLE 8B
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SVOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-3	TA-SED-T10-3	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND
Sample Name				TA-SED-T9-ISLAND (4-5)	TA-SED-T9-ISLAND (6.5-7.5)	TA-SED-T10-1 (0-1)	TA-SED-T10-1 (1.5-2.5)	TA-SED-T10-1 (1.5-2.5) DUP	TA-SED-T10-1 (3-4)	TA-SED-T10-3 (0-1)	TA-SED-T10-3 (1-2)	TA-SED-T10-ISLAND (0-1)	TA-SED-T10-ISLAND (2-3)	TA-SED-T10-ISLAND (4-5)
Depth Interval (Feet below ground surface)				4 - 5	6.5 - 7.5	0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	1 - 2	0 - 1	2 - 3	4 - 5
Laboratory Sample ID(s)				TG14035-009	TG14035-010	TG03032-001	TG03032-002	TG03032-003	TG03032-004	TG03032-006	TG03032-007	TG24016-002	TG24016-003	TG24016-004
Sample Date				7/13/2018	7/13/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	7/23/2018	7/23/2018	7/23/2018
Parameter (µg/kg)														
Acenaphthene	NCL	NCL	6.71	<47	<40	<67	<38	<34	<66	<89 [UJ]	<47	<20	<110	<17
Acenaphthylene	NCL	NCL	5.87	<47	<40	<67	<38	<34	<66	<89 [UJ]	<47	<20	<110	<17
Acetophenone	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Anthracene	57.2	845	57.2	<47	<40	<67	<38	<34	<66	<89 [UJ]	<47	<20	<110	<17
Atrazine	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
1,2-Diphenylhydrazine(as azobenzene)	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Benzidine	NCL	NCL	NCL	<1,200	<1,000	<670	<380	<340	<660	<890 [UJ]	<470	<500	<2,900	<430
Benzo(a)anthracene	108	1,050	108	35	11	45	20	23	<66	84 [J]	39	23	<110	<17
Benzo(a)pyrene	150	1,450	150	23	<40	38	11	16	<66	79 [J]	39	21	30	<17
Benzo(b)fluoranthene	NCL	NCL	10,400	38	<40	79	30	44	<66	140 [J]	75	33	42	<17
Benzo(g,h,i)perylene	NCL	NCL	170	<47	<40	<67 [UJ]	<38	<34	<66	26 [J]	<47	11	<110	<17
Benzo(k)fluoranthene	NCL	NCL	240	13	<40	18	7.2	<34	<66	47 [J]	21	12	<110	<17
bis(2-Chloroethyl)ether	NCL	NCL	3,520	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
bis(2-Ethylhexyl)phthalate	NCL	NCL	182	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Butyl benzyl phthalate	NCL	NCL	1,970	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Caprolactam	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Carbazole	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
4-Chloro-3-methyl phenol	NCL	NCL	388	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
2-Chlorophenol	NCL	NCL	31.9	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
2-Chloronaphthalene	NCL	NCL	417	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Chrysene	166	1,290	NCL	23	<40	30	<38	16	<66	54 [J]	31	19	<110	<17
Di-n-butyl phthalate	NCL	NCL	1,114	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Di-n-octylphthalate	NCL	NCL	40,600	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Dibenzo(a,h)anthracene	33	NCL	33	<47	<40	<67 [UJ]	<38	<34	<66	<89 [UJ]	<47	<20	<110	<17
Dibenzofuran	NCL	NCL	449	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
3,3'-Dichlorobenzidine	NCL	NCL	127	<240	<210	<340 [UR]	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
2,4-Dichlorophenol	NCL	NCL	81.7	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Diethylphthalate	NCL	NCL	295	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Dimethyl phthalate	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
2,4-Dimethylphenol	NCL	NCL	304	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
4,6-Dinitro-2-methylphenol	NCL	NCL	104	<1,200	<1,000	<1,700 [UR]	<970	<870	<1,700	<2,300 [UJ]	<1,200	<500	<2,900	<430
2,4-Dinitrotoluene	NCL	NCL	14.4	<470	<400	<670	<380	<340	<660	<890 [UJ]	<470	<200	<1,100	<170
Fluoranthene	423	2,230	423	60	18	68	27	37	<66	160 [J]	80	39	65	<17
Fluorene	77.4	536	77.4	<47	<40	<67	<38	<34	<66	<89 [UJ]	<47	<20	<110	<17
Hexachlorobenzene	NCL	NCL	20	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Hexachlorobutadiene	NCL	NCL	26.5	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Hexachlorocyclopentadiene	NCL	NCL	901	<1,200	<1,000	<1,700 [UR]	<970	<870	<1,700	<2,300 [UJ]	<1,200	<500	<2,900	<430
Hexachloroethane	NCL	NCL	NCL	<240	<210	<340 [UJ]	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Indeno(1,2,3-c,d)pyrene	NCL	NCL	200	<47	<40	<67 [UJ]	<38	<34	<66	<89 [UJ]	14	10	<110	<17
Isophorone	NCL	NCL	432	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
2-Methylnaphthalene	NCL	NCL	20.2	<47	<40	<67	<38	<34	<66	<89 [UJ]	<47	<20	<110	<17
2-Methylphenol	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
3+4-Methylphenol	NCL	NCL	NCL	<470	<400	<670	<380	<340	<660	<890 [UJ]	<470	<200	<1,100	<170
Naphthalene	176	561	176	<47	<40	<67	<38	<34	<66	<89 [UJ]	<47	<20	<110	<17
Nitrobenzene	NCL	NCL	145	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
2-Nitrophenol	NCL	NCL	NCL	<470	<400	<670 [UJ]	<380	<340	<660	<890 [UJ]	<470	<200	<1,100	<170
N-Nitrosodi-n-propylamine	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
N-Nitrosodiphenylamine (Diphenylamine)	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Pentachlorophenol	NCL	NCL	23,000	<1,200	<1,000	<1,700	<970	<870	<1,700	<2,300 [UJ]	<1,200	<500	<2,900	<430
Phenanthrene	204	1,170	204	35	<40	29	14	16	<66	64 [J]	49	13	44	<17
Phenol	NCL	NCL	49.1	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
Pyrene	195	1,520	195	44	14	48	22	29	<66	110 [J]	61	35	51	<17
2,4,5-Trichlorophenol	NCL	NCL	NCL	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88
2,4,6-Trichlorophenol	NCL	NCL	208	<240	<210	<340	<200	<180	<340	<460 [UJ]	<240	<100	<580	<88

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-BOAT RAMP	TA-SED-BOAT RAMP	TA-SED-EAST DAM	TA-SED-RC ACCESS	TA-SED-RC ACCESS	TA-SED-RC-1	TA-SED-RC-1	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-3	TA-SED-T1-1
Sample Name				TA-SED-BOAT RAMP (0-1)	TA-SED-BOAT RAMP (1-1.9)	TA-SED-EAST DAM (0-0.5)	TA-SED-RC ACCESS (0-1)	TA-SED-RC ACCESS (1.5-2.5)	TA-SED-RC-1 (0-1)	TA-SED-RC-1 (1.2-2.2)	TA-SED-RC-2 (0-1)	TA-SED-RC-2 (1-2)	TA-SED-RC-2 (2-3)	TA-SED-RC-3 (0-0.4)	TA-SED-T1-1 (0-1)
Depth Interval (Feet below ground surface)				0 - 1	1 - 1.9	0 - 0.5	0 - 1	1.5 - 2.5	0 - 1	1.2 - 2.2	0 - 1	1 - 2	2 - 3	0 - 0.4	0 - 1
Laboratory Sample ID(s)				TG03001-008	TG03001-009	TG24016-001	TG03001-010	TG03001-011	TG03001-003	TG03001-004	TG03001-005	TG03001-006	TG03001-007	TG03001-012	TG24016-005
Sample Date				7/2/2018	7/2/2018	7/23/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/24/2018
Parameter (µg/kg)															
Aluminum	NCL	NCL	NCL	6,600,000	9,000,000	3,100,000	6,500,000	7,300,000	960,000	4,200,000	1,700,000	2,800,000	6,700,000	980,000	990,000
Antimony	NCL	NCL	NCL	<990	<1,200	<430	650	<720	<500	<850	<630	<660	330	<590	<670
Arsenic	9,790	33,000	9,790	5,700	7,000	3,200	***54,000***	***43,000***	1,100	3,700	1,500	2,900	***45,000***	1,100	840
Barium	NCL	NCL	NCL	83,000	100,000	66,000	110,000	57,000	7,100	43,000	14,000	24,000	90,000	7,200	13,000 [J]
Beryllium	NCL	NCL	NCL	120	140	360	110	98	47	120	62	56	110	42	<130
Boron	NCL	NCL	NCL	<26,000	<32,000	11,000	<21,000	<19,000	<13,000	<22,000	<16,000	<17,000	<15,000	<15,000	<17,000
Cadmium	990	4,980	990	390	540	140	***1,100***	210	44	390	62	190	500	<150	35
Chromium, Total	43,400	111,000	NCL	20,000	30,000	7,000	***2,700,000***	***940,000***	3,800	***140,000***	6,400	***45,000***	***870,000***	2,500	3,000
Hexavalent Chromium	NCL	NCL	NCL	<55,000	<52,000	<1,100	<39,000	<88,000	<24,000 [UR]	<38,000	<13,000	<72,000	<77,000	<25,000	<1,500
Cobalt	NCL	NCL	NCL	3,600	4,600	1,600	3,100	3,900	620	2,600	1,200	1,800	3,600	710	1,100
Copper	31,600	149,000	31,600	14,000	18,000	4,300	24,000	18,000	2,500	9,800	2,600	6,800	19,000	990	1,500
Iron	NCL	NCL	NCL	13,000,000	17,000,000	5,400,000	9,900,000	10,000,000	2,100,000	8,900,000	4,200,000	5,600,000	12,000,000	2,300,000	2,600,000
Lead	35,800	128,000	35,800	18,000	24,000	23,000	***71,000***	24,000	2,000	***42,000***	13,000	24,000	***110,000***	1,600	2,300
Magnesium	NCL	NCL	NCL	14,000,000	6,800,000	46,000,000	6,400,000	5,800,000	2,000,000	12,000,000	4,000,000	6,200,000	7,000,000	2,100,000	1,900,000
Mercury	180	1,060	174	110	***200***	<84	***220***	79	<91	<160	<110	<120	***610***	<100	<120
Molybdenum	NCL	NCL	NCL	<5,000	<6,100	<2,100	<4,000	<3,600	<2,500	<4,200	<3,200	<3,300	<2,900	<2,900	<3,300
Nickel	22,700	48,600	22,700	7,900	10,000	4,200	7,300	7,400	1,400	6,000	2,900	4,500	8,700	1,400	1,800
Selenium	NCL	NCL	NCL	1,700	1,900	510	<2,100	<1,900	<1,300	950	<1,600	640	1,000	<1,500	<1,700
Silver	NCL	NCL	500	<500	<610	<210	<400	<360	<250	<420	<320	<330	86	<290	<330
Sodium	NCL	NCL	NCL	89,000	<240,000	160,000	220,000	330,000	<100,000	370,000	110,000	380,000	700,000	<120,000	<130,000
Thallium	NCL	NCL	NCL	130	160	37	180	240	30	84	<160	52	170	<150	<170
Vanadium	NCL	NCL	12	***15,000***	***20,000***	***7,500***	***16,000***	***13,000***	***3,200***	***11,000***	***5,700***	***8,100***	***12,000***	***4,900***	***4,100***
Zinc	121,000	459,000	121,000	67,000	89,000	17,000	***130,000***	46,000	8,600	69,000	16,000	39,000	***140,000***	6,300	8,800
Titanium	NCL	NCL	NCL	220,000	290,000	200,000	260,000	240,000	78,000	240,000	120,000	150,000	240,000	110,000	96,000

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T1-1	TA-SED-T1-3	TA-SED-T1-3	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T2-3
Sample Name				TA-SED-T1-1 (0-1) DUP	TA-SED-T1-3 (0-1)	TA-SED-T1-3 (0-1) DUP	TA-SED-T2-1 (0-1)	TA-SED-T2-1 (2-3)	TA-SED-T2-1 (4-5)	TA-SED-T2-2 (0-1)	TA-SED-T2-2 (0-1) DUP	TA-SED-T2-2 (2-3)	TA-SED-T2-2 (4-5)	TA-SED-T2-3 (0-1)	TA-SED-T2-3 (2-3)	TA-SED-T2-3 (4-5)
Depth Interval (Feet below ground surface)				0 - 1	0 - 1	0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5
Laboratory Sample ID(s)				TG24016-006	TG24016-007	TG24016-008	TF22021-011	TF22021-012	TF22021-013	TF26016-001	TF26016-002	TF26016-003	TF26016-004	TF22021-014	TF22021-015	TF22021-016
Sample Date				7/24/2018	7/24/2018	7/24/2018	6/22/2018	6/22/2018	6/22/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/22/2018	6/22/2018	6/22/2018
Parameter (µg/kg)																
Aluminum	NCL	NCL	NCL	840,000	1,600,000 [J]	880,000 [J]	4,500,000	6,000,000	2,400,000	1,100,000 [J]	2,500,000 [J]	1,500,000	2,300,000	730,000	4,500,000	1,500,000
Antimony	NCL	NCL	NCL	<570	<590	<550	<820	<750	<760	<520	<480	<520	<520	<550	<560	<510
Arsenic	9,790	33,000	9,790	810	2,000	2,000	3,800	3,900	1,900	1,000	1,500	3,600	4,800	780	***11,000***	1,100
Barium	NCL	NCL	NCL	7,300 [J]	5,400	8,100	72,000	71,000	39,000	6,200	10,000	7,100	19,000	8,300	58,000	12,000
Beryllium	NCL	NCL	NCL	<110	42	<110	86	84	67	64	79	57	97	<110	82	<100
Boron	NCL	NCL	NCL	<15,000	<15,000	<14,000	<21,000 [UB]	<20,000 [UB]	<20,000 [UB]	<14,000 [UB]	<12,000 [UB]	<13,000 [UB]	<14,000 [UB]	<14,000	<14,000 [UB]	<13,000
Cadmium	990	4,980	990	34	74	40	430	260	160	<140	30	<130	120	47	310	40
Chromium, Total	43,400	111,000	NCL	2,800	4,900	2,900	13,000	***47,000***	5,800	4,000	6,100	5,400	***78,000***	2,100	***320,000***	4,200
Hexavalent Chromium	NCL	NCL	NCL	<1,300	<1,300	<1,300	<2,100	<1,800	<1,600	<1,300	<1,100	<1,100	<1,300	<1,300	3,800	<1,200
Cobalt	NCL	NCL	NCL	860	2,200	1,300	3,000	3,600	2,300	1,100	2,000	1,300	1,700	730	3,300	750
Copper	31,600	149,000	31,600	1,000	1,800	1,200	7,900	6,600	3,800	1,100	1,800	1,300	21,000	1,000	9,400	370
Iron	NCL	NCL	NCL	2,300,000	8,200,000	5,300,000	12,000,000	13,000,000	6,300,000	3,200,000 [J]	6,800,000 [J]	4,100,000	4,300,000	2,500,000	9,800,000	3,400,000
Lead	35,800	128,000	35,800	2,400	2,200	2,300	19,000	9,300	2,400	1,200	1,800	1,400	6,400	1,400	22,000	1,400
Magnesium	NCL	NCL	NCL	1,200,000	6,200,000 [J]	2,000,000 [J]	3,300,000	3,100,000	2,200,000	3,200,000 [J]	9,000,000 [J]	3,500,000	8,000,000	1,100,000	3,600,000	410,000
Mercury	180	1,060	174	<110	<100	<98	120	90	<130	<96	<85	19	***600***	<94	***540***	<89
Molybdenum	NCL	NCL	NCL	<2,900	<3,000	<2,700	<4,100	<3,800	<3,800	<2,600	<2,400	<2,600	<2,600	<2,800	<2,800	<2,500
Nickel	22,700	48,600	22,700	1,600	2,800	2,200	6,200	7,600	3,400	2,300 [J]	5,000 [J]	2,400	3,400	1,100	6,400	1,200
Selenium	NCL	NCL	NCL	<1,500	<1,500	<1,400	850	<2,000	<2,000	<1,400	<1,200	<1,300	<1,400	<1,400	<1,400	<1,300
Silver	NCL	NCL	500	<290	<300	<270	180	<380	<380	<260	<240	<260	<260	<280	<280	<250
Sodium	NCL	NCL	NCL	<110,000	69,000	99,000	99,000	80,000	<150,000	<100,000	43,000	<100,000	<100,000	<110,000	82,000	110,000
Thallium	NCL	NCL	NCL	<150	52	<140	120	140	62	34	32	<130	50	<140	130	36
Vanadium	NCL	NCL	12	***3,300***	***8,800 [J]***	***4,700 [J]***	***13,000***	***17,000***	***8,200***	***4,200 [J]***	***7,400 [J]***	***5,300***	***5,700***	***2,600***	***8,800***	***4,700***
Zinc	121,000	459,000	121,000	7,200	12,000	7,700	54,000	40,000	16,000	7,200	11,000	9,000	19,000	7,100	47,000	5,500
Titanium	NCL	NCL	NCL	79,000	360,000 [J]	89,000 [J]	200,000	240,000	130,000	74,000 [J]	230,000 [J]	120,000	100,000	59,000	220,000	97,000

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-1
Sample Name				TA-SED-T3-1A (0-1)	TA-SED-T3-1A (2-3)	TA-SED-T3-1A (5-6)	TA-SED-T3-2 (0-1.2)	TA-SED-T3-2 (1.7-2.7)	TA-SED-T3-2 (4-5)	TA-SED-T3-2 (6.2-7.2)	TA-SED-T3-3 (0-1)	TA-SED-T3-3 (2-3)	TA-SED-T3-3 (5-6)	TA-SED-T4-1 (0-1)	TA-SED-T4-1 (2.5-3.5)	TA-SED-T4-1 (3.5-4.5)
Depth Interval (Feet below ground surface)				0 - 1	2 - 3	5 - 6	0 - 1.2	1.7 - 2.7	4 - 5	6.2 - 7.2	0 - 1	2 - 3	5 - 6	0 - 1	2.5 - 3.5	3.5 - 4.5
Laboratory Sample ID(s)				TF22021-008	TF22021-009	TF22021-010	TF22021-004	TF22021-005	TF22021-006	TF22021-007	TF22021-001	TF22021-002	TF22021-003	TF22021-020	TF22021-021	TF22021-022
Sample Date				6/22/2018	6/22/2018	6/22/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/25/2018	6/25/2018	6/25/2018
Parameter (µg/kg)																
Aluminum	NCL	NCL	NCL	6,400,000 [J]	2,400,000	2,200,000	490,000	6,300,000	3,300,000	7,600,000	3,700,000	6,600,000	3,700,000	1,200,000 [J]	2,400,000	1,300,000
Antimony	NCL	NCL	NCL	<1,500 [UJ]	<750	<500	<410	570	<610	<720	<880	<840	<680	<500 [UJ]	<500	<600
Arsenic	9,790	33,000	9,790	5,600 [J]	2,900	1,100	420	***100,000***	4,100	8,300	4,300	***23,000***	1,500	740 [J]	2,100	1,300
Barium	NCL	NCL	NCL	98,000 [J]	31,000	29,000	3,800	110,000	41,000	88,000	59,000	93,000	28,000	6,600	23,000	12,000
Beryllium	NCL	NCL	NCL	150 [J]	66	54	<81	130	78	100	100	130	57	44 [J-]	55	42
Boron	NCL	NCL	NCL	<39,000 [UB]	<20,000 [UB]	<13,000 [UB]	<11,000	<25,000 [UB]	<16,000 [UB]	<19,000 [UB]	<23,000 [UB]	<22,000 [UB]	<18,000 [UB]	<13,000 [UB]	<13,000 [UB]	<16,000
Cadmium	990	4,980	990	480 [J]	180	140	<110	660	260	330	320	460	200	25	130	49
Chromium, Total	43,400	111,000	NCL	17,000 [J]	7,100	6,500	1,400	***2,800,000***	***290,000***	***86,000***	15,000	***600,000***	8,500	3,700	***140,000***	12,000
Hexavalent Chromium	NCL	NCL	NCL	<3,700 [UJ]	<1,800	<1,200	<1,200	8,100	1,300	<1,900	<2,600	1,100	<1,700	<1,200	<1,500	<1,200
Cobalt	NCL	NCL	NCL	4,300 [J]	2,100	1,400	540	4,100	2,400	5,100	2,900	4,500	2,600	1,200 [J]	1,800	1,100
Copper	31,600	149,000	31,600	12,000 [J]	3,600	1,500	270	20,000	5,400	9,500	8,800	11,000	4,300	760 [J]	2,900	1,300
Iron	NCL	NCL	NCL	17,000,000 [J]	7,400,000	4,300,000	1,400,000	16,000,000	8,500,000	16,000,000	11,000,000	16,000,000	8,300,000	3,400,000	5,800,000	3,500,000
Lead	35,800	128,000	35,800	16,000 [J]	8,900	2,000	840	***80,000***	7,600	11,000	12,000	33,000	4,100	1,100	4,100	1,800
Magnesium	NCL	NCL	NCL	4,600,000 [J]	2,500,000	720,000	1,100,000	4,100,000	2,400,000	4,600,000	3,100,000	4,400,000	960,000	2,100,000 [J]	1,800,000	1,700,000
Mercury	180	1,060	174	110 [J]	62	<99	<94	***30,000***	***200***	54	79	***11,000***	34	<94	47	<87
Molybdenum	NCL	NCL	NCL	<7,500 [UJ]	<3,800	<2,500	<2,000	<4,800	<3,000	<3,600	<4,400	<4,200	<3,400	<2,500	<2,500	<3,000
Nickel	22,700	48,600	22,700	8,100 [J]	3,500	3,000	790	8,700	4,600	10,000	5,700	9,000	3,800	2,100 [J]	3,900	2,200
Selenium	NCL	NCL	NCL	<3,900 [UJ]	<2,000	<1,300	<1,100	1,100	<1,600	780	<2,300	<2,200	<1,800	<1,300 [UJ]	<1,300	<1,600
Silver	NCL	NCL	500	<750 [UJ]	<380	<250	<200	<480	<300	<360	<440	<420	<340	<250	<250	<300
Sodium	NCL	NCL	NCL	190,000 [J]	57,000	<99,000	<81,000	130,000	51,000	110,000	110,000	110,000	90,000	55,000 [J]	49,000	<120,000
Thallium	NCL	NCL	NCL	160 [J]	67	45	<110	230	94	190	110	200	100	<130	73	<160
Vanadium	NCL	NCL	12	***18,000 [J]***	***8,700***	***8,800***	***2,100***	<2,500	***3,400***	***23,000***	***12,000***	***6,900***	***15,000***	***4,400***	***7,700***	***4,700***
Zinc	121,000	459,000	121,000	66,000 [J]	30,000	6,500	4,000	94,000	28,000	51,000	47,000	73,000	13,000	6,300 [J]	18,000	8,100
Titanium	NCL	NCL	NCL	250,000 [J]	140,000	110,000	56,000	270,000	140,000	280,000	180,000	300,000	240,000	120,000 [J-]	140,000	110,000

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-3	TA-SED-T4-3	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T5-1	TA-SED-T5-1	TA-SED-T5-2	TA-SED-T5-2
Sample Name				TA-SED-T4-2 (0-1)	TA-SED-T4-2 (1-2)	TA-SED-T4-2 (2-3)	TA-SED-T4-3 (0-1)	TA-SED-T4-3 (1-1.7)	TA-SED-T4-ISLAND (0-0.5)	TA-SED-T4-ISLAND (4-5)	TA-SED-T4-ISLAND (6-7)	TA-SED-T5-1 (0-1)	TA-SED-T5-1 (1-2)	TA-SED-T5-2 (0-1)	TA-SED-T5-2 (1.7-2.7)
Depth Interval (Feet below ground surface)				0 - 1	1 - 2	2 - 3	0 - 1	1 - 1.7	0 - 0.5	4 - 5	6 - 7	0 - 1	1 - 2	0 - 1	1.7 - 2.7
Laboratory Sample ID(s)				TG03001-016	TG03001-017	TG03001-018	TG03001-001	TG03001-002	TG14035-001	TG14035-002	TG14035-003	TF22021-023	TF26016-005	TF26016-011	TF26016-012
Sample Date				6/29/2018	6/29/2018	6/29/2018	7/2/2018	7/2/2018	7/11/2018	7/12/2018	7/12/2018	6/25/2018	6/25/2018	6/26/2018	6/26/2018
Parameter (µg/kg)															
Aluminum	NCL	NCL	NCL	9,700,000 [J]	7,600,000 [J]	6,800,000	13,000,000 [J]	13,000,000 [J]	10,000,000 [J]	15,000,000	1,900,000	820,000	1,600,000	1,000,000	3,100,000
Antimony	NCL	NCL	NCL	<2,500 [UJ]	<1,100 [UJ]	<900	<2,300 [UJ]	870 [J]	<2,300 [UJ]	<1,300	<400	<420	<560	<510	<590
Arsenic	9,790	33,000	9,790	6,600 [J]	6,400 [J]	***17,000***	***11,000 [J]***	***11,000 [J]***	7,200 [J]	***50,000***	1,900	1,300	2,100	620	2,900
Barium	NCL	NCL	NCL	130,000 [J]	88,000 [J]	60,000	210,000 [J]	190,000 [J]	100,000 [J]	140,000	14,000	8,500	8,700	5,300	21,000
Beryllium	NCL	NCL	NCL	210 [J]	140 [J]	93	320 [J]	210 [J]	230 [J]	180	40	29	86	54	140
Boron	NCL	NCL	NCL	<65,000 [UJ]	<28,000 [UJ]	<23,000	<59,000 [UJ]	<42,000 [UJ]	<60,000 [UJ]	<33,000	<10,000	<11,000 [UB]	<15,000 [UB]	<13,000 [UB]	<15,000 [UB]
Cadmium	990	4,980	990	820 [J]	550 [J]	290	***1,700 [J]***	***1,500 [J]***	700 [J]	830	58	29	38	<130	120
Chromium, Total	43,400	111,000	NCL	***72,000 [J]***	***86,000 [J]***	***610,000***	***160,000 [J]***	***150,000 [J]***	42,000 [J]	***1,100,000***	35,000	2,700	8,000	3,100	***49,000***
Hexavalent Chromium	NCL	NCL	NCL	<300,000 [UJ]	<140,000 [UJ]	<94,000 [UJ]	<240,000 [UJ]	<84,000 [UJ]	<250,000 [UJ]	<130,000 [UJ]	<52,000 [UJ]	<1,100	<1,200	<1,100	640
Cobalt	NCL	NCL	NCL	5,000 [J]	3,900 [J]	3,100	6,300 [J]	5,800 [J]	4,600 [J]	5,500	1,000	1,200	1,700	1,000	1,900
Copper	31,600	149,000	31,600	26,000 [J]	21,000 [J]	9,300	***81,000 [J]***	***66,000 [J]***	21,000 [J]	19,000	1,800	720	2,200	730	3,300
Iron	NCL	NCL	NCL	22,000,000 [J]	13,000,000 [J]	9,900,000	28,000,000 [J]	27,000,000 [J]	16,000,000 [J]	18,000,000	2,900,000	3,500,000	4,600,000	2,700,000	5,700,000
Lead	35,800	128,000	35,800	***42,000 [J]***	33,000 [J]	18,000	***100,000 [J]***	***100,000 [J]***	32,000 [J]	***59,000***	2,300	1,300	2,300	1,200	3,900
Magnesium	NCL	NCL	NCL	8,200,000 [J]	6,200,000 [J]	7,200,000	11,000,000 [J]	9,900,000 [J]	7,600,000 [J]	8,300,000	2,600,000	6,200,000	6,100,000	2,300,000	2,400,000
Mercury	180	1,060	174	150 [J]	***680 [J]***	***6,700***	***640 [J]***	***830 [J]***	120 [J]	***20,000***	51	<88	<94	<89	<89
Molybdenum	NCL	NCL	NCL	<12,000 [UJ]	<5,400 [UJ]	<4,500	<11,000 [UJ]	<8,100. [UJ]	<11,000 [UJ]	<6,300	<2,000	<2,100	<2,800	<2,600	<3,000
Nickel	22,700	48,600	22,700	13,000 [J]	9,000 [J]	7,400	18,000 [J]	17,000 [J]	11,000 [J]	14,000	2,100	1,600	3,000	2,000	4,000
Selenium	NCL	NCL	NCL	2,500 [J]	2,200 [J]	<2,300	<5,900 [UJ]	2,700 [J]	2,300 [J]	2,200	<1,000	<1,100	<1,500	<1,300	<1,500
Silver	NCL	NCL	500	<1,200 [UJ]	<540 [UJ]	<450	<1,100 [UJ]	<810 [UB]	<1,100 [UJ]	<630	<200	<210	<280	<260	<300
Sodium	NCL	NCL	NCL	400,000 [J]	680,000 [J]	540,000	320,000 [J]	250,000 [J]	260,000 [J]	120,000	32,000	73,000	58,000	<100,000	<120,000
Thallium	NCL	NCL	NCL	200 [J]	150 [J]	120	290 [J]	280 [J]	210 [J]	290	36	27	<150	<130	52
Vanadium	NCL	NCL	12	***18,000 [J]***	***18,000 [J]***	***17,000***	***30,000 [J]***	***30,000 [J]***	***20,000 [J]***	***32,000***	***4,700***	***4,000***	***8,300***	***4,000***	***7,900***
Zinc	121,000	459,000	121,000	***130,000 [J]***	100,000 [J]	53,000	***460,000 [J]***	***430,000 [J]***	110,000 [J]	110,000	9,000	7,800	9,100	6,100	19,000
Titanium	NCL	NCL	NCL	320,000 [J]	240,000 [J]	260,000	380,000 [J]	390,000 [J]	300,000 [J]	400,000	98,000	79,000	120,000	100,000	140,000

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T5-2	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-3	TA-SED-T6-3
Sample Name				TA-SED-T5-2 (3.7-4.7)	TA-SED-T5-3 (0-1)	TA-SED-T5-3 (2-3)	TA-SED-T5-3 (4-5)	TA-SED-T5-3 (6-7)	TA-SED-T6-1 (0-1)	TA-SED-T6-1 (2.5-3.5)	TA-SED-T6-1 (4.1-5.1)	TA-SED-T6-2 (0-1)	TA-SED-T6-2 (2-3)	TA-SED-T6-2 (3.6-4.6)	TA-SED-T6-3 (0-1)	TA-SED-T6-3 (2-3)
Depth Interval (Feet below ground surface)				3.7 - 4.7	0 - 1	2 - 3	4 - 5	6 - 7	0 - 1	2.5 - 3.5	4.1 - 5.1	0 - 1	2 - 3	3.6 - 4.6	0 - 1	2 - 3
Laboratory Sample ID(s)				TF26016-013	TF26016-007	TF26016-008	TF26016-009	TF26016-010	TF26016-014	TF26016-015	TF26016-016	TF28027-001	TF28027-002	TF28027-003	TF26016-017	TF26016-018
Sample Date				6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/26/2018	6/26/2018
Parameter (µg/kg)																
Aluminum	NCL	NCL	NCL	4,600,000	2,100,000	1,000,000	7,100,000	4,600,000	4,800,000	3,500,000	2,400,000	1,100,000	1,400,000	9,100,000	1,300,000	3,100,000
Antimony	NCL	NCL	NCL	<630	<610	<410	<780	<530	<850	<600	<670	<530	<480	<850	<460	<720
Arsenic	9,790	33,000	9,790	4,900	1,700	950	6,200	3,600	2,800	2,100	1,500	760	1,200	5,900	1,100	2,200
Barium	NCL	NCL	NCL	37,000	20,000	5,000	60,000	39,000	47,000	27,000	17,000	6,200	5,800	64,000	7,900	30,000
Beryllium	NCL	NCL	NCL	170	93	42	300	220	200	140	98	44	39	110	60	130
Boron	NCL	NCL	NCL	<16,000 [UB]	<16,000 [UB]	<11,000 [UB]	<20,000 [UB]	<14,000 [UB]	<22,000 [UB]	<16,000 [UB]	<17,000 [UB]	<14,000	<12,000	<22,000	<12,000 [UB]	<19,000 [UB]
Cadmium	990	4,980	990	180	98	24	360	160	230	110	79	<140	<120	320	39	170
Chromium, Total	43,400	111,000	NCL	***320,000***	4,500	2,800	***640,000***	9,300	9,400	6,200	4,500	2,700	4,100	28,000	2,500	7,400
Hexavalent Chromium	NCL	NCL	NCL	<1,500	<1,800	<1,200	3,300	<1,500	<1,900	<1,400	<1,400	<1,200	<1,100	<1,800	<1,300	<1,600
Cobalt	NCL	NCL	NCL	2,700	1,400	960	3,200	2,800	2,700	1,800	1,300	940	1,100	4,200	1,200	1,800
Copper	31,600	149,000	31,600	5,200	3,700	1,200	8,500	4,000	7,100	3,200	2,200	910	1,100	7,900	1,600	4,800
Iron	NCL	NCL	NCL	9,400,000	4,200,000	2,600,000	12,000,000	8,500,000	9,200,000	6,300,000	3,700,000	2,800,000	3,400,000	14,000,000	2,900,000	6,800,000
Lead	35,800	128,000	35,800	6,900	3,800	2,000	11,000	4,200	8,500	2,400	1,700	1,200	1,300	7,100	1,800	9,100
Magnesium	NCL	NCL	NCL	4,500,000	2,200,000	3,300,000	3,200,000	1,800,000	2,700,000	1,900,000	1,900,000	2,200,000	5,700,000	4,000,000	1,600,000	2,300,000
Mercury	180	1,060	174	100	<130	<93	67	51	52	<110	<110	<94	24	51	<95	69
Molybdenum	NCL	NCL	NCL	<3,100	<3,100	<2,100	<3,900	<2,700	<4,300	<3,000	<3,300	<2,600	<2,400	<4,200	<2,300	<3,600
Nickel	22,700	48,600	22,700	5,300	2,700	1,900	7,200	4,700	5,700	3,600	2,600	1,800	2,500	8,300	1,800	3,700
Selenium	NCL	NCL	NCL	<1,600	<1,600	<1,100	<2,000	<1,400	<2,200	<1,600	<1,700	<1,400	<1,200	880	<1,200	<1,900
Silver	NCL	NCL	500	<310	<310	<210	<390	<270	<430	<300	<330	<260	<240	<420	<230	<360
Sodium	NCL	NCL	NCL	57,000	<120,000	<82,000	69,000	61,000	<170,000	<120,000	<130,000	<110,000	<95,000	<170,000	<91,000	<140,000
Thallium	NCL	NCL	NCL	93	38	<110	170	73	77	42	<170	39	<120	140	<120	54
Vanadium	NCL	NCL	12	***13,000***	***5,300***	***3,800***	***2,900***	***11,000***	***11,000***	***8,200***	***5,900***	***4,300***	***5,400***	***19,000***	***3,900***	***8,000***
Zinc	121,000	459,000	121,000	28,000	18,000	7,600	49,000	20,000	37,000	18,000	12,000	6,100	6,300	39,000	9,800	29,000
Titanium	NCL	NCL	NCL	220,000	87,000	84,000	210,000	160,000	160,000	140,000	110,000	87,000	97,000	290,000	81,000	150,000

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T6-3	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-2	TA-SED-T7-2	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T8-1
Sample Name				TA-SED-T6-3 (3.8-4.8)	TA-SED-T7-1 (0-1)	TA-SED-T7-1 (2-3)	TA-SED-T7-1 (4.2-5.2)	TA-SED-T7-1 (6.4-7.4)	TA-SED-T7-2 (0-1)	TA-SED-T7-2 (1-2)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T7-ISLAND (1-2)	TA-SED-T7-ISLAND (3-4)	TA-SED-T7-ISLAND (6-7)	TA-SED-T8-1 (0-1)
Depth Interval (Feet below ground surface)				3.8 - 4.8	0 - 1	2 - 3	4.2 - 5.2	6.4 - 7.4	0 - 1	1 - 2	0 - 0.5	1 - 2	3 - 4	6 - 7	0 - 1
Laboratory Sample ID(s)				TF26016-019	TF28027-004	TF28027-005	TF28027-006	TF28027-007	TF26016-021	TF26016-022	TG11006-001	TG14035-004	TG14035-005	TG14035-006	TF28027-013
Sample Date				6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	7/9/2018	7/13/2018	7/13/2018	7/13/2018	6/28/2018
Parameter (µg/kg)															
Aluminum	NCL	NCL	NCL	7,600,000	2,500,000	12,000,000	5,900,000	6,200,000	6,500,000 [J]	4,900,000	3,200,000	2,200,000	4,400,000	3,500,000	9,400,000
Antimony	NCL	NCL	NCL	440	<520	<890	<620	<640	<1,700 [UJ]	<930	<700	<670	<780	<610	<1,400
Arsenic	9,790	33,000	9,790	***59,000***	1,400	5,700	2,500	3,100	6,300 [J]	3,300	2,200	1,400	3,300	2,300	6,100
Barium	NCL	NCL	NCL	66,000	8,200	93,000	39,000	32,000	84,000 [J]	50,000	28,000	15,000	50,000	32,000	84,000
Beryllium	NCL	NCL	NCL	310	45	130	85	70	300 [J]	180	74	54	93	80	180
Boron	NCL	NCL	NCL	<22,000 [UB]	<13,000	<23,000	<16,000 [UB]	<17,000 [UB]	<44,000 [UB]	<24,000 [UB]	<18,000	<18,000	<20,000	<16,000	<38,000
Cadmium	990	4,980	990	280	36	480	160	120	370 [J]	190	150	87	310	190	510
Chromium, Total	43,400	111,000	NCL	***940,000***	7,900	19,000	9,100	10,000	13,000 [J]	9,000	5,600	4,300	8,600	6,300	16,000
Hexavalent Chromium	NCL	NCL	NCL	440	<1,100	<2,100	<1,400	<1,500	<3,800 [UJ]	<2,400	<76,000	<83,000 [UJ]	<97,000 [UJ]	<72,000 [UJ]	<3,300
Cobalt	NCL	NCL	NCL	3,700	2,100	4,800	2,500	3,300	3,500 [J]	2,400	1,700	1,200	2,400	1,900	4,400
Copper	31,600	149,000	31,600	12,000	2,500	20,000	4,400	4,500	9,600 [J]	5,400	4,300 [J-]	2,000	7,200	4,700	14,000
Iron	NCL	NCL	NCL	14,000,000	6,700,000	18,000,000	8,400,000	12,000,000	14,000,000 [J]	9,700,000	6,200,000	3,600,000	9,700,000	6,300,000	17,000,000
Lead	35,800	128,000	35,800	22,000	1,800	14,000	4,400	3,900	10,000 [J]	4,500	5,600	2,700	16,000	8,000	14,000
Magnesium	NCL	NCL	NCL	3,700,000	3,700,000	4,000,000	2,400,000	4,900,000	2,700,000 [J]	1,700,000	3,300,000	3,500,000	4,300,000	3,000,000	4,400,000
Mercury	180	1,060	174	***210***	<82	***530***	<110	<110	130 [J]	45	<120	61	72	<100	120
Molybdenum	NCL	NCL	NCL	<4,200	<2,600	<4,400	<3,100	<3,200	<8,400 [UJ]	<4,700	<3,500	<3,400	<3,900	<3,000	<7,200
Nickel	22,700	48,600	22,700	7,700	5,200	11,000	5,400	7,500	7,300 [J]	6,200	3,400 [J-]	2,700	5,300	3,800	9,600
Selenium	NCL	NCL	NCL	<2,200	<1,300	1,300	<1,600	<1,700	<4,400 [UJ]	<2,400	<1,800	<1,800	1,100	660	1,700
Silver	NCL	NCL	500	<420	<260	110	<310	<320	<840 [UJ]	<470	<350 [UJ]	<340	<390	<300	<720
Sodium	NCL	NCL	NCL	<170,000	48,000	80,000	45,000	48,000	780,000 [J]	760,000	52,000	<130,000	69,000	46,000	<290,000
Thallium	NCL	NCL	NCL	200	<130	170	74	63	100 [J]	100	53	<180	98	69	130
Vanadium	NCL	NCL	12	<2,200	***7,800***	***23,000***	***12,000***	***13,000***	***14,000 [J]***	***12,000***	***8,200***	***5,400***	***10,000***	***8,100***	***19,000***
Zinc	121,000	459,000	121,000	59,000	12,000	78,000	25,000	24,000	***130,000 [J]***	27,000	22,000 [J-]	13,000	49,000	27,000	69,000
Titanium	NCL	NCL	NCL	250,000	190,000	290,000	190,000	270,000	210,000 [J]	180,000	170,000	120,000	160,000	140,000	270,000

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-2
Sample Name				TA-SED-T8-1 (1.5-2.5)	TA-SED-T8-1 (4-5)	TA-SED-T8-2 (0-1)	TA-SED-T8-2 (1-2)	TA-SED-T8-2 (3-4.1)	TA-SED-T8-3 (0-1)	TA-SED-T8-3 (1.5-2.5)	TA-SED-T8-3 (1.5-2.5) DUP	TA-SED-T8-3 (3-4)	TA-SED-T9-1 (0-1)	TA-SED-T9-1 (2-3)	TA-SED-T9-1 (4-5)	TA-SED-T9-2 (0-1)
Depth Interval (Feet below ground surface)				1.5 - 2.5	4 - 5	0 - 1	1 - 2	3 - 4.1	0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	2 - 3	4 - 5	0 - 1
Laboratory Sample ID(s)				TF28027-014	TF28027-015	TG03001-013	TG03001-014	TG03001-015	TF28027-009	TF28027-010	TF28027-011	TF28027-012	TG03001-021	TG03001-019	TG03001-022	TF28027-017
Sample Date				6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/28/2018
Parameter (µg/kg)																
Aluminum	NCL	NCL	NCL	4,700,000	5,600,000	3,700,000	5,600,000	4,900,000	3,200,000	10,000,000	9,900,000	3,900,000	9,900,000 [J]	11,000,000	6,000,000	4,700,000
Antimony	NCL	NCL	NCL	<790	<650	<590	<620	<710	<730	<1,400	<960	<850	<1,700 [UJ]	<780	<800	<840
Arsenic	9,790	33,000	9,790	3,300	3,100	2,600	3,100	2,300	2,800	7,300	6,500	4,100	6,400 [J]	6,200	4,500	3,100
Barium	NCL	NCL	NCL	39,000	33,000	29,000	38,000	36,000	32,000	100,000	91,000	47,000	110,000 [J]	90,000	49,000	42,000
Beryllium	NCL	NCL	NCL	110	76	82	68	72	92	180	110	110	190 [J]	120	100	74 [J-]
Boron	NCL	NCL	NCL	<20,000	<17,000	<15,000	<16,000	<18,000	<19,000	<37,000	<25,000	<22,000 [UB]	<45,000 [UJ]	<20,000	<21,000	<22,000 [UJ]
Cadmium	990	4,980	990	220	120	160	160	150	180	580	520	310	460 [J]	470	210	240
Chromium, Total	43,400	111,000	NCL	8,600	8,400	6,600	9,000	12,000	6,500	18,000	16,000	8,700	19,000 [J]	18,000	9,800	8,300
Hexavalent Chromium	NCL	NCL	NCL	<1,900	<1,400	<31,000	<80,000	<77,000 [UJ]	<1,700	<3,000	<2,200	<2,000	<200,000 [UR]	<100,000 [UJ]	<88,000 [UJ]	<2,000 [UR]
Cobalt	NCL	NCL	NCL	2,500	2,700	2,300	2,600	2,700	2,100	5,000	4,600	2,600	4,600 [J]	4,700	2,800	2,700
Copper	31,600	149,000	31,600	6,300	4,100	4,400	4,600	5,200	4,600	14,000	13,000	6,600	16,000 [J]	17,000	5,000	5,900
Iron	NCL	NCL	NCL	8,800,000	7,900,000	7,200,000	7,700,000	8,700,000	6,900,000	20,000,000	18,000,000	10,000,000	19,000,000 [J]	19,000,000	11,000,000	8,600,000
Lead	35,800	128,000	35,800	8,200	3,600	4,700	4,500	2,400	6,400	25,000	20,000	11,000	17,000 [J]	15,000	4,900	10,000
Magnesium	NCL	NCL	NCL	3,000,000	2,500,000	3,700,000	4,700,000	10,000,000	2,700,000	4,800,000	4,000,000	2,600,000	5,700,000 [J]	6,400,000	4,200,000	2,700,000 [J]
Mercury	180	1,060	174	57	27	76	<130	<120	51	150	120	140	79 [J]	***380***	<130	74
Molybdenum	NCL	NCL	NCL	<3,900	<3,200	<3,000	<3,100	<3,500	<3,700	<7,000	<4,800	<4,300	<8,700 [UJ]	<3,900	<4,000	<4,200
Nickel	22,700	48,600	22,700	5,100	4,800	4,400	5,500	6,100	3,800	10,000	9,600	4,600	10,000 [J]	12,000	5,800	4,800
Selenium	NCL	NCL	NCL	<2,000	<1,700	<1,500	750	700	<1,900	1,500	1,800	970	<4,500 [UJ]	1,200	<2,100	<2,200 [UJ]
Silver	NCL	NCL	500	<390	<320	<300	<310	<350	<370	<700	120	100	<870 [UJ]	<390	<400	<420
Sodium	NCL	NCL	NCL	64,000	<130,000	<120,000	<120,000	61,000	<150,000	130,000	91,000	110,000	<350,000 [UJ]	58,000	<160,000	<170,000
Thallium	NCL	NCL	NCL	70	60	65	72	50	64	170	140	86	140 [J]	160	120	80
Vanadium	NCL	NCL	12	***10,000***	***13,000***	***9,600***	***13,000***	***18,000***	***8,600***	***21,000***	***19,000***	***9,000***	***22,000 [J]***	***24,000***	***14,000***	***11,000***
Zinc	121,000	459,000	121,000	35,000	18,000	24,000	25,000	23,000	28,000	86,000	75,000	39,000	73,000 [J]	76,000	27,000	37,000 [J]
Titanium	NCL	NCL	NCL	170,000	240,000	160,000	210,000	230,000	170,000	290,000	260,000	160,000	330,000 [J]	360,000	250,000	190,000 [J]

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-3	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1
Sample Name				TA-SED-T9-2 (2-3)	TA-SED-T9-2 (4-5)	TA-SED-T9-2 (5-6)	TA-SED-T9-3 (0-1)	TA-SED-T9-ISLAND (0-0.5)	TA-SED-T9-ISLAND (1-2)	TA-SED-T9-ISLAND (4-5)	TA-SED-T9-ISLAND (6.5-7.5)	TA-SED-T10-1 (0-1)	TA-SED-T10-1 (1.5-2.5)	TA-SED-T10-1 (1.5-2.5) DUP
Depth Interval (Feet below ground surface)				2 - 3	4 - 5	5 - 6	0 - 1	0 - 0.5	1 - 2	4 - 5	6.5 - 7.5	0 - 1	1.5 - 2.5	1.5 - 2.5
Laboratory Sample ID(s)				TF28027-018	TF28027-019	TF28027-020	TG03032-005	TG14035-007	TG14035-008	TG14035-009	TG14035-010	TG03032-001	TG03032-002	TG03032-003
Sample Date				6/28/2018	6/28/2018	6/28/2018	6/29/2018	7/13/2018	7/13/2018	7/13/2018	7/13/2018	6/29/2018	6/29/2018	6/29/2018
Parameter (µg/kg)														
Aluminum	NCL	NCL	NCL	11,000,000	4,800,000	9,800,000	13,000,000 [J]	9,900,000	10,000,000 [J]	7,900,000	7,000,000	6,300,000	5,700,000	5,500,000
Antimony	NCL	NCL	NCL	<970	<640	<820	<2,000 [UJ]	<1,500	<1,600 [UJ]	<850	<660	<1,200	<730	<620
Arsenic	9,790	33,000	9,790	6,300	3,100	6,200	6,400 [J]	6,600	7,100 [J]	4,000	3,100	4,500	2,900	2,300
Barium	NCL	NCL	NCL	79,000	32,000	79,000	120,000 [J]	120,000	110,000 [J]	71,000	52,000	65,000 [J]	42,000	36,000
Beryllium	NCL	NCL	NCL	140	84	140	210 [J]	200	200 [J]	100	89	130 [J-]	98	79
Boron	NCL	NCL	NCL	<25,000	<17,000	<21,000	<51,000 [UJ]	<39,000	<41,000 [UJ]	<22,000	<17,000	<30,000 [UJ]	<19,000	<16,000
Cadmium	990	4,980	990	450	130	340	960 [J]	530	570 [J]	330	210	290	200	150
Chromium, Total	43,400	111,000	NCL	16,000	7,300	16,000	42,000 [J]	17,000	17,000 [J]	12,000	9,700	11,000	10,000	8,800
Hexavalent Chromium	NCL	NCL	NCL	<2,100	<1,400	<93,000	<200,000 [UR]	<160,000 [UJ]	<170,000 [UJ]	<95,000 [UJ]	<81,000 [UJ]	<130,000 [UR]	<38,000 [UR]	<34,000 [UR]
Cobalt	NCL	NCL	NCL	5,000	2,300	4,600	5,500 [J]	4,400	4,400 [J]	3,200	3,000	3,200	2,900	2,500
Copper	31,600	149,000	31,600	11,000	3,800	6,100	23,000 [J]	15,000	15,000 [J]	8,000	5,500	11,000	7,400 [J]	4,400 [J]
Iron	NCL	NCL	NCL	16,000,000	7,400,000	18,000,000	26,000,000 [J]	18,000,000	17,000,000 [J]	12,000,000	9,100,000	12,000,000	9,600,000	7,300,000
Lead	35,800	128,000	35,800	13,000	3,400	5,500	***50,000 [J]***	22,000	30,000 [J]	13,000	6,700	11,000	7,000	5,200
Magnesium	NCL	NCL	NCL	4,100,000	2,100,000	3,400,000	7,100,000 [J]	6,700,000	7,300,000 [J]	5,500,000	4,800,000	4,400,000 [J]	5,500,000	6,600,000
Mercury	180	1,060	174	***250***	<120	37	***490 [J]***	140	140 [J]	***340***	<120	71	110	58
Molybdenum	NCL	NCL	NCL	<4,800	<3,200	<4,100	<9,900 [UJ]	<7,500	<7,900 [UJ]	<4,300	<3,300	<5,800	<3,700	<3,100
Nickel	22,700	48,600	22,700	9,900	4,400	8,500	13,000 [J]	10,000	10,000 [J]	7,600	6,600	6,400	6,300	5,300
Selenium	NCL	NCL	NCL	1,100	<1,700	820	2,900 [J]	<3,900	1,800 [J]	1,200	850	1,300	690	880
Silver	NCL	NCL	500	<480	<320	<410	<990 [UJ]	<750	<790 [UJ]	<430	<330	<580	<370	<310
Sodium	NCL	NCL	NCL	<190,000	<130,000	<160,000	<390,000 [UJ]	<300,000	<310,000 [UJ]	<170,000	<130,000	<230,000	<150,000	<120,000
Thallium	NCL	NCL	NCL	210	75	120	270 [J]	170	170 [J]	130	110	120	120	84
Vanadium	NCL	NCL	12	***21,000***	***11,000***	***22,000***	***25,000 [J]***	***20,000***	***20,000 [J]***	***16,000***	***15,000***	***14,000***	***13,000***	***13,000***
Zinc	121,000	459,000	121,000	59,000	19,000	38,000	***190,000 [J]***	83,000	94,000 [J]	49,000	33,000	49,000	37,000	28,000
Titanium	NCL	NCL	NCL	300,000	170,000	280,000	370,000 [J]	270,000	320,000 [J]	270,000	230,000	200,000 [J]	210,000	210,000

TABLE 8C
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - METALS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T10-1	TA-SED-T10-3	TA-SED-T10-3	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND
Sample Name				TA-SED-T10-1 (3-4)	TA-SED-T10-3 (0-1)	TA-SED-T10-3 (1-2)	TA-SED-T10-ISLAND (0-1)	TA-SED-T10-ISLAND (2-3)	TA-SED-T10-ISLAND (4-5)
Depth Interval (Feet below ground surface)				3 - 4	0 - 1	1 - 2	0 - 1	2 - 3	4 - 5
Laboratory Sample ID(s)				TG03032-004	TG03032-006	TG03032-007	TG24016-002	TG24016-003	TG24016-004
Sample Date				6/29/2018	6/29/2018	6/29/2018	7/23/2018	7/23/2018	7/23/2018
Parameter (µg/kg)									
Aluminum	NCL	NCL	NCL	8,400,000	5,300,000 [J]	7,100,000	1,500,000	4,900,000	1,100,000
Antimony	NCL	NCL	NCL	<1,200	<1,600 [UJ]	<860	<530	<800	<580
Arsenic	9,790	33,000	9,790	7,400	2,200 [J]	3,500	1,800	3,300	1,300
Barium	NCL	NCL	NCL	90,000	61,000 [J]	67,000	18,000	50,000	10,000
Beryllium	NCL	NCL	NCL	160	120 [J]	110	55	95	48
Boron	NCL	NCL	NCL	<32,000	<41,000 [UJ]	<22,000	<14,000 [UB]	<21,000 [UB]	<15,000
Cadmium	990	4,980	990	320	330 [J]	410	140	280	<150
Chromium, Total	43,400	111,000	NCL	16,000	13,000 [J]	17,000	4,500	14,000	3,200
Hexavalent Chromium	NCL	NCL	NCL	<130,000 [UR]	<180,000 [UR]	<90,000 [UR]	<1,500	<1,800	<1,400
Cobalt	NCL	NCL	NCL	4,400	2,500 [J]	3,000	1,200	3,100	840
Copper	31,600	149,000	31,600	8,900	8,600 [J]	9,300	2,300	6,800	1,200
Iron	NCL	NCL	NCL	20,000,000	11,000,000 [J]	10,000,000	4,300,000	10,000,000	3,100,000
Lead	35,800	128,000	35,800	5,600	13,000 [J]	15,000	4,800	12,000	1,500
Magnesium	NCL	NCL	NCL	6,600,000	4,500,000 [J]	4,500,000	1,100,000	2,200,000	3,100,000
Mercury	180	1,060	174	<200	99 [J]	***270***	32	160	<110
Molybdenum	NCL	NCL	NCL	<6,100	<7,900 [UJ]	<4,300	<2,600	<4,000	<2,900
Nickel	22,700	48,600	22,700	8,200	6,000 [J]	7,300	2,500	7,200	2,000
Selenium	NCL	NCL	NCL	1,600	<4,100 [UJ]	<2,200	<1,400	<2,100	<1,500
Silver	NCL	NCL	500	<610	<790 [UJ]	<430 [UB]	<260	<400	<290
Sodium	NCL	NCL	NCL	110,000	<320,000 [UJ]	<170,000	<110,000	<160,000	<120,000
Thallium	NCL	NCL	NCL	120	96 [J]	130	43	120	<150
Vanadium	NCL	NCL	12	***20,000***	***9,200 [J]***	***13,000***	***5,400***	***15,000***	***4,500***
Zinc	121,000	459,000	121,000	49,000	52,000 [J]	56,000	23,000	43,000	5,000
Titanium	NCL	NCL	NCL	260,000	180,000 [J]	200,000	100,000	220,000	120,000

TABLE 8D
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-BOAT RAMP	TA-SED-BOAT RAMP	TA-SED-EAST DAM	TA-SED-RC ACCESS	TA-SED-RC ACCESS	TA-SED-RC-1	TA-SED-RC-1	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-3	TA-SED-T1-1	TA-SED-T1-1	TA-SED-T1-3	TA-SED-T1-3
Sample Name				TA-SED-BOAT RAMP (0-1)	TA-SED-BOAT RAMP (1-1.9)	TA-SED-EAST DAM (0-0.5)	TA-SED-RC ACCESS (0-1)	TA-SED-RC ACCESS (1.5-2.5)	TA-SED-RC-1 (0-1)	TA-SED-RC-1 (1.2-2.2)	TA-SED-RC-2 (0-1)	TA-SED-RC-2 (1-2)	TA-SED-RC-2 (2-3)	TA-SED-RC-3 (0-0.4)	TA-SED-T1-1 (0-1)	TA-SED-T1-1 (0-1) DUP	TA-SED-T1-3 (0-1)	TA-SED-T1-3 (0-1) DUP
Depth Interval (Feet below ground surface)				0 - 1	1 - 1.9	0 - 0.5	0 - 1	1.5 - 2.5	0 - 1	1.2 - 2.2	0 - 1	1 - 2	2 - 3	0 - 0.4	0 - 1	0 - 1	0 - 1	0 - 1
Laboratory Sample ID(s)				TG03001-008 & 1807108-08A	TG03001-009 & 1807108-09A	TG24016-001 & 18071457-05A	TG03001-010 & 1807108-10A	TG03001-011 & 1807108-11A	TG03001-003 & 1807108-03A	TG03001-004 & 1807108-04A	TG03001-005 & 1807108-05A	TG03001-006 & 1807108-06A	TG03001-007 & 1807108-07A	TG03001-012 & 1807108-12A	TG24016-005 & 18071569-01A	TG24016-006 & 18071569-02A	TG24016-007 & 18071569-03A	TG24016-008 & 18071569-04A
Sample Date				7/2/2018	7/2/2018	7/23/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/24/2018	7/24/2018	7/24/2018	7/24/2018
Parameter (µg/kg)																		
Acetic Acid	NCL	NCL	NCL	<49,000	<47,000	<22,000 [UJ]	<32,000	<32,000	<21,000	<30,000	<26,000	<25,000	<26,000	<24,000	<25,000 [UJ]	<25,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]
Formic Acid	NCL	NCL	NCL	<49,000	<47,000	<22,000	<32,000	<32,000	<21,000	<30,000	<26,000	<25,000	<26,000	<24,000	<25,000 [UJ]	<25,000 [UJ]	<24,000 [UJ]	<24,000 [UJ]
Cyanide - Total	NCL	NCL	0.1	***28***	***370***	<270 [UB]	***140***	***55***	<140	***12***	***160***	***39***	***53***	***32***	<180 [UB]	<150 [UB]	<150 [UB]	<150 [UB]
Cyanide, Available	NCL	NCL	NCL	330 [J-]	490 [J-]	56	250 [J-]	260 [J-]	110 [J-]	130 [J-]	95 [J-]	130 [J-]	110 [J-]	130 [J-]	160	150	140	120
Ammonia - N (gas diffusion)	NCL	NCL	NCL	270,000	83,000	1,600	19,000	87,000	690	22,000	35,000	52,000	73,000	4,700	1,700	580	<1,300	1,200
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	710	2,100	150	410	300	180 [J-]	480	2,100	250	320	1,200	240	200	210	230
Chloride (soluble)	NCL	NCL	NCL	59,000	70,000	13,000	360,000	710,000	8,000	240,000	61,000	440,000	780,000	18,000	51,000	44,000	130,000	130,000
Phosphorus (total)	NCL	NCL	NCL	470,000	680,000	110,000	580,000	450,000	85,000	270,000	110,000	240,000	370,000	64,000	59,000	48,000	67,000	110,000
Sulfate (soluble)	NCL	NCL	NCL	1,400,000	2,900,000	590,000	1,100,000	1,100,000	190,000 [J+]	970,000	600,000	930,000	2,800,000	140,000	190,000	130,000	310,000	270,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	<270,000 [UJ]	<260,000 [UJ]	<110,000 [UJ]	<170,000 [UJ]	<180,000 [UJ]	<120,000 [UJ]	<150,000 [UJ]	<140,000 [UJ]	170,000 [J-]	<140,000 [UJ]	<130,000 [UJ]	<130,000 [UJ]	<130,000 [UJ]	<130,000 [UJ]	<120,000 [UJ]

TABLE 8D
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-2
Sample Name				TA-SED-T2-1 (0-1)	TA-SED-T2-1 (2-3)	TA-SED-T2-1 (4-5)	TA-SED-T2-2 (0-1)	TA-SED-T2-2 (0-1) DUP	TA-SED-T2-2 (2-3)	TA-SED-T2-2 (4-5)	TA-SED-T2-3 (0-1)	TA-SED-T2-3 (2-3)	TA-SED-T2-3 (4-5)	TA-SED-T3-1A (0-1)	TA-SED-T3-1A (2-3)	TA-SED-T3-1A (5-6)	TA-SED-T3-2 (0-1.2)	TA-SED-T3-2 (1.7-2.7)	TA-SED-T3-2 (4-5)
Depth Interval (Feet below ground surface)				0 - 1	2 - 3	4 - 5	0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	5 - 6	0 - 1.2	1.7 - 2.7	4 - 5
Laboratory Sample ID(s)				TF22021-011 & 18061582-04A	TF22021-012 & 18061582-05A	TF22021-013 & 18061582-06A	TF26016-001 & 18061661-01A	TF26016-002 & 18061661-02A	TF26016-003 & 18061661-03A	TF26016-004 & 18061661-04A	TF22021-014 & 18061582-07A	TF22021-015 & 18061582-08A	TF22021-016 & 18061582-09A	TF22021-008 & 18061582-01A	TF22021-009 & 18061582-02A	TF22021-010 & 18061582-03A	TF22021-004 & 18061486-04A	TF22021-005 & 18061486-05A	TF22021-006 & 18061486-06A
Sample Date				6/22/2018	6/22/2018	6/22/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/21/2018	6/21/2018	6/21/2018
Parameter (µg/kg)																			
Acetic Acid	NCL	NCL	NCL	<43,000	<37,000	<25,000	<21,000	<21,000	<21,000	<27,000	<24,000	<31,000	<24,000	<74,000 [UJ]	<36,000 [UJ]	<25,000 [UJ]	<21,000 [UJ]	<41,000 [UJ]	<30,000 [UJ]
Formic Acid	NCL	NCL	NCL	<43,000 [UJ]	<37,000 [UJ]	<25,000 [UJ]	<21,000	<21,000	<21,000	<27,000	<24,000 [UJ]	<31,000 [UJ]	<24,000 [UJ]	<74,000 [UJ]	<36,000 [UJ]	<25,000 [UJ]	<21,000 [UJ]	<41,000 [UJ]	<30,000 [UJ]
Cyanide - Total	NCL	NCL	0.1	<250	<220 [UB]	<200 [UB]	<150 [UB]	<130 [UB]	<260 [UB]	<160	<160 [UB]	<190 [UB]	<150 [UB]	<440 [UB]	<210 [UB]	<150 [UB]	<140 [UB]	<290 [UB]	<190 [UB]
Cyanide, Available	NCL	NCL	NCL	310	260	220	100	100	58	210	160	230	170	430 [J]	210	220	<47	470	220
Ammonia - N (gas diffusion)	NCL	NCL	NCL	27,000	110,000	55,000	<1,300	<1,100	<1,100	6,000	790	40,000	10,000	140,000 [J]	96,000 [J-]	66,000	<1,200	310,000	160,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	360	230	200	830 [J]	350 [J]	<220 [UJ]	130	290	230	150	800 [J]	270	130	220	410	190
Chloride (soluble)	NCL	NCL	NCL	33,000	25,000	17,000	3,800	3,200	2,600	7,700	10,000	23,000	170,000	72,000 [J]	22,000	3,200	6,300	39,000	17,000
Phosphorus (total)	NCL	NCL	NCL	320,000	290,000	200,000	78,000	78,000	93,000	96,000	70,000	420,000	89,000	610,000 [J]	300,000	230,000	56,000	1,000,000	320,000
Sulfate (soluble)	NCL	NCL	NCL	880,000	1,300,000	27,000	37,000	31,000	59,000	70,000	240,000	200,000	54,000	820,000 [J]	440,000	<12,000	30,000	66,000	39,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	<230,000 [UJ]	<190,000 [UJ]	<140,000 [UJ]	<23,000 [UJ]	<21,000 [UJ]	<21,000 [UJ]	<26,000 [UJ]	<130,000 [UJ]	<160,000 [UJ]	<120,000 [UJ]	<370,000 [UJ]	<180,000 [UJ]	<130,000 [UJ]	<120,000 [UJ]	<230,000 [UJ]	<160,000 [UJ]

TABLE 8D
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T3-2	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-3	TA-SED-T4-3	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T5-1
Sample Name				TA-SED-T3-2 (6.2-7.2)	TA-SED-T3-3 (0-1)	TA-SED-T3-3 (2-3)	TA-SED-T3-3 (5-6)	TA-SED-T4-1 (0-1)	TA-SED-T4-1 (2.5-3.5)	TA-SED-T4-1 (3.5-4.5)	TA-SED-T4-2 (0-1)	TA-SED-T4-2 (1-2)	TA-SED-T4-2 (2-3)	TA-SED-T4-3 (0-1)	TA-SED-T4-3 (1-1.7)	TA-SED-T4-ISLAND (0-0.5)	TA-SED-T4-ISLAND (4-5)	TA-SED-T4-ISLAND (6-7)	TA-SED-T5-1 (0-1)
Depth Interval (Feet below ground surface)				6.2 - 7.2	0 - 1	2 - 3	5 - 6	0 - 1	2.5 - 3.5	3.5 - 4.5	0 - 1	1 - 2	2 - 3	0 - 1	1 - 1.7	0 - 0.5	4 - 5	6 - 7	0 - 1
Laboratory Sample ID(s)				TF22021-007 & 18061486-07A	TF22021-001 & 18061486-01A	TF22021-002 & 18061486-02A	TF22021-003 & 18061486-03A	TF22021-020 & 18061661-05A	TF22021-021 & 18061661-06A	TF22021-022 & 18061661-07A	TG03001-016 & 1807095-04A	TG03001-017 & 1807095-05A	TG03001-018 & 1807095-06A	TG03001-001 & 1807108-01A	TG03001-002 & 1807108-02A	TG14035-001 & 1807816-01A	TG14035-002 & 1807816-02A	TG14035-003 & 1807816-03A	TF22021-023 & 18061661-08A
Sample Date				6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/25/2018	6/25/2018	6/25/2018	6/29/2018	6/29/2018	6/29/2018	7/2/2018	7/2/2018	7/11/2018	7/12/2018	7/12/2018	6/25/2018
Parameter (µg/kg)																			
Acetic Acid	NCL	NCL	NCL	<33,000 [UJ]	<50,000 [UJ]	<52,000 [UJ]	<26,000 [UJ]	<21,000	<27,000	<22,000	<110,000 [UJ]	<49,000	<32,000	<79,000 [UJ]	<85,000 [UJ]	<93,000 [UJ]	<53,000 [UJ]	<26,000 [UJ]	<20,000
Formic Acid	NCL	NCL	NCL	<33,000 [UJ]	<50,000 [UJ]	<52,000 [UJ]	<26,000 [UJ]	<21,000	<27,000	<22,000	<110,000 [UJ]	<49,000	<32,000	<79,000 [UJ]	<85,000 [UJ]	<93,000 [UJ]	<53,000 [UJ]	<26,000 [UJ]	<20,000
Cyanide - Total	NCL	NCL	0.1	<230 [UB]	<310 [UB]	<260 [UB]	<210 [UB]	<140 [UB]	<180 [UB]	<150 [UB]	<710 [UB]	<330 [UB]	<220 [UB]	***61 [J]***	***290 [J]***	<600 [UB]	<310 [UB]	<120 [UB]	<130 [UB]
Cyanide, Available	NCL	NCL	NCL	250	220	310	220	110	240	160	980 [J]	390 [J-]	190 [J-]	350 [J]	350 [J]	630 [J]	310 [J-]	160 [J-]	75
Ammonia - N (gas diffusion)	NCL	NCL	NCL	370,000	25,000	170,000 [J-]	80,000	<1,200	50,000	36,000	120,000 [J]	150,000 [J]	87,000	63,000	33,000 [J]	3,000 [J]	320,000	62,000	<1,100
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	380	450	290	280	140 [J-]	210	170	6,400 [J]	830 [J]	260	1,000 [J]	590 [J]	270 [J]	170	80	140 [J-]
Chloride (soluble)	NCL	NCL	NCL	28,000	48,000	33,000	<17,000	4,000	16,000	16,000	460,000 [J]	1,100,000 [J]	840,000	140,000 [J]	100,000 [J]	160,000 [J]	160,000	60,000	5,000
Phosphorus (total)	NCL	NCL	NCL	860,000	340,000	660,000	230,000	130,000	230,000	130,000	680,000 [J]	450,000 [J]	530,000	940,000 [J]	890,000 [J]	600,000 [J]	720,000	100,000	130,000
Sulfate (soluble)	NCL	NCL	NCL	14,000	860,000	1,200,000	<17,000	34,000	31,000	42,000	1,600,000 [J]	1,100,000 [J]	900,000	3,500,000 [J]	3,700,000 [J]	1,200,000 [J]	2,600,000	55,000	18,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	<180,000 [UJ]	<260,000 [UJ]	<260,000 [UJ]	<140,000 [UJ]	<22,000 [UJ]	<27,000 [UJ]	28,000 [J-]	510,000 [J]	200,000 [J-]	140,000 [J-]	<420,000 [UJ]	<430,000 [UJ]	<480,000 [UJ]	<270,000 [UJ]	<130,000 [UJ]	<20,000 [UJ]

TABLE 8D
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T5-1	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-3	TA-SED-T6-3
Sample Name				TA-SED-T5-1 (1-2)	TA-SED-T5-2 (0-1)	TA-SED-T5-2 (1.7-2.7)	TA-SED-T5-2 (3.7-4.7)	TA-SED-T5-3 (0-1)	TA-SED-T5-3 (2-3)	TA-SED-T5-3 (4-5)	TA-SED-T5-3 (6-7)	TA-SED-T6-1 (0-1)	TA-SED-T6-1 (2.5-3.5)	TA-SED-T6-1 (4.1-5.1)	TA-SED-T6-2 (0-1)	TA-SED-T6-2 (2-3)	TA-SED-T6-2 (3.6-4.6)	TA-SED-T6-3 (0-1)	TA-SED-T6-3 (2-3)
Depth Interval (Feet below ground surface)				1 - 2	0 - 1	1.7 - 2.7	3.7 - 4.7	0 - 1	2 - 3	4 - 5	6 - 7	0 - 1	2.5 - 3.5	4.1 - 5.1	0 - 1	2 - 3	3.6 - 4.6	0 - 1	2 - 3
Laboratory Sample ID(s)				TF26016-005 & 18061661-09A	TF26016-011 & 18061812-05A	TF26016-012 & 18061812-06A	TF26016-013 & 18061812-07A	TF26016-007 & 18061812-01A	TF26016-008 & 18061812-02A	TF26016-009 & 18061812-03A	TF26016-010 & 18061812-04A	TF26016-014 & 18061812-08A	TF26016-015 & 18061812-09A	TF26016-016 & 18061812-10A	TF28027-001 & 18061866-01A	TF28027-002 & 18061866-02A	TF28027-003 & 18061866-03A	TF26016-017 & 18061812-11A	TF26016-018 & 18061812-12A
Sample Date				6/25/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/26/2018	6/26/2018
Parameter (µg/kg)																			
Acetic Acid	NCL	NCL	NCL	<22,000	<22,000 [UJ]	<23,000 [UJ]	<32,000 [UJ]	<22,000 [UJ]	<26,000 [UJ]	<22,000 [UJ]	<37,000 [UJ]	<29,000 [UJ]	<28,000 [UJ]	<26,000 [UJ]	<22,000 [UJ]	<22,000 [UJ]	<33,000 [UJ]	<27,000 [UJ]	<32,000 [UJ]
Formic Acid	NCL	NCL	NCL	<22,000	<22,000 [UJ]	<23,000 [UJ]	<32,000 [UJ]	<22,000 [UJ]	<26,000 [UJ]	<22,000 [UJ]	<37,000 [UJ]	<29,000 [UJ]	<28,000 [UJ]	<26,000 [UJ]	<22,000 [UJ]	<22,000 [UJ]	<33,000 [UJ]	<27,000 [UJ]	<32,000 [UJ]
Cyanide - Total	NCL	NCL	0.1	<140 [UB]	<140 [UB]	<140 [UB]	<180 [UB]	<210 [UB]	<140 [UB]	<200 [UB]	<180 [UB]	<220 [UB]	<170 [UB]	<160 [UB]	<140 [UB]	<130 [UB]	<220 [UB]	<150 [UB]	<190 [UB]
Cyanide, Available	NCL	NCL	NCL	140	93 [J-]	110 [J-]	280 [J-]	130 [J-]	66 [J-]	180 [J-]	400 [J-]	240 [J-]	160 [J-]	160 [J-]	48 [J-]	<46 [UJ]	210 [J-]	180 [J-]	220 [J-]
Ammonia - N (gas diffusion)	NCL	NCL	NCL	9,500	<1,100	8,500	110,000	8,000	5,900	130,000	77,000	23,000	34,000	6,500	3,200	12,000	160,000	17,000	160,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	100	800	190	150	170	390	130	220	330	100	120	640	210	400	180	190
Chloride (soluble)	NCL	NCL	NCL	17,000	4,100	5,700	44,000	17,000	4,500	48,000	76,000	33,000	26,000	28,000	5,800	6,400	30,000	14,000	23,000
Phosphorus (total)	NCL	NCL	NCL	110,000	53,000	80,000	380,000	190,000	79,000	300,000	390,000	220,000	94,000	110,000	59,000	73,000	480,000	110,000	180,000
Sulfate (soluble)	NCL	NCL	NCL	17,000	13,000	100,000	190,000	220,000	23,000	630,000	100,000	150,000	47,000	40,000	58,000	33,000	20,000	420,000	940,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	<23,000 [UJ]	83,000 [J-]	<24,000 [UJ]	150,000 [J-]	98,000 [J-]	110,000 [J-]	150,000 [J-]	<24,000 [UJ]	300,000 [J-]	25,000 [J-]	52,000 [J-]	<120,000 [UJ]	<120,000 [UJ]	<170,000 [UJ]	37,000 [J-]	87,000 [J-]

TABLE 8D
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T6-3	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-2	TA-SED-T7-2	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-2
Sample Name				TA-SED-T6-3 (3.8-4.8)	TA-SED-T7-1 (0-1)	TA-SED-T7-1 (2-3)	TA-SED-T7-1 (4.2-5.2)	TA-SED-T7-1 (6.4-7.4)	TA-SED-T7-2 (0-1)	TA-SED-T7-2 (1-2)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T7-ISLAND (1-2)	TA-SED-T7-ISLAND (3-4)	TA-SED-T7-ISLAND (6-7)	TA-SED-T8-1 (0-1)	TA-SED-T8-1 (1.5-2.5)	TA-SED-T8-1 (4-5)	TA-SED-T8-2 (0-1)
Depth Interval (Feet below ground surface)				3.8 - 4.8	0 - 1	2 - 3	4.2 - 5.2	6.4 - 7.4	0 - 1	1 - 2	0 - 0.5	1 - 2	3 - 4	6 - 7	0 - 1	1.5 - 2.5	4 - 5	0 - 1
Laboratory Sample ID(s)				TF26016-019 & 18061812-13A	TF28027-004 & 18061866-04A	TF28027-005 & 18061866-05A	TF28027-006 & 18061866-06A	TF28027-007 & 18061866-07A	TF26016-021 & 18061866-08A	TF26016-022 & 18061866-09A	TG11006-001 & 1807548-11A	TG14035-004 & 1807816-04A	TG14035-005 & 1807816-05A	TG14035-006 & 1807816-06A	TF28027-013 & 18061975-05A	TF28027-014 & 18061975-06A	TF28027-015 & 18061975-07A	TG03001-013 & 1807095-01A
Sample Date				6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	7/9/2018	7/13/2018	7/13/2018	7/13/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018
Parameter (µg/kg)																		
Acetic Acid	NCL	NCL	NCL	<31,000 [UJ]	<21,000 [UJ]	<37,000 [UJ]	<30,000 [UJ]	<31,000 [UJ]	<58,000 [UJ]	<45,000 [UJ]	<27,000 [UJ]	<24,000 [UJ]	<39,000 [UJ]	<29,000 [UJ]	<66,000 [UJ]	<43,000	<25,000	<28,000
Formic Acid	NCL	NCL	NCL	<31,000 [UJ]	<21,000 [UJ]	<37,000 [UJ]	<30,000 [UJ]	<31,000 [UJ]	<58,000 [UJ]	<45,000 [UJ]	<27,000 [UJ]	<24,000 [UJ]	<39,000 [UJ]	<29,000 [UJ]	<66,000 [UJ]	<43,000	<25,000	<28,000
Cyanide - Total	NCL	NCL	0.1	<210 [UB]	<130 [UB]	<250 [UB]	<170 [UB]	<180 [UB]	<450 [UB]	<290 [UB]	<180 [UB]	<200 [UB]	<230 [UB]	<170 [UB]	<390 [UB]	<230 [UB]	<170 [UB]	<180 [UB]
Cyanide, Available	NCL	NCL	NCL	270 [J-]	<46 [UJ]	190 [J-]	160 [J-]	140 [J-]	290 [J-]	200 [J-]	180	140	320	210	340 [J]	380 [J-]	140 [J-]	110
Ammonia - N (gas diffusion)	NCL	NCL	NCL	210,000	510	210,000	87,000	25,000 [J-]	52,000 [J]	33,000	17,000	49,000	68,000	61,000	61,000	43,000	9,700	36,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	480	880	410	350	410	640 [J]	220	730	71	110	64	670	340	250	320
Chloride (soluble)	NCL	NCL	NCL	26,000	3,600	24,000	9,200	10,000	950,000 [J]	2,000,000	32,000	12,000	32,000	15,000	96,000	210,000	130,000	13,000
Phosphorus (total)	NCL	NCL	NCL	400,000	78,000	490,000	350,000	220,000	440,000 [J]	330,000	200,000	110,000	200,000	120,000	510,000	260,000	130,000	180,000
Sulfate (soluble)	NCL	NCL	NCL	180,000	33,000	560,000	11,000	38,000	670,000 [J]	1,900,000	1,000,000	290,000	1,200,000	710,000	1,300,000	370,000	260,000	1,100,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	39,000 [J-]	<110,000 [UJ]	<200,000 [UJ]	<150,000 [UJ]	<160,000 [UJ]	1,400,000 [J-]	<230,000 [UJ]	<140,000 [UJ]	<120,000 [UJ]	<200,000 [UJ]	230,000 [J-]	840,000 [J]	260,000	40,000	30,000 [J-]

TABLE 8D
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-3	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND
Sample Name				TA-SED-T8-2 (1-2)	TA-SED-T8-2 (3-4.1)	TA-SED-T8-3 (0-1)	TA-SED-T8-3 (1.5-2.5)	TA-SED-T8-3 (1.5-2.5) DUP	TA-SED-T8-3 (3-4)	TA-SED-T9-1 (0-1)	TA-SED-T9-1 (2-3)	TA-SED-T9-1 (4-5)	TA-SED-T9-2 (0-1)	TA-SED-T9-2 (2-3)	TA-SED-T9-2 (4-5)	TA-SED-T9-2 (5-6)	TA-SED-T9-3 (0-1)	TA-SED-T9-ISLAND (0-0.5)	TA-SED-T9-ISLAND (1-2)
Depth Interval (Feet below ground surface)				1 - 2	3 - 4.1	0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	5 - 6	0 - 1	0 - 0.5	1 - 2
Laboratory Sample ID(s)				TG03001-014 & 1807095-02A	TG03001-015 & 1807095-03A	TF28027-009 & 18061975-01A	TF28027-010 & 18061975-02A	TF28027-011 & 18061975-03A	TF28027-012 & 18061975-04A	TG03001-021 & 1807095-07A	TG03001-019 & 1807095-08A	TG03001-022 & 1807095-09A	TF28027-017 & 18061975-08A	TF28027-018 & 18061975-09A	TF28027-019 & 18061975-10A	TF28027-020 & 18061975-11A	TG03032-005 & 1807101-04A	TG14035-007 & 1807816-07A	TG14035-008 & 1807816-08A
Sample Date				6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	7/13/2018	7/13/2018
Parameter (µg/kg)																			
Acetic Acid	NCL	NCL	NCL	<28,000	<43,000	<40,000	<56,000	<59,000	<34,000	<76,000 [UJ]	<34,000	<29,000	<49,000	<44,000	<30,000	<35,000	<99,000 [UJ]	<67,000 [UJ]	<56,000 [UJ]
Formic Acid	NCL	NCL	NCL	<28,000	<43,000	<40,000	<56,000	<59,000	<34,000	<76,000 [UJ]	<34,000	<29,000	<49,000	<44,000	<30,000	<35,000	<99,000 [UJ]	<67,000 [UJ]	<56,000 [UJ]
Cyanide - Total	NCL	NCL	0.1	<190 [UB]	<190 [UB]	<200 [UB]	<360 [UB]	<270 [UB]	<240 [UB]	<470 [UB]	<240	<210 [UB]	<240 [UB]	<250 [UB]	<170 [UB]	<220 [UB]	<490 [UB]	***600***	<410 [UB]
Cyanide, Available	NCL	NCL	NCL	130	240	240 [J-]	400 [J-]	360 [J-]	140 [J-]	520 [J]	240 [J-]	240 [J-]	260	260	180	200	770 [J]	840	640
Ammonia - N (gas diffusion)	NCL	NCL	NCL	90,000	73,000	57,000	25,000	23,000	74,000	210,000	240,000	220,000	78,000	240,000	100,000	140,000	210,000 [J]	3,000	17,000 [J]
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	260	270	250	210	290	400	2,800 [J]	270	1,500	330 [J-]	350	320	350	490 [J]	390	510 [J]
Chloride (soluble)	NCL	NCL	NCL	9,800	10,000	33,000	97,000	76,000	82,000	74,000 [J-]	27,000	16,000	25,000	19,000	6,100	7,900	96,000 [J]	18,000	30,000 [J]
Phosphorus (total)	NCL	NCL	NCL	210,000	220,000	200,000	570,000	490,000	450,000	530,000 [J]	490,000	360,000	310,000	500,000	210,000	390,000	570,000 [J]	860,000	460,000 [J]
Sulfate (soluble)	NCL	NCL	NCL	320,000	130,000	680,000	4,400,000	3,500,000	1,200,000	1,900,000 [J]	2,300,000	540,000	1,100,000 [J-]	1,600,000	62,000	140,000	1,200,000 [J]	1,600,000	1,900,000 [J]
Sulfide (Acid Soluble)	NCL	NCL	NCL	160,000 [J-]	<24,000 [UJ]	140,000	890,000	930,000	400,000	310,000 [J]	130,000 [J-]	54,000 [J-]	200,000 [J-]	27,000	42,000	<24,000	<530,000 [UJ]	<330,000 [UJ]	<290,000 [UJ]

TABLE 8D
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - INORGANICS/GENERAL CHEMISTRY
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-3	TA-SED-T10-3	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND
Sample Name				TA-SED-T9-ISLAND (4-5)	TA-SED-T9-ISLAND (6.5-7.5)	TA-SED-T10-1 (0-1)	TA-SED-T10-1 (1.5-2.5)	TA-SED-T10-1 (1.5-2.5) DUP	TA-SED-T10-1 (3-4)	TA-SED-T10-3 (0-1)	TA-SED-T10-3 (1-2)	TA-SED-T10-ISLAND (0-1)	TA-SED-T10-ISLAND (2-3)	TA-SED-T10-ISLAND (4-5)
Depth Interval (Feet below ground surface)				4 - 5	6.5 - 7.5	0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	1 - 2	0 - 1	2 - 3	4 - 5
Laboratory Sample ID(s)				TG14035-009 & 1807816-09A	TG14035-010 & 1807816-10A	TG03032-001 & 1807095-10A	TG03032-002 & 1807101-01A	TG03032-003 & 1807101-02A	TG03032-004 & 1807101-03A	TG03032-006 & 1807101-05A	TG03032-007 & 1807101-06A	TG24016-002 & 18071457-08A	TG24016-003 & 18071457-09A	TG24016-004 & 18071457-10A
Sample Date				7/13/2018	7/13/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	7/23/2018	7/23/2018	7/23/2018
Parameter (µg/kg)														
Acetic Acid	NCL	NCL	NCL	<37,000 [UJ]	<31,000 [UJ]	<53,000	<26 [UJ]	<28,000 [UJ]	<42,000 [UJ]	<60,000 [UJ]	<29,000 [UJ]	<29,000	<34,000	<26,000
Formic Acid	NCL	NCL	NCL	<37,000 [UJ]	<31,000 [UJ]	<53,000	<26 [UJ]	<28,000 [UJ]	<42,000 [UJ]	<60,000 [UJ]	<29,000 [UJ]	<29,000	<34,000	<26,000
Cyanide - Total	NCL	NCL	0.1	<230 [UB]	<190 [UB]	<320 [UB]	<180 [UB]	<160 [UB]	<310 [UB]	<430 [UB]	<220 [UB]	<180 [UB]	<220 [UB]	<160 [UB]
Cyanide, Available	NCL	NCL	NCL	310	280	420 [J-]	180 [J-]	270 [J-]	590 [J-]	630 [J-]	210 [J-]	350	240	170
Ammonia - N (gas diffusion)	NCL	NCL	NCL	140,000	190,000	35,000 [J-]	52,000	62,000	200,000	110,000 [J]	150,000	3,300	68,000	20,000
Nitrate-Nitrite - N (soluble)	NCL	NCL	NCL	460	300	420 [J-]	210	530	520	430 [J]	210	320	610	250
Chloride (soluble)	NCL	NCL	NCL	12,000	7,400	52,000	20,000	15,000	51,000	59,000 [J]	26,000	30,000	17,000	9,700
Phosphorus (total)	NCL	NCL	NCL	300,000	310,000	370,000	310,000	220,000	680,000	380,000 [J]	300,000	160,000	230,000	65,000
Sulfate (soluble)	NCL	NCL	NCL	440,000	130,000	600,000	940,000 [J]	480,000 [J]	74,000	18,000 [J]	730,000	87,000	260,000	36,000
Sulfide (Acid Soluble)	NCL	NCL	NCL	<190,000 [UJ]	<160,000 [UJ]	300,000 [J-]	<140,000 [UJ]	<150,000 [UJ]	<230,000 [UJ]	<330,000 [UJ]	<150,000 [UJ]	<140,000 [UJ]	<170,000 [UJ]	<130,000 [UJ]

TABLE 8E
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-BOAT RAMP	TA-SED-BOAT RAMP	TA-SED-EAST DAM	TA-SED-RC ACCESS	TA-SED-RC ACCESS	TA-SED-RC-1	TA-SED-RC-1	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-3	TA-SED-T1-1	TA-SED-T1-1	TA-SED-T1-3
Sample Name				TA-SED-BOAT RAMP (0-1)	TA-SED-BOAT RAMP (1-1.9)	TA-SED-EAST DAM (0-0.5)	TA-SED-RC ACCESS (0-1)	TA-SED-RC ACCESS (1.5-2.5)	TA-SED-RC-1 (0-1)	TA-SED-RC-1 (1.2-2.2)	TA-SED-RC-2 (0-1)	TA-SED-RC-2 (1-2)	TA-SED-RC-2 (2-3)	TA-SED-RC-3 (0-0.4)	TA-SED-T1-1 (0-1)	TA-SED-T1-1 (0-1) DUP	TA-SED-T1-3 (0-1)
Depth Interval (Feet below ground surface)				0 - 1	1 - 1.9	0 - 0.5	0 - 1	1.5 - 2.5	0 - 1	1.2 - 2.2	0 - 1	1 - 2	2 - 3	0 - 0.4	0 - 1	0 - 1	0 - 1
Laboratory Sample ID(s)				TG03001-030	TG03001-031	TG24016-001	TG03001-032	TG03001-033	TG03001-025	TG03001-026	TG03001-027	TG03001-028	TG03001-029	TG03001-034	TG24016-005	TG24016-006	TG24016-007
Sample Date				7/2/2018	7/2/2018	7/23/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/24/2018	7/24/2018	7/24/2018
Parameter (µg/kg)																	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	<3.9 [UJ]	<1.9	<1.1	<1.7	<1.6	<1.4	<2.8	<1.1	<1.1	<1.2	<1.1	<1.4	<1.1	<1.2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	<3.9 [UJ]	<1.9	<1.1	<1.7	<1.6	<1.4	<2.8	<1.1	<1.1	<1.2	<1.1	<1.4	<1.1	<1.2
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	<3.9 [UJ]	<1.9	<1.1	<1.7	<1.6	<1.4	<2.8	<1.1	<1.1	<1.2	<1.1	<1.4	<1.1	<1.2
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	<3.9 [UJ]	<1.9	<1.1	<1.7	<1.6	<1.4	<2.8	<1.1	<1.1	<1.2	<1.1	<1.4	<1.1	<1.2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	3.7	<0.54	0.56	1.2	<0.53	<0.69	<0.55	<0.62
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	1.1	<0.53	<0.69	<0.55	<0.62
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	2.1	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	1.2	<0.68	9.4	<0.54	0.89	1.2	<0.53	<0.69	<0.55	<0.62
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	2.1	<0.54	<0.54	0.79	<0.53	<0.69	<0.55	<0.62
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	0.78	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	14 [J]	4.9	6.8	25	<0.81	1.9	22	0.77	45	130	3	1.4 [J]	<0.55 [UJ]	<0.62
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	1.3	4	<0.68	13	<0.54	3.4	4.8	<0.53	<0.69	<0.55	<0.62
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	<2 [UJ]	<0.94	<0.57	<0.86	<0.81	<0.68	<1.4	<0.54	<0.54	<0.6	<0.53	<0.69	<0.55	<0.62
Total PFAS (Calculated)	NCL	NCL	NCL	14	4.9	6.8	26	5.2	1.9	52	0.77	51	140	3	1.4	ND	ND

TABLE 8E
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T1-3	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-2	TA-SED-T3-2
Sample Name				TA-SED-T1-3 (0-1) DUP	TA-SED-T2-1 (0-1)	TA-SED-T2-1 (2-3)	TA-SED-T2-1 (4-5)	TA-SED-T2-2 (0-1)	TA-SED-T2-2 (0-1) DUP	TA-SED-T2-2 (2-3)	TA-SED-T2-2 (4-5)	TA-SED-T2-3 (0-1)	TA-SED-T2-3 (2-3)	TA-SED-T2-3 (4-5)	TA-SED-T3-1A (0-1)	TA-SED-T3-1A (2-3)	TA-SED-T3-1A (5-6)	TA-SED-T3-2 (0-1.2)	TA-SED-T3-2 (1.7-2.7)
Depth Interval (Feet below ground surface)				0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	5 - 6	0 - 1.2	1.7 - 2.7
Laboratory Sample ID(s)				TG24016-008	TF22021-011	TF22021-012	TF22021-013	TF26016-001	TF26016-002	TF26016-003	TF26016-004	TF22021-014	TF22021-015	TF22021-016	TF22021-008	TF22021-009	TF22021-010	TF22021-004	TF22021-005
Sample Date				7/24/2018	6/22/2018	6/22/2018	6/22/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/21/2018	6/21/2018
Parameter (µg/kg)																			
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	<1.1	7.6	<1.7	<1.5	<1.2	<0.97	<0.97	<1.2	<1.1	<1.6	<1.2	<3.5 [UJ]	<1.7	<1.2	<0.98	<2.3
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	<1.1	<1.9	<1.7	<1.5	<1.2	<0.97	<0.97	<1.2	<1.1	<1.6	<1.2	<3.5 [UJ]	<1.7	<1.2	<0.98	<2.3
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	<1.1	<3.9	<3.4	<2.9	<2.4	<1.9	<1.9	<2.3	<2.1	<3.1	<2.4	<7.1 [UJ]	<3.4	<2.3	<2	<4.6
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	<1.1	<1.9	<1.7	<1.5	<1.2	<0.97	<0.97	<1.2	<1.1	<1.6	<1.2	<3.5 [UJ]	<1.7	<1.2	<0.98	<2.3
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	<0.55	1.1	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	3 [J]	<0.86	<0.58	<0.49	<1.2
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	<0.55	<0.96	<0.85	<0.73	<0.6	<0.48	<0.48	<0.58	<0.53	<0.78	<0.6	<1.8 [UJ]	<0.86	<0.58	<0.49	<1.2
Total PFAS (Calculated)	NCL	NCL	NCL	ND	8.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	3	ND	ND	ND	ND

TABLE 8E
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-3	TA-SED-T4-3	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND
Sample Name				TA-SED-T3-2 (4-5)	TA-SED-T3-2 (6.2-7.2)	TA-SED-T3-3 (0-1)	TA-SED-T3-3 (2-3)	TA-SED-T3-3 (5-6)	TA-SED-T4-1 (0-1)	TA-SED-T4-1 (2.5-3.5)	TA-SED-T4-1 (3.5-4.5)	TA-SED-T4-2 (0-1)	TA-SED-T4-2 (1-2)	TA-SED-T4-2 (2-3)	TA-SED-T4-3 (0-1)	TA-SED-T4-3 (1-1.7)	TA-SED-T4-ISLAND (0-0.5)	TA-SED-T4-ISLAND (4-5)	TA-SED-T4-ISLAND (6-7)
Depth Interval (Feet below ground surface)				4 - 5	6.2 - 7.2	0 - 1	2 - 3	5 - 6	0 - 1	2.5 - 3.5	3.5 - 4.5	0 - 1	1 - 2	2 - 3	0 - 1	1 - 1.7	0 - 0.5	4 - 5	6 - 7
Laboratory Sample ID(s)				TF22021-006	TF22021-007	TF22021-001	TF22021-002	TF22021-003	TF22021-020	TF22021-021	TF22021-022	TG03001-016	TG03001-017	TG03001-018	TG03001-023	TG03001-024	TG14035-001	TG14035-002	TG14035-003
Sample Date				6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018	6/25/2018	6/25/2018	6/25/2018	6/29/2018	6/29/2018	6/29/2018	7/2/2018	7/2/2018	7/11/2018	7/12/2018	7/12/2018
Parameter (µg/kg)																			
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	<1.5	<1.7	<2.1	<2	<1.7	<1	<1.4	<1.1	<5.6 [UJ]	<2.4	<1.7	<8.6 [UJ]	<4.5 [UJ]	<4.5 [UJ]	<2.2	<0.86
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	<1.5	<1.7	<2.1	<2	<1.7	<1	<1.4	<1.1	<5.6 [UJ]	<2.4	<1.7	<8.6 [UJ]	<4.5 [UJ]	<4.5 [UJ]	<2.2	<0.86
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	<3	<3.4	<4.2	<4	<3.3	<2.1	<2.7	<2.3	<5.6 [UJ]	3	<1.7	<8.6 [UJ]	4.8 [J]	<4.5 [UJ]	<2.2	<0.86
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	<1.5	<1.7	<2.1	<2	<1.7	<1	<1.4	<1.1	<5.6 [UJ]	<2.4	<1.7	<8.6 [UJ]	<4.5 [UJ]	<4.5 [UJ]	<2.2	<0.86
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	1.5	3.6	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	1.2	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	1.9	2.7	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	3.7	6.8	5.5 [J]	3.6 [J]	<2.2 [UJ]	<1.1	<0.43
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	1.4	2.4	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	1.1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	5.8	<0.84	10 [J]	20 [J]	<2.2 [UJ]	<1.1	<0.43
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	<0.74	<0.86	2.2	1.9	<0.84	<0.52	2	<0.56	78 [J]	44	24 [J]	170 [J]	62 [J]	55 [J]	4.1	<0.43
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	4 [J]	10	22	17 [J]	8.7 [J]	3.7 [J]	1.5	<0.43
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	<0.84	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	<0.74	<0.86	<1.1	<1	<0.84	<0.52	<0.68	<0.56	<2.8 [UJ]	<1.2	1.2	<4.3 [UJ]	<2.2 [UJ]	<2.2 [UJ]	<1.1	<0.43
Total PFAS (Calculated)	NCL	NCL	NCL	ND	ND	2.2	3	ND	ND	2	ND	82	71	64	200	99	59	5.6	ND

TABLE 8E
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T5-1	TA-SED-T5-1	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-3
Sample Name				TA-SED-T5-1 (0-1)	TA-SED-T5-1 (1-2)	TA-SED-T5-2 (0-1)	TA-SED-T5-2 (1.7-2.7)	TA-SED-T5-2 (3.7-4.7)	TA-SED-T5-3 (0-1)	TA-SED-T5-3 (2-3)	TA-SED-T5-3 (4-5)	TA-SED-T5-3 (6-7)	TA-SED-T6-1 (0-1)	TA-SED-T6-1 (2.5-3.5)	TA-SED-T6-1 (4.1-5.1)	TA-SED-T6-2 (0-1)	TA-SED-T6-2 (2-3)	TA-SED-T6-2 (3.6-4.6)	TA-SED-T6-3 (0-1)
Depth Interval (Feet below ground surface)				0 - 1	1 - 2	0 - 1	1.7 - 2.7	3.7 - 4.7	0 - 1	2 - 3	4 - 5	6 - 7	0 - 1	2.5 - 3.5	4.1 - 5.1	0 - 1	2 - 3	3.6 - 4.6	0 - 1
Laboratory Sample ID(s)				TF22021-023	TF26016-005	TF26016-011	TF26016-012	TF26016-013	TF26016-007	TF26016-008	TF26016-009	TF26016-010	TF26016-014	TF26016-015	TF26016-016	TF28027-001	TF28027-002	TF28027-003	TF26016-017
Sample Date				6/25/2018	6/25/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/26/2018
Parameter (µg/kg)																			
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	<0.97	<1	<1	<0.97	<1.3	<1.7	<1.1	<1.5	<1.3	<1.8	<1.3	<1.4	<0.99	<0.98	<1.6	<1.2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	<0.97	<1	<1	<0.97	<1.3	<1.7	<1.1	<1.5	<1.3	<1.8	<1.3	<1.4	<0.99	<0.98	<1.6	<1.2
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	<1.9	<2.1	<2	<1.9	<2.6	<3.4	<2.1	<3	<2.7	<3.6	<2.5	<2.7	<2	<2	<3.2	<2.5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	<0.97	<1	<1	<0.97	<1.3	<1.7	<1.1	<1.5	<1.3	<1.8	<1.3	<1.4	<0.99	<0.98	<1.6	<1.2
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	1.3	<0.53	<0.76	<0.66	1.2	<0.64	<0.68	<0.49	<0.49	<0.81	1.2
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	<0.48	<0.52	<0.5	<0.48	<0.66	<0.84	<0.53	<0.76	<0.66	<0.91	<0.64	<0.68	<0.49	<0.49	<0.81	<0.62
Total PFAS (Calculated)	NCL	NCL	NCL	ND	ND	ND	ND	ND	1.3	ND	ND	ND	1.2	ND	ND	ND	ND	ND	1.2

TABLE 8E
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T6-3	TA-SED-T6-3	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-2	TA-SED-T7-2	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-2
Sample Name				TA-SED-T6-3 (2-3)	TA-SED-T6-3 (3.8-4.8)	TA-SED-T7-1 (0-1)	TA-SED-T7-1 (2-3)	TA-SED-T7-1 (4.2-5.2)	TA-SED-T7-1 (6.4-7.4)	TA-SED-T7-2 (0-1)	TA-SED-T7-2 (1-2)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T7-ISLAND (1-2)	TA-SED-T7-ISLAND (3-4)	TA-SED-T7-ISLAND (6-7)	TA-SED-T8-1 (0-1)	TA-SED-T8-1 (1.5-2.5)	TA-SED-T8-1 (4-5)	TA-SED-T8-2 (0-1)
Depth Interval (Feet below ground surface)				2 - 3	3.8 - 4.8	0 - 1	2 - 3	4.2 - 5.2	6.4 - 7.4	0 - 1	1 - 2	0 - 0.5	1 - 2	3 - 4	6 - 7	0 - 1	1.5 - 2.5	4 - 5	0 - 1
Laboratory Sample ID(s)				TF26016-018	TF26016-019	TF28027-004	TF28027-005	TF28027-006	TF28027-007	TF26016-021	TF26016-022	TG11006-001	TG14035-004	TG14035-005	TG14035-006	TF28027-013	TF28027-014	TF28027-015	TG03001-013
Sample Date				6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	7/9/2018	7/13/2018	7/13/2018	7/13/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018
Parameter (µg/kg)																			
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	<1.3	<1.8	<0.9	<1.7	<1.4	<1.3	<3.6 [UJ]	<2.3	<1.5	<1.6	<1.8	<1.4	<2.8	<1.8	<1.4	<1.3
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	<1.3	<1.8	<0.9	<1.7	<1.4	<1.3	<3.6 [UJ]	<2.3	<1.5	<1.6	<1.8	<1.4	<2.8	<1.8	<1.4	<1.3
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	<2.7	<3.5	<0.9	<1.7	<1.4	<1.3	<7.1 [UJ]	<4.6	<1.5	<1.6	<1.8	<1.4	<2.8	<1.8	<1.4	<1.3
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	<1.3	<1.8	<0.9	<1.7	<1.4	<1.3	<3.6 [UJ]	<2.3	<1.5	<1.6	<1.8	<1.4	<2.8	<1.8	<1.4	<1.3
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	1.8	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	2.4	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	2.6	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	2.2 [J]	<1.2	3.7	1.6 [J]	<0.89	<0.69	<1.4	1.7	<0.68	<0.65
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	7.9	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	<0.67	<0.88	<0.45	<0.87	<0.69	<0.66	<1.8 [UJ]	<1.2	<0.73	<0.79	<0.89	<0.69	<1.4	<0.92	<0.68	<0.65
Total PFAS (Calculated)	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	2.2	18	3.7	1.6	ND	ND	ND	1.7	ND	ND

TABLE 8E
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-3	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND
Sample Name				TA-SED-T8-2 (1-2)	TA-SED-T8-2 (3-4.1)	TA-SED-T8-3 (0-1)	TA-SED-T8-3 (1.5-2.5)	TA-SED-T8-3 (1.5-2.5) DUP	TA-SED-T8-3 (3-4)	TA-SED-T9-1 (0-1)	TA-SED-T9-1 (2-3)	TA-SED-T9-1 (4-5)	TA-SED-T9-2 (0-1)	TA-SED-T9-2 (2-3)	TA-SED-T9-2 (4-5)	TA-SED-T9-2 (5-6)	TA-SED-T9-3 (0-1)	TA-SED-T9-ISLAND (0-0.5)	TA-SED-T9-ISLAND (1-2)
Depth Interval (Feet below ground surface)				1 - 2	3 - 4.1	0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	5 - 6	0 - 1	0 - 0.5	1 - 2
Laboratory Sample ID(s)				TG03001-014	TG03001-015	TF28027-009	TF28027-010	TF28027-011	TF28027-012	TG03001-021	TG03001-019	TG03001-022	TF28027-017	TF28027-018	TF28027-019	TF28027-020	TG03032-005	TG14035-007	TG14035-008
Sample Date				6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	7/13/2018	7/13/2018
Parameter (µg/kg)																			
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	<1.5	<1.4	<1.7	<2.9	<1.9	<1.8	<3.3 [UJ]	<1.8	<1.6	<1.8	<1.9	<1.3	<1.7	<4 [UJ]	<3.1	<3.3 [UJ]
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	<1.5	<1.4	<1.7	<2.9	<1.9	<1.8	<3.3 [UJ]	<1.8	<1.6	<1.8	<1.9	<1.3	<1.7	<4 [UJ]	<3.1	<3.3 [UJ]
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	<1.5	<1.4	<1.7	<2.9	<1.9	<1.8	<3.3 [UJ]	<1.8	<1.6	<1.8	<1.9	<1.3	<1.7	<4 [UJ]	<3.1	<3.3 [UJ]
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	<1.5	<1.4	<1.7	<2.9	<1.9	<1.8	<3.3 [UJ]	<1.8	<1.6	<1.8	<1.9	<1.3	<1.7	<4 [UJ]	<3.1	<3.3 [UJ]
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	1.2	<0.89	1.7 [J]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	18 [J]	15	20 [J]
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	1.6	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	2.4	2 [J]
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	<0.75	<0.69	<0.84	<1.4	<0.96	<0.89	<1.6 [UJ]	<0.9	<0.8	<0.88	<0.94	<0.65	<0.86	<2 [UJ]	<1.5	<1.6 [UJ]
Total PFAS (Calculated)	NCL	NCL	NCL	ND	ND	ND	ND	1.2	1.6	1.7	ND	ND	ND	ND	ND	ND	18	17	22

TABLE 8E
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - PFAS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	USEPA Consensus-Based Threshold Effect Concentration	USEPA Concensus-Based Probably Effect Concentration	USEPA Region 5 RCRA Screening Level	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-3	TA-SED-T10-3	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND
Sample Name				TA-SED-T9-ISLAND (4-5)	TA-SED-T9-ISLAND (6.5-7.5)	TA-SED-T10-1 (0-1)	TA-SED-T10-1 (1.5-2.5)	TA-SED-T10-1 (1.5-2.5) DUP	TA-SED-T10-1 (3-4)	TA-SED-T10-3 (0-1)	TA-SED-T10-3 (1-2)	TA-SED-T10-ISLAND (0-1)	TA-SED-T10-ISLAND (2-3)	TA-SED-T10-ISLAND (4-5)
Depth Interval (Feet below ground surface)				4 - 5	6.5 - 7.5	0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	1 - 2	0 - 1	2 - 3	4 - 5
Laboratory Sample ID(s)				TG14035-009	TG14035-010	TG03032-001	TG03032-002	TG03032-003	TG03032-004	TG03032-006	TG03032-007	TG24016-002	TG24016-003	TG24016-004
Sample Date				7/13/2018	7/13/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	7/23/2018	7/23/2018	7/23/2018
Parameter (µg/kg)														
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	<1.8	<1.5	<2.6	<1.4	<1.2	<2.5	<3 [UJ]	<1.7	<1.5	<1.7	<1.3
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	<1.8	<1.5	<2.6	<1.4	<1.2	<2.5	<3 [UJ]	<1.7	<1.5	<1.7	<1.3
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	<1.8	<1.5	<2.6	<1.4	<1.2	<2.5	<3 [UJ]	<1.7	<1.5	<1.7	<1.3
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	<1.8	<1.5	<2.6	<1.4	<1.2	<2.5	<3 [UJ]	<1.7	<1.5	<1.7	<1.3
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	0.85	<0.87	<0.64
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	6.5 [J]	<0.86	<0.74	3	<0.64
Perfluorooctane sulfonic acid (PFOS)	NCL	NCL	NCL	<0.91	<0.77	1.3	<0.69	<0.61	<1.3	35 [J]	2	20	14	<0.64
Perfluorooctanoic acid (PFOA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	1.3	<0.87	<0.64
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	<0.91	<0.77	<1.3	<0.69	<0.61	<1.3	<1.5 [UJ]	<0.86	<0.74	<0.87	<0.64
Total PFAS (Calculated)	NCL	NCL	NCL	ND	ND	1.3	ND	ND	ND	42	2	22	17	ND

TABLE 8F
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SEM/AVS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	SEM/AVS Screening Level	TA-SED-BOAT RAMP	TA-SED-BOAT RAMP	TA-SED-EAST DAM	TA-SED-RC ACCESS	TA-SED-RC ACCESS	TA-SED-RC-1	TA-SED-RC-1	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-2	TA-SED-RC-3	TA-SED-T1-1	TA-SED-T1-1	TA-SED-T1-3	TA-SED-T1-3	TA-SED-T2-1
Sample Name		TA-SED-BOAT RAMP (0-1)	TA-SED-BOAT RAMP (1-1.9)	TA-SED-EAST DAM (0-0.5)	TA-SED-RC ACCESS (0-1)	TA-SED-RC ACCESS (1.5-2.5)	TA-SED-RC-1 (0-1)	TA-SED-RC-1 (1.2-2.2)	TA-SED-RC-2 (0-1)	TA-SED-RC-2 (1-2)	TA-SED-RC-2 (2-3)	TA-SED-RC-3 (0-0.4)	TA-SED-T1-1 (0-1)	TA-SED-T1-1 (0-1) DUP	TA-SED-T1-3 (0-1)	TA-SED-T1-3 (0-1) DUP	TA-SED-T2-1 (0-1)
Depth Interval (Feet below ground surface)		0 - 1	1 - 1.9	0 - 0.5	0 - 1	1.5 - 2.5	0 - 1	1.2 - 2.2	0 - 1	1 - 2	2 - 3	0 - 0.4	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
Laboratory Sample ID(s)		180-79476-8	180-79476-9	180-80094-1	180-79476-10	180-79476-11	180-79476-3	180-79476-4	180-79476-5	180-79476-6	180-79476-7	180-79476-12	180-80120-1	180-80120-2	180-80120-3	180-80120-4	180-79190-4
Sample Date		7/2/2018	7/2/2018	7/23/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/2/2018	7/24/2018	7/24/2018	7/24/2018	7/24/2018	6/22/2018
Parameter (µg/kg)																	
SEM/AVS Ratio [(umol/g) / (umol/g)]	1	0.056	0.077	0.22	***3.6***	0.67	***1.2***	0.19	0.095	0.082	0.35	0.47	0.097	0.069	0.079	0.065	0.075
Cadmium SEM	NCL	300	430	150	280	73	27	250	59	160	250	27	23	25	22	22	400
Chromium SEM	NCL	9,000	14,000	3,700	1,900,000	160,000	2,300	32,000	3,000	19,000	150,000	980	950	970	1,400	1,000	3,800
Copper SEM	NCL	8,900	12,000	4,000	13,000	4,600	1,600	6,700	3,200	5,000	6,900	930	980	970	1,300	1,400	6,300
Lead SEM	NCL	20,000	26,000	25,000	54,000	8,400	3,100	28,000	4,900	19,000	55,000	1,500	2,000	2,200	2,700	2,500	25,000
Nickel SEM	NCL	4,300	5,600	2,600	5,200	3,200	710	3,400	1,400	2,500	3,700	650	610	560	560	590	3,200
Zinc SEM	NCL	56,000	76,000	15,000	77,000	22,000	9,900	50,000	15,000	31,000	79,000	5,300	12,000	6,000	7,300	7,300	56,000
Mercury SEM	NCL	<13	<13	<5.6	<11	<7.8	<6	<7.2	<8.1	<7.5	<7.3	<6.1	<6.6	2.2	<6.2	<6.3	<12
Acid Volatile Sulfides (AVS)	NCL	820,000	830,000	82,000	490,000	250,000	7,200	330,000	140,000	490,000	540,000	9,700	83,000	72,000	79,000	91,000	530,000

TABLE 8F
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SEM/AVS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	SEM/AVS Screening Level	TA-SED-T2-1	TA-SED-T2-1	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-2	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T2-3	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-1A	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-2	TA-SED-T3-2
Sample Name		TA-SED-T2-1 (2-3)	TA-SED-T2-1 (4-5)	TA-SED-T2-2 (0-1)	TA-SED-T2-2 (0-1) DUP	TA-SED-T2-2 (2-3)	TA-SED-T2-2 (4-5)	TA-SED-T2-3 (0-1)	TA-SED-T2-3 (2-3)	TA-SED-T2-3 (4-5)	TA-SED-T3-1A (0-1)	TA-SED-T3-1A (2-3)	TA-SED-T3-1A (5-6)	TA-SED-T3-2 (0-1.2)	TA-SED-T3-2 (1.7-2.7)	TA-SED-T3-2 (4-5)	TA-SED-T3-2 (6.2-7.2)
Depth Interval (Feet below ground surface)		2 - 3	4 - 5	0 - 1	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	5 - 6	0 - 1.2	1.7 - 2.7	4 - 5	6.2 - 7.2
Laboratory Sample ID(s)		180-79190-5	180-79190-6	180-79246-1	180-79246-2	180-79246-3	180-79246-4	180-79190-7	180-79190-8	180-79190-9	180-79190-1	180-79190-2	180-79190-3	180-79099-4	180-79099-5	180-79099-6	180-79099-7
Sample Date		6/22/2018	6/22/2018	6/25/2018	6/25/2018	6/25/2018	6/25/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/22/2018	6/21/2018	6/21/2018	6/21/2018	6/21/2018
Parameter (µg/kg)																	
SEM/AVS Ratio [(umol/g) / (umol/g)]	1	0.085	0.68	0.58	NC	0.68	0.31	0.081	***1.2***	0.18	0.054 [J]	0.046	0.61	NC	***4.3***	***1.4***	0.24
Cadmium SEM	NCL	150	140	<140	9.1	7.1	110	29	190	27	360 [J]	140	64	16	570	340	350
Chromium SEM	NCL	6,700	1,400	1,800	1,700	2,100	60,000	700	150,000	1,500	4,800 [J]	2,200	1,200	630	4,200,000	260,000	54,000
Copper SEM	NCL	3,500	3,100	820	790	830	1,800	1,100	4,300	420	9,100 [J]	1,900	750	370	13,000	5,600	7,800
Lead SEM	NCL	9,100	2,600	1,500	1,400	1,500	7,400	3,100	30,000	1,400	21,000 [J]	11,000	1,700	750	90,000	9,500	11,000
Nickel SEM	NCL	3,200	1,800	1,200	1,000	1,400	1,400	470	2,700	450	4,800 [J]	1,800	1,400	250	6,300	3,300	5,500
Zinc SEM	NCL	25,000	11,000	5,800	5,700	5,900	15,000	6,600	32,000	3,500	89,000 [J]	32,000	3,400	3,100	130,000	25,000	29,000
Mercury SEM	NCL	<9.4	<8.1	<5.6	<5.5	3	<6.6	<6.6	<8.4	<6.6	<18 [UJ]	<8.6	<6.5	<5.8	9.5	<7.8	<9.4
Acid Volatile Sulfides (AVS)	NCL	280,000	14,000	9,900	<17,000	9,300	210,000	64,000	130,000	21,000	1,100,000 [J]	460,000	6,800	<17,000	940,000	190,000	310,000

TABLE 8F
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SEM/AVS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	SEM/AVS Screening Level	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T3-3	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-1	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-2	TA-SED-T4-3	TA-SED-T4-3	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T4-ISLAND	TA-SED-T5-1	TA-SED-T5-1
Sample Name		TA-SED-T3-3 (0-1)	TA-SED-T3-3 (2-3)	TA-SED-T3-3 (5-6)	TA-SED-T4-1 (0-1)	TA-SED-T4-1 (2.5-3.5)	TA-SED-T4-1 (3.5-4.5)	TA-SED-T4-2 (0-1)	TA-SED-T4-2 (1-2)	TA-SED-T4-2 (2-3)	TA-SED-T4-3 (0-1)	TA-SED-T4-3 (1-1.7)	TA-SED-T4-ISLAND (0-0.5)	TA-SED-T4-ISLAND (4-5)	TA-SED-T4-ISLAND (6-7)	TA-SED-T5-1 (0-1)	TA-SED-T5-1 (1-2)
Depth Interval (Feet below ground surface)		0 - 1	2 - 3	5 - 6	0 - 1	2.5 - 3.5	3.5 - 4.5	0 - 1	1 - 2	2 - 3	0 - 1	1 - 1.7	0 - 0.5	4 - 5	6 - 7	0 - 1	1 - 2
Laboratory Sample ID(s)		180-79099-1	180-79099-2	180-79099-3	180-79246-5	180-79246-6	180-79246-7	180-79525-4	180-79525-5	180-79525-6	180-79476-1	180-79476-2	180-79795-1	180-79795-2	180-79795-3	180-79246-8	180-79246-9
Sample Date		6/21/2018	6/21/2018	6/21/2018	6/25/2018	6/25/2018	6/25/2018	6/29/2018	6/29/2018	6/29/2018	7/2/2018	7/2/2018	7/11/2018	7/12/2018	7/12/2018	6/25/2018	6/25/2018
Parameter (µg/kg)																	
SEM/AVS Ratio [(umol/g) / (umol/g)]	1	0.036	0.69	NC	NC	0.48	0.72	0.15 [J]	0.19	***1.4***	0.12 [J]	0.23 [J]	0.083 [J]	0.43	0.64	NC	0.81
Cadmium SEM	NCL	360	530	95	50	150	31	660 [J]	410	190	1,000 [J]	1,400 [J]	530 [J]	460	25	23	32
Chromium SEM	NCL	5,300	570,000	1,700	1,100 [J]	95,000	8,400	48,000 [J]	42,000	460,000	75,000 [J]	79,000 [J]	11,000 [J]	340,000	14,000 [J]	920	4,800
Copper SEM	NCL	7,200	5,500	1,900	1,300	2,500	860	17,000 [J]	16,000	9,300	28,000 [J]	54,000 [J]	15,000 [J]	6,300	1,200	1,100	1,100
Lead SEM	NCL	14,000	40,000	2,800	1,100	4,600	1,000	50,000 [J]	36,000	23,000	93,000 [J]	110,000 [J]	32,000 [J]	38,000	2,600	1,000	2,300
Nickel SEM	NCL	3,600	5,300	1,600	960	1,900	620	6,200 [J]	4,800	5,100	7,800 [J]	9,200 [J]	4,000 [J]	4,800	570	910	950
Zinc SEM	NCL	45,000	63,000	5,400	8,700	15,000	4,400	120,000 [J]	85,000	51,000	270,000 [J]	470,000 [J]	88,000 [J]	70,000	5,100 [J]	6,200	6,500
Mercury SEM	NCL	<15	<11	<6.3	<5.6	<7.2	<6.1	<28 [UJ]	<13	320	<28 [UJ]	<21 [UJ]	<24 [UJ]	<12	<6.2	2.2	12
Acid Volatile Sulfides (AVS)	NCL	960,000	820,000	<19,000	<17,000	200,000	15,000	830,000 [J]	510,000	330,000	1,900,000 [J]	1,500,000 [J]	810,000 [J]	840,000	26,000	<17,000	11,000

TABLE 8F
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SEM/AVS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	SEM/AVS Screening Level	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-2	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T5-3	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-1	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-2	TA-SED-T6-3	TA-SED-T6-3	TA-SED-T6-3
Sample Name		TA-SED-T5-2 (0-1)	TA-SED-T5-2 (1.7-2.7)	TA-SED-T5-2 (3.7-4.7)	TA-SED-T5-3 (0-1)	TA-SED-T5-3 (2-3)	TA-SED-T5-3 (4-5)	TA-SED-T5-3 (6-7)	TA-SED-T6-1 (0-1)	TA-SED-T6-1 (2.5-3.5)	TA-SED-T6-1 (4.1-5.1)	TA-SED-T6-2 (0-1)	TA-SED-T6-2 (2-3)	TA-SED-T6-2 (3.6-4.6)	TA-SED-T6-3 (0-1)	TA-SED-T6-3 (2-3)	TA-SED-T6-3 (3.8-4.8)
Depth Interval (Feet below ground surface)		0 - 1	1.7 - 2.7	3.7 - 4.7	0 - 1	2 - 3	4 - 5	6 - 7	0 - 1	2.5 - 3.5	4.1 - 5.1	0 - 1	2 - 3	3.6 - 4.6	0 - 1	2 - 3	3.8 - 4.8
Laboratory Sample ID(s)		180-79282-5	180-79282-6	180-79282-7	180-79282-1	180-79282-2	180-79282-3	180-79282-4	180-79282-8	180-79282-9	180-79282-10	180-79331-1	180-79331-2	180-79331-3	180-79282-11	180-79282-12	180-79282-13
Sample Date		6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/27/2018	6/27/2018	6/27/2018	6/26/2018	6/26/2018	6/26/2018
Parameter (µg/kg)																	
SEM/AVS Ratio [(umol/g) / (umol/g)]	1	0.19	0.42	***1.9***	0.043	NC	0.62	0.072	0.045	0.35	0.28	0.43	0.23	0.16	0.077	0.05	***1.3***
Cadmium SEM	NCL	9.6	25	260	71	<150	150	150	84	78	44	<150 [UB]	<140 [UB]	390	47	180	<210 [UB]
Chromium SEM	NCL	660	4,900	390,000	2,800	870	200,000	3,400	1,900	1,800	1,200	700	2,600	17,000	1,200	3,000	450,000
Copper SEM	NCL	530	950	8,300	2,900	870	2,500	1,800	2,800	2,300	1,400	1,600	750	7,000	1,600	2,900	4,000
Lead SEM	NCL	880	1,600	16,000	4,000	1,300	9,200	7,200	6,700	2,400	1,400	1,100	1,600	8,200	2,600	14,000	17,000
Nickel SEM	NCL	450	530	4,700	1,000	540	2,700	3,500	1,700	1,700	1,000	570	960	5,900	840	2,200	3,100
Zinc SEM	NCL	4,400	5,800	40,000	16,000	6,100	25,000	21,000	20,000	15,000	9,300	5,500	4,600	36,000	9,900	35,000	36,000
Mercury SEM	NCL	<5.8	<5.7	<9.1	<9.1	<5.8	<8.8	<8.8	<8.3	<8.2	<6.8	<5.9	3.7	<12	<7.6	<8.8	<8.5
Acid Volatile Sulfides (AVS)	NCL	18,000	20,000	210,000	300,000	<17,000	320,000	250,000	330,000	32,000	25,000	11,000	25,000	270,000	100,000	500,000	340,000

TABLE 8F
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SEM/AVS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	SEM/AVS Screening Level	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-1	TA-SED-T7-2	TA-SED-T7-2	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T7-ISLAND	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-1	TA-SED-T8-2	TA-SED-T8-2	TA-SED-T8-2
Sample Name		TA-SED-T7-1 (0-1)	TA-SED-T7-1 (2-3)	TA-SED-T7-1 (4.2-5.2)	TA-SED-T7-1 (6.4-7.4)	TA-SED-T7-2 (0-1)	TA-SED-T7-2 (1-2)	TA-SED-T7-ISLAND (0-0.5)	TA-SED-T7-ISLAND (1-2)	TA-SED-T7-ISLAND (3-4)	TA-SED-T7-ISLAND (6-7)	TA-SED-T8-1 (0-1)	TA-SED-T8-1 (1.5-2.5)	TA-SED-T8-1 (4-5)	TA-SED-T8-2 (0-1)	TA-SED-T8-2 (1-2)	TA-SED-T8-2 (3-4.1)
Depth Interval (Feet below ground surface)		0 - 1	2 - 3	4.2 - 5.2	6.4 - 7.4	0 - 1	1 - 2	0 - 0.5	1 - 2	3 - 4	6 - 7	0 - 1	1.5 - 2.5	4 - 5	0 - 1	1 - 2	3 - 4.1
Laboratory Sample ID(s)		180-79331-4	180-79331-5	180-79331-6	180-79331-7	180-79331-8	180-79331-9	180-79630-1	180-79795-4	180-79795-5	180-79795-6	180-79400-5	180-79400-6	180-79400-7	180-79525-1	180-79525-2	180-79525-3
Sample Date		6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	7/9/2018	7/13/2018	7/13/2018	7/13/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018
Parameter (µg/kg)																	
SEM/AVS Ratio [(umol/g) / (umol/g)]	1	NC	0.024	0.066	0.15	0.036	0.082	NC	0.071	0.052	0.059	0.04 [J]	0.038	0.27	0.031	0.089	0.85
Cadmium SEM	NCL	25	490	190	100	<410 [UB]	<230 [UB]	110	44	220	92	560 [J]	290	94	79	82	180
Chromium SEM	NCL	1,800	5,100	3,200	3,400	3,900	2,600	1,600	910	1,900	1,100	6,300 [J]	3,400	4,400	2,300	3,400	4,300
Copper SEM	NCL	1,500	5,000	1,800	3,000	7,200 [J]	3,600	2,600	1,500	4,100	2,200	6,100 [J]	2,400	6,400	2,900	3,400	5,100
Lead SEM	NCL	910	12,000	4,300	4,100	12,000	4,700	4,500	2,000	15,000	5,800	18,000 [J]	10,000	5,000	4,100	4,400	3,900
Nickel SEM	NCL	1,400	6,800	3,100	3,600	3,200	3,000	1,600	680	1,900	940	6,700 [J]	3,700	5,600	2,300	3,300	4,100
Zinc SEM	NCL	6,300	55,000	20,000	17,000	45,000	22,000	14,000	9,500	39,000	14,000	70,000 [J]	38,000	12,000	17,000	17,000	29,000
Mercury SEM	NCL	<5.6	<12	<8.1	<7.6	<17	<9.3	4	<6.5	<10	<6.9	<19 [UJ]	<12	<6.6	<7.6	<8.1	<12
Acid Volatile Sulfides (AVS)	NCL	<17,000	1,700,000	250,000	100,000	920,000	210,000	<24,000	97,000	510,000	170,000	1,300,000 [J]	690,000	63,000	440,000	170,000	28,000

TABLE 8F
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SEM/AVS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	SEM/AVS Screening Level	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T8-3	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-1	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-2	TA-SED-T9-3	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND	TA-SED-T9-ISLAND
Sample Name		TA-SED-T8-3 (0-1)	TA-SED-T8-3 (1.5-2.5)	TA-SED-T8-3DUP (1.5-2.5)	TA-SED-T8-3 (3-4)	TA-SED-T9-1 (0-1)	TA-SED-T9-1 (2-3)	TA-SED-T9-1 (4-5)	TA-SED-T9-2 (0-1)	TA-SED-T9-2 (2-3)	TA-SED-T9-2 (4-5)	TA-SED-T9-2 (5-6)	TA-SED-T9-3 (0-1)	TA-SED-T9-ISLAND (0-0.5)	TA-SED-T9-ISLAND (1-2)	TA-SED-T9-ISLAND (4-5)	TA-SED-T9-ISLAND (6.5-7.5)
Depth Interval (Feet below ground surface)		0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	2 - 3	4 - 5	0 - 1	2 - 3	4 - 5	5 - 6	0 - 1	0 - 0.5	1 - 2	4 - 5	6.5 - 7.5
Laboratory Sample ID(s)		180-79400-1	180-79400-2	180-79400-3	180-79400-4	180-79525-7	180-79525-8	180-79525-9	180-79400-8	180-79400-9	180-79400-10	180-79400-11	180-79525-14	180-79795-7	180-79795-8	180-79795-9	180-79795-10
Sample Date		6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	6/29/2018	6/29/2018	6/28/2018	6/28/2018	6/28/2018	6/28/2018	6/29/2018	7/13/2018	7/13/2018	7/13/2018	7/13/2018
Parameter (µg/kg)																	
SEM/AVS Ratio [(umol/g) / (umol/g)]	1	0.048	0.06	0.057	0.049	0.041	0.04	0.08	0.047	0.025	0.12	0.098	0.23 [J]	0.12	0.056	0.047	0.043
Cadmium SEM	NCL	140	540	520	300	240	250	210	250	420	95	150	980 [J]	420	420	280	130
Chromium SEM	NCL	2,200	5,300	4,900	2,900	5,500	2,900	3,300	2,400	5,700	2,800	3,600	9,800 [J]	3,700	3,200	2,900	2,000
Copper SEM	NCL	2,600	9,300 [J]	2,700 [J]	4,400	10,000 [J]	2,600	4,600	2,700 [J]	3,900	3,500	3,600	14,000 [J]	12,000	7,000	2,700	2,300
Lead SEM	NCL	7,100	24,000	24,000	12,000	13,000	10,000	7,700	11,000	12,000	4,800	4,300	57,000 [J]	26,000	29,000	14,000	6,000
Nickel SEM	NCL	2,000	6,200	5,400	2,700	4,800	3,800	3,600	2,500	7,300	2,900	3,400	4,800 [J]	4,200	3,400	3,100	2,100
Zinc SEM	NCL	27,000	73,000	75,000	38,000	51,000	38,000	22,000	30,000	45,000	18,000	22,000	210,000 [J]	64,000	67,000	37,000	16,000
Mercury SEM	NCL	<9.4	<14	<13	<8.9	<17	<9.8	<9.6	<9.9	<12	<8.3	<9.8	<28 [UJ]	<15	<15	<10	<7.8
Acid Volatile Sulfides (AVS)	NCL	380,000	880,000	860,000	550,000	980,000	650,000	250,000	460,000	1,400,000	130,000	190,000	580,000 [J]	400,000	820,000	560,000	300,000

TABLE 8F
SUMMARY OF SEDIMENT SAMPLE ANALYSIS - SEM/AVS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	SEM/AVS Screening Level	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-1	TA-SED-T10-3	TA-SED-T10-3	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND	TA-SED-T10-ISLAND
Sample Name		TA-SED-T10-1 (0-1)	TA-SED-T10-1 (1.5-2.5)	TA-SED-T10-1DUP (1.5-2.5)	TA-SED-T10-1 (3-4)	TA-SED-T10-3 (0-1)	TA-SED-T10-3 (1-2)	TA-SED-T10-ISLAND (0-1)	TA-SED-T10-ISLAND (2-3)	TA-SED-T10-ISLAND (4-5)
Depth Interval (Feet below ground surface)		0 - 1	1.5 - 2.5	1.5 - 2.5	3 - 4	0 - 1	1 - 2	0 - 1	2 - 3	4 - 5
Laboratory Sample ID(s)		180-79525-10	180-79525-11	180-79525-12	180-79525-13	180-79525-15	180-79525-16	180-80094-2	180-80094-3	180-80094-4
Sample Date		6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	6/29/2018	7/23/2018	7/23/2018	7/23/2018
Parameter (µg/kg)										
SEM/AVS Ratio [(umol/g) / (umol/g)]	1	0.033	0.05	0.074	0.087	0.17	0.085	***1.1***	0.14	***3***
Cadmium SEM	NCL	290	150	150	170	260	130	75	260	<170
Chromium SEM	NCL	3,200	2,100	2,300	2,400	2,700	1,600	1,300	5,500	1,300
Copper SEM	NCL	3,000 [J]	3,300	3,000	4,500	4,000	2,400	1,400	6,200	930
Lead SEM	NCL	13,000	6,000	5,600	3,800	12,000	6,300	4,000	14,000	1,100
Nickel SEM	NCL	3,200	2,300	2,400	2,400	1,800	990	960	4,800	990
Zinc SEM	NCL	42,000	17,000	21,000	23,000	48,000	20,000	11,000	31,000	170,000
Mercury SEM	NCL	<15	<8.2	<7.4	<12	<16	<7.1	4.9	3.1	<6.6
Acid Volatile Sulfides (AVS)	NCL	880,000	280,000	220,000	200,000	180,000	160,000	8,300	200,000	28,000

TABLES 8A TO 8F NOTES
Former Tannery
Rockford, Kent County, Michigan

NOTES:

1. Concentration and criteria units are micrograms per kilogram (µg/kg) or parts per billion (ppb), except where otherwise noted.
2. USEPA Consensus-Based Threshold Effect Concentration and Consensus-Based Probably Effect Concentration for sediment were based on Tables 1 and 2 of USEPA's "A Guidance Manual to Support the Assessment of Contaminated Sediments in Freshwater Ecosystems, Volume III," dated December, 2002.
3. USEPA Region 5 Ecological Screening Levels for sediment was based on "USEPA, Region 5, RCRA Ecological Screening Levels," dated August 22, 2003.
4. Screening level for SEM/AVS was based on ITRC, "Incorporating Bioavailability Considerations into the Evaluation of Contaminated Sediment Sites," 2011.
5. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the most-restrictive screening level shown.
6. Abbreviations include:
   "< RL" indicates the parameter was analyzed for but not detected above the method detection limit; RL = Reporting Limit.
   "NC" indicates not calculated.
   "DUP" indicates a duplicate sample.
   "J" indicates the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
   "J+" indicates the result is an estimated quantity. The associated numerical value is possibly biased high.
   "J-" indicates the result is an estimated quantity. The associated numerical value is possibly biased low.
   "UB" indicates the analyte was analyzed for and detected below the laboratory reporting limit. As a result of associated blank contamination, the analyte was considered a non-detect result at the laboratory reporting limit.
   "UJ" indicates the analyte was analyzed for but was not detected. The reported quantitation limit is approximate.
   "UR" indicates the analyte was analyzed for but was not detected. The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
7. Sample names presented are from Shealy Environmental Services, Inc. or TestAmerica Laboratories, Inc. analytical reports. Sample names presented in ALS Environmental analytical reports may have minor differences based on laboartory interpretation of the chains of custody.

TABLE 9
SUMMARY OF SOIL GAS SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Residential Recommended Interim Action Screening Level	TA-SG-01	TA-SG-01	TA-SG-02	TA-SG-02	TA-SG-03	TA-SG-03	TA-SG-03	TA-SG-04	TA-SG-04	TA-SG-05	TA-SG-05	TA-SG-06	TA-SG-06 (R)	TA-SG-07	TA-SG-07	TA-SG-07	TA-SG-08	TA-SG-08
Sample Name		TA-SG-01	TA-SG-01	TA-SG-02	TA-SG-02	TA-SG-03	TA-SG-03	TA-SG-03 DUP	TA-SG-04	TA-SG-04	TA-SG-05	TA-SG-05	TA-SG-06	TA-SG-06 (R)	TA-SG-07	TA-SG-07-DUP	TA-SG-07	TA-SG-08	TA-SG-08
Laboratory Sample ID(s)		L1831028-03	L1846284-04	L1831028-02	L1846284-05	L1831028-01	L1846282-01	L1846282-02	L1831031-06	L1846282-05	L1831028-06	L1846282-03	L1831028-04	L1852745-01	L1831031-01	L1831031-02	L1846284-01	L1831031-04	L1846284-02
SAMPDATE		08/07/2018	11/08/2018	08/07/2018	11/08/2018	08/07/2018	11/08/2018	11/08/2018	08/07/2018	11/08/2018	08/07/2018	11/08/2018	08/07/2018	12/19/2018	08/07/2018	08/07/2018	11/07/2018	08/07/2018	11/07/2018
Parameter (µg/m^3)																			
Acetone	1,000,000	111	6.32	48.9	5.82	61.8	9.62	7.82	181	4.96	941	<2.38	328	390	691	568	9.45	618	6.56
Allyl chloride	NCL	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626	<3.13	<0.626	<6.26	<0.626	<1.25	<0.626	<6.26	<6.26	<0.626	<6.26	<0.626
Benzene	110	<0.639	<0.639	<0.639	<0.639	<0.639	<0.639	<0.639	<3.19	<0.639	11.2	8.02	<1.28	1.85	<6.39	<6.39	<0.639	<6.39	<0.639
Benzyl chloride	NCL	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<5.18	<1.04	<10.4	<1.04	<2.07	<1.04	<10.4	<10.4	<1.04	<10.4	<1.04
Bromodichloromethane	NCL	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34	<6.7	<1.34	<13.4	<1.34	<2.68	<1.34	<13.4	<13.4	<1.34	<13.4	<1.34
Bromoform	NCL	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<10.3	<2.07	<20.7	<2.07	<4.14	<2.07	<20.7	<20.7	<2.07	<20.7	<2.07
Bromomethane (Methyl bromide)	NCL	<0.777	<0.777	<0.777	<0.777	<0.777	<0.777	<0.777	<3.88	<0.777	<7.77	<0.777	<1.55	<0.777	<7.77	<7.77	<0.777	<7.77	<0.777
1,3-Butadiene	NCL	<0.442	<0.442	<0.442	<0.442	<0.442	<0.442	<0.442	<2.21	<0.442	<4.42	<0.442	<0.885	<0.442	<4.42	<4.42	<0.442	<4.42	<0.442
Carbon disulfide	NCL	0.757	<0.623	0.766	<0.623	3.43	<0.623	<0.623	<3.11	<0.623	<6.23	<0.623	1.71	29.4	<6.23	<6.23	<0.623	<6.23	<0.623
Carbon tetrachloride	NCL	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<1.26	<6.29	<1.26	<12.6	<1.26	<2.52	<1.26	<12.6	<12.6	<1.26	<12.6	<1.26
Chlorobenzene	1,700	<0.921	<0.921	<0.921	<0.921	<0.921	<0.921	<0.921	<4.61	<0.921	<9.21	<0.921	<1.84	<0.921	<9.21	<9.21	<0.921	<9.21	<0.921
Chloroethane	140,000	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528	<2.64	<0.528	<5.28	<0.528	<1.06	<0.528	<5.28	<5.28	<0.528	<5.28	<0.528
Chloroform	37	19.4	3.69	1.08	<0.977	<0.977	<0.977	<0.977	<4.88	<0.977	<9.77	<0.977	3.91	1.87	<9.77	<9.77	<0.977	<9.77	<0.977
Chloromethane (Methyl chloride)	3,100	<0.413	<0.413	0.56	<0.413	<0.413	<0.413	<0.413	<2.07	<0.413	<4.13	<0.413	0.826	<0.413	<4.13	<4.13	<0.413	<4.13	<0.413
Cyclohexane	NCL	<0.688	<0.688	<0.688	<0.688	<0.688	<0.688	<0.688	<3.44	<0.688	14.3	8.57	1.78	8.36	<6.88	<6.88	<0.688	<6.88	<0.688
Dibromochloromethane	NCL	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<8.52	<1.7	<17	<1.7	<3.41	<1.7	<17	<17	<1.7	<17	<1.7
1,2-Dibromoethane (Ethylene dibromide)	NCL	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54	<7.69	<1.54	<15.4	<1.54	<3.07	<1.54	<15.4	<15.4	<1.54	<15.4	<1.54
1,2-Dichlorobenzene	NCL	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<6.01	<1.2	<12	<1.2	<2.4	<1.2	<12	<12	<1.2	<12	<1.2
1,3-Dichlorobenzene	100	2.28	<1.2	3.69	<1.2	3.13	<1.2	<1.2	<6.01	<1.2	<12	<1.2	<2.4	<1.2	<12	<12	<1.2	<12	<1.2
1,4-Dichlorobenzene	220	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<6.01	<1.2	<12	<1.2	<2.4	<1.2	<12	<12	<1.2	<12	<1.2
Dichlorodifluoromethane	NCL	1.68	2.72	2.21	2.53	1.14	2.49	2.34	<4.94	2.42	<9.89	2.57	3.01	1.95	<9.89	<9.89	3.11	<9.89	2.9
1,1-Dichloroethane	530	<0.809	<0.809	<0.809	<0.809	<0.809	<0.809	<0.809	<4.05	<0.809	<8.09	<0.809	110	44.5	<8.09	<8.09	<0.809	<8.09	<0.809
1,2-Dichloroethane	NCL	<0.809	<0.809	<0.809	<0.809	<0.809	<0.809	<0.809	<4.05	<0.809	<8.09	<0.809	<1.62	<0.809	<8.09	<8.09	<0.809	<8.09	<0.809
1,1-Dichloroethylene	7,000	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<3.96	<0.793	<7.93	<0.793	8.17	6.82	<7.93	<7.93	<0.793	<7.93	<0.793
cis-1,2-Dichloroethylene	280	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<3.96	<0.793	<7.93	<0.793	2.04	1.36	<7.93	<7.93	<0.793	<7.93	<0.793
trans-1,2-Dichloroethylene	9,000	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793	<3.96	<0.793	<7.93	<0.793	<1.59	<0.793	<7.93	<7.93	<0.793	<7.93	<0.793
1,2-Dichloropropane	NCL	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924	<4.62	<0.924	<9.24	<0.924	<1.85	<0.924	<9.24	<9.24	<0.924	<9.24	<0.924
cis-1,3-Dichloropropene	NCL	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<4.54	<0.908	<9.08	<0.908	<1.82	<0.908	<9.08	<9.08	<0.908	<9.08	<0.908
trans-1,3-Dichloropropene	NCL	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908	<4.54	<0.908	<9.08	<0.908	<1.82	<0.908	<9.08	<9.08	<0.908	<9.08	<0.908
1,2-Dichlorotetrafluoroethane	NCL	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<6.99	<1.4	<14	<1.4	<2.8	<1.4	<14	<14	<1.4	<14	<1.4
1,4-Dioxane	NCL	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<3.6	<0.721	<7.21	<0.721	<1.44	<0.721	<7.21	<7.21	<0.721	<7.21	<0.721
Ethyl acetate	NCL	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<9.01	<1.8	<18	<1.8	<3.6	<1.8	<18	<18	<1.8	<18	<1.8
Ethyl Alcohol	630,000	<9.42	<9.42	<9.42	<9.42	<9.42	<9.42	<9.42	<47.1	<9.42	<94.2	<9.42	<18.8	<9.42	<94.2	<94.2	<9.42	<94.2	<9.42
Ethylbenzene	340	6.91	<0.869	6.12	<0.869	6.25	<0.869	<0.869	<4.34	<0.869	<8.69	0.99	5.47	2.91	<8.69	<8.69	<0.869	<8.69	1.16
4-Ethyltoluene	NCL	1.82	<0.983	1.74	<0.983	1.61	<0.983	<0.983	<4.92	<0.983	<9.83	<0.983	<1.97	<0.983	<9.83	<9.83	<0.983	<9.83	<0.983
n-Heptane	NCL	<0.82	<0.82	<0.82	<0.82	<0.82	<0.82	<0.82	<4.1	<0.82	14.3	4.88	<1.64	0.877	<8.2	<8.2	<0.82	<8.2	1.32
Hexachlorobutadiene	NCL	aa	<2.13	<2.13 [UJ]	<2.13	<2.13 [UJ]	<2.13	<2.13	<10.7	<2.13	<21.3 [UJ]	<2.13	<4.27 [UJ]	<2.13	<21.3	<21.3	<2.13	<21.3	<2.13
n-Hexane	24,000	1.54	<0.705	1.91	<0.705	1.25	<0.705	<0.705	<3.52	<0.705	22.1	9.02	2.02	1.73	<7.05	<7.05	<0.705	<7.05	<0.705
2-Hexanone	NCL	<0.82	<0.82	<0.82	<0.82	<0.82	<0.82	<0.82	<4.1	<0.82	<8.2	<0.82	<1.64	1.94	<8.2	<8.2	<0.82	<8.2	<0.82
Methyl ethyl ketone (2-Butanone)	NCL	3.51	<1.47	2.37	<1.47	2.62	<1.47	<1.47	<7.37	<1.47	16.4	<1.47	6.08	51.3	<14.7	<14.7	<1.47	<14.7	<1.47
Methyl isobutyl ketone	NCL	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<10.2	<2.05	<20.5	<2.05	<4.1	<2.05	<20.5	<20.5	<2.05	<20.5	<2.05
Methyl tertiary butyl ether (MTBE)	3,300	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721	<3.61	<0.721	<7.21	<0.721	<1.44	<0.721	<7.21	<7.21	<0.721	<7.21	<0.721
Methylene Chloride	21,000	<1.74	<1.74	<1.74	<1.74	<1.74	<1.74	<1.74	<8.69	<1.74	<17.4	<1.74	<3.47	<1.74	<17.4	<17.4	<1.74	<17.4	<1.74
Naphthalene	NCL	1.53	<1.05	1.46	<1.05	1.33	<1.05	<1.05	<5.24	<1.05	<10.5	<1.05	<2.1	<1.05	<10.5	<10.5	<1.05	<10.5	<1.05
Propylene	NCL	<0.861	<0.861	<0.861	<0.861	<0.861	<0.861	<0.861	<4.3	<0.861	37.9	31.5	2.17	9.55	<8.61	<8.61	<0.861	<8.61	<0.861
2-Propanol	NCL	13.2	6.46	11.2	<1.23	19	<1.23	<1.23	<6.15	3.74	14.9	<1.23	<2.46	1.7	<12.3	<12.3	2.1	<12.3	2.15
Styrene	NCL	0.852	<0.852	<0.852	<0.852	<0.852	<0.852	<0.852	<4.26	<0.852	<8.52	<0.852	<1.7	<0.852	<8.52	<8.52	<0.852	<8.52	<0.852
1,1,2,2-Tetrachloroethane	NCL	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37	<6.87	<1.37	<13.7	<1.37	3.19	<1.37	<13.7	<13.7	<1.37	<13.7	<1.37
Tetrachloroethylene	1,400	2.81	<1.36	2.82	<1.36	7.39	<1.36	<1.36	<6.78	<1.36	<13.6	<1.36	17.2	<1.36	<13.6	<13.6	<1.36	<13.6	<1.36
Tetrahydrofuran	NCL	2.07	<1.47	2.21	<1.47	2.01	<1.47	<1.47	<7.37	<1.47	<14.7	<1.47	<2.95	<1.47	<14.7	<14.7	<1.47	<14.7	2.57
Toluene	170,000	14.8	<0.754	11.7	<0.754	11.8	<0.754	<0.754	7.54	1.36	44.8	14	14.6	13.6	<7.54	<7.54	0.916	7.76	1.86
1,1,2-Trichloro-1,2,2-trifluoroethane	NCL	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<1.53	<7.66	<1.53	<15.3	<1.53	193	43.1	<15.3	<15.3	<1.53	<15.3	<1.53
1,2,4-Trichlorobenzene	70	<1.48 [UJ]	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<7.42	<1.48	<14.8 [UJ]	<1.48	<2.97 [UJ]	<1.48	<14.8	<14.8	<1.48	<14.8	<1.48
1,1,1-Trichloroethane	170,000	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<5.46	<1.09	<10.9	<1.09	313	129	<10.9	<10.9	<1.09	<10.9	<1.09
1,1,2-Trichloroethane	NCL	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09	<5.46	<1.09	<10.9	<1.09	<2.18	<1.09	<10.9	<10.9	<1.09	<10.9	<1.09
Trichloroethylene	67	<1.07	<1.07	<1.07	<1.07	<1.07	<1.07	<1.07	<5.37	<1.07	<10.7	<1.07	***69.9***	18.5	<10.7	<10.7	<1.07	<10.7	<1.07
Trichlorofluoromethane	NCL	2.83	<1.12	1.94	<1.12	2.01	<1.12	<1.12	<5.62	<1.12	<11.2	<1.12	938	441	11.4	11.6	11.1	15.8	10.9
1,2,4-Trimethylbenzene	2,100	7.33	<0.983	7.18	<0.983	6.19	<0.983	<0.983	<4.92	<0.983	<9.83	<0.983	6.59	<0.983	<9.83	<9.83	<0.983	<9.83	2.15
1,3,5-Trimethylbenzene	2,100	1.9	<0.983	1.96	<0.983	1.75	<0.983	<0.983	<4.92	<0.983	<9.83	<0.983	<1.97	<0.983	<9.83	<9.83	<0.983	<9.83	<0.983
2,2,4-Trimethylpentane	NCL	<0.934	<0.934	<0.934	<0.934	<0.934	<0.934	<0.934	<4.67	<0.934	<9.34	<0.934	<1.87	<0.934	<9.34	<9.34	<0.934	<9.34	<0.934
Vinyl Acetate	7,000	<3.52	<3.52	<3.52	<3.52	<3.52	<3.52	<3.52	<17.6	<3.52	<35.2	<3.52	<7.04	<3.52	<35.2	<35.2	<3.52	<35.2	<3.52
Vinyl Bromide	NCL	<0.874	<0.874	<0.874	<0.874	<0.874	<0.874	<0.874	<4.37	<0.874	<8.74	<0.874	<1.75	<0.874	<8.74	<8.74	<0.874	<8.74	<0.874
Vinyl Chloride	54	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<0.511	<2.56	<0.511	<5.11	<0.511	<1.02	<0.511	<5.11	<5.11	<0.511	<5.11	<0.511
o-Xylene	NCL	8.34	<0.869	7.56	<0.869	7.64	<0.869	<0.869	<4.34	<0.869	<8.69	1.07	7.12	3.18	<8.69	<8.69	<0.869	<8.69	1.69
m+p - Xylenes	NCL	19.4	<1.74	16.8	<1.74	16.7	<1.74	<1.74	<8.69	<1.74	17.8	2.58	17.2	8.47	<17.4	<17.4	<1.74	<17.4	4.15
Xylenes (Calculated: o + m + p)	760	28	ND	24	ND	24	ND	ND	ND	ND	18	3.7	24	12	ND	ND	ND	ND	5.8

TABLE 9
SUMMARY OF SOIL GAS SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

Sample Location	Residential Recommended Interim Action Screening Level	TA-SG-09	TA-SG-09	TA-SG-10	TA-SG-10
Sample Name		TA-SG-09	TA-SG-09	TA-SG-10	TA-SG-10
Laboratory Sample ID(s)		L1831031-05	L1846282-06	L1831028-05	L1846284-03
SAMPDATE		08/07/2018	11/08/2018	08/07/2018	11/07/2018
Parameter (µg/m^3)					
Acetone	1,000,000	321	6.22	416	6.7
Allyl chloride	NCL	<3.13	<0.626	<1.25	<0.626
Benzene	110	<3.19	<0.639	<1.28	<0.639
Benzyl chloride	NCL	<5.18	<1.04	<2.07	<1.04
Bromodichloromethane	NCL	<6.7	<1.34	<2.68	<1.34
Bromoform	NCL	<10.3	<2.07	<4.14	<2.07
Bromomethane (Methyl bromide)	NCL	<3.88	<0.777	<1.55	<0.777
1,3-Butadiene	NCL	<2.21	<0.442	<0.885	<0.442
Carbon disulfide	NCL	<3.11	<0.623	1.65	<0.623
Carbon tetrachloride	NCL	<6.29	<1.26	<2.52	<1.26
Chlorobenzene	1,700	<4.61	<0.921	<1.84	<0.921
Chloroethane	140,000	<2.64	<0.528	<1.06	<0.528
Chloroform	37	<4.88	<0.977	5.08	<0.977
Chloromethane (Methyl chloride)	3,100	<2.07	<0.413	<0.826	<0.413
Cyclohexane	NCL	<3.44	<0.688	<1.38	<0.688
Dibromochloromethane	NCL	<8.52	<1.7	<3.41	<1.7
1,2-Dibromoethane (Ethylene dibromide)	NCL	<7.69	<1.54	<3.07	<1.54
1,2-Dichlorobenzene	NCL	<6.01	<1.2	<2.4	<1.2
1,3-Dichlorobenzene	100	<6.01	<1.2	<2.4	<1.2
1,4-Dichlorobenzene	220	<6.01	<1.2	<2.4	<1.2
Dichlorodifluoromethane	NCL	<4.94	2.93	2.07	3.28
1,1-Dichloroethane	530	<4.05	<0.809	<1.62	<0.809
1,2-Dichloroethane	NCL	<4.05	<0.809	<1.62	<0.809
1,1-Dichloroethylene	7,000	<3.96	<0.793	<1.59	<0.793
cis-1,2-Dichloroethylene	280	<3.96	<0.793	<1.59	<0.793
trans-1,2-Dichloroethylene	9,000	<3.96	<0.793	<1.59	<0.793
1,2-Dichloropropane	NCL	<4.62	<0.924	<1.85	<0.924
cis-1,3-Dichloropropene	NCL	<4.54	<0.908	<1.82	<0.908
trans-1,3-Dichloropropene	NCL	<4.54	<0.908	<1.82	<0.908
1,2-Dichlorotetrafluoroethane	NCL	<6.99	<1.4	<2.8	<1.4
1,4-Dioxane	NCL	<3.6	<0.721	<1.44	<0.721
Ethyl acetate	NCL	<9.01	<1.8	<3.6	<1.8
Ethyl Alcohol	630,000	<47.1	<9.42	<18.8	<9.42
Ethylbenzene	340	<4.34	<0.869	4.6	1.34
4-Ethyltoluene	NCL	<4.92	<0.983	<1.97	<0.983
n-Heptane	NCL	<4.1	<0.82	<1.64	<0.82
Hexachlorobutadiene	NCL	<10.7	<2.13	<4.27 [UJ]	<2.13
n-Hexane	24,000	<3.52	<0.705	5.18	0.789
2-Hexanone	NCL	<4.1	<0.82	<1.64	<0.82
Methyl ethyl ketone (2-Butanone)	NCL	<7.37	<1.47	5.63	<1.47
Methyl isobutyl ketone	NCL	<10.2	<2.05	<4.1	<2.05
Methyl tertiary butyl ether (MTBE)	3,300	<3.61	<0.721	<1.44	<0.721
Methylene Chloride	21,000	<8.69	<1.74	<3.47	<1.74
Naphthalene	NCL	<5.24	<1.05	<2.1	<1.05
Propylene	NCL	<4.3	<0.861	2.29	<0.861
2-Propanol	NCL	<6.15	<1.23	7.92	7.42
Styrene	NCL	<4.26	<0.852	<1.7	<0.852
1,1,2,2-Tetrachloroethane	NCL	<6.87	<1.37	<2.75	<1.37
Tetrachloroethylene	1,400	<6.78	1.49	<2.71	<1.36
Tetrahydrofuran	NCL	<7.37	<1.47	<2.95	5.34
Toluene	170,000	6.59	<0.754	13.8	3.26
1,1,2-Trichloro-1,2,2-trifluoroethane	NCL	<7.66	<1.53	<3.07	<1.53
1,2,4-Trichlorobenzene	70	<7.42	<1.48	<2.97 [UJ]	<1.48
1,1,1-Trichloroethane	170,000	<5.46	2.4	5.09	3
1,1,2-Trichloroethane	NCL	<5.46	<1.09	<2.18	<1.09
Trichloroethylene	67	<5.37	<1.07	<2.15	<1.07
Trichlorofluoromethane	NCL	205	205	18.5	28.5
1,2,4-Trimethylbenzene	2,100	<4.92	<0.983	4.62	<0.983
1,3,5-Trimethylbenzene	2,100	<4.92	<0.983	<1.97	<0.983
2,2,4-Trimethylpentane	NCL	<4.67	<0.934	<1.87	1.34
Vinyl Acetate	7,000	<17.6	<3.52	<7.04	<3.52
Vinyl Bromide	NCL	<4.37	<0.874	<1.75	<0.874
Vinyl Chloride	54	<2.56	<0.511	<1.02	<0.511
o-Xylene	NCL	<4.34	<0.869	5.6	1.72
m+p - Xylenes	NCL	<8.69	<1.74	14.5	3.94
Xylenes (Calculated: o + m + p)	760	ND	ND	20	5.7

TABLE 9
SUMMARY OF SOIL GAS SAMPLE ANALYSIS - VOCS
Former Tannery
Rockford, Kent County, Michigan

NOTES:

1. Concentration and criteria units are micrograms per cubic meter (µg/m^3). Calculated concentrations are rounded to two significant digits and "ND" indicates the parameters used in the calculation were not detected.
2. Residential Recommended Interim Action Screening Levels were based on MDEQ's Toxics Steering Group's "Media-Specific Interim Action Screening Levels," published in August 2017.
   Abbreviations Include:
   "NCL" indicates no value listed in the Media-Specific Interim Action Screening Levels table.
3. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Residential Recommended Interim Action Screening Level.
4. Abbreviations include:
   "< RL" indicates the parameter was analyzed for but not detected above the method detection limit; RL = Reporting Limit.
   "DUP" indicates a duplicate sample.
   "UJ" indicates the analyte was analyzed for but was not detected. The reported quantitation limit is approximate.
5. Soil gas well TA-SG-06 was replaced with TA-SG-06 (R) prior to second round sampling. The replacement well is located approximately 3 feet southwest of the original location.
6. Data from samples collected prior to October 1, 2018 have been validated and validator qualifiers are presented. Data from samples collected after October 1, 2018 have not been validated and original laboratory qualifiers are presented.

Figures

LEGEND

= APPROX. LOCATION OF SITE BOUNDARY

NOTES:

1) BASE MAP DERIVED FROM NEDERVELD SITE SURVEY DATED NOVEMBER 22, 2013
2) DIGITAL AERIAL ORTHOPHOTOGRAPHY WAS COLLECTED BY GOOGLE EARTH IN APRIL 2016

SCALE: 1" = 300'

0' 300'

LOCATION PLAN

NORTH

NORTH ORIENTATION

ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL–ENVIRONMENTAL–ECOLOGICAL
WATER–CONSTRUCTION MANAGEMENT

WOLVERINE WORLD WIDE/
WARNER, NORCROSS & JUDD
FORMER TANNERY SITE, 123 MAIN ST, ROCKFORD, MICHIGAN
2018 DATA SUMMARY REPORT

PROJECT NO. 16.0062335.02

1

FIGURE NO.

CREATED BY: KJB APPROVED BY: JMW DATE: 10/16/18 FILE NAME: 62335_02_18DSR_FIG1

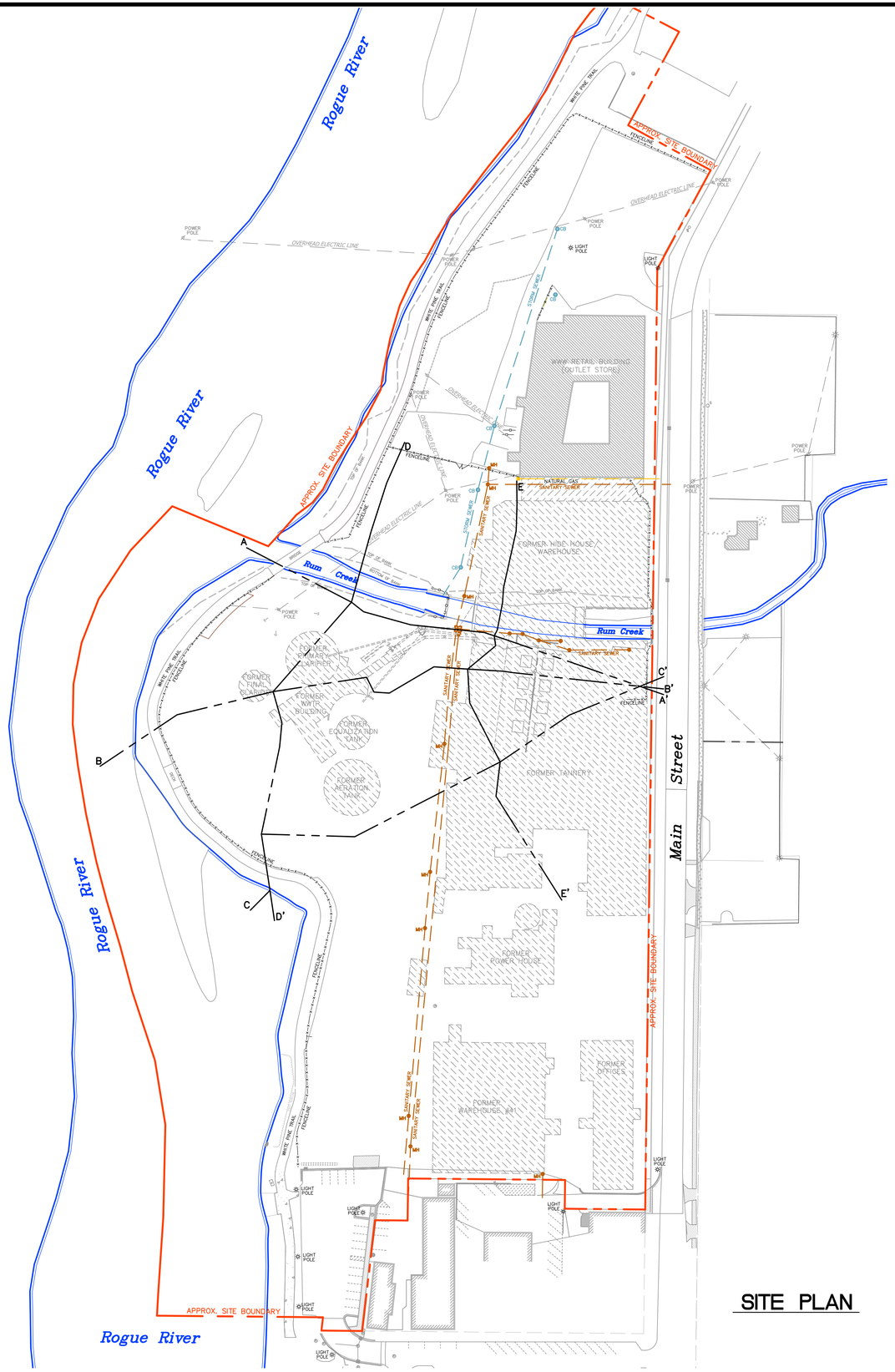
LEGEND

- = INDICATES APPROXIMATE FORMER LOCATION OF HISTORICAL STRUCTURE. REFER TO APPENDIX C FOR ADDITIONAL INFORMATION
- = APPROXIMATE LOCATION OF EXISTING STRUCTURE
- FENCELINE = APPROXIMATE LOCATION OF FENCELINE
- LIGHT POLE = APPROXIMATE LOCATION OF LIGHT POLE
- POWER POLE = APPROXIMATE LOCATION OF POWER POLE
- MH = APPROXIMATE LOCATION OF MANHOLE
- CB = APPROXIMATE LOCATION OF CATCHBASIN
- SANITARY SEWER = APPROXIMATE LOCATION OF SANITARY SEWER LINE
- OVERHEAD ELECTRIC LINE = APPROXIMATE LOCATION OF OVERHEAD ELECTRIC LINE
- APPROX. SITE BOUNDARY = APPROXIMATE LOCATION OF SITE BOUNDARY
- = APPROXIMATE LOCATION OF GUARD RAIL

UTILITY NOTES:

1) COMMUNICATION LINES AND WATER MAIN RUNS NORTH-SOUTH ALONG THE WEST SIDE OF MAIN STREET.
2) ELECTRICAL SERVICE ENTERS THE RETAIL BUILDING NEAR THE NORTHWEST CORNER OF THAT BUILDING.
3) THE WATER SERVICE ENTERS THE RETAIL BLDG. AT THE EAST SIDE.

NOTE:
1) BASE MAP DERIVED FROM NEDERVELD SITE SURVEY DATED NOVEMBER 22, 2013



SITE PLAN

NORTH

SCALE: 1" = 75'

DRAWN BY	DESIGN BY	DATE
KJB	JMM	1/10/19

FILE NO.: 62335_02_18dwg

NO.	REVISIONS	BY	DATE

REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

WOLVERINE WORLD WIDE/ WARNER, NORCROSS and JUDD

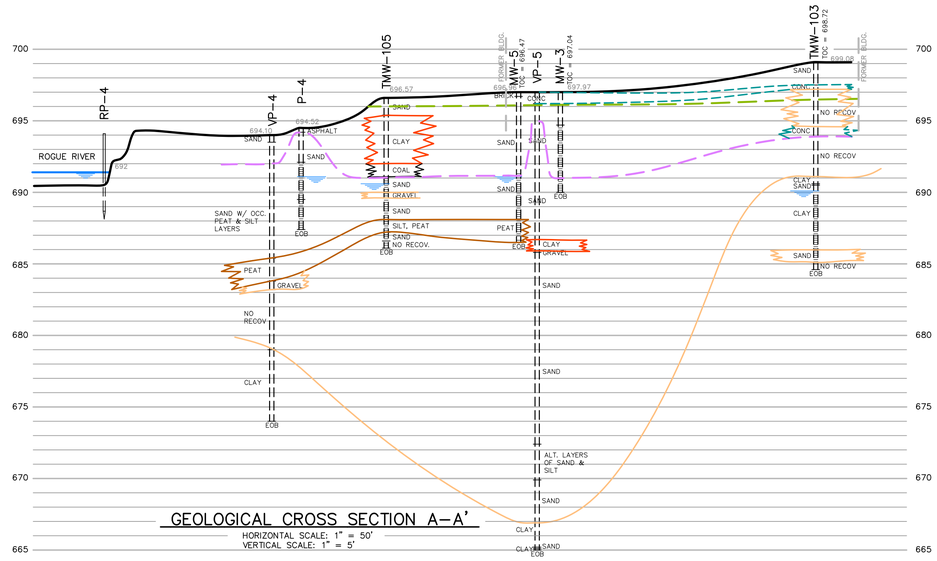
FORMER TANNERY SITE, 123 MAIN ST, ROCKFORD, MI

2018 DATA SUMMARY REPORT

ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL- ENVIRONMENTAL- ECOLOGICAL- WATER- CONSTRUCTION MANAGEMENT

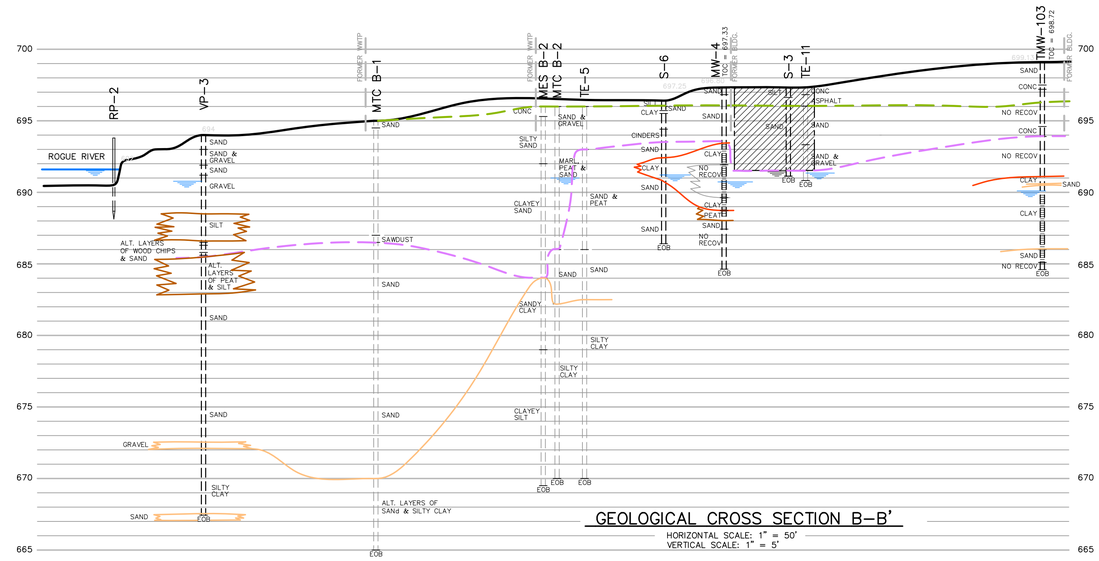
PROJECT NO. 16.0062335.02

SHEET NO. 2



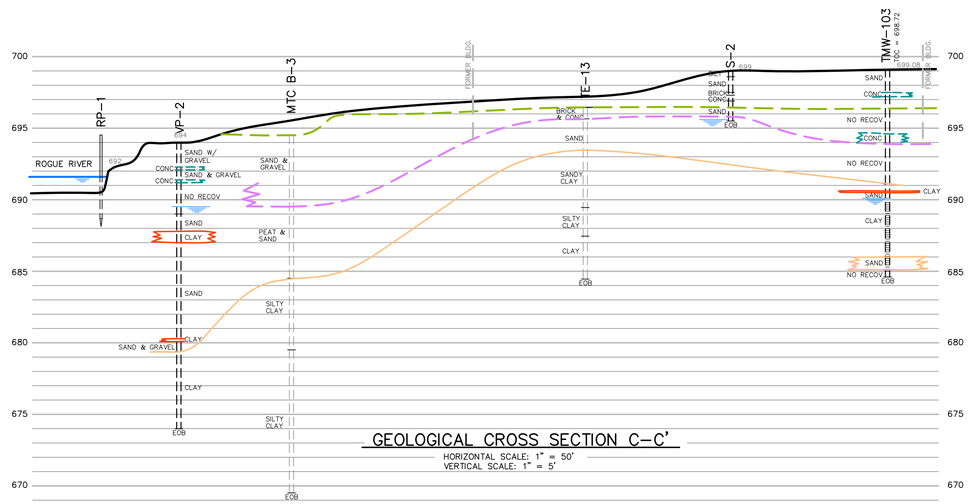
GEOLOGICAL CROSS SECTION A–A'

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



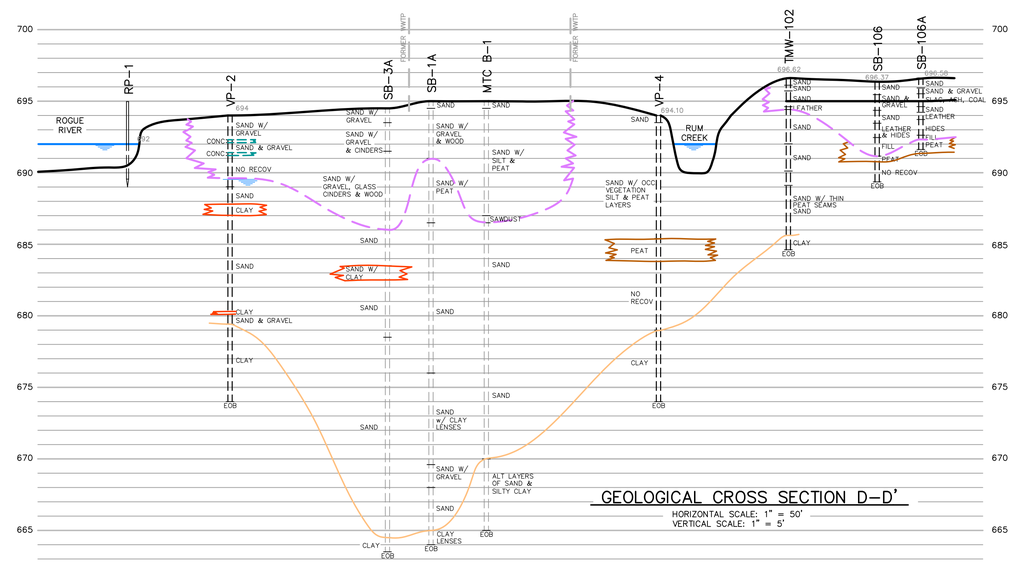
GEOLOGICAL CROSS SECTION B–B'

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



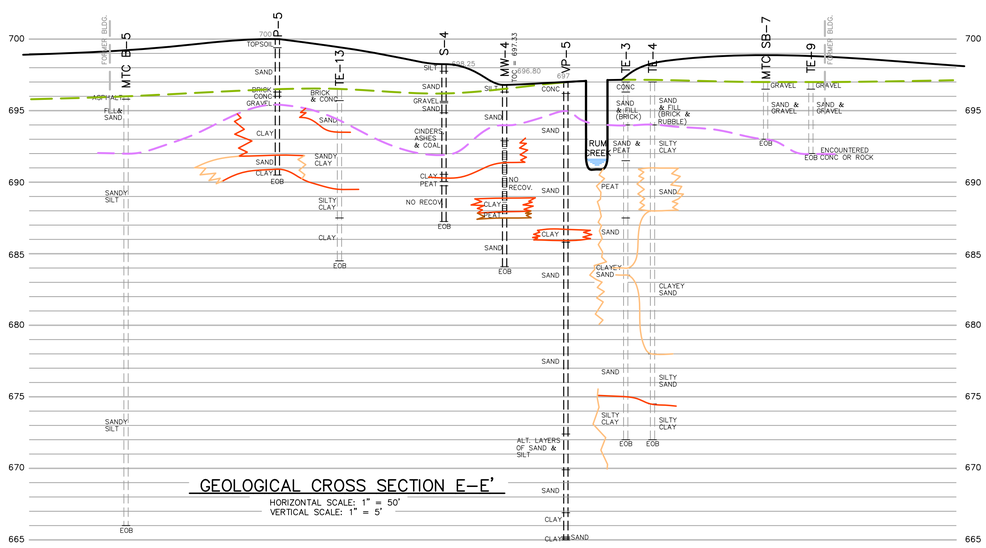
GEOLOGICAL CROSS SECTION C–C'

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



GEOLOGICAL CROSS SECTION D–D'

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



GEOLOGICAL CROSS SECTION E–E'

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

LEGEND

= BOTTOM OF FILL (POST–TANNERY DEMOLITION)

= BOTTOM OF FILL (HISTORICAL)

DRAWN BY	DESIGN BY	DATE
KJB	JMM	10/26/18

FILE NO.: 62935_02_1950

NO.	REVISIONS	BY	DATE

REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

WOLVERINE WORLD WIDE/ WARNER, NORCROSS and JUDD

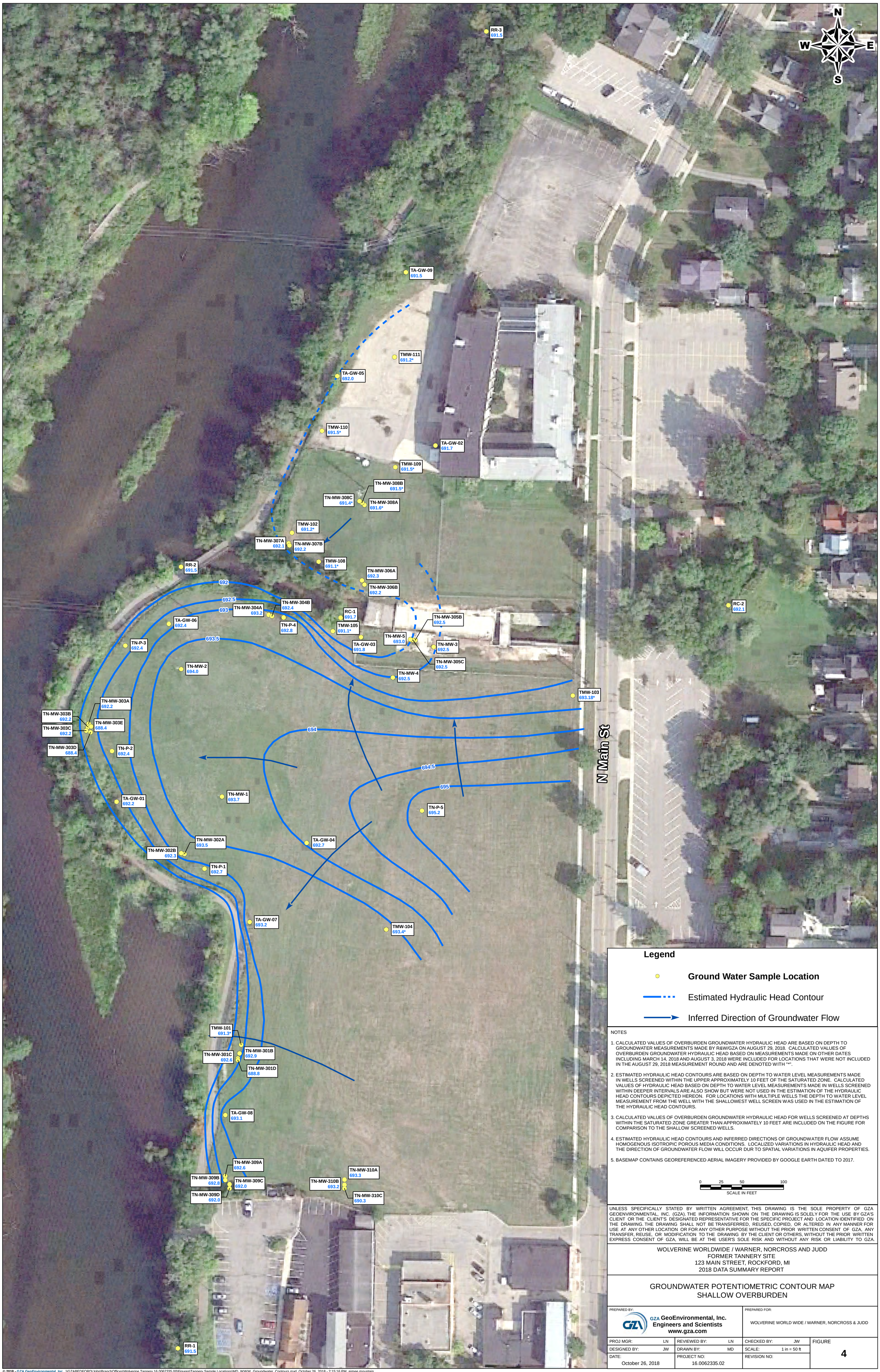
FORMER TANNERY - ROCKFORD, MICHIGAN

2018 DATA SUMMARY REPORT

ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL–ENVIRONMENTAL–ECOLOGICAL–WATER–CONSTRUCTION MANAGEMENT

PROJECT NO.
16.0062335.02

SHEET NO.
3



NOTES

1. CALCULATED VALUES OF OVERBURDEN GROUNDWATER HYDRAULIC HEAD ARE BASED ON DEPTH TO GROUNDWATER MEASUREMENTS MADE BY R&W/GZA ON AUGUST 29, 2018. CALCULATED VALUES OF OVERBURDEN GROUNDWATER HYDRAULIC HEAD BASED ON MEASUREMENTS MADE ON OTHER DATES INCLUDING MARCH 14, 2018 AND AUGUST 3, 2018 WERE INCLUDED FOR LOCATIONS THAT WERE NOT INCLUDED IN THE AUGUST 29, 2018 MEASUREMENT ROUND AND ARE DENOTED WITH "*".

2. ESTIMATED HYDRAULIC HEAD CONTOURS ARE BASED ON DEPTH TO WATER LEVEL MEASUREMENTS MADE IN WELLS SCREENED WITHIN THE UPPER APPROXIMATELY 10 FEET OF THE SATURATED ZONE. CALCULATED VALUES OF HYDRAULIC HEAD BASED ON DEPTH TO WATER LEVEL MEASUREMENTS MADE IN WELLS SCREENED WITHIN DEEPER INTERVALS ARE ALSO SHOW BUT WERE NOT USED IN THE ESTIMATION OF THE HYDRAULIC HEAD CONTOURS DEPICTED HEREON. FOR LOCATIONS WITH MULTIPLE WELLS THE DEPTH TO WATER LEVEL MEASUREMENT FROM THE WELL WITH THE SHALLOWEST WELL SCREEN WAS USED IN THE ESTIMATION OF THE HYDRAULIC HEAD CONTOURS.

3. CALCULATED VALUES OF OVERBURDEN GROUNDWATER HYDRAULIC HEAD FOR WELLS SCREENED AT DEPTHS WITHIN THE SATURATED ZONE GREATER THAN APPROXIMATELY 10 FEET ARE INCLUDED ON THE FIGURE FOR COMPARISON TO THE SHALLOW SCREENED WELLS.

4. ESTIMATED HYDRAULIC HEAD CONTOURS AND INFERRED DIRECTIONS OF GROUNDWATER FLOW ASSUME HOMOGENOUS ISOTROPIC POROUS MEDIA CONDITIONS. LOCALIZED VARIATIONS IN HYDRAULIC HEAD AND THE DIRECTION OF GROUNDWATER FLOW WILL OCCUR DUR TO SPATIAL VARIATIONS IN AQUIFER PROPERTIES.

5. BASEMAP CONTAINS GEOREFERENCED AERIAL IMAGERY PROVIDED BY GOOGLE EARTH DATED TO 2017.

0 25 50 100
SCALE IN FEET

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FORMER TANNERY SITE
123 MAIN STREET, ROCKFORD, MI
2018 DATA SUMMARY REPORT

GROUNDWATER POTENTIOMETRIC CONTOUR MAP SHALLOW OVERBURDEN

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Engineers and Scientists
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PREPARED FOR:
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PROJ MGR:	LN	REVIEWED BY:	LN	CHECKED BY:	JW	FIGURE	
DESIGNED BY:	JW	DRAWN BY:	MD	SCALE:	1 in = 50 ft	4	
DATE:	October 26, 2018	PROJECT NO:	16.0062335.02	REVISION NO:			

© 2018 - GZA GeoEnvironmental, Inc. \\GZABEDFORD\Jobs\BranchOffices\Wolverine Tannery 16.0062335.00\Figures\Tannery Sample Locations\MD_WWW_Groundwater_Contours.mxd, October 26, 2018 - 2:15:16 PM, aimee.mountain

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SOIL BORING LOCATIONS

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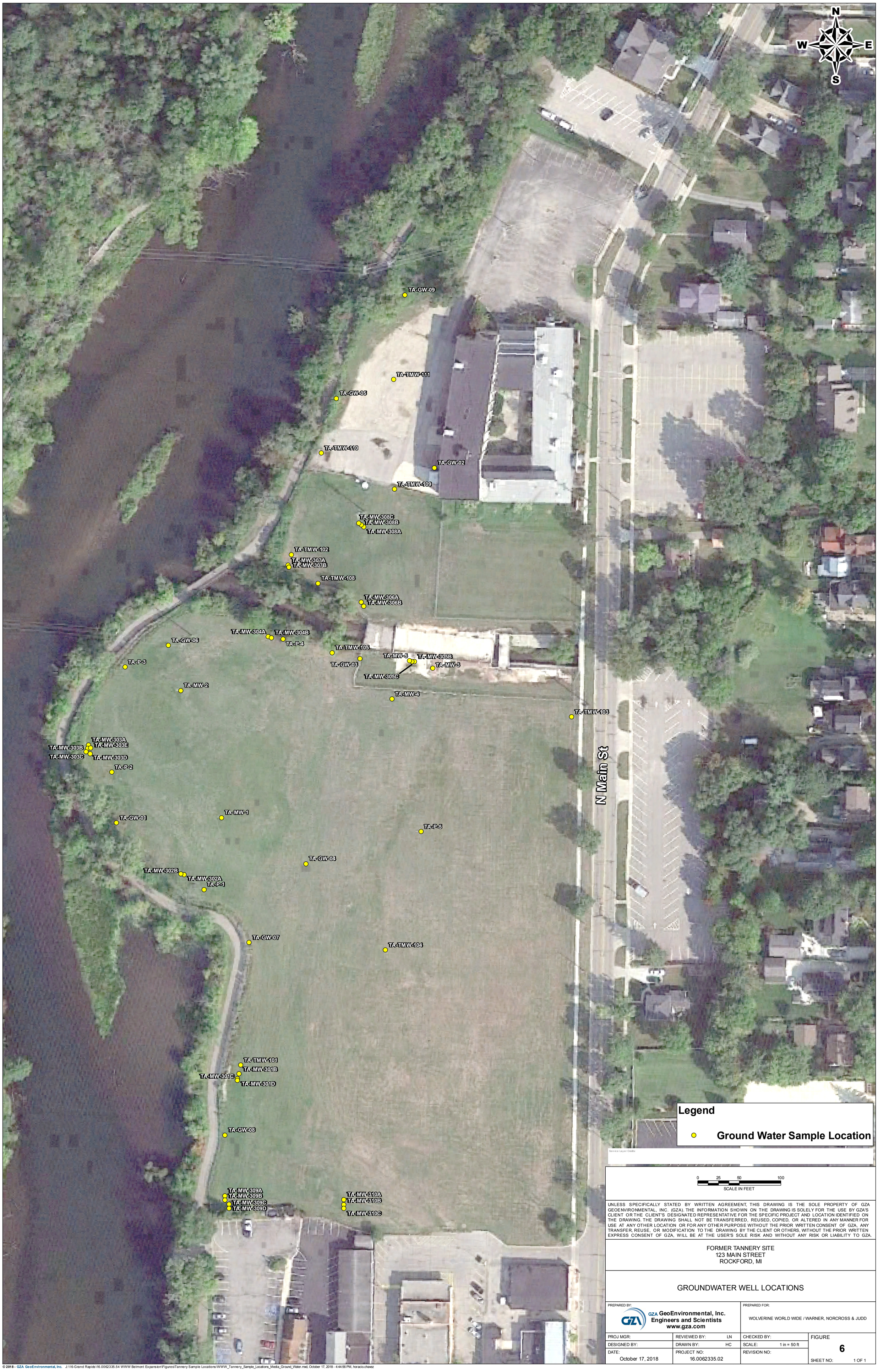
PROJ MGR:	REVIEWED BY: LN	CHECKED BY:	FIGURE
DESIGNED BY:	DRAWN BY: HC	SCALE: 1 in = 65 ft	5
DATE: October 17, 2018	PROJECT NO: 16.0062335.02	REVISION NO:	SHEET NO: 1 OF 1

© 2018 - GZA GeoEnvironmental, Inc. J:\16-Grand Rapids\16.0062335.54 WWW Belmont Expansion\Figures\Tannery Sample Locations\WWW_Tannery_Sample_Locations_Media_Soil.mxd, October 17, 2018 - 4:48:05 PM, horacio.chavez



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GROUNDWATER WELL LOCATIONS

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PROJ MGR:	REVIEWED BY: LN	CHECKED BY:	FIGURE
DESIGNED BY:	DRAWN BY: HC	SCALE: 1 in = 50 ft	6
DATE: October 17, 2018	PROJECT NO: 16.0062335.02	REVISION NO:	SHEET NO: 1 OF 1

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0 75 150 300
SCALE IN FEET

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SURFACE WATER LOCATIONS

PROJ MGR:	PRM	REVIEWED BY:	PIC	CHECKED BY:	CR	FIGURE
DESIGNED BY:	DES	DRAWN BY:	HC	SCALE:	1 in = 150 ft	7
DATE: 10/25/2018		PROJECT NO: 16.0062335.02		REVISION NO:		SHEET NO: 1 OF 1

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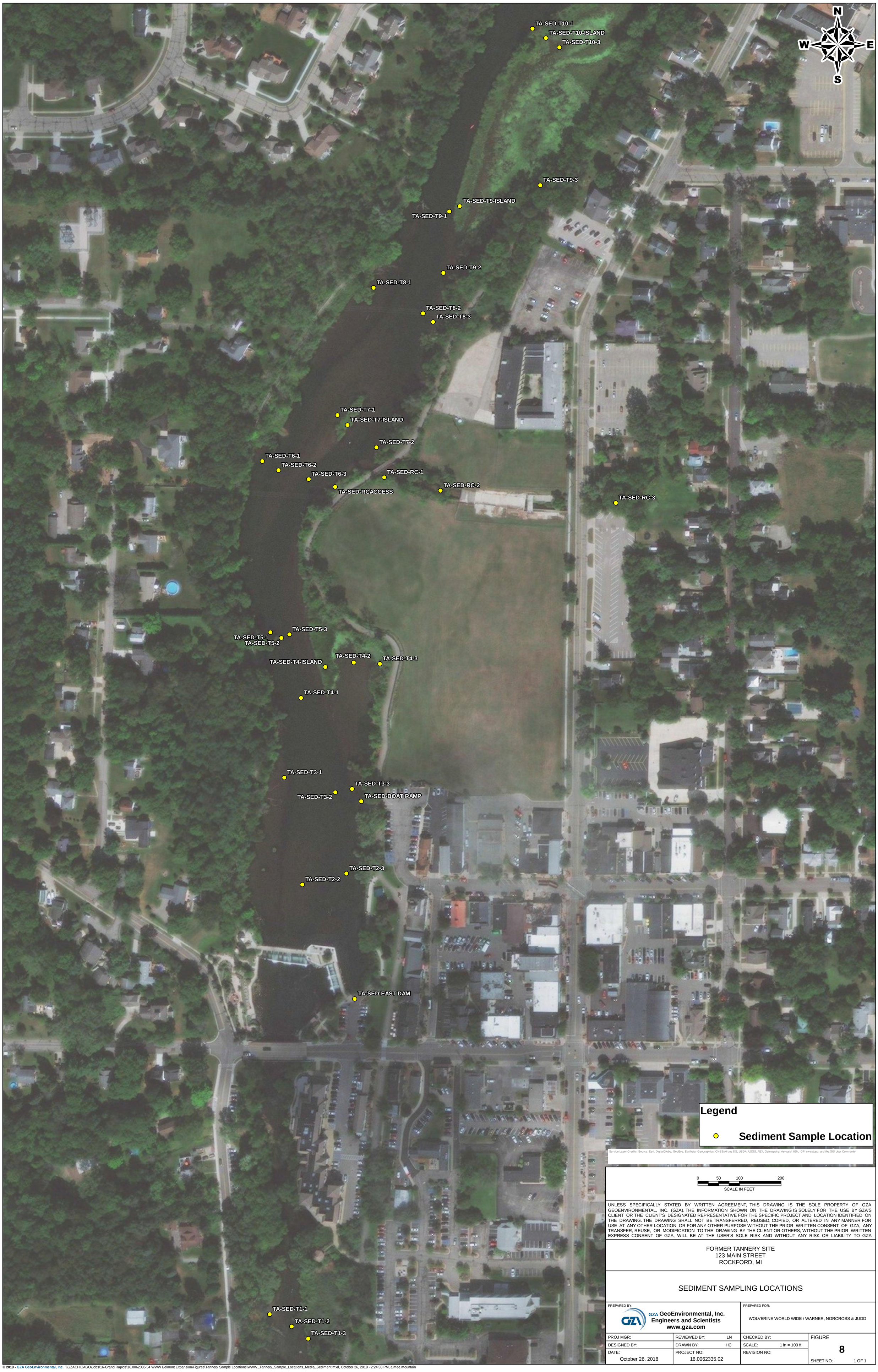

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SEDIMENT SAMPLING LOCATIONS

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: WOLVERINE WORLD WIDE / WARNER, NORCROSS & JUDD	
PROJ MGR:	REVIEWED BY: LN	CHECKED BY:	FIGURE
DESIGNED BY:	DRAWN BY: HC	SCALE: 1 in = 100 ft	8
DATE: October 26, 2018	PROJECT NO: 16.0062335.02	REVISION NO:	SHEET NO: 1 OF 1

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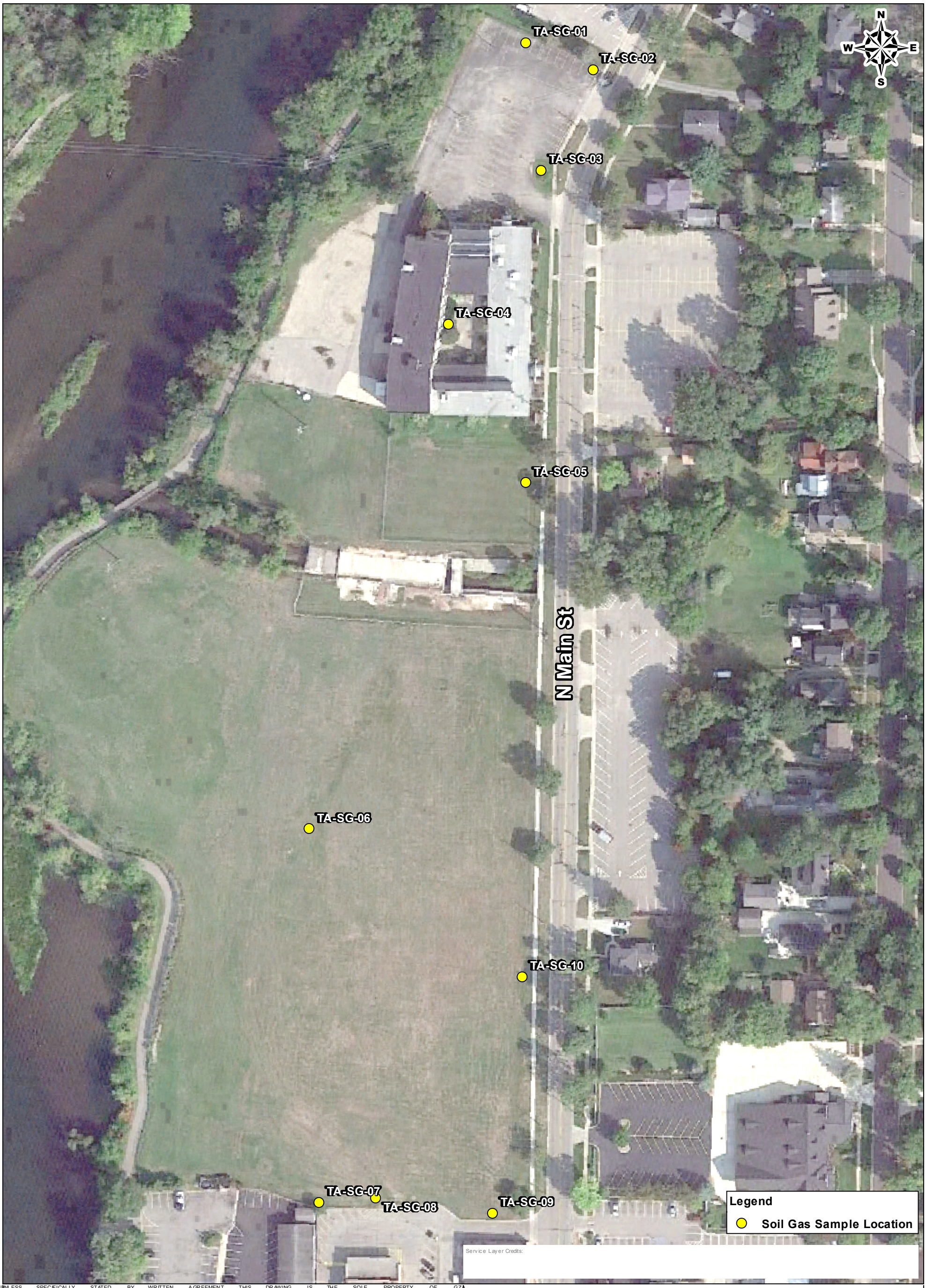

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0 50 100 200
SCALE IN FEET

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ROCKFORD, MI

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SOIL GAS SAMPLING LOCATIONS

PROJ MGR:	PRM	REVIEWED BY:	PIC	CHECKED BY:	CR	FIGURE
DESIGNED BY:	DES	DRAWN BY:	HC	SCALE:	1 in = 100 ft	9
DATE: 10/17/2018		PROJECT NO: 16.0062335.02		REVISION NO:		SHEET NO: 1 OF 1

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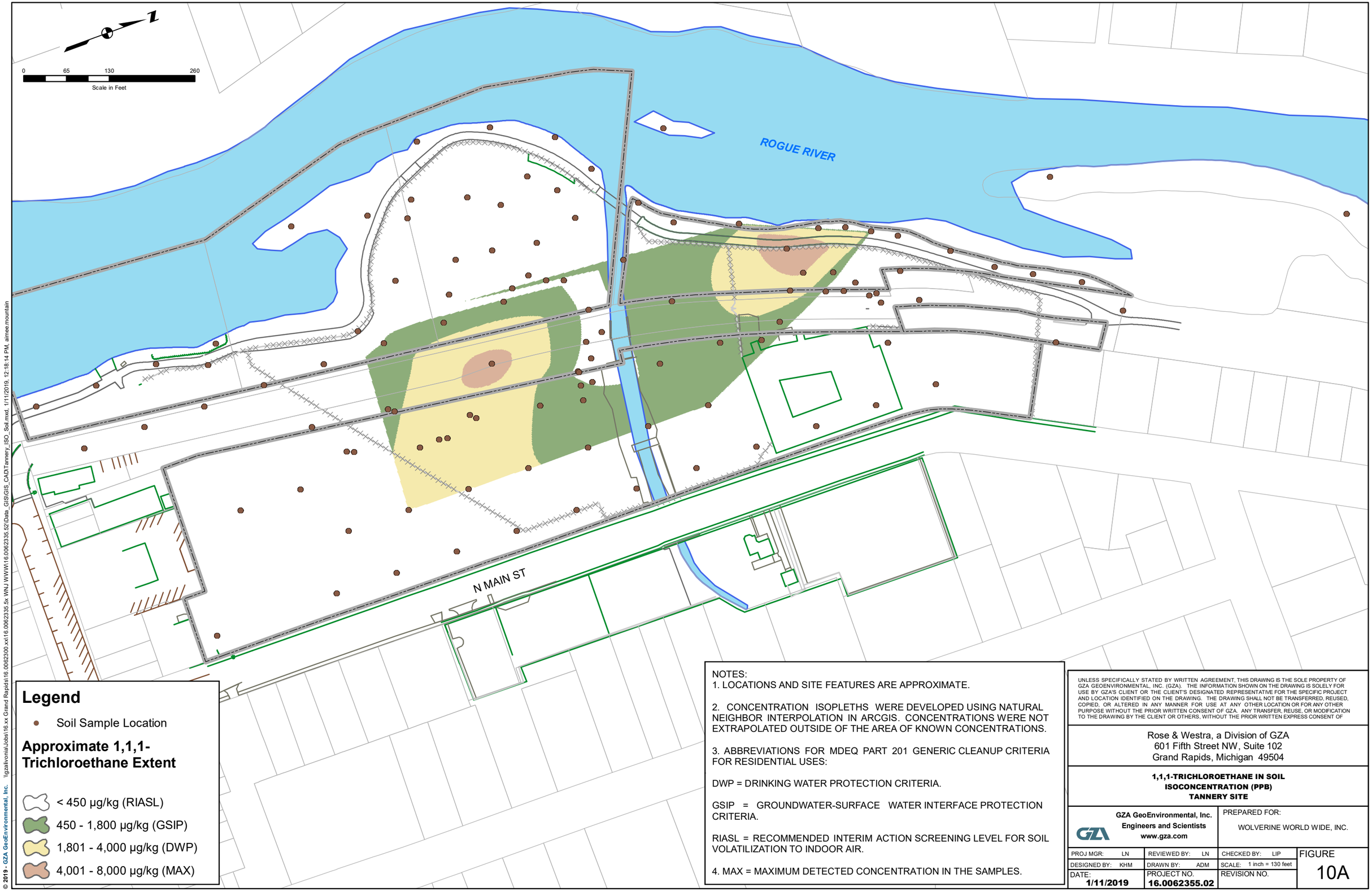

Legend

- Soil Sample Location

Approximate 1,1,1-Trichloroethane Extent

- < 450 µg/kg (RIASL)
- 450 - 1,800 µg/kg (GSIP)
- 1,801 - 4,000 µg/kg (DWP)
- 4,001 - 8,000 µg/kg (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.

3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

DWP = DRINKING WATER PROTECTION CRITERIA.

GSIP = GROUNDWATER-SURFACE WATER INTERFACE PROTECTION CRITERIA.

RIASL = RECOMMENDED INTERIM ACTION SCREENING LEVEL FOR SOIL VOLATILIZATION TO INDOOR AIR.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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1,1,1-TRICHLOROETHANE IN SOIL
ISOCONCENTRATION (PPB)
TANNERY SITE

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Engineers and Scientists
www.gza.com

PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10A
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.

3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

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RIASL = RECOMMENDED INTERIM ACTION SCREENING LEVEL FOR SOIL VOLATILIZATION TO INDOOR AIR.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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TOTAL XYLENES IN SOIL
ISOCONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10B
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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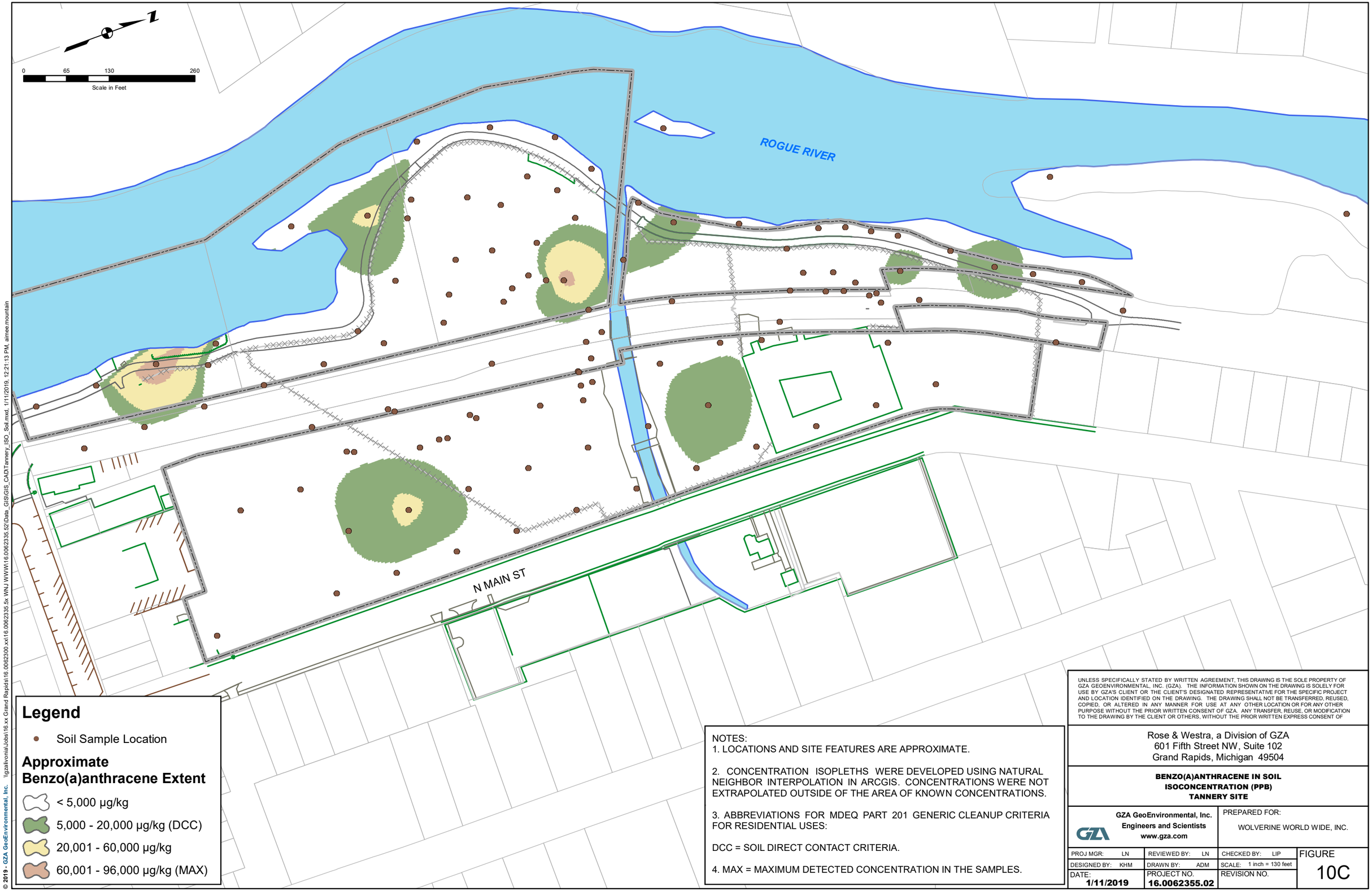

Legend

- Soil Sample Location

Approximate Benzo(a)anthracene Extent

- < 5,000 µg/kg
- 5,000 - 20,000 µg/kg (DCC)
- 20,001 - 60,000 µg/kg
- 60,001 - 96,000 µg/kg (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.

3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

DCC = SOIL DIRECT CONTACT CRITERIA.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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BENZO(A)ANTHRACENE IN SOIL
ISOCONCENTRATION (PPB)
TANNERY SITE

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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10C
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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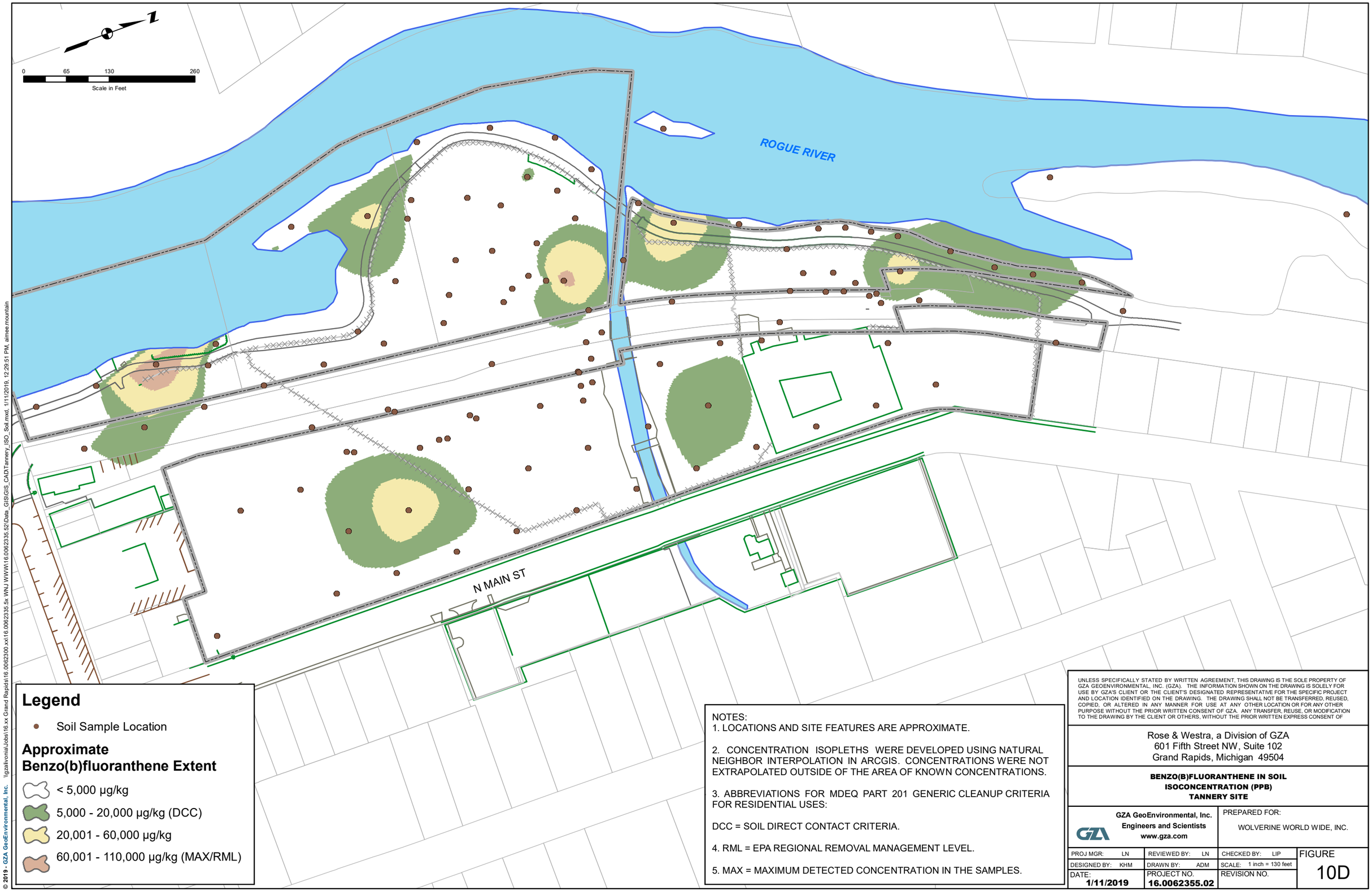

Legend

- Soil Sample Location

Approximate Benzo(b)fluoranthene Extent

- < 5,000 µg/kg
- 5,000 - 20,000 µg/kg (DCC)
- 20,001 - 60,000 µg/kg
- 60,001 - 110,000 µg/kg (MAX/RML)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.

3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

DCC = SOIL DIRECT CONTACT CRITERIA.

4. RML = EPA REGIONAL REMOVAL MANAGEMENT LEVEL.

5. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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BENZO(B)FLUORANTHENE IN SOIL
ISOCONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10D
DATE: **1/11/2019**	PROJECT NO. **16.0062355.02**	REVISION NO.	

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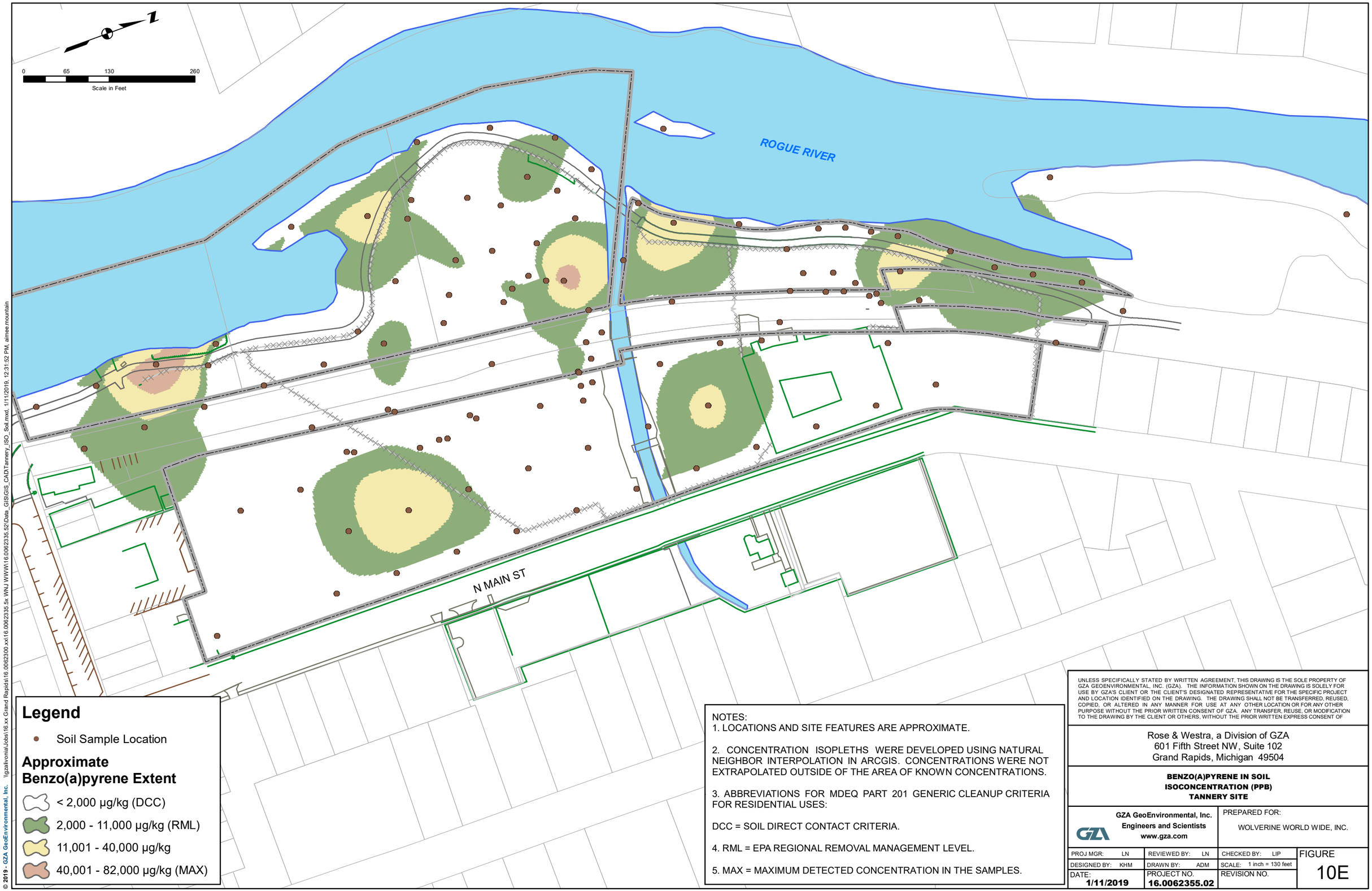

Legend

- Soil Sample Location

Approximate Benzo(a)pyrene Extent

- < 2,000 µg/kg (DCC)
- 2,000 - 11,000 µg/kg (RML)
- 11,001 - 40,000 µg/kg
- 40,001 - 82,000 µg/kg (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.

3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

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4. RML = EPA REGIONAL REMOVAL MANAGEMENT LEVEL.

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BENZO(A)PYRENE IN SOIL
ISOCONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10E
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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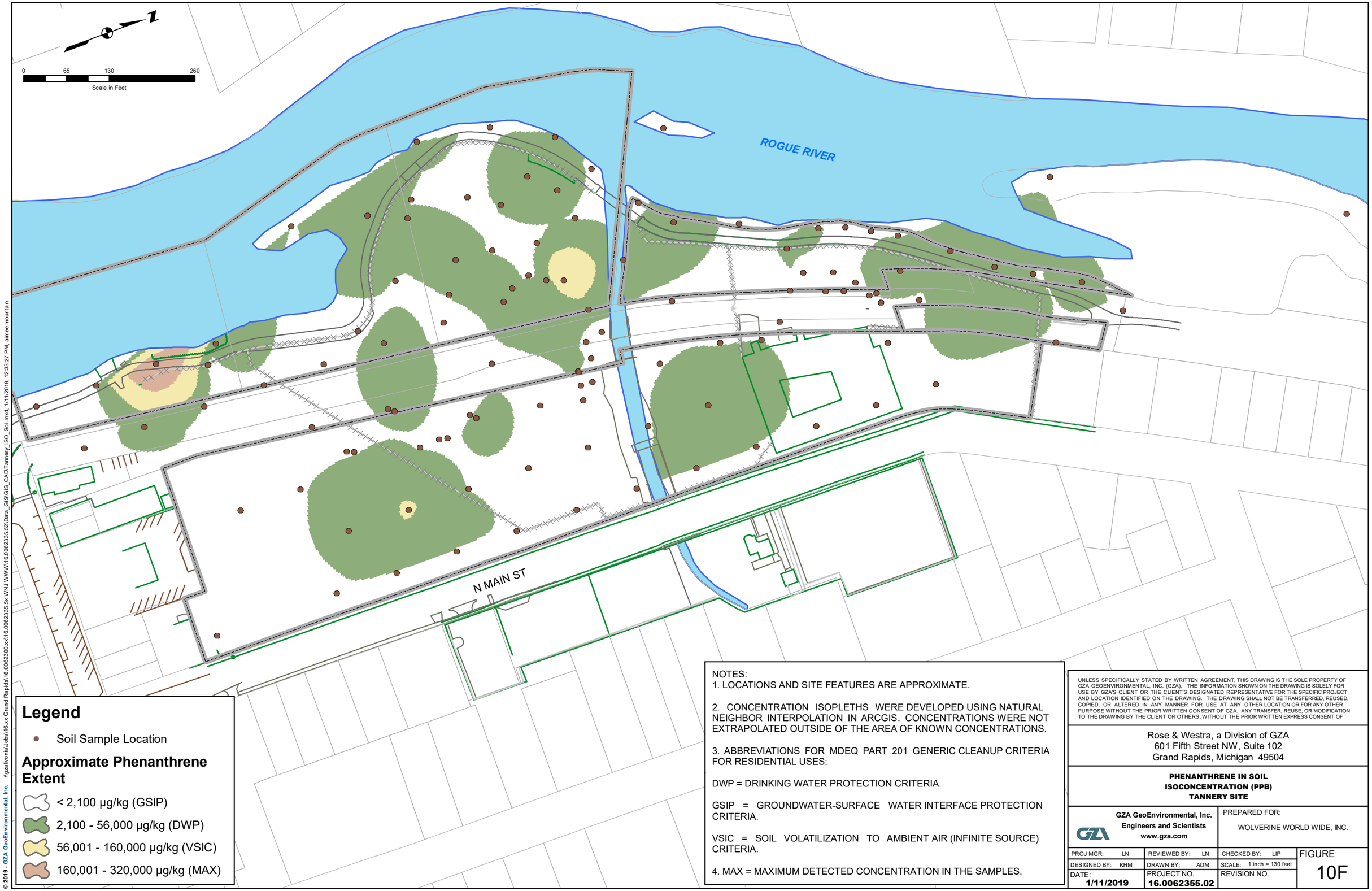

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- Soil Sample Location

Approximate Phenanthrene Extent

- < 2,100 µg/kg (GSIP)
- 2,100 - 56,000 µg/kg (DWP)
- 56,001 - 160,000 µg/kg (VSIC)
- 160,001 - 320,000 µg/kg (MAX)

NOTES:

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PHENANTHRENE IN SOIL
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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
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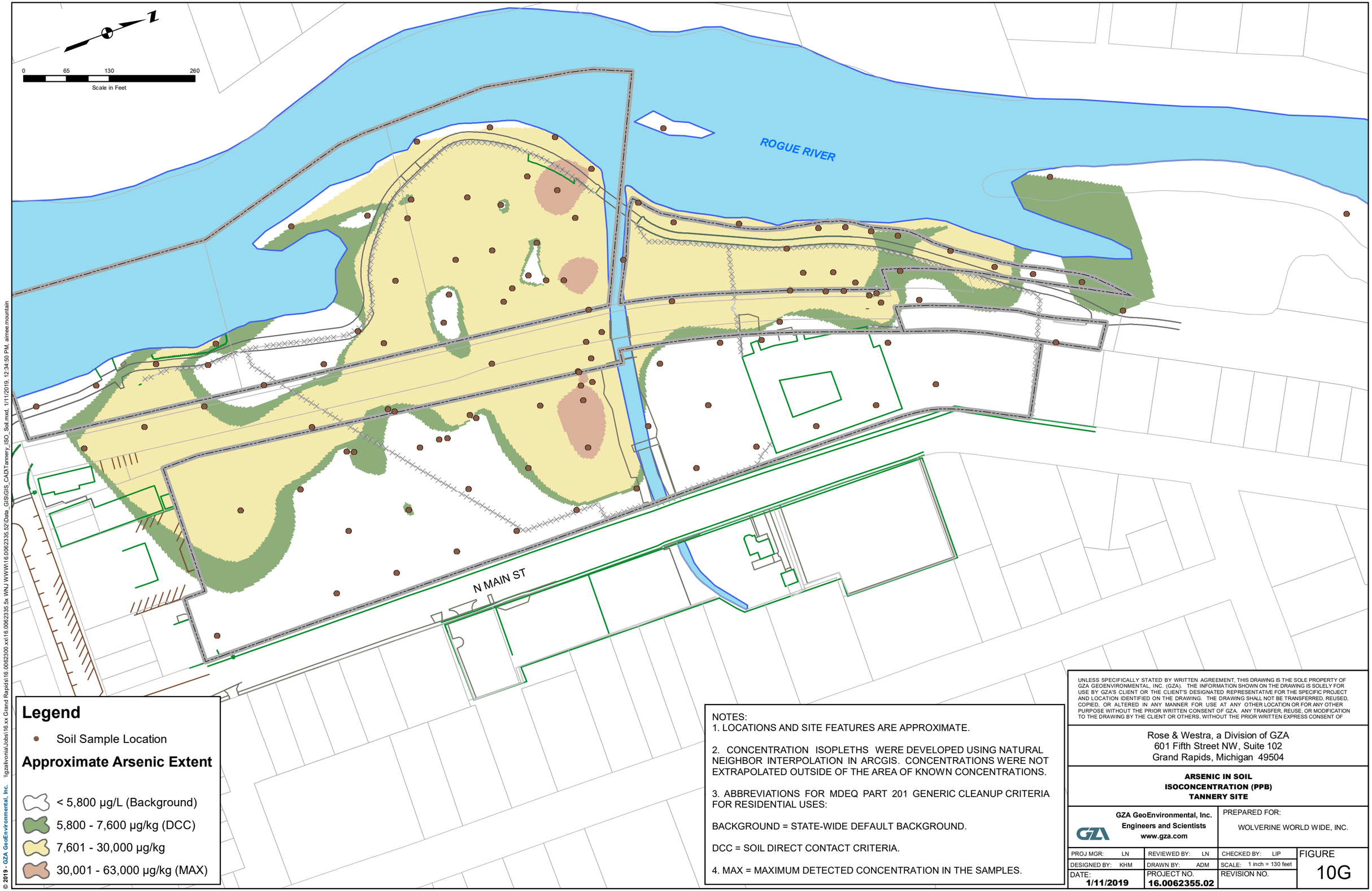

Legend

- Soil Sample Location

Approximate Arsenic Extent

- < 5,800 µg/L (Background)
- 5,800 - 7,600 µg/kg (DCC)
- 7,601 - 30,000 µg/kg
- 30,001 - 63,000 µg/kg (MAX)

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ARSENIC IN SOIL
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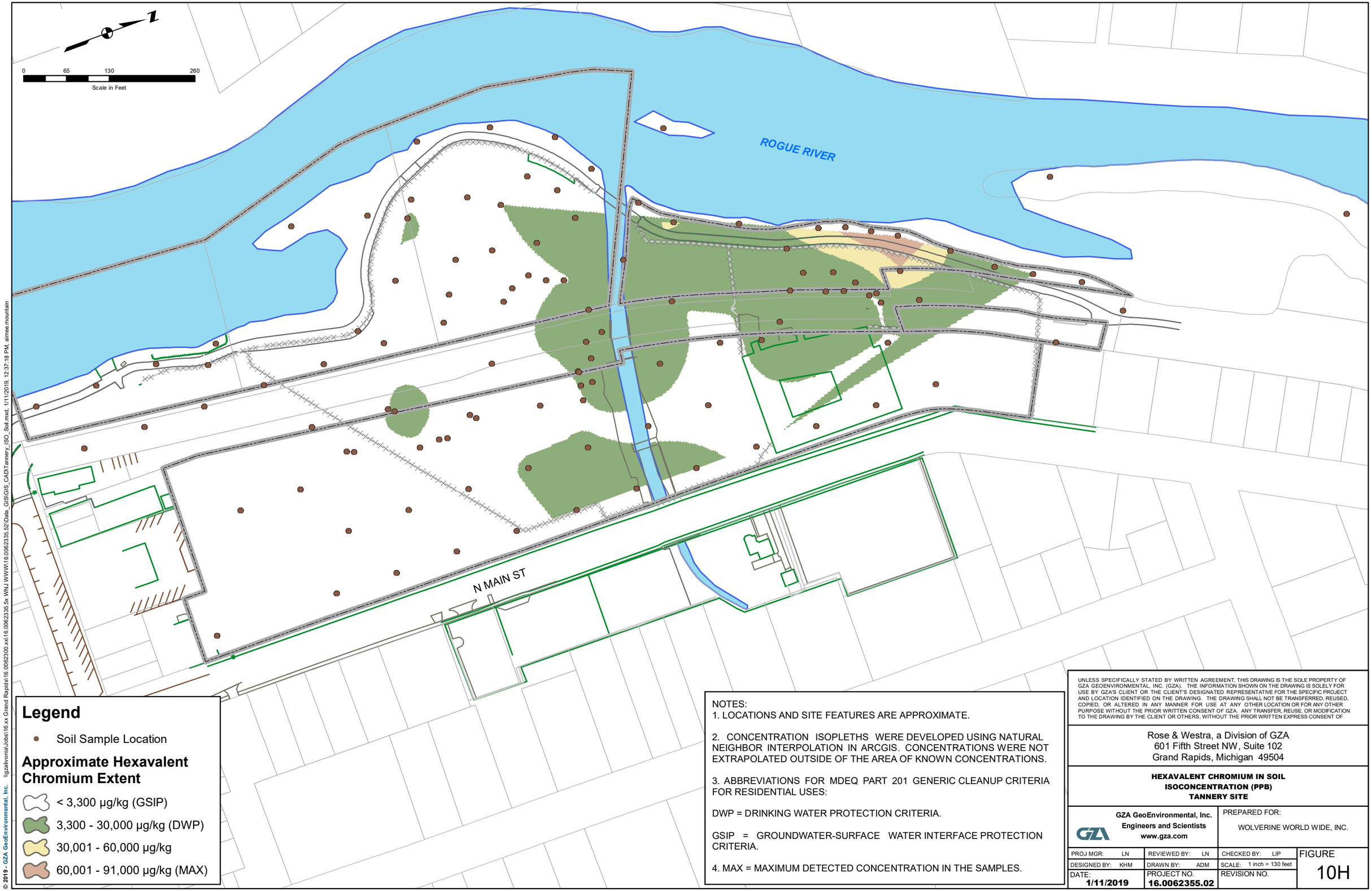

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- Soil Sample Location

Approximate Hexavalent Chromium Extent

- < 3,300 µg/kg (GSIP)
- 3,300 - 30,000 µg/kg (DWP)
- 30,001 - 60,000 µg/kg
- 60,001 - 91,000 µg/kg (MAX)

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HEXAVALENT CHROMIUM IN SOIL
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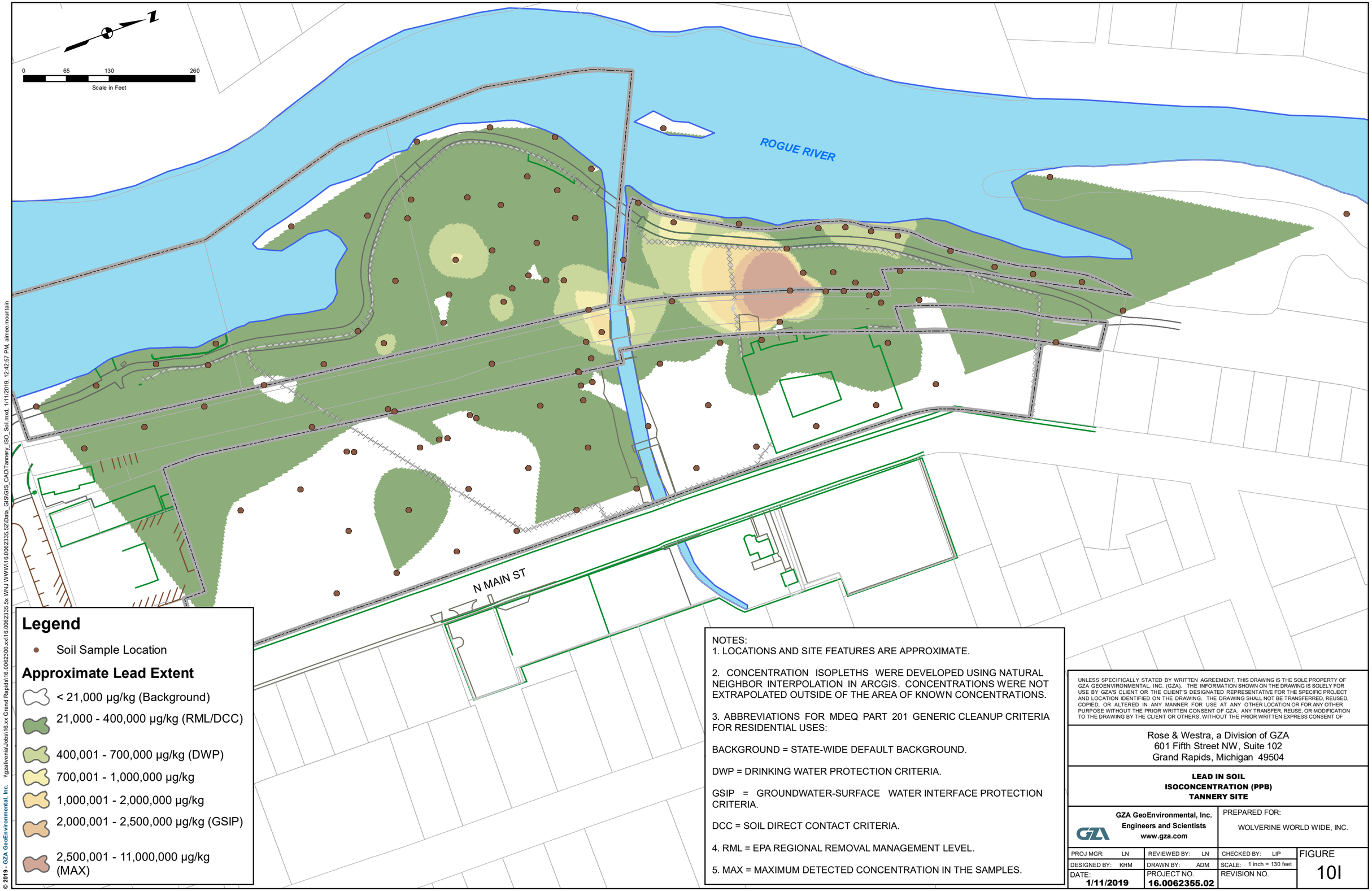

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- Soil Sample Location

Approximate Lead Extent

- < 21,000 µg/kg (Background)
- 21,000 - 400,000 µg/kg (RML/DCC)
- 400,001 - 700,000 µg/kg (DWP)
- 700,001 - 1,000,000 µg/kg
- 1,000,001 - 2,000,000 µg/kg
- 2,000,001 - 2,500,000 µg/kg (GSIP)
- 2,500,001 - 11,000,000 µg/kg (MAX)

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LEAD IN SOIL
ISOCONCENTRATION (PPB)
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DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10I
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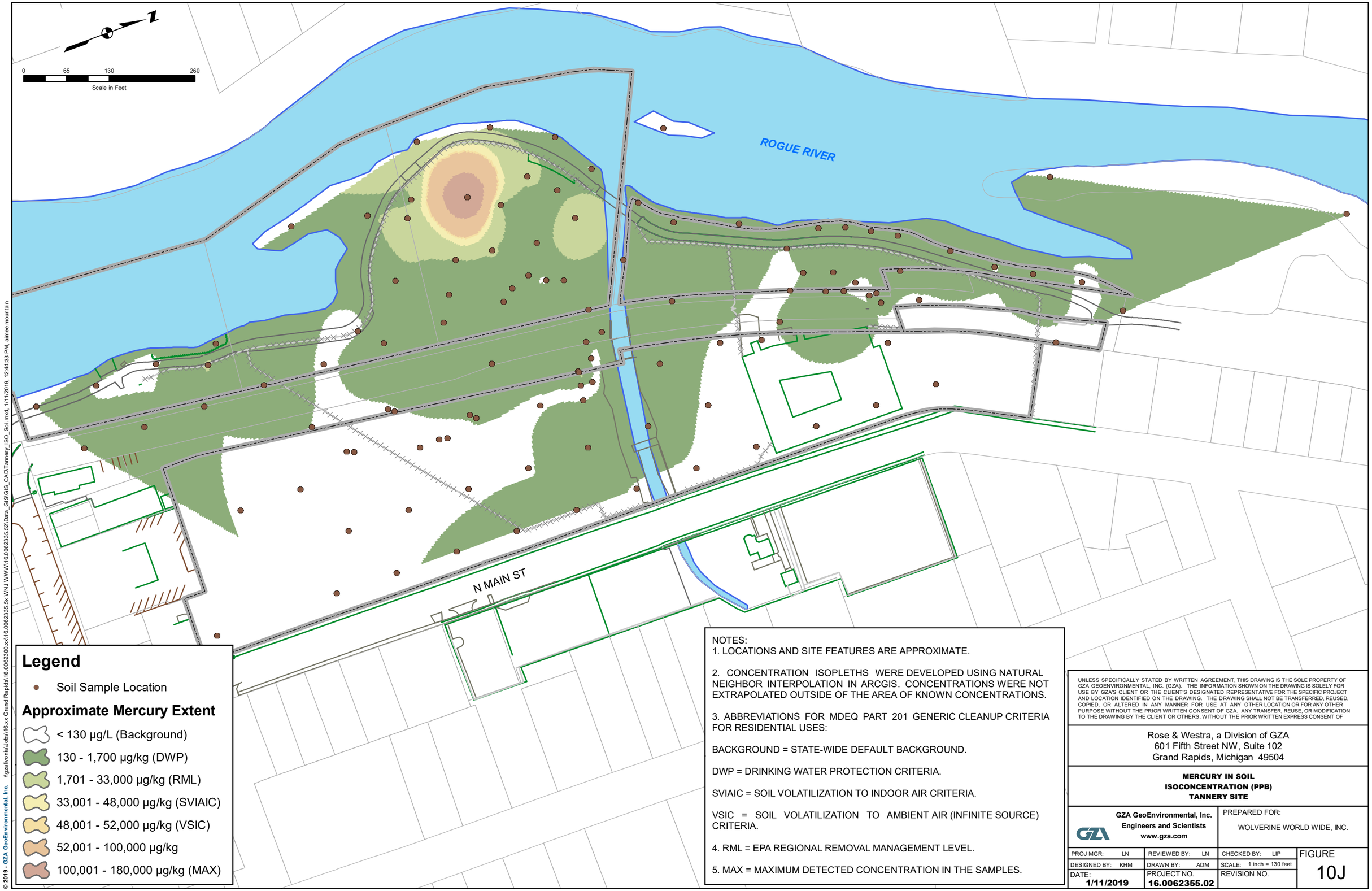

Legend

- Soil Sample Location

Approximate Mercury Extent

- < 130 µg/L (Background)
- 130 - 1,700 µg/kg (DWP)
- 1,701 - 33,000 µg/kg (RML)
- 33,001 - 48,000 µg/kg (SVIAIC)
- 48,001 - 52,000 µg/kg (VSIC)
- 52,001 - 100,000 µg/kg
- 100,001 - 180,000 µg/kg (MAX)

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MERCURY IN SOIL
ISOCONCENTRATION (PPB)
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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10J
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- Soil Sample Location

Approximate Vanadium Extent

- < 20,000 µg/kg
- 20,000 - 40,000 µg/kg
- 40,001 - 72,000 µg/kg (DWP)
- 72,001 - 110,000 µg/kg (MAX)

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VANADIUM IN SOIL
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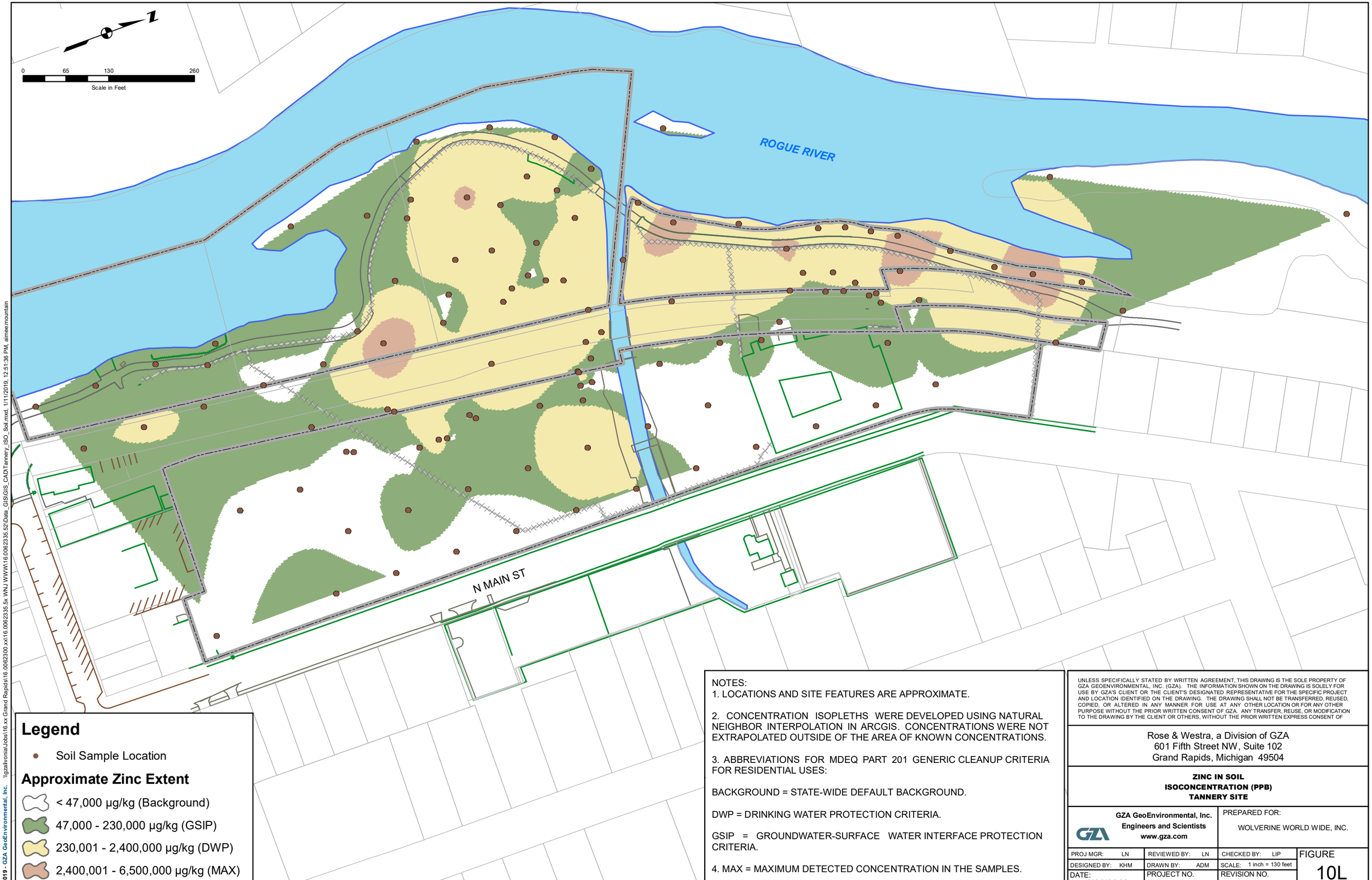

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- Soil Sample Location

Approximate Zinc Extent

- < 47,000 µg/kg (Background)
- 47,000 - 230,000 µg/kg (GSIP)
- 230,001 - 2,400,000 µg/kg (DWP)
- 2,400,001 - 6,500,000 µg/kg (MAX)

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ZINC IN SOIL
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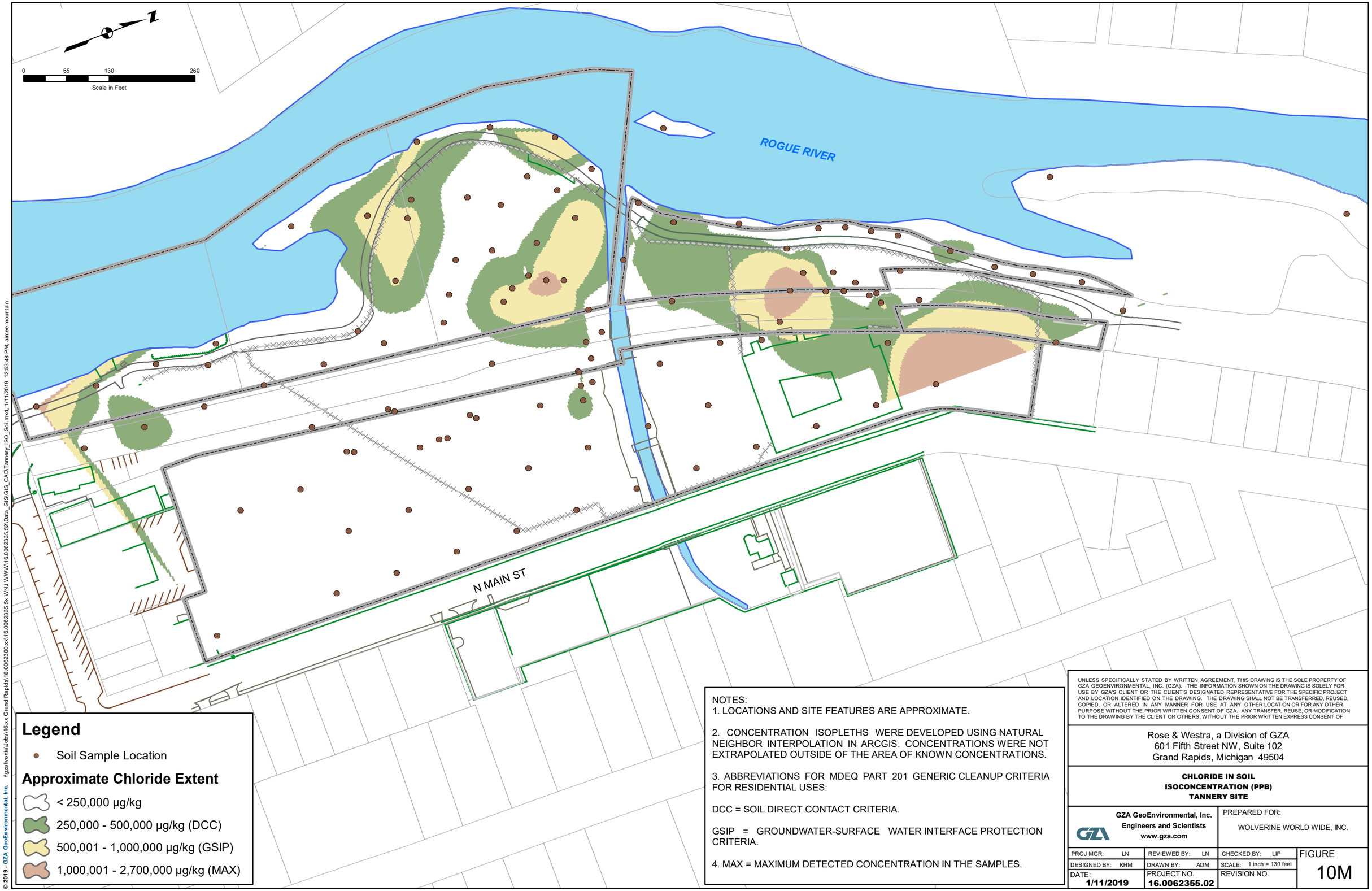

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- Soil Sample Location

Approximate Chloride Extent

- < 250,000 µg/kg
- 250,000 - 500,000 µg/kg (DCC)
- 500,001 - 1,000,000 µg/kg (GSIP)
- 1,000,001 - 2,700,000 µg/kg (MAX)

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DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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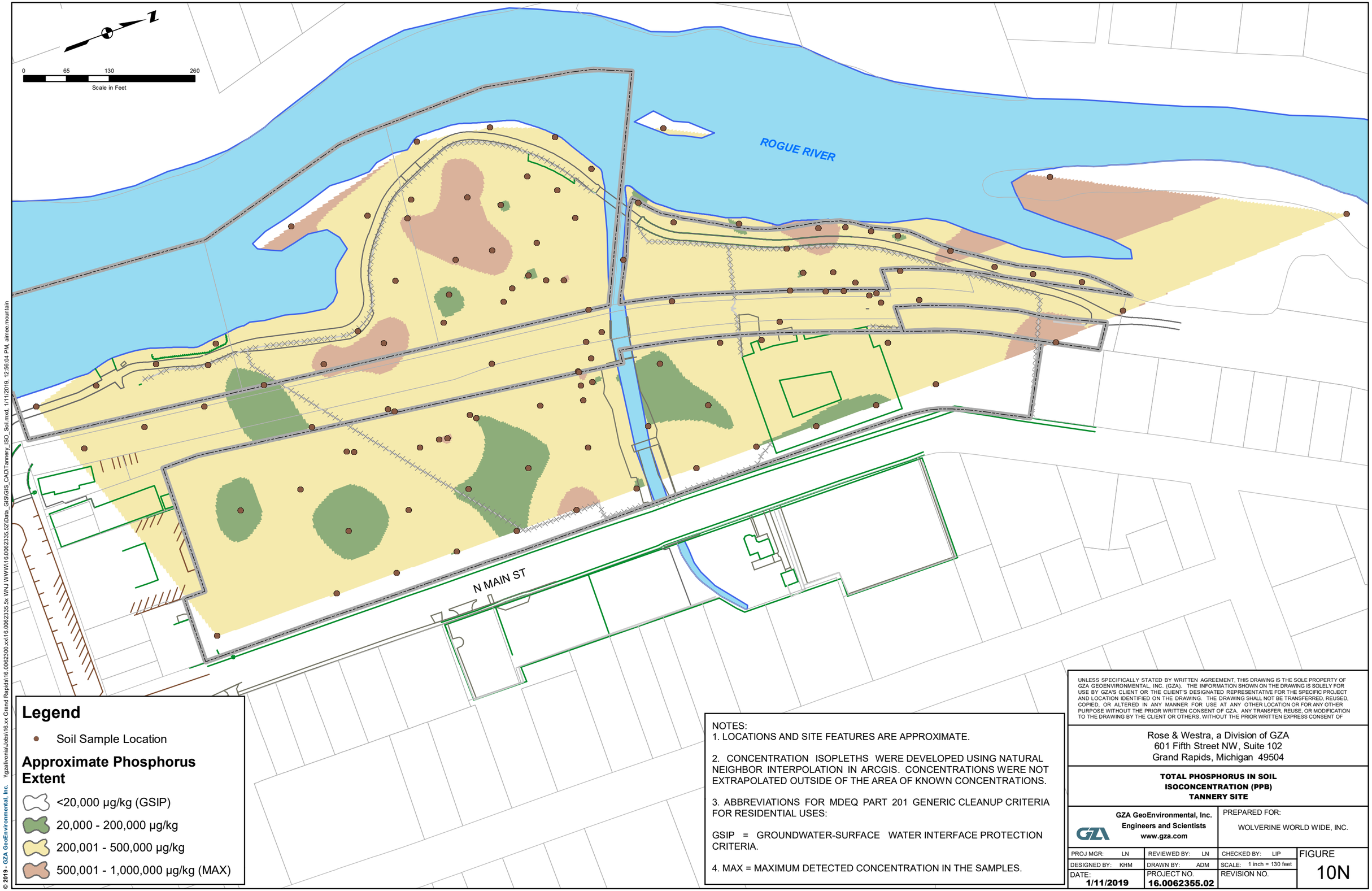

Legend

- Soil Sample Location

Approximate Phosphorus Extent

- <20,000 µg/kg (GSIP)
- 20,000 - 200,000 µg/kg
- 200,001 - 500,000 µg/kg
- 500,001 - 1,000,000 µg/kg (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.

3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

GSIP = GROUNDWATER-SURFACE WATER INTERFACE PROTECTION CRITERIA.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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TOTAL PHOSPHORUS IN SOIL
ISOCONCENTRATION (PPB)
TANNERY SITE

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WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10N
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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Legend

- Soil Sample Location

Approximate Sulfate Extent

- < 5,000,000 µg/kg (DWP)
- 5,000,000 - 8,000,000 µg/kg
- 8,000,001 - 12,000,000 µg/kg
- 12,000,001 - 16,000,000 µg/kg (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.

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SULFATE IN SOIL
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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10O
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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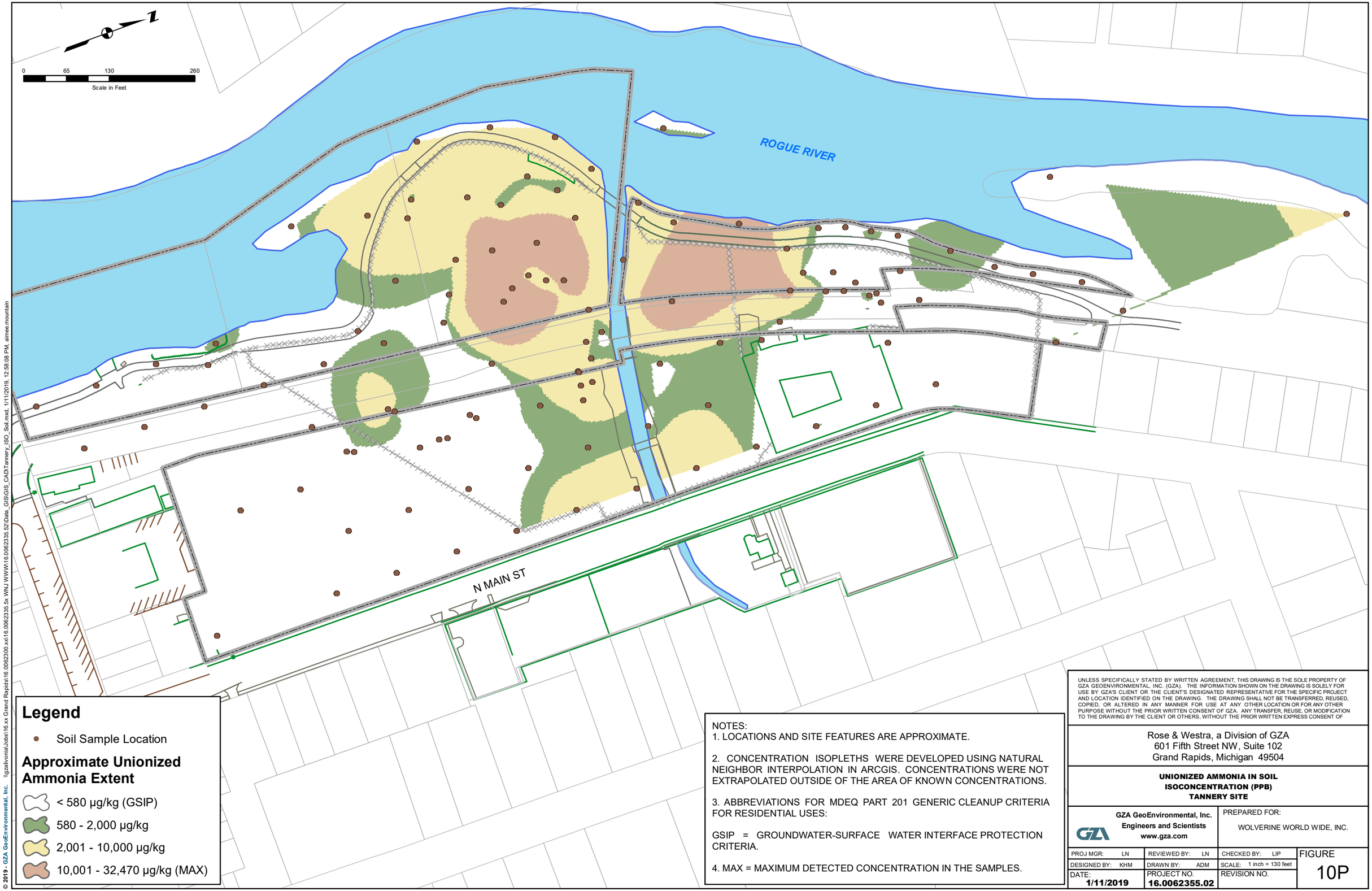

Legend

- Soil Sample Location

Approximate Unionized Ammonia Extent

- < 580 µg/kg (GSIP)
- 580 - 2,000 µg/kg
- 2,001 - 10,000 µg/kg
- 10,001 - 32,470 µg/kg (MAX)

NOTES:
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UNIONIZED AMMONIA IN SOIL
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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10P
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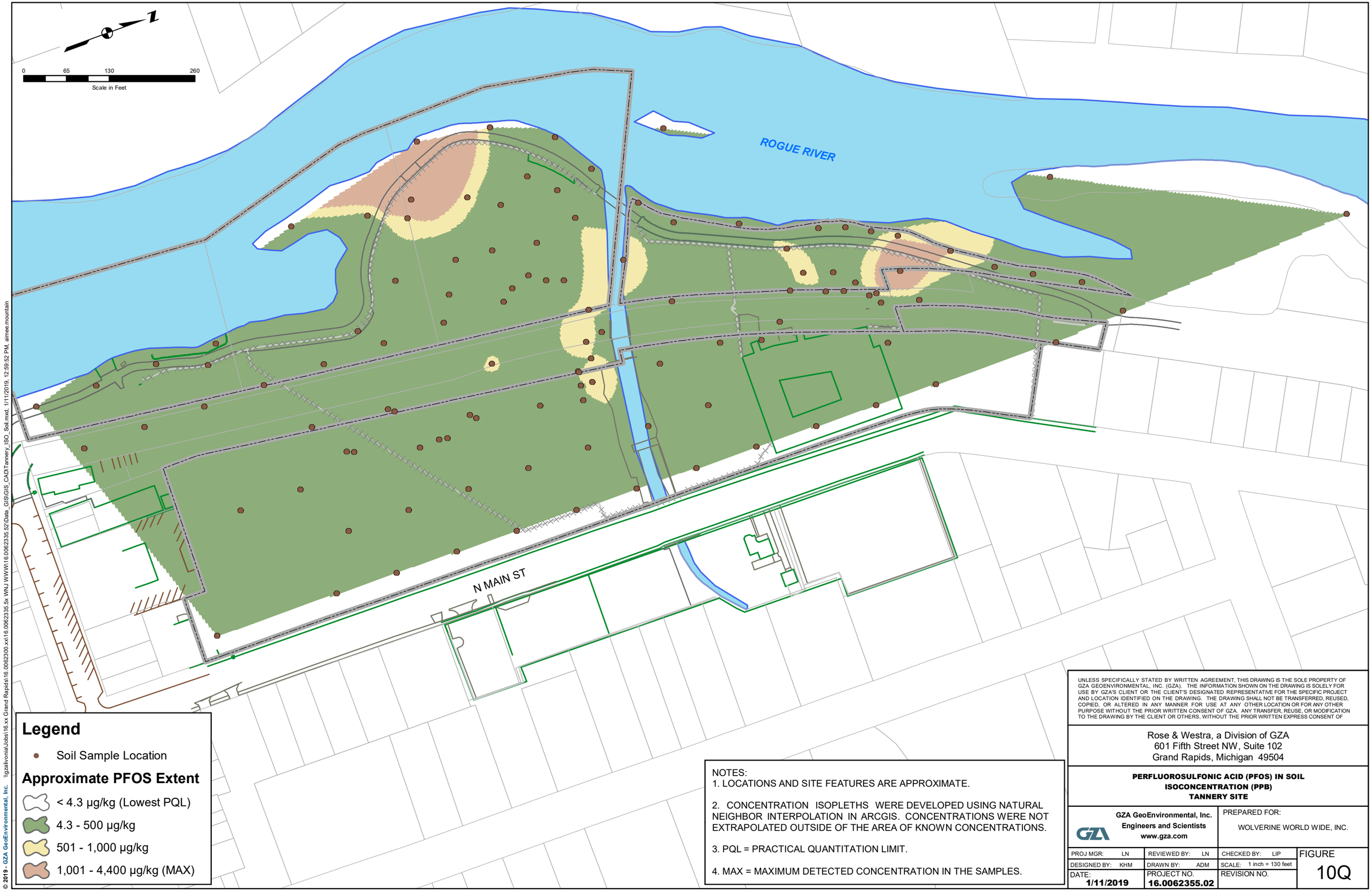

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3. PQL = PRACTICAL QUANTITATION LIMIT.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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PERFLUOROSULFONIC ACID (PFOS) IN SOIL
ISOCONCENTRATION (PPB)
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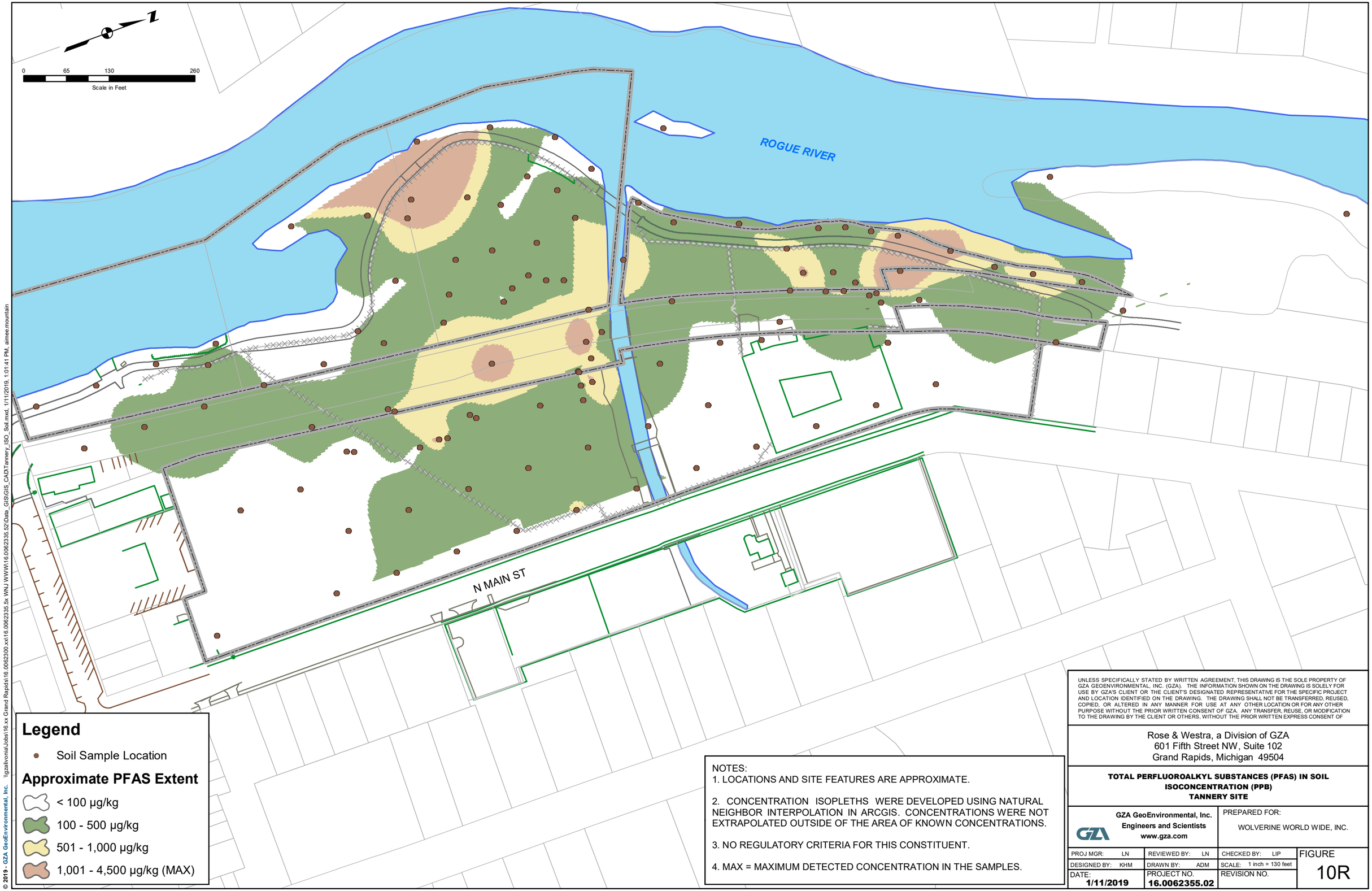

Legend

- Soil Sample Location

Approximate PFAS Extent

- < 100 µg/kg
- 100 - 500 µg/kg
- 501 - 1,000 µg/kg
- 1,001 - 4,500 µg/kg (MAX)

NOTES:
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3. NO REGULATORY CRITERIA FOR THIS CONSTITUENT.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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TOTAL PERFLUOROALKYL SUBSTANCES (PFAS) IN SOIL
ISOCONCENTRATION (PPB)
TANNERY SITE

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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 130 feet	10R
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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Legend

- **Soil Sample Location**
- Northern Exploratory Soil Borings (Scrap Leather Investigation)
- Approximate Horizontal Extents of Hides & Leather Scrap Based on Soil Borings Performed During 2013 and 2018
- Approximate Horizontal Extents of Leather Scrap Based on Soil Borings Performed During 2013 and 2018
- Approximate Horizontal Extents of Leather Scrap Dispersed in Fill Based on Borings Performed During 2018

NOTES

1. ESTIMATED LIMITS OF HIDES AND LEATHER SCRAP BASED ON SURFICIAL AND SUBSURFACE OBSERVATIONS AND INFERRED BASED ON DIRECT-PUSH DRILL RIG PENETRATION AND PROXIMITY TO OBSERVATIONS OF LEATHER SCRAP.
2. BASEMAP CONTAINS GEOREFERENCED AERIAL IMAGERY PROVIDED BY GOOGLE EARTH DATED TO 2017.

0 25 50 100
SCALE IN FEET

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WOLVERINE WORLDWIDE / WARNER, NORCROSS AND JUDD
FORMER TANNERY SITE
123 MAIN STREET, ROCKFORD, MI
2018 DATA SUMMARY REPORT

EXTENT OF ANTHROPOGENIC MATERIALS
OBSERVED IN SOIL BORINGS

PREPARED BY:
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PREPARED FOR:
WOLVERINE WORLD WIDE / WARNER, NORCROSS & JUDD

PROJ MGR:	LN	REVIEWED BY:	LN	CHECKED BY:	JW	FIGURE
DESIGNED BY:	JW	DRAWN BY:	MD	SCALE:	1 in = 50 ft	10S
DATE: October 26, 2018		PROJECT NO: 16.0062335.02		REVISION NO:		

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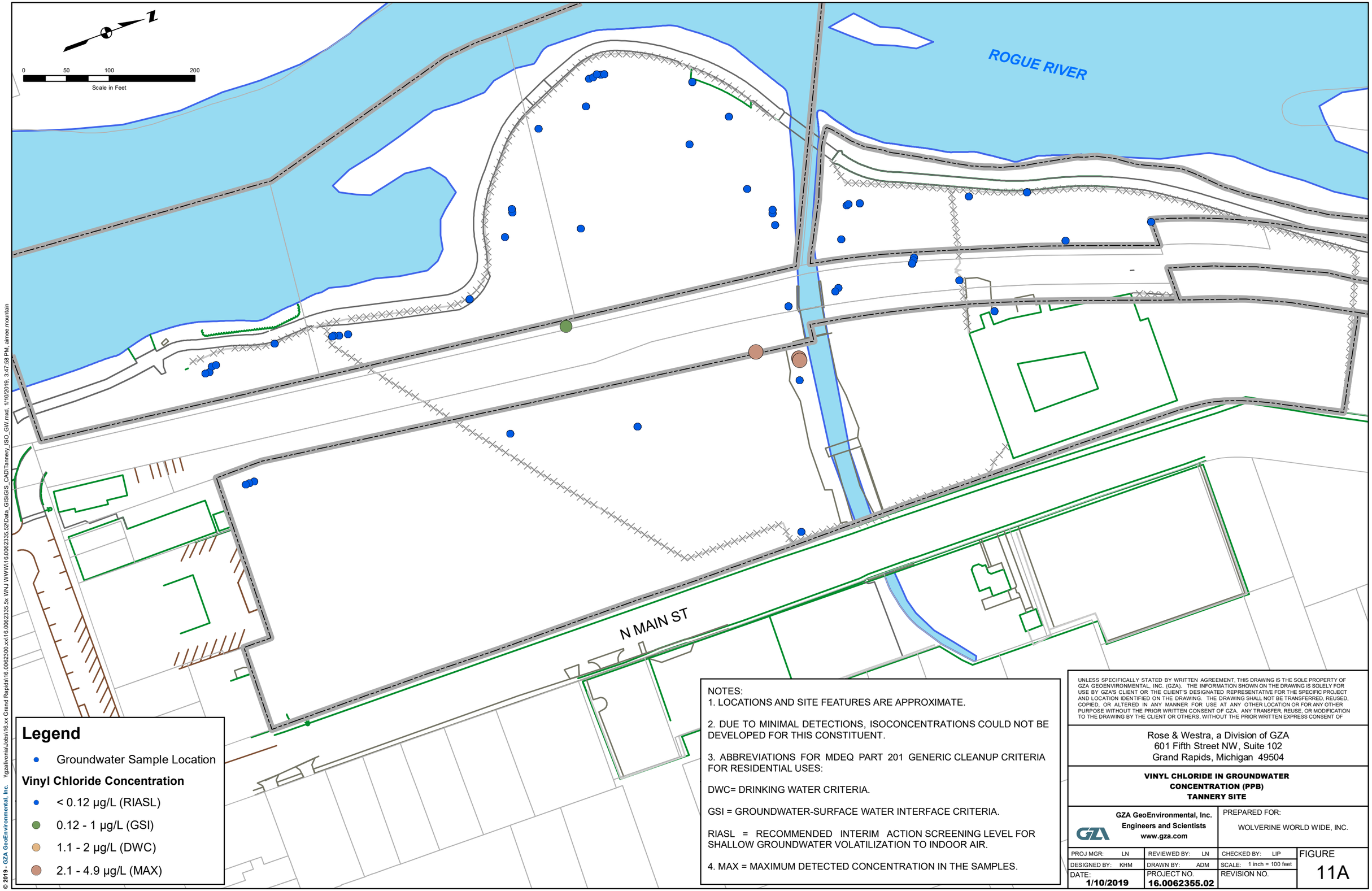

Legend

- Groundwater Sample Location

Vinyl Chloride Concentration

- < 0.12 µg/L (RIASL)
- 0.12 - 1 µg/L (GSI)
- 1.1 - 2 µg/L (DWC)
- 2.1 - 4.9 µg/L (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. DUE TO MINIMAL DETECTIONS, ISOCONCENTRATIONS COULD NOT BE DEVELOPED FOR THIS CONSTITUENT.

3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

DWC= DRINKING WATER CRITERIA.

GSI = GROUNDWATER-SURFACE WATER INTERFACE CRITERIA.

RIASL = RECOMMENDED INTERIM ACTION SCREENING LEVEL FOR SHALLOW GROUNDWATER VOLATILIZATION TO INDOOR AIR.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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VINYL CHLORIDE IN GROUNDWATER CONCENTRATION (PPB)
TANNERY SITE

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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11A
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3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

DWC= DRINKING WATER CRITERIA.

GSI = GROUNDWATER-SURFACE WATER INTERFACE CRITERIA.

4. RML = EPA REGIONAL REMOVAL MANAGEMENT LEVEL FOR TAP WATER.

5. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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ISOCONCENTRATION (PPB)
TANNERY SITE

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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11B
DATE: **1/10/2019**	PROJECT NO. **16.0062355.02**	REVISION NO.	

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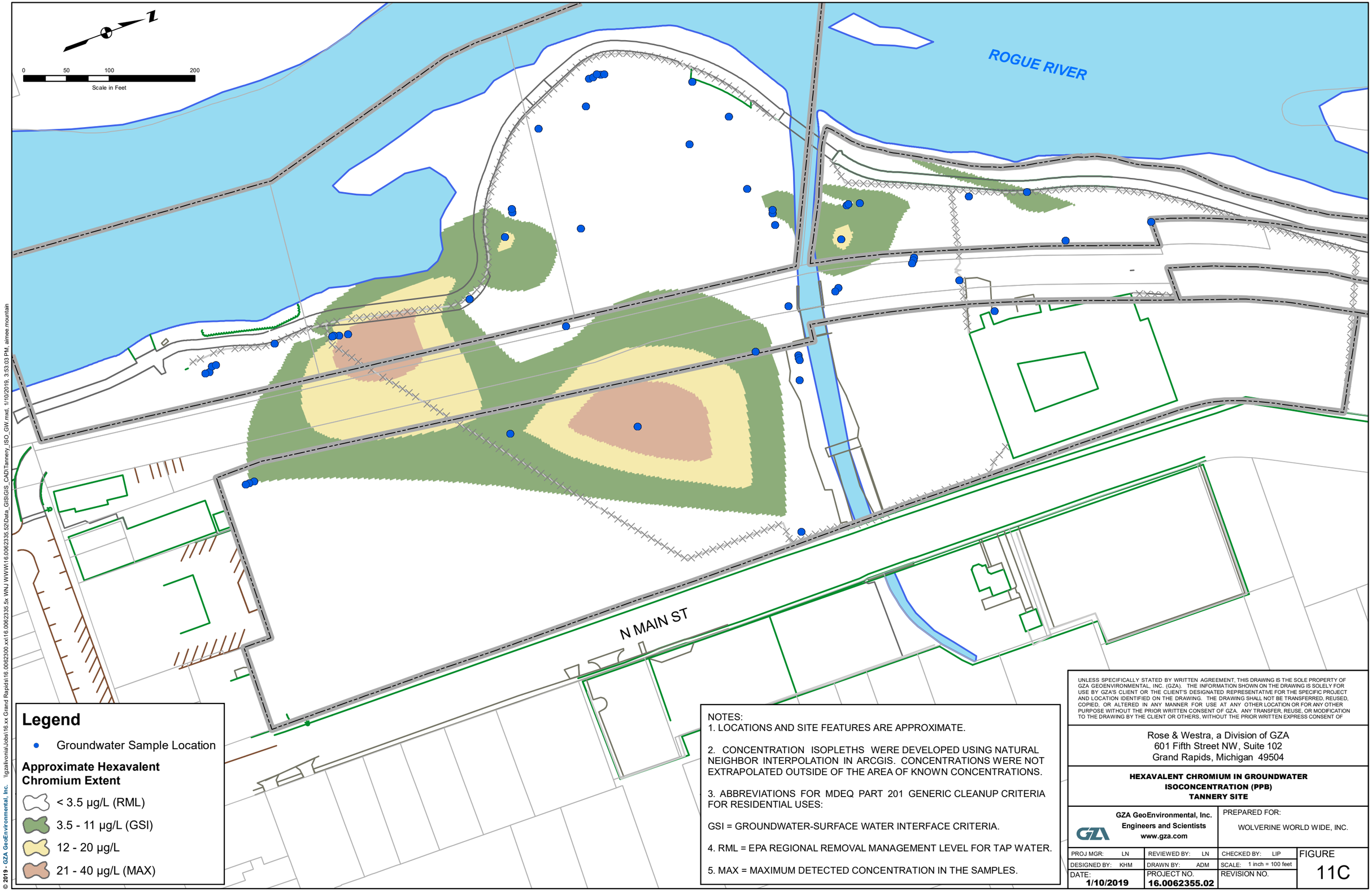

Legend

- Groundwater Sample Location

Approximate Hexavalent Chromium Extent

- < 3.5 µg/L (RML)
- 3.5 - 11 µg/L (GSI)
- 12 - 20 µg/L
- 21 - 40 µg/L (MAX)

NOTES:

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HEXAVALENT CHROMIUM IN GROUNDWATER
ISOCONCENTRATION (PPB)
TANNERY SITE

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DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11C
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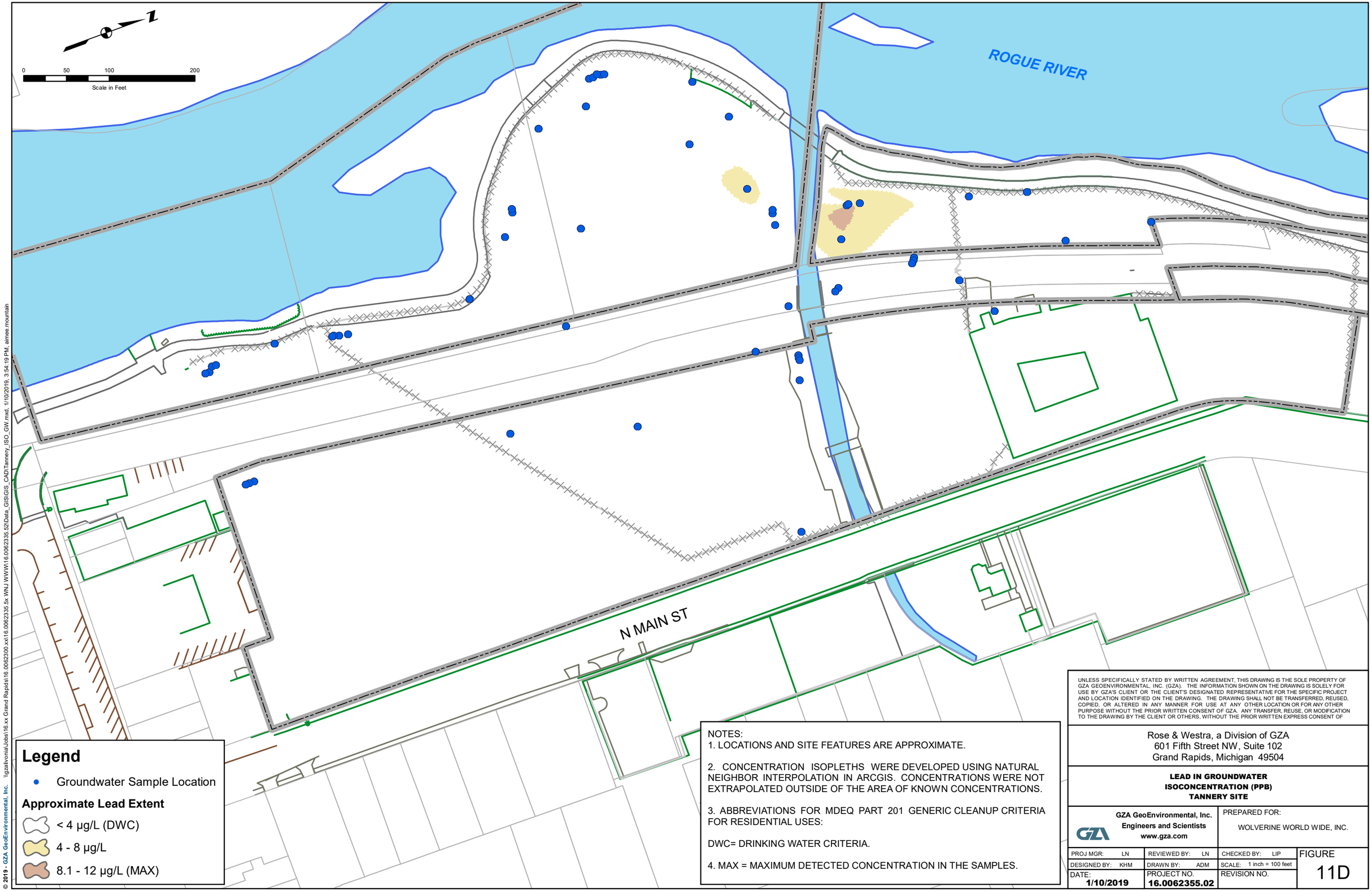

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LEAD IN GROUNDWATER
ISOCONCENTRATION (PPB)
TANNERY SITE

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DATE: 1/10/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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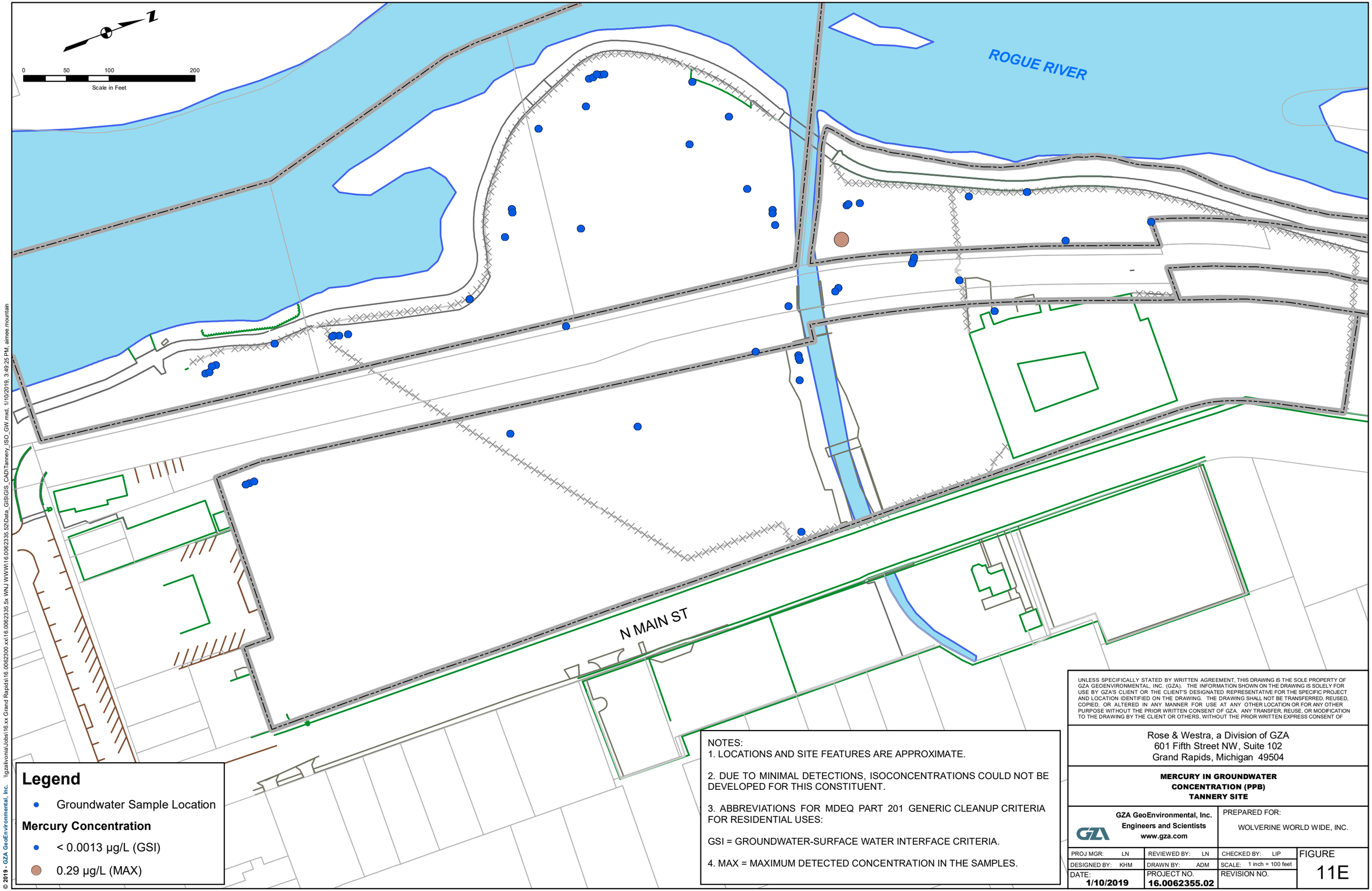

Legend

- Groundwater Sample Location

Mercury Concentration

- < 0.0013 µg/L (GSI)
- 0.29 µg/L (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. DUE TO MINIMAL DETECTIONS, ISOCONCENTRATIONS COULD NOT BE DEVELOPED FOR THIS CONSTITUENT.

3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

GSI = GROUNDWATER-SURFACE WATER INTERFACE CRITERIA.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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MERCURY IN GROUNDWATER
CONCENTRATION (PPB)
TANNERY SITE

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11E
DATE: 1/10/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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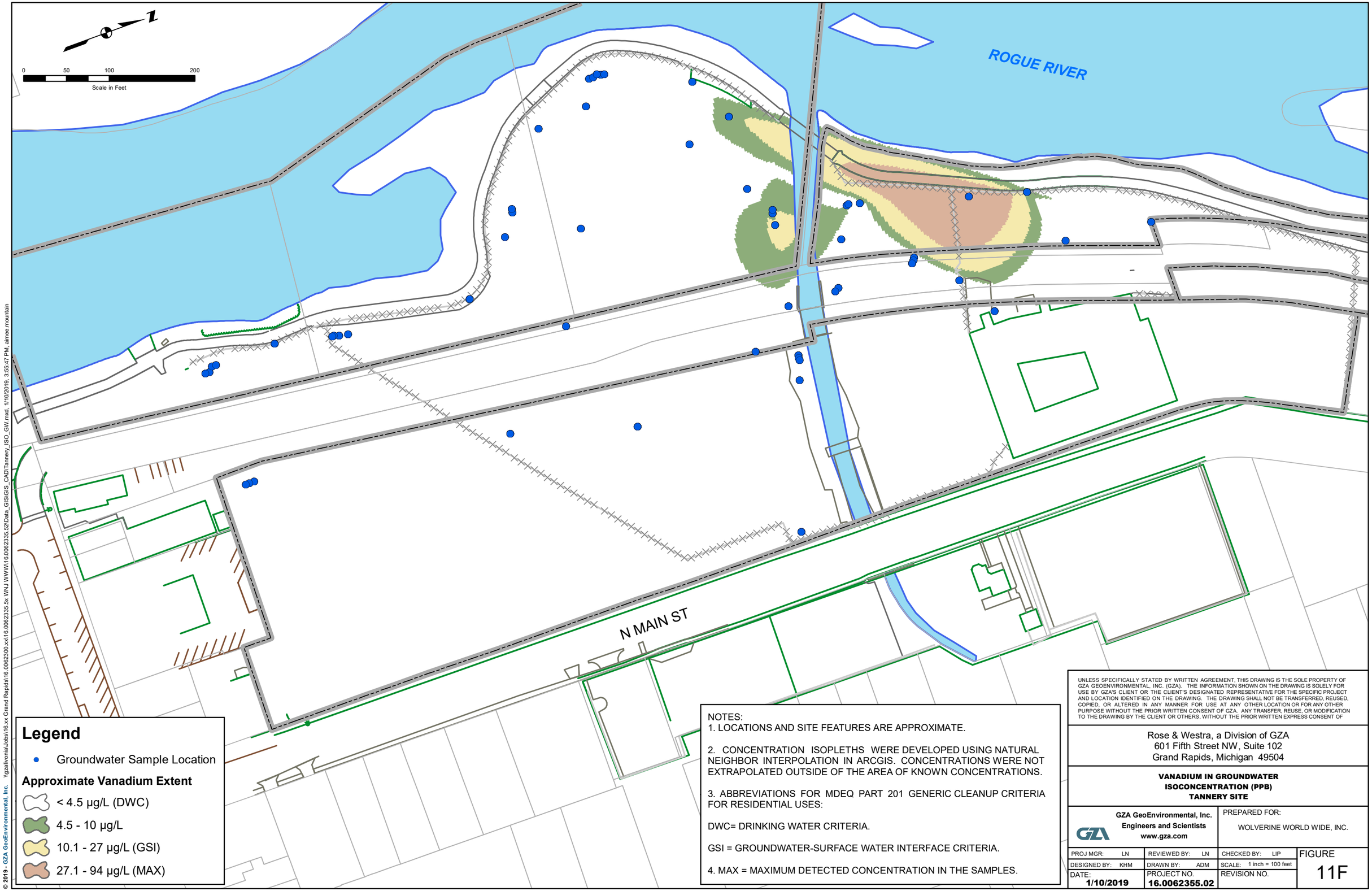

NOTES:
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VANADIUM IN GROUNDWATER
ISOCONCENTRATION (PPB)
TANNERY SITE

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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11F
DATE: 1/10/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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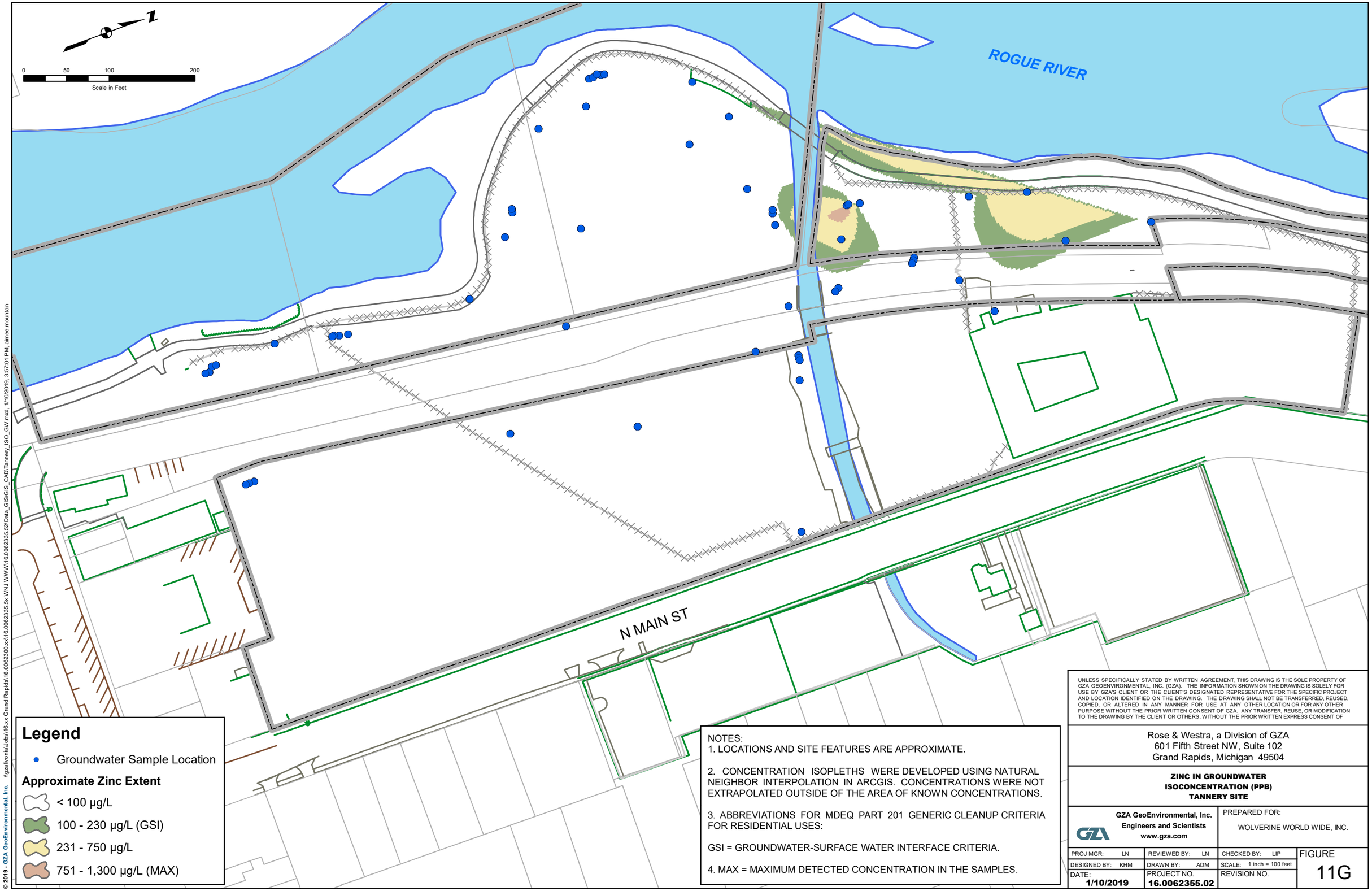

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ZINC IN GROUNDWATER
ISOCONCENTRATION (PPB)
TANNERY SITE

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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11G
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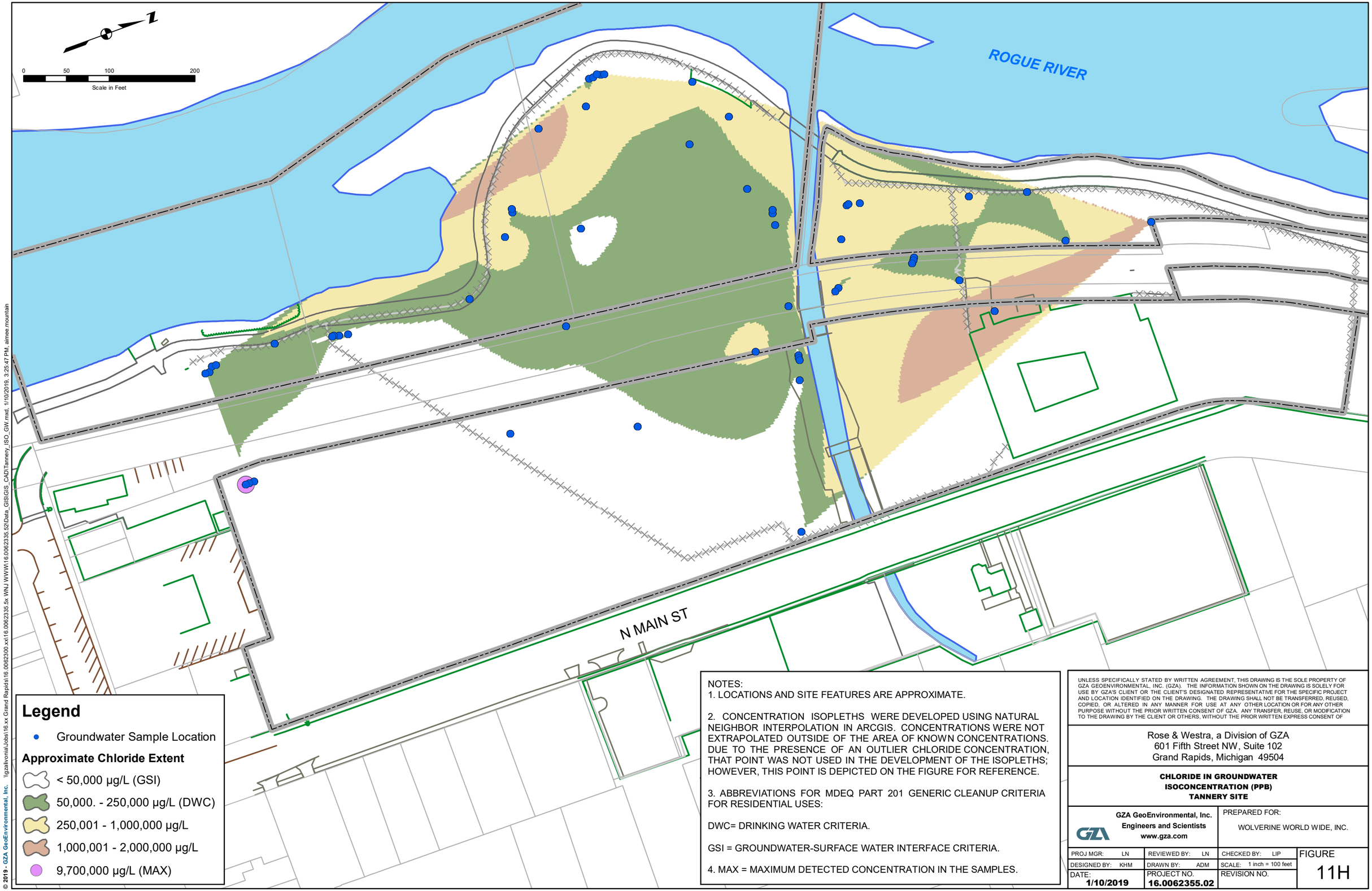

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3. ABBREVIATIONS FOR MDEQ PART 201 GENERIC CLEANUP CRITERIA FOR RESIDENTIAL USES:

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CHLORIDE IN GROUNDWATER
ISOCONCENTRATION (PPB)
TANNERY SITE

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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11H
DATE: 1/10/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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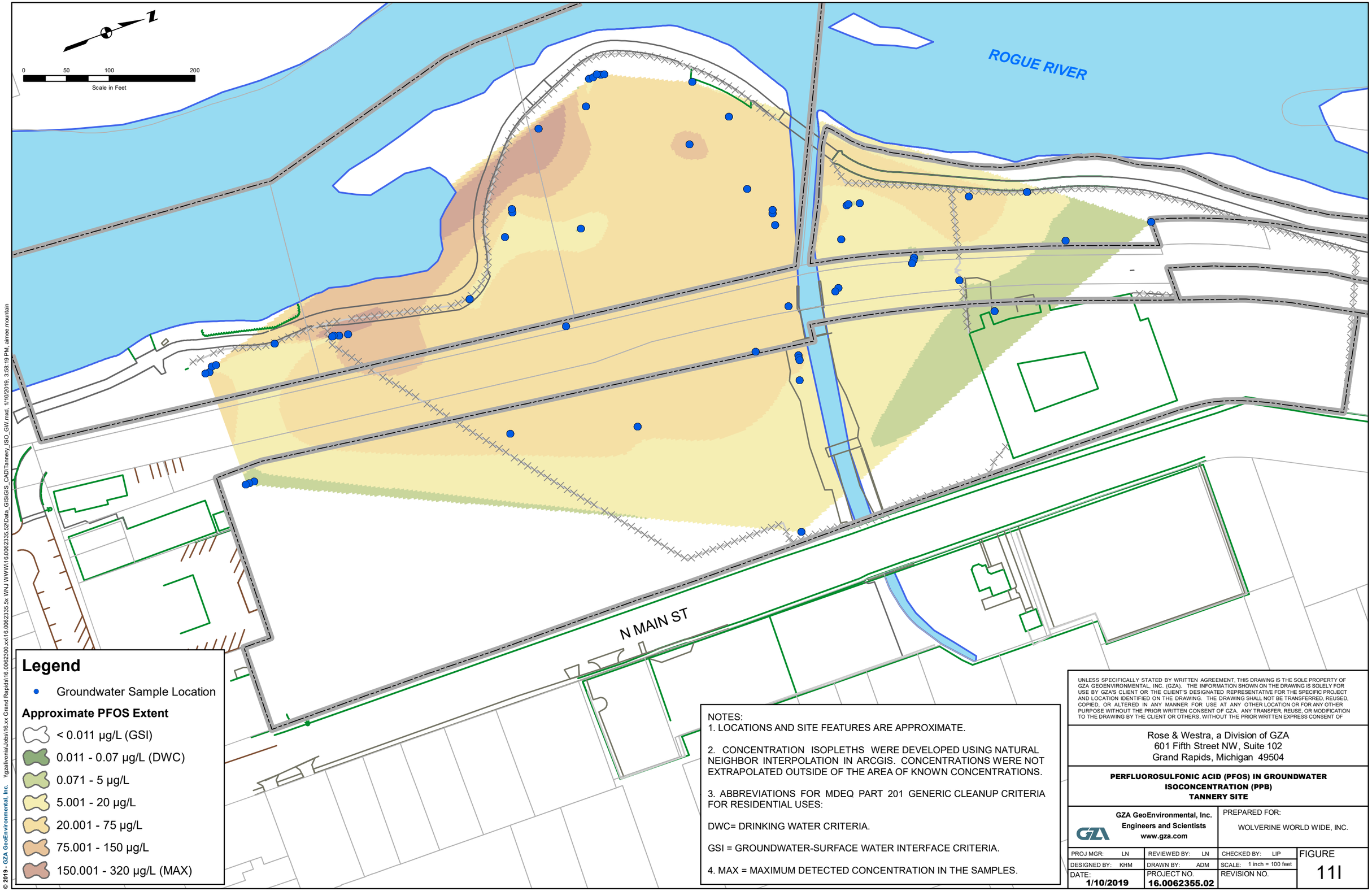

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PERFLUOROSULFONIC ACID (PFOS) IN GROUNDWATER
ISOCONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11I
DATE: 1/10/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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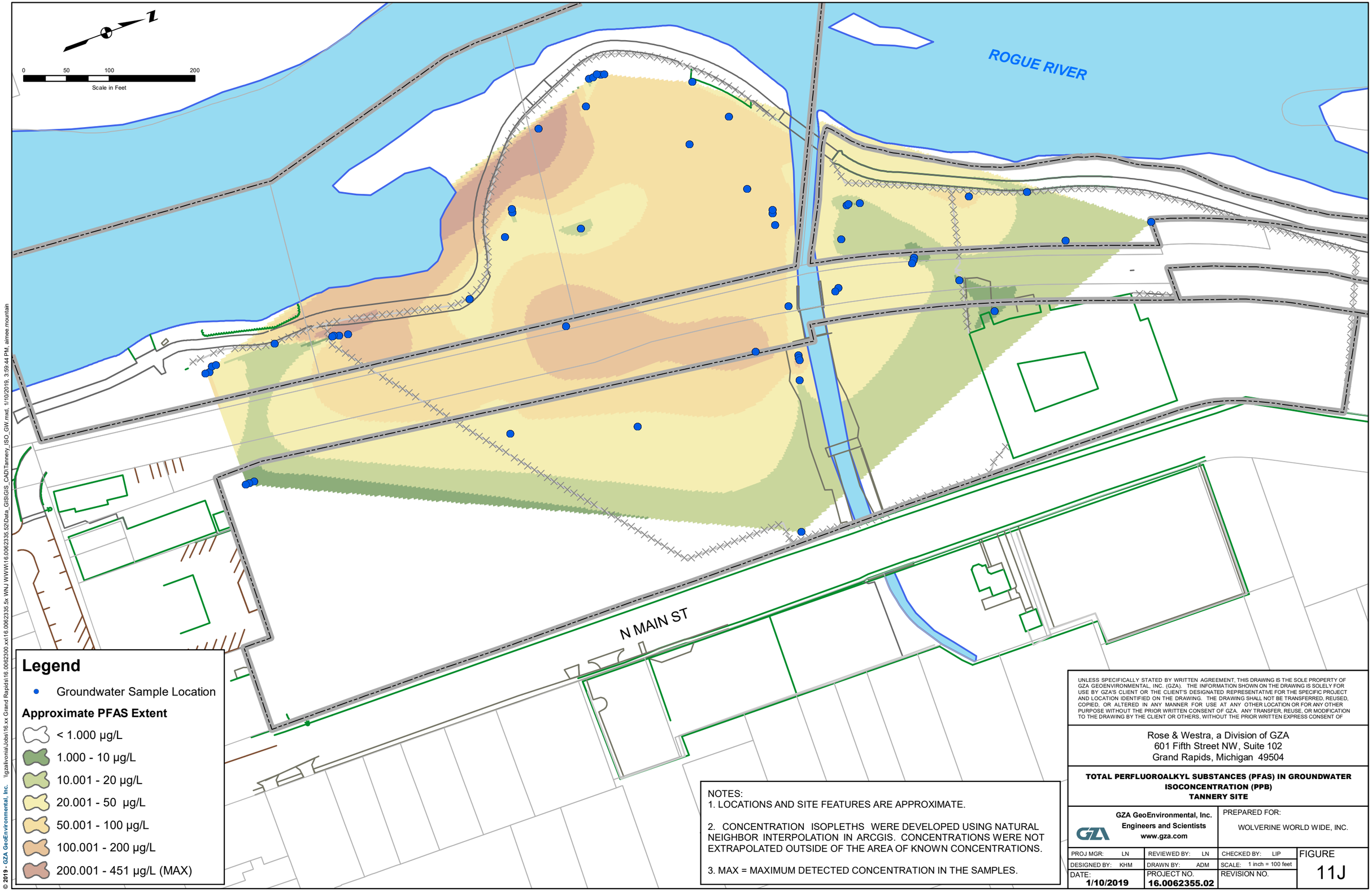

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TOTAL PERFLUOROALKYL SUBSTANCES (PFAS) IN GROUNDWATER ISOCONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	11J
DATE: 1/10/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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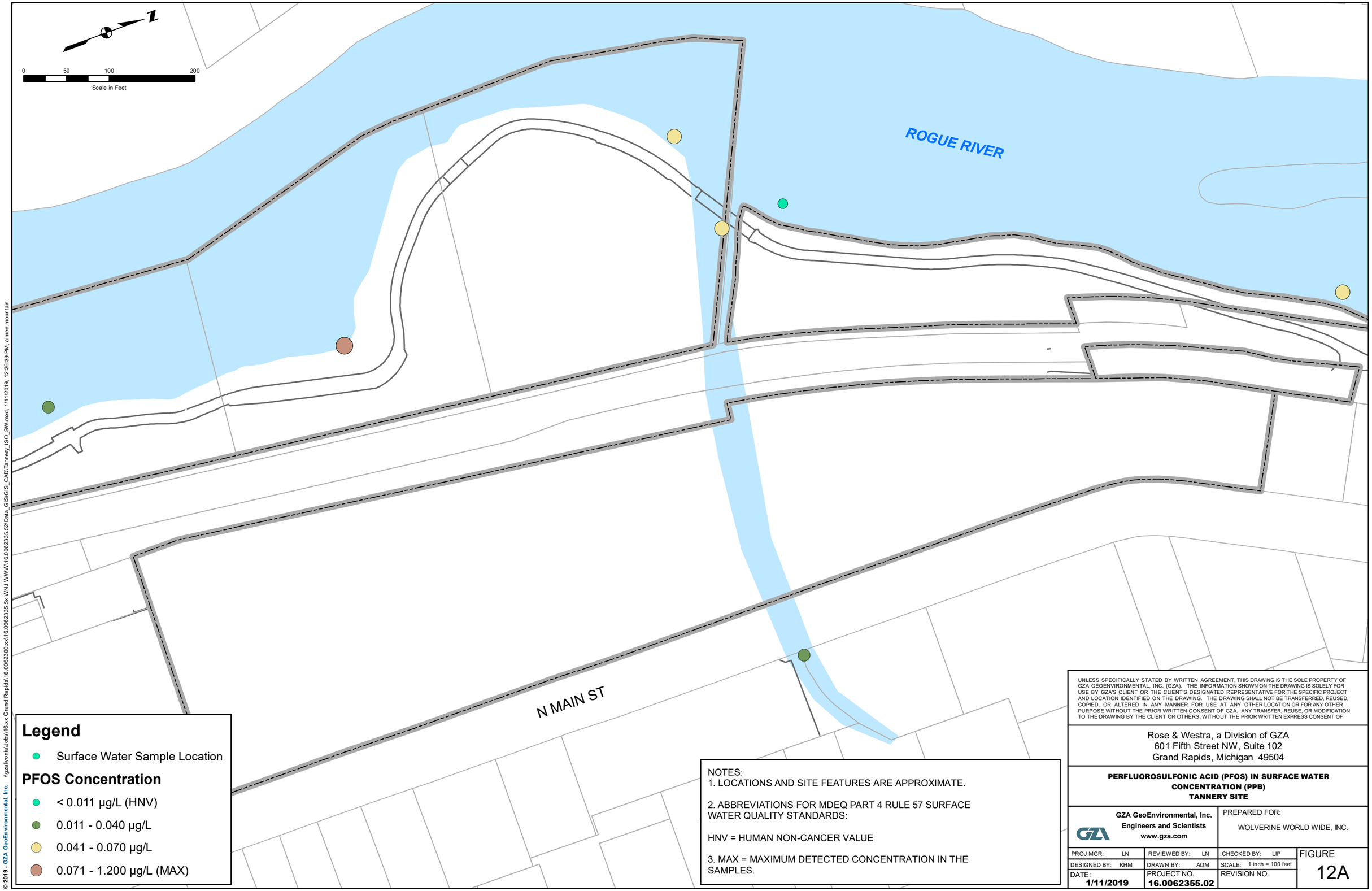

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. ABBREVIATIONS FOR MDEQ PART 4 RULE 57 SURFACE WATER QUALITY STANDARDS:

HNV = HUMAN NON-CANCER VALUE

3. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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PERFLUOROSULFONIC ACID (PFOS) IN SURFACE WATER
CONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 100 feet	12A
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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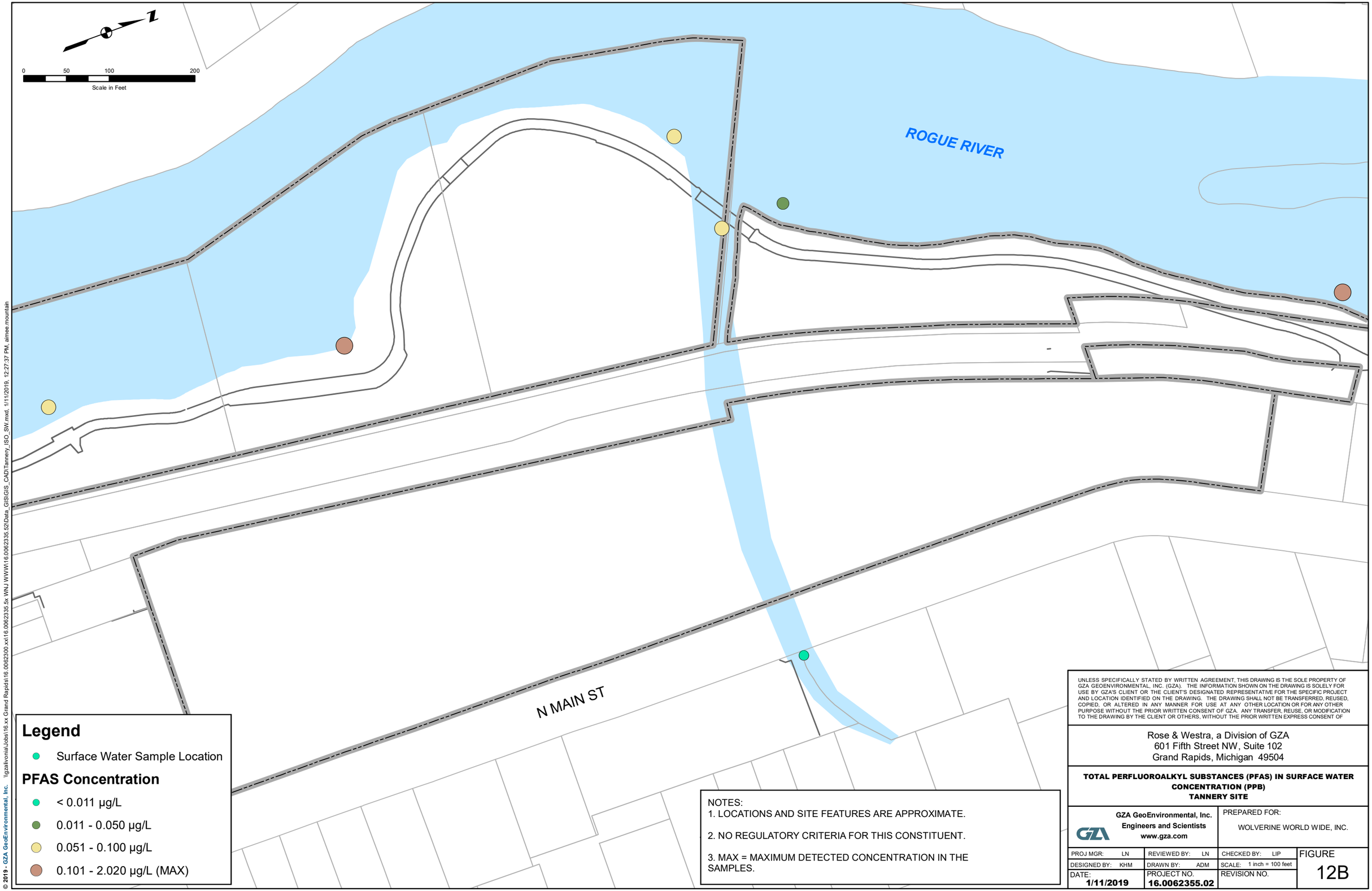

Legend

- Surface Water Sample Location

PFAS Concentration

- < 0.011 µg/L
- 0.011 - 0.050 µg/L
- 0.051 - 0.100 µg/L
- 0.101 - 2.020 µg/L (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. NO REGULATORY CRITERIA FOR THIS CONSTITUENT.

3. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.

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TOTAL PERFLUOROALKYL SUBSTANCES (PFAS) IN SURFACE WATER
CONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
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Legend

- Sediment Sample Location

Approximate Benzo(a)pyrene Extent

- < 150 µg/kg (ESL/TEC)
- 150 - 350 µg/kg
- 351 - 600 µg/kg
- 601 - 1,300 µg/kg (MAX)

NOTES:

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3. ABBREVIATIONS FOR U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) SEDIMENT SCREENING VALUES:

ESL = ECOLOGICAL SCREENING LEVEL.

TEC = THRESHOLD EFFECT CONCENTRATIONS.

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BENZO(A)PYRENE IN SEDIMENT
ISOCONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 225 feet	13A
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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Legend

- Sediment Sample Location

Approximate Benzo(a)anthracene Extent

- < 108 µg/kg (ESL/TEC)
- 108 - 500 µg/kg
- 501 - 1,050 µg/kg (PEC)
- 1,051 - 1,200 µg/kg (MAX)

NOTES:

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BENZO(A)ANTHRACENE IN SEDIMENT
ISOCONCENTRATION (PPB)
TANNERY SITE

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PREPARED FOR:
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Legend

- Sediment Sample Location

Approximate Phenanthrene Extent

- < 204 µg/kg (ESL/TEC)
- 204 - 600 µg/kg
- 601 - 1,170 µg/kg (PEC)
- 1,171 - 2,600 µg/kg (MAX)

NOTES:

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PHENANTHRENE IN SEDIMENT
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PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 225 feet	13C
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

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Legend

- Sediment Sample Location

Approximate Arsenic Extent

- < 9,790 µg/kg (ESL/TEC)
- 9,790- 22,000 µg/kg
- 22,001 - 33,000 µg/kg (PEC)
- 33,001 - 100,000 µg/kg (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.

3. ABBREVIATIONS FOR U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) SEDIMENT SCREENING VALUES:

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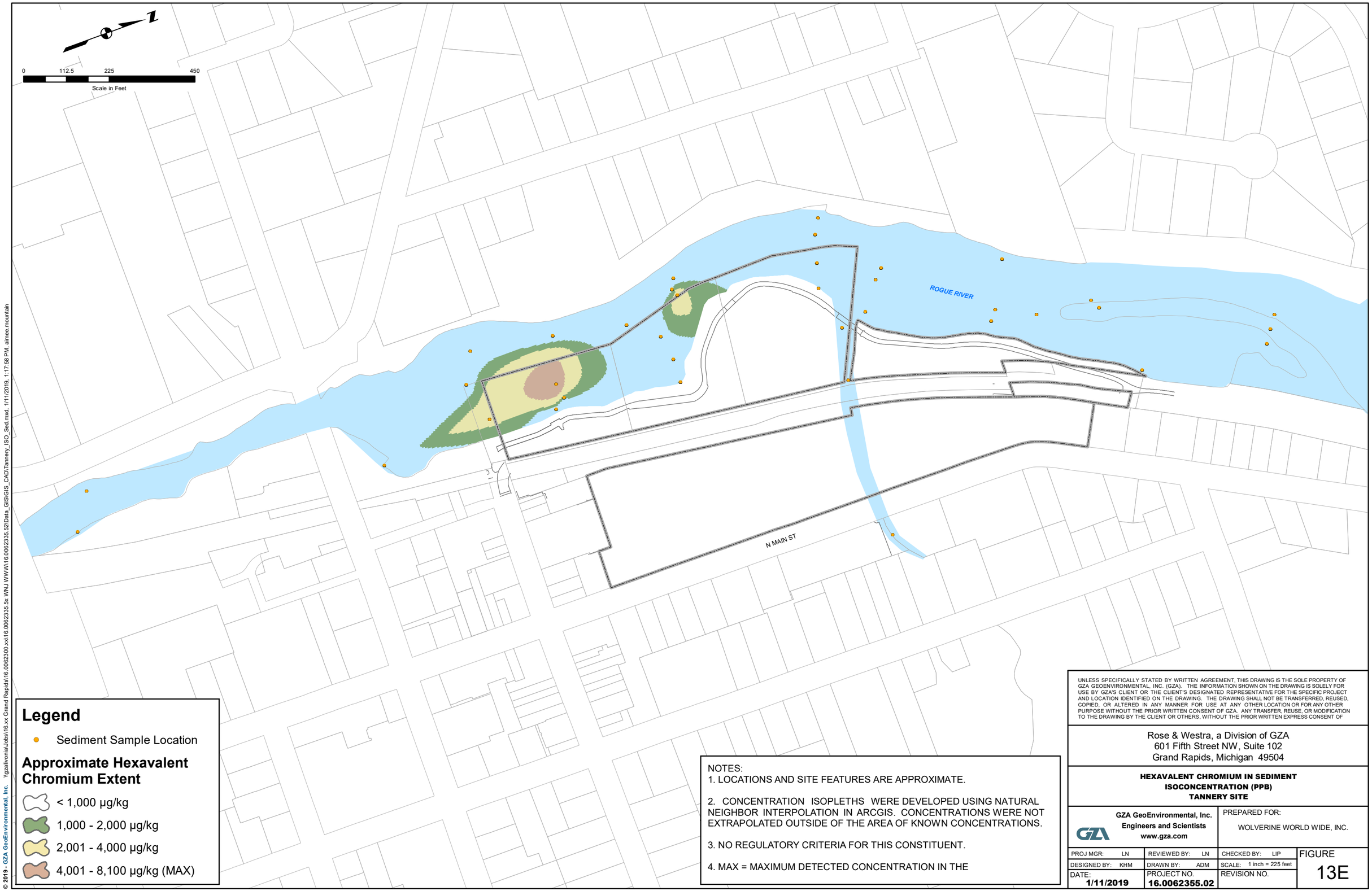

Legend

- Sediment Sample Location

Approximate Hexavalent Chromium Extent

- < 1,000 µg/kg
- 1,000 - 2,000 µg/kg
- 2,001 - 4,000 µg/kg
- 4,001 - 8,100 µg/kg (MAX)

NOTES:
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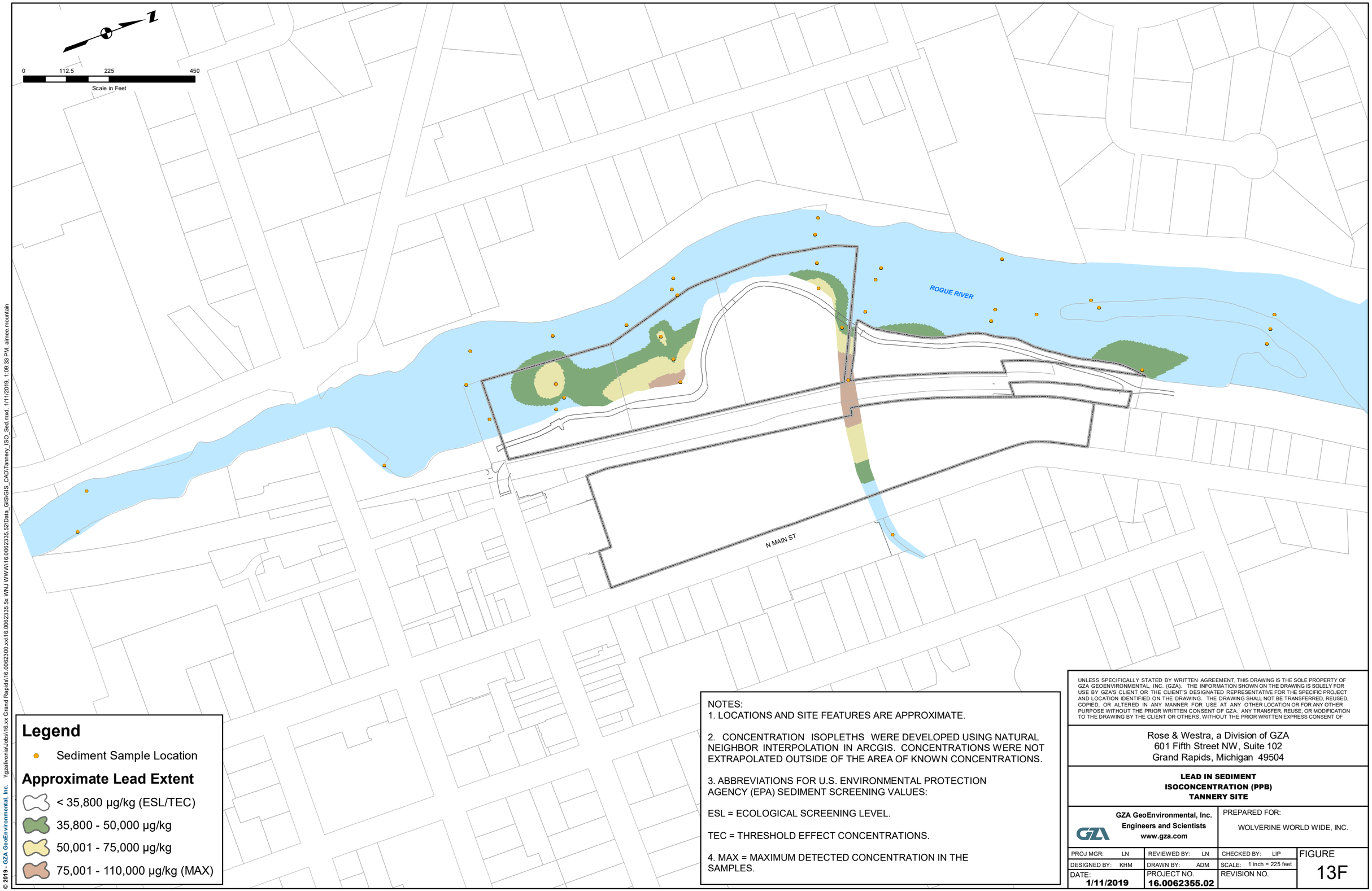

Legend

- Sediment Sample Location

Approximate Lead Extent

- < 35,800 µg/kg (ESL/TEC)
- 35,800 - 50,000 µg/kg
- 50,001 - 75,000 µg/kg
- 75,001 - 110,000 µg/kg (MAX)

NOTES:
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Legend

- Sediment Sample Location

Approximate Mercury Extent

- < 174 µg/kg (ESL)
- 174 - 180 µg/kg (TEC)
- 181 - 1,060 µg/kg (PEC)
- 1,061 - 30,000 µg/kg (MAX)

NOTES:
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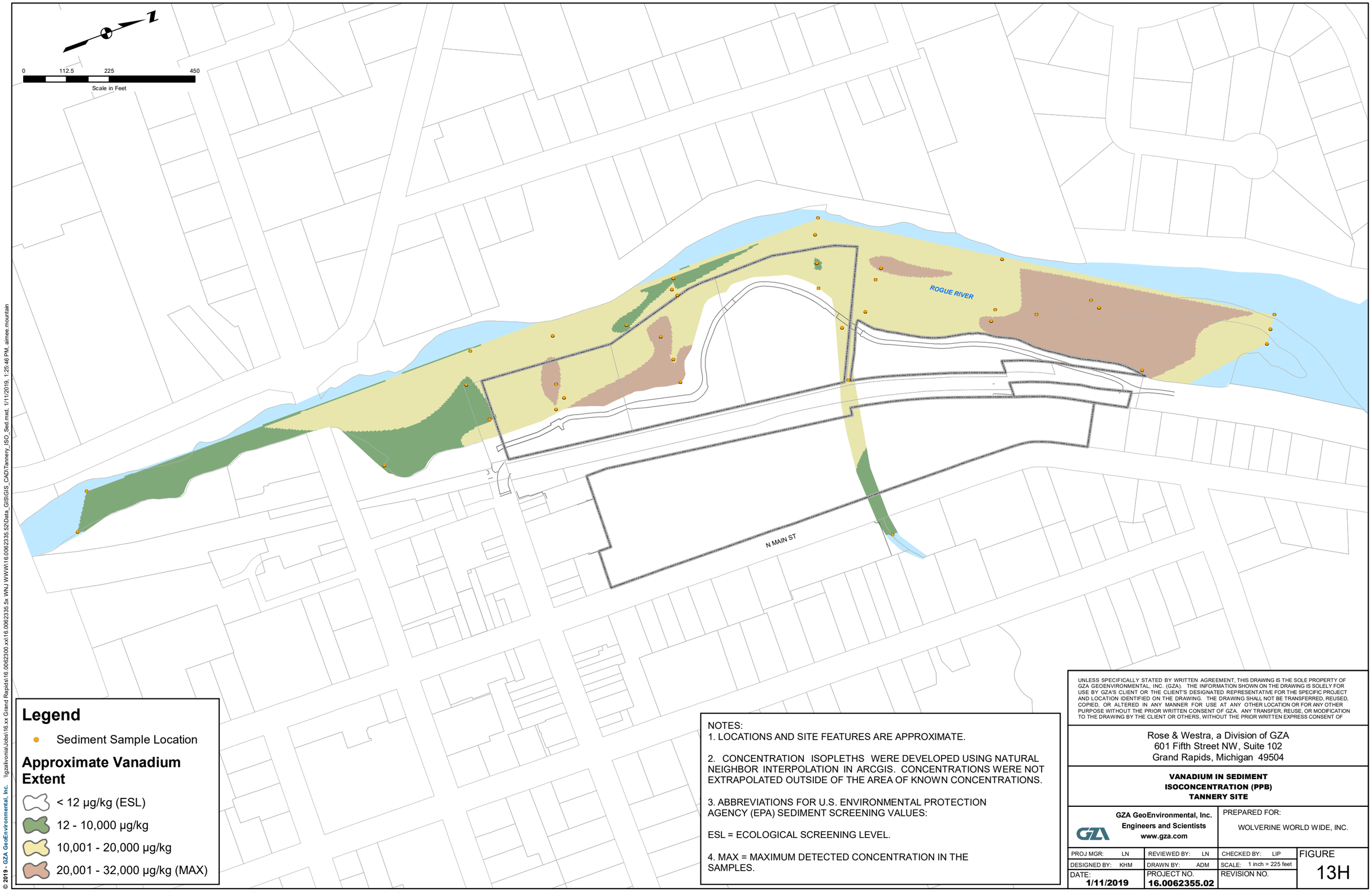

Legend

- Sediment Sample Location

Approximate Vanadium Extent

- < 12 µg/kg (ESL)
- 12 - 10,000 µg/kg
- 10,001 - 20,000 µg/kg
- 20,001 - 32,000 µg/kg (MAX)

NOTES:
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Legend

- Sediment Sample Location

Approximate Zinc Extent

- < 121,000 µg/kg (ESL/TEC)
- 121,000 - 250,000 µg/kg
- 250,001 - 459,000 µg/kg (PEC)
- 459,001 - 460,000 µg/kg (MAX)

NOTES:
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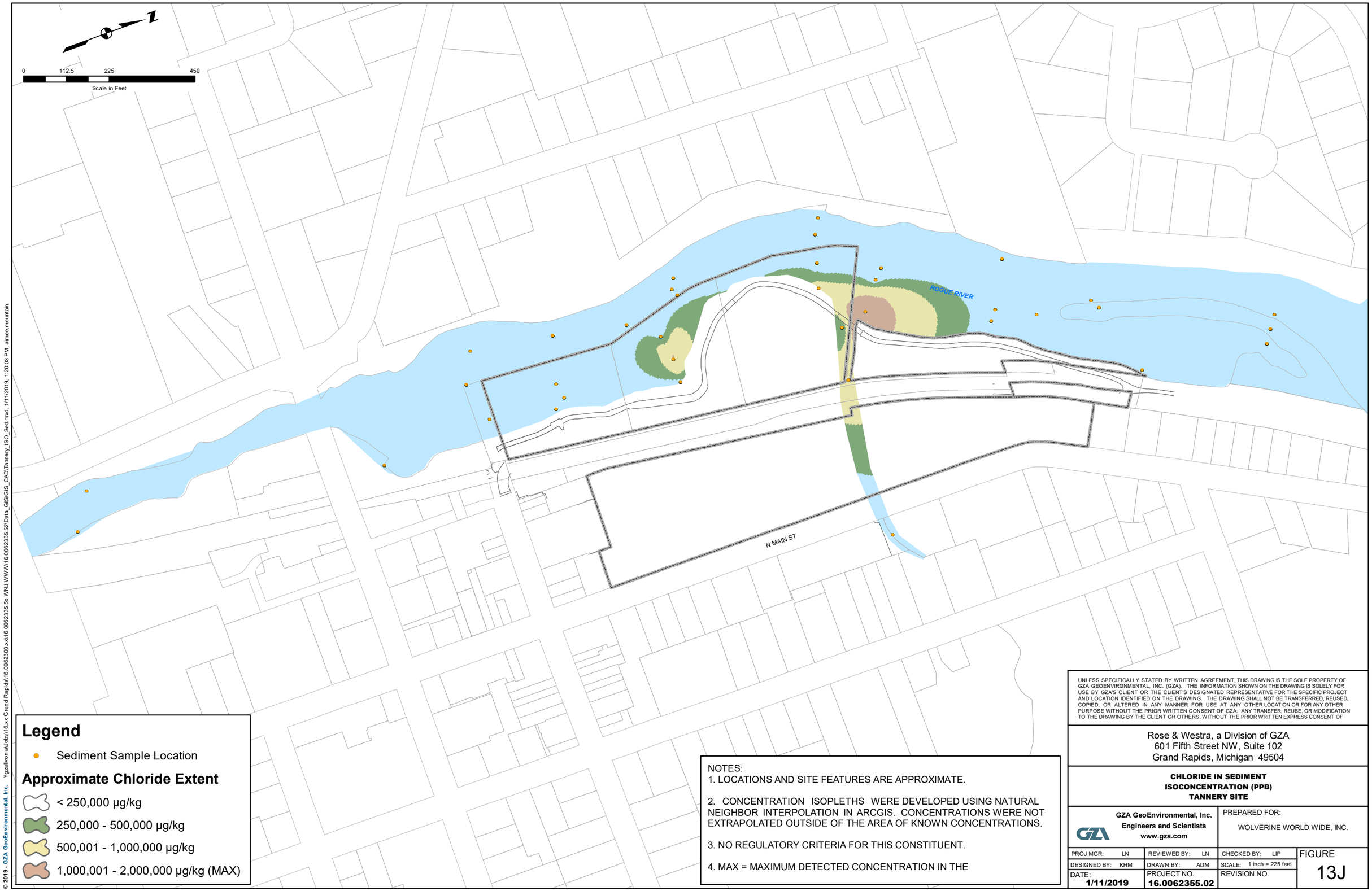

Legend

- Sediment Sample Location

Approximate Chloride Extent

- < 250,000 µg/kg
- 250,000 - 500,000 µg/kg
- 500,001 - 1,000,000 µg/kg
- 1,000,001 - 2,000,000 µg/kg (MAX)

NOTES:
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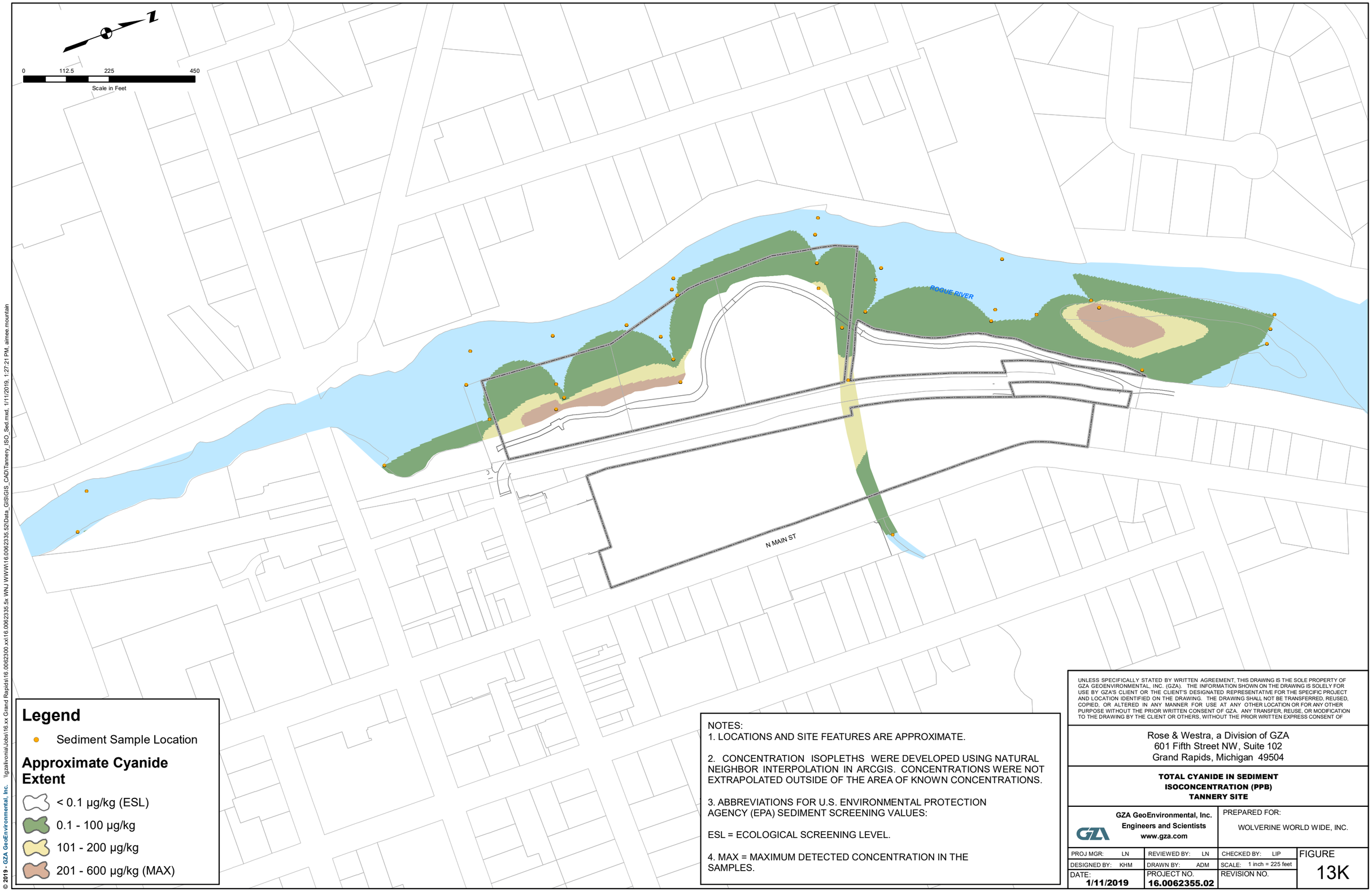

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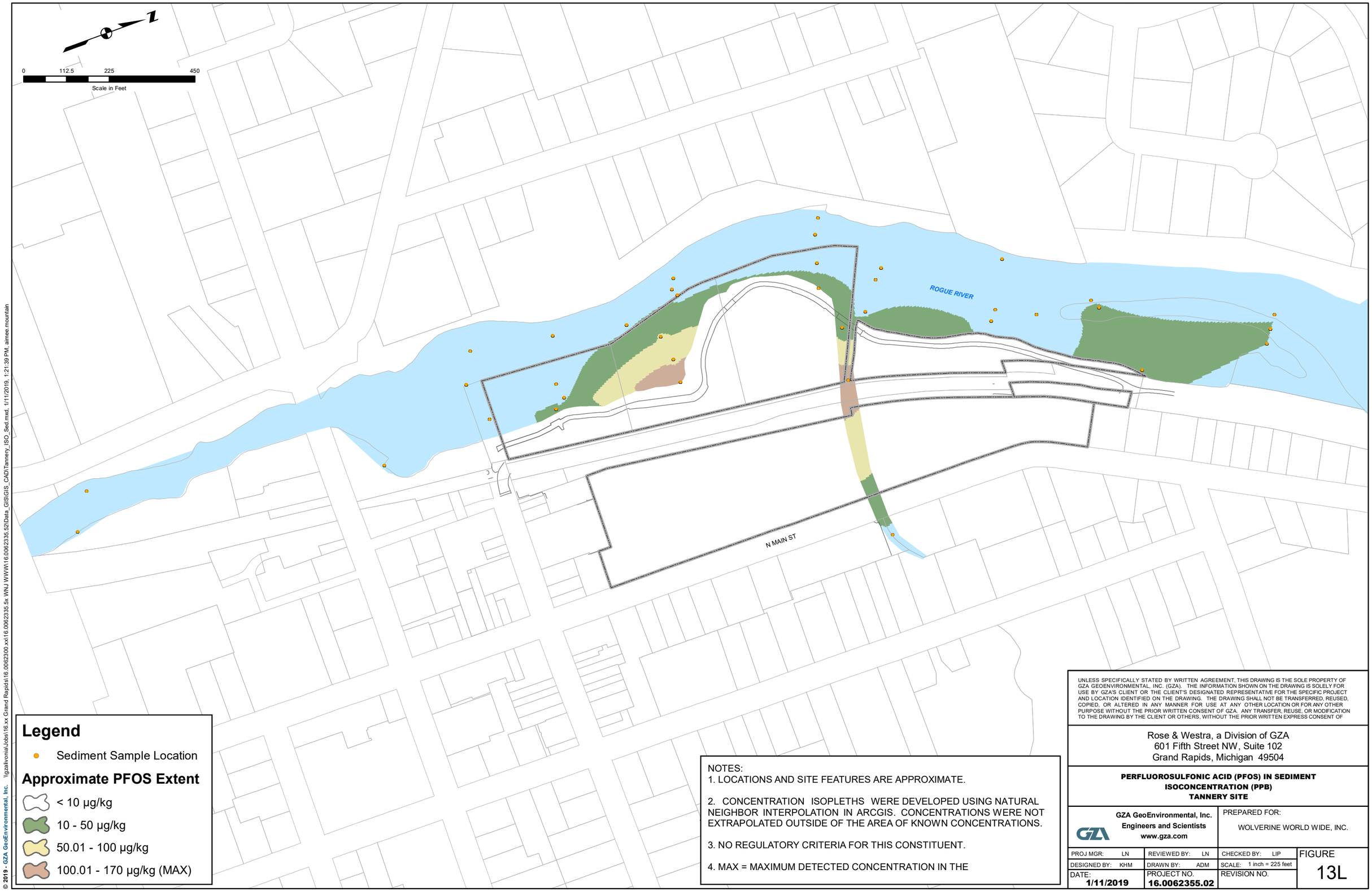

Legend

- Sediment Sample Location

Approximate PFOS Extent

- < 10 µg/kg
- 10 - 50 µg/kg
- 50.01 - 100 µg/kg
- 100.01 - 170 µg/kg (MAX)

NOTES:
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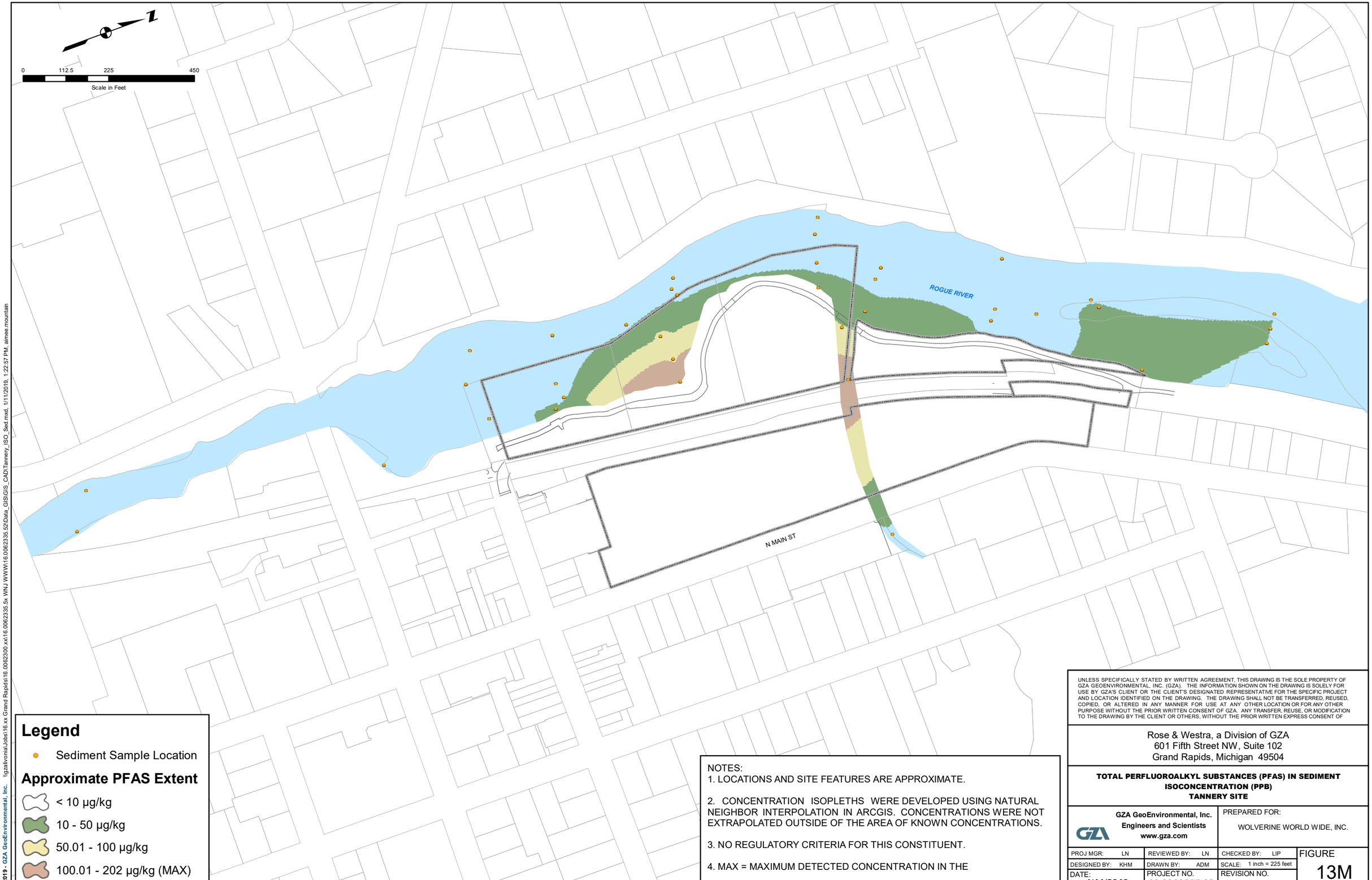

Legend

- Sediment Sample Location

Approximate PFAS Extent

- < 10 µg/kg
- 10 - 50 µg/kg
- 50.01 - 100 µg/kg
- 100.01 - 202 µg/kg (MAX)

NOTES:
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3. NO REGULATORY CRITERIA FOR THIS CONSTITUENT.

4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE

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Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

TOTAL PERFLUOROALKYL SUBSTANCES (PFAS) IN SEDIMENT
ISOCONCENTRATION (PPB)
TANNERY SITE

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
WOLVERINE WORLD WIDE, INC.

PROJ MGR: LN	REVIEWED BY: LN	CHECKED BY: LIP	FIGURE
DESIGNED BY: KHM	DRAWN BY: ADM	SCALE: 1 inch = 225 feet	13M
DATE: 1/11/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

© 2019 - GZA GeoEnvironmental, Inc. \\gzalivonia\Jobs\16.xx Grand Rapids\16.0062300.xx\16.0062335.5x WNJ WWW\16.0062335.52\Data_GIS\GIS_CAD\Tannery_ISO_Sed.mxd, 1/11/2019, 1:22:57 PM, aimee.mountain

Appendix A – Boring Logs & Well Installation Logs

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-01/TA-GW-03
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Michael Kress
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593884.337 N, 12804608.394 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

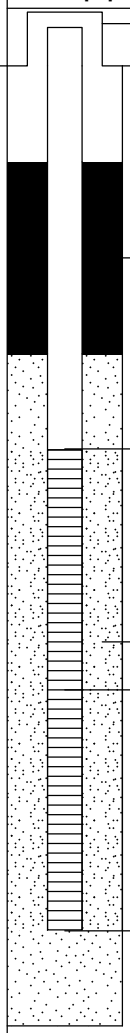
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/30	0-5		1.0 ppm	Dark brown, fine SAND and SILT, little Organic Matter (roots), moist (TOPSOIL). Changing at 0.3 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, dry. Changing at 1.0 foot to: Brown and black, fine to coarse SAND, some Gravel, little Silt, moist. Changing at 2.5 feet to: NO RECOVERY.	0.2' TOPSOIL; SAND and SILT (TOPSOIL); 1' SAND; 2.5' NO RECOVERY	1
1					0.1 ppm			
2					1.1 ppm			2
3								
4								
5	2	60/30	5-10			NO RECOVERY. Changing at 7.5 feet to: Brown and black, fine to coarse SAND, some Gravel, little Silt, moist. Changing at 8.0 feet to: Black, fine to coarse SAND and GRAVEL, little Silt, wet. Changing at 9.5 feet to: Black, fine to coarse SAND and GRAVEL, little Silt, little Organic Matter (wood debris), wet.		
6								3
7					2.4 ppm		7.5' SAND	4
8					2.1 ppm		8' SAND and GRAVEL	
9					1.5 ppm			
10						Bottom of Borehole at 10.0 Feet	10'	5
11								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Groundwater was encountered at approximately 6.0 feet below ground surface.
4. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
5. Monitoring well was installed in borehole upon completion. Well screen set from approximately 4.0 to 9.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-01/TA-GW-03

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593877.296 N, 12804569.838 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/27	0-4		1.2 ppm	Brown, TOPSOIL, trace Organic Matter (roots), moist. Changing at 0.4 feet to: Grayish tan, fine SAND, trace Gravel, trace Silt, moist. Changing at 0.7 feet to: Light brown and brown, fine to medium SAND, little Gravel, dry. Changing at 1.1 feet to: Light gray, fine SAND, some Gravel, moist. Changing at 1.3 feet to: Brown, fine to medium SAND, little Silt, little Gravel, moist. Changing at 2.6 feet to: NO RECOVERY. NO RECOVERY. Changing at 6.1 feet to: Black, medium to coarse SAND, little Gravel, little Silt, wet. Changing at 6.8 feet to: Black, SILT, trace Gravel, wet. Changing at 7.5 feet to: Gray and brown, SAND and SILT, wet. Changing at 7.8 feet to: Gray and brown, fine to coarse SAND, trace Silt, wet.	0.4' TOPSOIL SAND	1	None
1					1.3 ppm				
2					1.9 ppm			2	
3									
4	2	48/23	4-8						
5									
6					2.4 ppm			3	
7					2.3 ppm		6.8' SILT 7.5' SAND and SILT	4	
8	3	48/24	8-12			NO RECOVERY. Changing at 10.0 feet to: Black, SILT and fine SAND, trace Gravel. Changing at 11.7 feet to: Gray and brown, Silty CLAY, little Gravel.	7.8' SAND		
9									
10					1.5 ppm				
11					1.7 ppm		11.7' Silty CLAY		
12	4	48/41	12-16		1.7 ppm	NO RECOVERY. Changing at 12.7 feet to: Tan and brown, fine SAND, trace Silt, trace Gravel, wet. Changing at 14.5 feet to: Gray and brown, fine to coarse SAND, trace Gravel, trace Silt, wet. Changing at 14.7 feet to: Gray and brown, Clayey SILT, little fine Sand, moist. Changing at 15.0 feet to: Tan and brown, fine to medium SAND, trace Silt, wet. Changing at 15.8 feet to: Tan and brown, fine to medium SAND, some Clayey Silt, wet.	12.7' SAND		
13					1.1 ppm				
14					2.0 ppm		14.7' SILT		
15					1.8 ppm		15' SAND		
16						Bottom of Borehole at 16.0 Feet	16'	5 6	
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Petroleum odor noted in sample.
4. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-03
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593831.538 N, 12804505.984 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/42	0-4		1.2 ppm	Dark brown, fine to medium SAND and SILT, little Organic Matter (roots), moist (TOPSOIL). Changing at 0.5 feet to: Light brown, fine to coarse SAND, some Gravel, little Silt, dry. Changing at 2.0 feet to: Gray and brown, fine to coarse SAND and GRAVEL, little Silt, Concrete fragments, moist. Changing at 3.4 feet to: Black and gray, GRAVEL, some fine to coarse Sand, trace Silt, moist.	SAND and SILT 0.5' (TOPSOIL)	1	None
1					1.2 ppm		SAND		
2					2.1 ppm		2' SAND and GRAVEL 2.5'	2	
3					2.9 ppm		CONCRETE 3.4'		
4	2	48/42	4-8		2.0 ppm	NO RECOVERY. Changing at 4.5 feet to: Brown, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 5.0 feet to: Black ASPHALT and ASPHALT GRAVEL. Changing at 5.4 feet to: Brown, fine to coarse SAND, some Gravel, trace Silt, wet.	GRAVEL 4.5'	3	
5					3.8 ppm		SAND 5' ASPHALT 5.4' SAND		
6					6.5 ppm			4	
7					10.8 ppm				
8	3	48/30	8-12		0.6 ppm	NO RECOVERY. Changing at 9.5 feet to: Brown, fine to coarse SAND, some Gravel, little Silt, wet.			
9					10.8 ppm				
10					10.3 ppm				
11					10.2 ppm				
12	4	12/6	12-13		3.5 ppm 19.1 ppm	NO RECOVERY. Changing at 12.5 feet to: Gray and black, GRAVEL and Fractured CONCRETE, little fine to medium Sand, wet.	12.5' GRAVEL 13'		
13						Bottom of Borehole at 13.0 Feet		5 6	
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Concrete fragments from 2.0 to 2.3 feet below ground surface.
3. Petroleum odor noted in sample.
4. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with drill cuttings and a bentonite-cement slurry upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-03

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-04
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Michael Kress
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593809.005 N, 12804489.673 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/42	0-5		1.4 ppm	Dark brown, fine to medium SAND, some Silt, trace Organic Matter (roots), moist (TOPSOIL). Changing at 0.5 feet to: Light brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 3.5 feet to: NO RECOVERY.	0.5' TOPSOIL	1	None
1					2.2 ppm		SAND		
2					2.2 ppm				
3					2.5 ppm		3.5'		
4							NO RECOVERY		
5	2	60/48	5-10			NO RECOVERY. Changing at 6.0 feet to: Gray and brown, fine to coarse SAND, little silt, wet.		2	
6					3.2 ppm		6' SAND		
7					4.5 ppm			3 4 5	
8					4.2 ppm				
9					5.1 ppm				
10	3	60/36	10-15			NO RECOVERY. Changing at 12.0 feet to: Gray, GRAVEL, some Sand, little Silt, wet. Changing at 12.4 feet to: Brown, fine SAND, little Clay, trace Gravel, moist. Changing at 14.0 feet to: Gray, SILT, little fine Sand, trace Gravel, moist.	10' NO RECOVERY		
11									
12					10.4 ppm		12' 12.4' GRAVEL		
13					9.6 ppm		SAND		
14					3.3 ppm		14' SILT		
15						Bottom of Borehole at 15.0 Feet	15'	6	
16									
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was encountered at approximately 5.0 feet below ground surface.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Dark gray staining noted in sample.
5. Petroleum odor noted in sample.
6. Borehole was backfilled with drill cuttings and a bentonite-cement slurry upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-04

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-05
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593779.273 N, 12804499.531 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/31	0-5		2.1 ppm	Brown, TOPSOIL, trace Organic Matter (roots), moist. Changing at 0.2 feet to: Tan, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 0.4 feet to: Brown, fine to coarse SAND, little Silt, little Gravel, moist. Changing at 1.3 feet to: Brown to light brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 2.1 feet to: Black, SILT, little Gravel, trace fine Sand, moist. Changing at 2.9 feet to: NO RECOVERY.	0.2' TOPSOIL SAND	1	None
1					2.9 ppm				
2					3.2 ppm		2.1' SILT	2	
3							2.9' NO RECOVERY		
4									
5	2	60/42	5-10			NO RECOVERY. Changing at 6.5 feet to: Gray and brown, fine to coarse SAND, little Gravel, moist. Changing at 7.9 feet to: Black, SILT, trace Organic Matter (roots and wood), wet. Changing at 8.5 feet to: Gray and brown, fine to coarse SAND, some Silt, trace Gravel, wet.			
6					3.2 ppm		6.5' SAND		
7					3.5 ppm			3	
8					2.5 ppm		7.8' SILT		
9					3.0 ppm		8.5' SAND		
10	3	60/52	10-15		1.7 pm	NO RECOVERY. Changing at 10.8 feet to: Light brown, Clayey SILT, trace Gravel, some fine Sand, moist. Changing at 11.3 feet to: Light brown, fine to medium SAND, some Silt, trace Gravel, moist. Changing at 11.9 feet to: Light gray, SILT, moist.	10' NO RECOVERY		
11					2.5 ppm		10.8' Clayey SILT		
12					1.8 ppm		11.3' SAND		
13					2.8 ppm		11.8' Clayey SILT		
14					2.8 ppm		11.9' SILT		
15						Bottom of Borehole at 15.0 Feet	15'	4 5	
16									
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-05

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-06
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593806.363 N, 12804374.395 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/44	0-4		0.8 ppm	Brown, TOPSOIL, trace fine Sand, trace Organic Matter (roots), moist. Changing at 0.5 feet to: Brown and gray, fine to coarse SAND, some Silt, little Gravel, moist. Changing at 2.1 feet to: Brown and gray, fine to coarse SAND, some Silt, little Gravel, wet. Changing at 3.7 feet to: NO RECOVERY.	TOPSOIL	1	None
1					1.4 ppm		0.5' SAND		
2					1.5 ppm			2	
3					1.6 ppm		3.7' NO RECOVERY		
4	2	48/31	4-8			NO RECOVERY. Changing at 5.4 feet to: Brown and gray, fine to coarse SAND, some Silt, little Gravel, wet.			
5					1.6 ppm		5.4' SAND		
6					1.4 ppm				
7					2.4 ppm			3	
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-07
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 8-2-18 / 8-2-18
Boring Location: 593837.890 N, 12804447.502 E
GS Elev.: 693.58' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/43	0-5		0.0 ppm	Brown, TOPSOIL, some fine Sand, trace Organic Matter (roots). Changing at 0.3 feet to: Light brown, fine to coarse SAND, trace Gravel, trace Silt. Changing at 1.4 feet to: Light gray and white, CONCRETE. Changing at 1.7 feet to: Dark brown, fine to coarse SAND, trace Silt, trace Gravel, moist. Changing at 2.2 feet to: Black, fine to coarse SAND and GRAVEL, trace Silt, moist. Changing at 3.1 feet to: Black, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 4.0 feet to: NO RECOVERY.	0.3' TOPSOIL SAND 1.4' 1.7' CONCRETE SAND 2.2' SAND and GRAVEL 3.1' SAND	1	None
1					1.8 ppm				
2					8.3 ppm				
3					25.9 ppm			2	
4									
5	2	60/15	5-10			NO RECOVERY. Changing at 9.1 feet to: Black, GRAVEL, some fine to coarse Sand, trace Silt, moist.	5' NO RECOVERY		
6									
7									
8					6.5 ppm				
9					37.3 ppm		9.1' GRAVEL	3	
10						Bottom of Borehole at 10.0 Feet	10'	4 5	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 9.0 to 10.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-07

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-08
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Michael Kress
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593770.091 N, 12804435.117 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	60/42	0-5		2.0 ppm	Dark brown, fine SAND and SILT, trace Gravel, trace Organic Matter (roots), moist (TOPSOIL). Changing at 0.4 feet to: Brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 1.5 feet to: Gray and brown, fine to medium SAND, trace Silt, moist. Changing at 3.0 feet to: Light gray, CONCRETE fragments. Changing at 3.3 feet to: Black, fine to coarse SAND and GRAVEL, trace Silt, moist. Changing at 3.5 feet to: NO RECOVERY.	0.5' TOPSOIL	1	None
2					3.2 ppm		SAND		
3					3.1 ppm		3'	2	
4					14.8 ppm		3.3' CONCRETE	3	
5							3.5' SAND and GRAVEL	2	
6	2	60/42	5-10			NO RECOVERY. Changing at 6.5 feet to: Black, SAND and GRAVEL, trace Silt, wet. Changing at 8.0 feet to: Black, SILT, trace Sand, trace Gravel, wet. Changing at 9.0 feet to: Black, SAND, trace Gravel, trace Silt, wet.	NO RECOVERY		
7					8.2 ppm		6.5'		
8					5.4 ppm		SAND and GRAVEL	4	
9					7.2 ppm		8'	2	
10					7.1 ppm		SILT	5	
11	3	60/60	10-15		5.5 ppm	Gray, SILT, moist. Changing at 10.5 feet to: Dark gray, fine to coarse SAND, little Silt, wet. Changing at 11.0 feet to: Dark gray, fine to medium SAND and SILT, wet.	9'	2	
12					6.1 ppm		SAND	2	
13					5.3 ppm		10'		
14					3.6 ppm		SILT		
15					3.5 ppm		10.5'		
16							SAND		
17							11'		
18							SAND and SILT		
19							15'		
						Bottom of Borehole at 15.0 Feet		6	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Slight staining noted in sample.
3. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was encountered at approximately 6.5 feet below ground surface.
5. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-08

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-09
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593686.052 N, 12804475.49 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/39	0-4		1.5 ppm	Dark brown, fine to medium SAND, some Silt, little Organic Matter (roots), moist (TOPSOIL). Changing at 1.0 feet to: Light brown, fine to medium SAND, little Silt, moist. Changing at 2.3 feet to: NO RECOVERY.	TOPSOIL	1	None
1					1.2 ppm		1' SAND		
2					3.6 ppm		2.3' NO RECOVERY	2 3	
3					1.8 ppm			2	
4	2	48/48	4-8		4.4 ppm	Light brown, fine to medium SAND, little Silt, moist.	4' SAND	2	
5					6.1 ppm			2	
6					17.5 ppm			2	
7					8.5 ppm			4 2	
8	3	48/48	8-12		2.8 ppm	Light brown, fine to medium SAND, little Silt, moist. Changing at 10.0 feet to: Brown, fine SAND and SILT, little Gravel, moist.			
9					1.7 ppm				
10					1.8 ppm		10' SAND and SILT		
11					1.0 ppm				
12	4	48/48	12-16		4.3 ppm	Gray, fine to medium SAND, little Silt, moist. Changing at 13.0 feet to: Gray and brown, fine SAND and SILT, moist.	12' SAND		
13					3.2 ppm		13' SAND and SILT		
14					4.4 ppm				
15					4.1 ppm				
16						Bottom of Borehole at 16.0 Feet	16'	5 6	
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Slight staining noted in sample.
3. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
4. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-10
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 594527.223 N, 12804859.149 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		1.4 ppm	Black, ASHPALT, dry. Changing at 0.2 feet to: Black, BASE COURSE, dry. Changing at 0.4 feet to: Light brown, fine to medium SAND, little Gravel, little Silt, moist. Changing at 0.9 feet to: Dark brown and black, SILT, some fine Sand, trace Gravel, moist. Changing at 2.7 feet to: Light brown and brown mottled, fine to medium SAND, little Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	0.2' ASPHALT BASE COURSE 0.5' SAND 0.9' SILT	1	None
1					2.2 ppm			2	
2					1.8 ppm		2.7' SAND 3' NO RECOVERY		
3									
4	2	48/40	4-8		1.4 ppm	NO RECOVERY. Changing at 4.8 feet to: Light tan, fine to medium SAND, little Silt, moist to wet. Changing at 7.2 feet to: Tan, white and black, medium to coarse SAND and GRAVEL, trace Silt, moist. Changing at 7.8 feet to: Light tan to brown, Clayey SILT, moist.	4.8' SAND	3	
5					1.8 ppm				
6					1.9 ppm				
7					2.3 ppm		7.2' SAND and GRAVEL 7.8' 8' Clayey SILT		
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-10

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-11
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 594333.913 N, 12804856.765 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/32	0-4		1.5 ppm	Black, ASPHALT, dry. Changing at 0.2 feet to: Black, BASE COURSE, damp. Changing at 0.5 feet to: Light brown, fine to medium SAND, little Gravel, trace Silt, moist. Changing at 0.8 feet to: Dark brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 0.9 feet to: Light brown to brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 1.1 feet to: Dark brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 1.3 feet to: Gray and brown, SILT, some fine Sand, moist. Changing at 1.7 feet to: Brown, SILT, some fine to medium Sand, trace Gravel, moist. Changing at 2.4 feet to: Brown, SILT, some fine to medium Sand, little Gravel, moist. Changing at 2.8 feet to: NO RECOVERY.	0.2' ASPHALT BASE COURSE 0.5' SAND 1.3' SILT 2.8' NO RECOVERY	1	None
1					1.9 ppm			2	
2					2.3 ppm				
3									
4	2	48/33	4-8			NO RECOVERY. Changing at 5.3 feet to: Tan, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 5.8 to: Tan, brown and black, medium to coarse SAND, little Gravel, trace Silt, moist. Changing at 6.4 feet to: Tan, brown and black, medium to coarse SAND and GRAVEL, moist.			
5					2.0 ppm		5.3' SAND		
6					2.1 ppm		6.4' SAND and GRAVEL	3	
7					2.2 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-11

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-12
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 594287.006 N, 12804772.416 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/24	0-4		1.9 ppm	Black, GRAVEL and coarse SAND, trace Silt, wet. Changing at 1.0 foot to: Orange and brown, coarse SAND, some Gravel, little Silt, wet. Changing at 2.0 feet to: NO RECOVERY.	GRAVEL and SAND	1 2	None
1					2.5 ppm		1' SAND	3	
2							2' NO RECOVERY		
3									
4	2	48/48	4-8		2.2 ppm	Brown, CLAY, little Gravel, trace fine Sand, moist.	4' CLAY	4	
5					2.1 ppm				
6					2.0 ppm				
7					2.5 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	5 6	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Boring location in asphalt parking lot. Sample similar to asphalt millings.
3. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
4. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-13
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 594237.773 N, 12804855.482 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		1.8 ppm	Dark brown, fine to medium SAND, some Silt, trace Organic Matter (roots), moist (TOPSOIL), Changing at 0.5 feet to: Light brown, fine to coarse SAND, little Silt, moist. Changing at 1.0 feet to: Dark brown, fine to medium SAND and SILT, trace Gravel, moist. Changing at 2.0 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND (TOPSOIL) 0.5' SAND	1	None
1					1.7 ppm			2	
2					1.9 ppm				
3							3' NO RECOVERY		
4	2	48/30	4-8			NO RECOVERY. Changing at 5.5 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 6.0 feet to: Orange and brown, coarse SAND and GRAVEL, trace Silt, moist.			
5					1.6 ppm		5.5' SAND		
6					1.6 ppm		6' SAND and GRAVEL	3	
7					1.3 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-14
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594143.583 N, 12804686.619 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/24	0-4		1.1 ppm	Gray, GRAVEL and fine to coarse SAND, trace Silt, dry. Changing at 0.4 feet to: Dark brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 2.0 feet to: NO RECOVERY.	GRAVEL and SAND (0.4')	1	None
1					0.9 ppm		SAND (2')		
2							NO RECOVERY (4')		
3									
4	2	48/48	4-8		1.1 ppm	Brown, CLAY, little Gravel, moist. Changing at 5.0 feet to: Brown, fine SAND and SILT, wet. Changing at 7.0 feet to: Brown, CLAY & SILT, moist.	CLAY (5')		
5					1.5 ppm		SAND and SILT (7')	2	
6					1.4 ppm				
7					0.9 ppm		CLAY & SILT (8')	3	
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-15
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 594141.524 N, 12804854.118 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/29	0-4		1.8 ppm 0.8 ppm	Brown, TOPSOIL, little Gravel, trace Organic Matter (roots), moist. Changing at 0.4 feet to: Brown, SUBSOIL, trace fine to medium Sand, moist. Changing at 0.9 feet to: Orange and brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 1.5 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 2.4 feet to: NO RECOVERY.	TOPSOIL 0.4' SUBSOIL 0.9' SAND	1	None
1									
2					2.0 ppm		2.4' NO RECOVERY	2	
3									
4	2	48/22	4-8			NO RECOVERY. Changing at 6.2 feet to: Brown, fine to medium SAND, trace Silt, moist. Changing at 6.8 feet to: Tan, brown and black, medium to coarse SAND, some Gravel, moist. Changing at 7.9 feet to: Orange and brown, Silty CLAY, little Gravel, moist.			
5									
6					2.3 ppm		6.2' SAND		
7					2.3 ppm			3	
8						Bottom of Borehole at 8.0 Feet	7.9' 8' Silty CLAY	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-15

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-16
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location: 594045.117 N, 12804852.752 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/33	0-4		9.9 ppm	Brown, fine SAND and SILT, trace Organic Matter (roots), dry (TOPSOIL). Changing at 0.4 feet to: Light brown, fine SAND, trace Silt, trace Gravel, trace Cobble, moist. Changing at 1.5 feet to: Fine to coarse SAND, some Gravel, little Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	TOPSOIL 0.4' SAND	1	None
1					9.9 ppm				
2					6.9 ppm			2	
3							3' NO RECOVERY		
4	2	48/18	4-8			NO RECOVERY. Changing at 6.5 feet to: Brown, fine to coarse SAND, some Gravel, little Silt, moist. Changing at 7.0 feet to: Black, SAND and GRAVEL, moist. Changing at 7.1 feet to: Brown, SAND and GRAVEL, little Silt, moist.			
5									
6								3	
							6.5' SAND		
7							7' SAND and GRAVEL		
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-16

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-17
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594047.46 N, 12804685.256 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		1.1 ppm	ORAGANIC MATTER (grass and roots). Changing at 0.2 feet to: Brown, Sandy TOPSOIL. Changing at 0.7 feet to: Brown, SAND and GRAVEL, little Silt, dry. Changing at 1.5 feet to: Black, SAND and GRAVEL, trace Silt, moist. Changing at 1.8 feet to: Brown, CLAY, little Gravel, moist. Changing at 2.5 feet to: Black, fine to medium SAND, trace Silt, wet. Changing at 3.0 feet to: NO RECOVERY.	0.2' ORGANIC MATTER (grass and roots)	1	None
1					1.2 ppm		Sandy TOPSOIL 1.5'	2	
2					0.8 ppm		1.8' SAND and GRAVEL; CLAY 2.5'		
3							SAND 3'		
							NO RECOVERY	3	
4	2	48/6	4-8			NO RECOVERY. Changing at 7.5 feet to: Brown and black, fine to coarse SAND, trace Silt, moist.			
5									
6									
7							7.5'	4	
							SAND 8'		
8	3	48/48	8-12		0.6 ppm	Brown, CLAY, trace Sand, wet. Changing at 9.4 feet to: Brown, fine to coarse SAND, wet.	CLAY		
9					0.3 ppm		9.5'		
							SAND		
10					1.0 ppm				
11					1.0 ppm				
12							12'		
						Bottom of Borehole at 12.0 Feet		5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Groundwater was encountered at approximately 3.0 feet below ground surface.
4. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-17

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-18
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location: 593998.227 N, 12804768.322 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/24	0-4		9.0 ppm	Brown, TOPSOIL. Changing at 0.1 feet to: Light brown, fine to medium SAND, trace Silt, trace Gravel, dry. Changing at 2.0 to: NO RECOVERY.	0.1' TOPSOIL SAND	1 2	None
1					4.8 ppm				
2							2' NO RECOVERY		
3									
4						Refusal at 4.0 Feet	4'	3 4	
5									

REMARKS

1. Borehead offset and advances using Geoprobe 6620. See TA-SB-18 Offset for details.
2. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-18 Offset
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-18-18 / 7-18-18
Boring Location: 593998.2426 N, 12804768.33 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/36	0-5		0.9 ppm	Brown, TOPSOIL, some fine to medium Sand, trace Organic Matter (roots), moist. Changing at 0.3 feet to: Tan and brown, fine SAND, trace Silt, moist. Changing at 0.7 feet to: Brown, fine to medium SAND, trace Silt, moist. Changing at 0.9 feet to: Tan and brown, fine to medium SAND, trace Silt, moist. Changing at 1.5 feet to: Gray, medium to coarse SAND, some Gravel, trace Silt, moist. Changing at 1.8 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 2.0 feet to: Light brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 2.5 feet to: Black, fine to coarse SAND, trace Silt, moist. Changing at 2.6 feet to: Brown, fine to coarse SAND, trace Silt, trace Gravel, moist. Changing at 2.8 feet to: Black, medium to coarse SAND, little Silt, trace Gravel, moist. Changing at 2.9 feet to: Dark brown, SILT, some fine to medium Sand, moist. Changing at 3.0 feet to: NO RECOVERY. NO RECOVERY. Changing at 5.6 feet to: Tan, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 6.9 feet to: Dark brown, SILT, some fine Sand, moist. Changing at 7.1 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 7.6 feet to: Light brown, Silty CLAY, moist.	0.3' TOPSOIL SAND 2.9' NO RECOVERY 5.6' SAND 6.9' 7.1' SILT SAND 7.6' Silty CLAY 10'	1 2 3 4	None
1					0.9 ppn				
2					1.3 ppm				
3									
4									
5	2	60/53	5-10		1.1 ppm				
6					2.7 ppm				
7					0.5 ppm				
8					0.3 ppm				
9					1.8 ppm				
10						Bottom of Borehole at 10.0 Feet		5 6	
11									

REMARKS

1. Borehole is an offset of TA-SB-18, which encountered refusal at 4.0 feet below ground surface.
2. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
3. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
4. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-19
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location: 593948.673 N, 12804851.702 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/44	0-4		5.0 ppm	Brown, fine SAND and SILT, trace Organic Matter (roots), dry (TOPSOIL). Changing at 0.5 feet to: Light brown, fine SAND, trace Gravel, trace Silt, dry. Changing at 2.0 feet to: White and gray, CONCRETE fragments. Changing at 2.6 feet to: Brown, fine SAND, trace Silt, moist. Changing at 3.0 feet to: Black and brown, fine to coarse SAND, little Gravel, moist (possible FILL). Changing at 3.7 feet to: NO RECOVERY.	TOPSOIL 0.5'	1	None
1					4.9 ppm		SAND		
2					5.3 ppm		2' CONCRETE Fragments 2.6'		
3					7.0 ppm		SAND	2 3	
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Brown, fine SAND, trace Gravel, moist. Changing at 5.2 feet to: Black, fine to coarse SAND, little Gravel, little Silt, moist. Changing at 6.0 feet to: Dark brown, SILT & CLAY, trace fine Sand, trace Gravel, moist. Changing at 6.5 feet to: Light brown, fine SAND, little Silt, trace Gravel, moist. Changing at 7.0 feet to: Dark brown, fine to coarse SAND, some Gravel, moist to wet.	4' NO RECOVERY		
5					8.0 ppm		5' SAND		
6					7.3 ppm		6' SILT & CLAY 6.5'		
7					7.1 ppm		SAND	4	
8	3	48/44	8-12		10.5 ppm	NO RECOVERY. Changing at 8.3 feet to: Light brown, Silty CLAY, trace fine Sand, trace Gravel, dry.	8' 8.3' NO RECOVERY Silty CLAY		
9					3.9 ppm				
10					2.1 ppm				
11					1.6 ppm		12'		
12						Bottom of Borehole at 12.0 Feet		5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Petroleum odor noted in sample.
3. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analytical testing.
4. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-19

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-20
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594000.285 N, 12804600.822 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/32	0-4		0.6 ppm	ORGANIC MATTER (grass and roots). Changing at 0.1 feet to: Brown, Sandy TOPSOIL. Changing at 0.8 feet to: Brown, GRAVEL and SAND, trace Silt, dry. Changing at 1.5 feet to: Black, SAND, some Gravel, trace Silt, moist. Changing at 2.5 feet to: Black, LEATHER pieces. Changing at 2.7 feet to: NO RECOVERY.	0.1' ORGANIC MATTER TOPSOIL	1	None
1					0.9 ppm		0.8' GRAVEL and SAND		
							1.5' SAND		
2					9.1 ppm				
							2.5'		
							2.7' LEATHER Pieces NO RECOVERY		
3									
4	2	48/30	4-8		0.2 ppm	NO RECOVERY. Changing at 5.5 feet to: Black, LEATHER pieces, moist. Changing at 6.0 feet to: Black, LEATHER pieces, wet. Changing at 6.3 feet to: Dark brown, SAND, some Gravel, little Silt, wet.			
5					13.9 ppm			2	
							5.5' LEATHER Pieces		
6					10.8 ppm		6.3' SAND		
7					13.2 ppm			3	
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-20

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-21
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 593950.736 N, 12804683.884 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/30	0-4		5.8 ppm	Brown, Sandy TOPSOIL, some Organic Matter (roots), dry. Changing at 0.3 feet to: Light brown, fine to medium SAND, little Gravel, trace Silt, moist. Changing at 2.5 feet to: NO RECOVERY.	TOPSOIL 0.3' SAND	1	None
1					7.2 ppm				
2					7.1 ppm		2.5' NO RECOVERY		
3									
4	2	48/24	4-8			NO RECOVERY. Changing at 6.0 feet to: Light brown, fine to medium SAND, little Gravel, trace Silt, moist.			
5									
6					9.8 ppm		6' SAND		
7					9.8 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	2 3	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was not encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-21

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-21(2)
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Michael Kress
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593950.15 N, 12804683.89 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
						No sample taken.	NO SAMPLE TAKEN		None
1									
2									
3									
4									
5	1	60/42	5-10			NO RECOVERY. Changing at 6.5 feet to: Brown, fine to coarse SAND, little Gravel, little Silt, wet.	5' NO RECOVERY		
6					0.4 ppm		6.5' SAND	1 2	
7					0.6 ppm				
8									
9					0.6 ppm 0.5 ppm			3 4	
10	2	60/56	10-15		0.6 ppm	NO RECOVERY. Changing at 10.5 feet to: Gray and brown, fine to medium SAND, some Clay, moist. Changing at 11.0 feet to: Brown, fine to medium SAND, little Silt, wet. Changing at 12.0 feet to: Brown, fine to medium SAND, little Silt, wet.	10' NO RECOVERY 10.5' SAND		
11					0.4 ppm				
12					0.5 ppm				
13					0.5 ppm				
14					0.5 ppm				
15						Bottom of Borehole at 15.0 Feet	15'		
16									
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
3. Dark gray staining noted in sample.
4. Soil sample was collected from 9.0 to 10.0 feet below ground surface and submitted for laboratory analytical testing.

Groundwater was not encountered during drilling or upon completion.
Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-21(2)

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-22
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-26-18 / 7-26-18
Boring Location: 593901.818 N, 12804766.956 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/39	0-5		2.5 ppm	Brown, TOPSOIL, little fine Sand, trace Organic Material (roots), moist. Changing at 0.3 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 1.1 foot to: White to light gray, CONCRETE fragments. Changing at 1.9 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 2.5 feet to: Light brown to brown, fine to medium SAND, mottled, little Silt, moist. Changing at 3.2 feet to: NO RECOVERY.	0.3' TOPSOIL SAND 1.1' CONCRETE Fragments 1.9' SAND 3.2' NO RECOVERY	1	None
1					4.2 ppm				
2					4.1 ppm			2	
3					4.2 ppm				
4									
5	2	60/43	5-10			NO RECOVERY. Changing at 5.4 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 7.2 feet to: Light brown, fine to coarse SAND, trace Gravel, trace Silt, moist. Changing at 7.4 feet to: Light brown, fine to medium SAND, mottled, trace Silt, moist. Changing at 7.8 feet to: Dark brown, SILT, little fine Sand, moist. Changing at 8.0 feet to: Black, medium to coarse SAND, some Gravel, trace Silt, moist. Changing at 8.1 feet to: Tan, fine to coarse SAND, little Silt, trace Gravel, wet. Changing at 8.4 feet to: Gray, SILT, some fine Sand, little Gravel, wet. Changing at 9.0 feet to: Gray and black, fine to medium SAND, mottled, trace Silt, wet. Changing at 9.6 feet to: Gray and black, fine to medium SAND, some Silt, mottled, wet.	6.4' SAND 7.8' 8' SILT 8.4' SAND SILT 9' SAND 10' 10.4' NO RECOVERY SAND		
6					4.1 ppm				
7					3.9 ppm				
8					3.8 ppm			3	
								4	
9					3.1 ppm				
10	3	60/55	10-15		2.3 ppm				
11					2.8 ppm	NO RECOVERY. Changing at 10.4 feet to: Gray and black, fine to medium SAND, mottled, trace Silt, trace Gravel, wet. Changing at 10.8 feet to: Gray and black, fine to medium SAND, mottled, some Silt, trace Gravel. Changing at 11.8 feet to: Dark brown, SILT, little fine Sand, trace Organic Matter (roots), wet. Changing a 12.5 feet to: Light brown and brown, fine to medium SAND, some Silt, wet. Changing at 13.2 feet to: Olive brown, GRAVEL, little fine to coarse Sand, trace Silt, wet. Changing at 14.0 feet: Grayish tan, Clayey SILT, wet. Changing at 14.3 feet to: Grayish tan, fine SAND, some Silt, wet.	11.8' SILT 12.6' SAND 13.2' GRAVEL 14' 14.3 Clayey SILT SAND 15'		
12					1.9 ppm				
13					2.2 ppm				
14					2.9 ppm				
15								5	
16						Bottom of Borehole at 15.0 Feet			

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 8.0 to 9.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was encountered at approximately 8.4 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-22

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-23
Page: 1 **of** 2
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bert Graham
Logged by: Sheryl Stephenson
Date Start/Finish: 8-6-18 / 8-6-18
Boring Location: 593805.026 N, 12,804765.901 E
GS Elev.: 698.37' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	36/18	0-3	3-1-3	3.7 ppm 3.8 ppm	Brown, TOPSOIL, trace Organic Matter (roots), dry. Changing at 0.5 feet to: Light brown, fine SAND, dry. Changing at 1.0 foot to: Light brown, fine to medium SAND, trace Silt, dry. Changing at 1.5 feet to: CONCRETE.	TOPSOIL 0.5' SAND 1.5' CONCRETE	1	None
3	2	24/24	3-5	2	2.6 ppm	Light gray and brown, SILT, trace Gravel. Changing at 3.1 feet to: Black and brown, SILT, Plastic debris with large Plastic debris from 3.5 to 4.0 feet and Concrete and Plastic debris from 3.5 to 5.0 feet.	3' SILT 3.5' CONCRETE and PLASTIC Debris		
5	3	24/20	5-7	4-3 6-15	5.7 ppm 3.4 ppm	NO RECOVERY. Changing at 5.3 feet to: White and gray, CONCRETE. Changing at 5.6 feet to: Black, brown and orange, fine to coarse SAND (FILL). Changing at 6.4 feet to: Black and blue, fine to coarse SAND, little Gravel, wet.	5' 5.3' NO RECOVERY 5.6' CONCRETE SAND	2	
7	4	24/20	7-9	2-2 8-8	9.0 ppm 4.1 ppm	NO RECOVERY. Changing at 7.3 feet to: Black and blue, coarse SAND and Gravel, wet. Changing at 8.0 feet to: Black and blue, Organic Matter (wood). Changing at 8.7 feet to: Black and blue, SILT, metallic-looking Sand.	7' 7.3' NO RECOVERY SAND and GRAVEL 8' SILT		
9	5	24/22	9-11	14-4 12-20	16.4 ppm 15.0 ppm	NO RECOVERY. Changing at 9.1 feet to: Black and blue, SAND and GRAVEL, little Silt, trace Organic Matter (wood), wet. Changing at 9.4 feet to: Black and blue, SILT, some coarse Sand, Hair-like fibers, wet. Changin gat 10.0 feet to: Black and blue, SILT, trace Sand, trace Gravel, dry and hard. Changing at 10.6 feet to: Black and blue, fine SAND, trace Silt, moist.	9' 9.1' NO RECOVERY 9.4' SAND and GRAVEL SILT 10.6' SAND	3	
11	6	24/12	11-13	4-3 3-4		NO RECOVERY. Changing at 12.0 feet to: Black and blue, fine SAND, trace Gravel, some Organic Matter (roots), wet. Changing	11' NO RECOVERY 12'		

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 9.0 to 10.0 feet below ground surface and submitted for laboratory analytical testing.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-23

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-23
Page: 2 **of** 2
File No.: 16.0062335.02
Check: John Morehouse

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
13	7	24/12	13-15	2-4 17-9	14.3 ppm 14.6 ppm	at 12.3 feet to: Gray, SILT, some fine Sand, little Rock fragments, wet. Changing at 12.8 feet to: Gray, fine to medium SAND, little Silt, moist. NO RECOVERY. Changing at 14.0 feet to: Gray, fine to coarse SAND, little Silt, trace Organic Matter (roots), moist. Changing at 14.1 feet to: Blue and green, fine SAND, trace Silt, moist.	12.3' SAND SILT 12.8' 13' SAND NO RECOVERY 14'		
14							SAND		
15	8	24/24	15-17	2-3 8-7	16.2 ppm 7.2 ppm	Gray, SAND and SILT, trace Organic Matter (wood), wet. Changing at 16.0 feet to: Black, SAND, little Silt, wet. Changing at 16.1 feet to: Gray and orange, SAND, little Silt, wet. Changing at 16.2 feet to: Gray, SILT, some Sand, trace Gravel, moist.	15' SAND and SILT 16' 16.2' SAND SILT 17'		
16									
17						Bottom of Borehole at 17.0 Feet		4 5	
18									
19									
20									
21									
22									
23									
24									
25									

REMARKS

4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-23

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-24
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location: 593852.522 N, 12804850.022 E
GS Elev.: ____ **Datum:** ____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: ____ **Survey Date:** ____

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/26	0-4		2.1 ppm	Crushed CONCRETE. Changing at 0.7 feet to: Brown, SILT, little fine to medium SAND, trace Organic Matter (roots), trace Gravel, moist. Changing at 1.2 feet to: Light brown, fine to coarse SAND, trace Gravel, trace Silt, moist. Changing at 1.6 feet to: Black, SILT, trace fine to medium SAND, moist. Changing at 1.9 feet to: Light gray, fine to coarse SAND and GRAVEL, trace Silt, dry. Changing at 2.1 feet to: Brown, fine to coarse SAND and GRAVEL, little Silt, moist. Changing at 2.2 feet to: NO RECOVERY.	Crushed CONCRETE 0.7'	1 2	None
1					1.6 ppm		SILT 1.2'		
							SAND 1.6'		
							SILT 1.9'		
2					0.4 ppm		SAND 2.1'		
							NO RECOVERY		
3									
4	2	48/28	4-8		0.2 ppm	NO RECOVERY. Changing at 5.7 feet to: Brown, fine to coarse SAND and GRAVEL, trace Silt, wet. Changing at 6.2 feet to: Brown, fine to medium SAND, little Silt, wet. Changing at 6.7 feet: Black, fine to medium SAND, some Silt, wet. Changing at 6.9 feet to: Dark brown, SILT, trace fine Sand, trace Organic Matter (roots), wet. Changing at 7.3 feet to: Brown, fine to medium SAND, some Silt, trace Gravel, wet. Changing at 7.9 feet to: Dark brown, SILT, trace fine to medium SAND, wet.			
5					2.5 ppm			3	
							5.7'		
6					1.7 ppm		SAND and GRAVEL 6.2'	4	
							SAND 6.9'		
7					2.1 ppm		SILT 7.3'		
							SAND 7.8'		
8							8' SILT		
						Bottom of Borehole at 8.0 Feet		5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 0.0 to 1.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was encountered at approximately 5.7 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-24

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-25
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593755.788 N, 12804849.286 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/41	0-5		1.0 ppm	Brown, TOPSOIL, little fine Sand, trace Organic Matter (roots), moist. Changing at 0.3 feet to: Tan, fine SAND, trace Silt, moist. Changing at 0.8 feet to: Tan to light brown, fine to medium SAND, trace Silt, moist. Changing at 1.2 feet to: Light gray to gray, medium to coarse SAND, little Gravel, trace Silt, dry. Changing at 1.6 feet to: Black, SILT, trace fine SAND, moist. Changing at 2.5 feet to: Dark gray, SILT and fine SAND, moist. Changing at 3.1 feet to: Dark brown, SILT, trace Organic Matter (roots), moist. Changing at 3.4 feet to: NO RECOVERY.	0.3' TOPSOIL	1	None
1					1.8 ppm		SAND	2	
							1.6' SILT		
2					8.3 ppm		2.5' SILT and SAND		
3					2.7 ppm		3.1' SILT		
							3.4' NO RECOVERY		
4									
5	2	60/48	5-10			NO RECOVERY. Changing at 6.0 feet to: Light brown, fine to medium SAND, trace Silt, trace Organic Matter (root), moist. Changing at 6.7 feet to: Dark brown, SILT, trace Organic Matter (wood and roots), moist. Changing at 8.0 feet to: Light gray, fine to medium SAND, little Silt, moist. Changing at 8.3 feet to: Light brown to tan, medium to coarse SAND, some Gravel, trace Silt, moist. Changing at 8.7 feet to: Light gray and brown to tanish brown, SILT and fine SAND, trace Gravel, moist.			
6					2.4 ppm		6' SAND		
							6.7' SILT		
7					2.4 ppm		7' SAND	3	
8					2.1 ppm		8.7' SILT and SAND		
9					1.6 ppm				
10						Bottom of Borehole at 10.0 Feet	10'	4 5	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-25

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-26
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-20-18 / 7-20-18
Boring Location: 593758.167 N, 12804681.471 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/28	0-5		1.1 ppm	Light gray and white, fine to coarse SAND, little Gravel, trace Silt, dry. Changing at 0.4 feet to: Tan, fine to coarse SAND, trace Gravel, trace Silt, moist. Changing at 0.8 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 1.6 feet to: Light brown and black, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 1.8 feet to: Light brown to brown, fine to medium SAND, little Silt, trace Gravel, moist.	SAND	1	None
1					0.7 ppm				
2					0.9 ppm		2.3' NO RECOVERY		
3									
4									
5	2	60/42	5-10	42	1.8 ppm	NO RECOVERY. Changing at 0.7 feet to: Light brown and black, fine to coarse SAND, little Silt, mottled, trace Gravel, moist. Changing at 5.9 feet to: Light brown, fine to medium SAND, little Silt, moist. Changing at 6.1 feet to: Light gray, fine to coarse SAND, little Gravel, trace Silt, dry. Changing at 6.3 feet to: Brown, TOPSOIL, some fine Sand, trace Organic Matter (roots), moist. Changing at 6.4 Light brown, fine to medium SAND, little Silt, moist. Changing at 6.8 feet to: Dark brown, fine to medium SAND, some Silt, moist. Changing at 7.0 feet to: Dark brown, fine to medium SAND, some Silt, moist to wet. Changing at 8.0 feet to: Dark brown, fine to medium SAND, some Silt, wet. NO RECOVERY. Changing at 10.7 feet to: Light brown, fine to medium SAND, some Silt, moist. Changing at 11.0 feet to: Light brown, SILT, moist. Changing at 11.7 feet to: Gray, SILT, trace Gravel, trace fine Sand, moist. Changing at 14.5 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist.	5.7' SAND	2	
6					1.7 ppm		6.3' 6.4' TOPSOIL SAND		
7					1.5 ppm				
8					1.0 ppm			3 4 5	
9									
10	3	60/52	10-15		1.2 ppm		10' NO RECOVERY 10.7'		
11					2.0 ppm		11' SAND SILT		
12					2.0 ppm				
13					1.9 ppm				
14					1.5 ppm		14.5' SAND 15'		
15						Bottom of Borehole at 15.0 Feet		6 7	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 8.0 to 9.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was encountered at approximately 8.0 feet below ground surface.
5. Direct push refusal at 8.5 feet below ground surface. Offset and pushed from 5.0 to 10.0 feet. No recovery.
6. Groundwater was not encountered during drilling or upon completion.
7. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-26

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-27
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Sheryl Stephenson
Date Start/Finish: 7-20-18 / 7-20-18
Boring Location: 593708.612 N, 12,804764.851 E
GS Elev.: 699.17' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/42	0-5		0.4 ppm	Brown, TOPSOIL, trace Organic Matter (roots), dry. Changing at 0.6 feet to: Light brown, fine to medium SAND, trace Gravel, moist. Changing at 1.8 feet to: Gray and brown with a blue tinge, fine to medium SAND, trace Gravel, moist. Changing at 3.5 feet to: NO RECOVERY.	TOPSOIL 0.6' SAND	1	None
1					0.8 ppm			2	
2					0.9 ppm				
3					1.3 ppm		3.5' NO RECOVERY		
4									
5	2	60/54	5-10		1.5 ppm	NO RECOVERY. Changing at 5.5 feet: Gray and brown, fine to medium SAND, trace Silt, moist. Changing at 6.0 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 6.7 feet to: Black, fine to medium SAND, trace Silt, moist. Changing at 8.0 feet to: Black, SAND and GRAVEL, some Silt, moist. 8.3 feet to: Brown, SAND and SILT, trace Gravel, moist.	5.5' SAND		
6					1.2 ppm				
7					1.0 ppm		8'		
8					2.1 ppm		8.3' SAND and GRAVEL	3	
9					6.0 ppm		SAND and SILT		
10	3	60/60	10-15		11.1 ppm	Black, fine to medium SAND, trace Silt, wet. Changing at 12.8 feet to: Black, SAND and GRAVEL, some Silt, moist. Changing at 13.0 feet to: Brown, SAND and SILT, moist. Changing at 14.0 feet to: Light brown and orange, fine SAND, some Silt, moist.	10' SAND		
11					10.2 ppm				
12					10.0 ppm		12.8'		
13					1.6 ppm		13' SAND and GRAVEL		
14					10.7 ppm		SAND and SILT 14' SAND		
15						Bottom of Borehole at 15.0 Feet	15'	4 5	
16									
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 8.0 to 9.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-27

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-28
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593659.408 N, 12804848.11 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/37	0-5		1.7 ppm 1.2 ppm 2.4 ppm	Brown, TOPSOIL, some fine to medium Sand, trace Gravel, moist. Changing at 0.4 feet to: Tan, fine to medium SAND, trace Silt, trace Gravel, damp. Changing at 1.0 foot to: Tan to light brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 1.9 feet to: Light gray to gray, medium to coarse SAND and GRAVEL, trace Silt, moist. Changing at 2.1 feet to: Light brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 3.1 feet to: NO RECOVERY.	TOPSOIL 0.4' SAND 1.9' 2.1' SAND and GRAVEL SAND 3.1' NO RECOVERY	1 2	None
	2	60/50	5-10		3.5 ppm 3.6 ppm 3.5 ppm 3.0 ppm 3.1 ppm	NO RECOVERY. Changing 5.8 feet to: Light brown to tan, fine to medium SAND, trace Silt, dry. Changing at 6.5 feet to: Dark gray, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 6.6 feet to: Tan to light brown, medium to coarse SAND and GRAVEL, trace Silt, wet. Changing at 8.3 feet to: Light brown, Clayey SILT, little fine Sand, trace Gravel, wet.	5.8' SAND 6.6' SAND and GRAVEL 8.3' Clayey SILT 10'	3 4 5	
						Bottom of Borehole at 10.0 Feet		6	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was encountered at approximately 6.6 feet below ground surface.
5. Direct push refusal at 8.5 feet below ground surface. Offset and pushed from 5.0 to 10.0 feet. No recovery.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-28

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-29
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-23-18 / 7-23-18
Boring Location: 593612.553 N, 12804763.363 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/35	0-4		1.1 ppm	Brown, TOPSOIL, trace fine to medium Sand, trace Organic Matter (roots), moist. Changing at 0.8 feet to: Tan, fine SAND, trace Silt, moist. Changing at 1.1 feet to: Light brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 2.8 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 2.9 feet to: NO RECOVERY.	TOPSOIL	1	None
1					1.3 ppm		0.8' SAND		
2					1.6 ppm			2	
3							2.9' NO RECOVERY		
4	2	48/41	4-8			NO RECOVERY. Changing at 5.4 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 5.6 feet to: Gray and brown, fine to medium SAND, some Silt, moist. Changing at 5.8 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 6.9 feet to: Light brown, fine SAND and SILT, trace Gravel, moist. Changing at 7.4 feet to: Brown and light brown, SILT and fine SAND, mottled, moist.			
5					1.8 ppm		5.4' SAND		
6					1.8 ppm				
7					1.7 ppm		6.9' SAND and SILT 7.4' SILT 8'		
8	3	48/38	8-12		1.7 ppm	NO RECOVERY. Changing at 8.8 feet to: Brown and light brown, SILT and fine SAND, mottled, moist. Changing at 9.9 feet to: Black, fine SAND and SILT, moist.	NO RECOVERY 8.8'		
9					1.8 ppm		SILT and SAND	3	
10					1.8 ppm	Black, fine SAND and SILT, moist. Changing at 10.2 feet to: Tan and gray, fine to medium SAND, little Silt, moist. Changing at 10.7 feet to: Tan and gray, SILT and fine SAND, moist. Changing at 11.6 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist.	10.1' SAND 10.7'		
11					1.9 ppm		SILT and SAND 11.6' SAND 12'		
12						Bottom of Borehole at 12.0 Feet		4 5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 9.0 to 10.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-29

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-30
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-20-18 / 7-20-18
Boring Location: 593711.025 N, 12804596.91 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/28	0-5		1.6 ppm	Brown, TOPSOIL, some fine Sand, trace Gravel, trace Organic Matter (roots), moist. Changing at 0.3 feet to: Gray, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 0.7 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 2.1 feet to: Black, fine to coarse SAND, little Silt, moist. Changing at 2.3 feet to: NO RECOVERY.	0.3' TOPSOIL SAND	1	None
1					1.5 ppm				
2					1.2 ppm		2.3' NO RECOVERY	2	
3									
4									
5	2	60/31	5-10			NO RECOVERY. Changing at 7.4 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 7.8 feet to: Dark brown, SILT, some fine Sand, trace Organic Matter (roots), moist. Changing at 7.9 feet to: Gray and brown, fine SAND and SILT, wet. Changing at 8.7 feet to: Light brown, fine SAND and SILT, trace Gravel, wet. Changing at 9.8 feet to: Tan, fine to medium SAND, little Silt, moist.			
6									
7					2.2 ppm		7.4' SAND		
							7.8' SILT SAND and SILT		
8					2.8 ppm				
9					1.9 ppm		9.8'		
10	3	60/56	10-15		7.6 ppm	NO RECOVERY. Changing at 10.7 feet to: Gray and brown, SILT, some fine Sand, wet. Changing at 12.1 feet to: Light brown, Clayey SILT, wet. Changing at 12.7 feet to: Gray, fine to medium SAND, little Silt, moist. Changing at 12.9 feet to: Black, fine to coarse SAND, little Silt, moist. Changing at 13.0 feet to: Black, fine to coarse SAND, little Silt, trace Gravel, moist. Changing at 14.5 feet to: Gray and brown, SILT, trace Gravel, moist.	10' SAND		
11					3.4 ppm		10.7' NO RECOVERY SILT		
12					23.4 ppm		12.7' SAND		
13					129.5 ppm			3	
14					116.1 ppm		14.5' SILT	4	
15						Bottom of Borehole at 15.0 Feet	15'	5 6	
16									
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Petroleum odor noted in samples between 12.9 and 13.0 feet.
4. Soil sample was collected from 13.0 to 14.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-30

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-31
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593759.944 N, 12804513.839 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/39	0-5		1.2 ppm	Brown, TOPSOIL, trace Organic Matter (roots), moist. Changing at 0.3 feet to: Brown, fine SAND, little Silt, trace Gravel, trace Organic Matter (roots), moist. Changing at 0.6 feet to: Tan, fine to medium SAND, some Gravel, trace Silt, moist. Changing at 1.0 foot to: Light brown to brown, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 1.8 feet to: Black, SILT, little Gravel, trace fine Sand, moist. Changing at 2.7 feet to: Light gray, GRAVEL, little fine to coarse SAND, trace Silt, moist. Changing at 2.8 feet to: Black, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 3.1 feet to: Light gray, fine to coarse SAND, some Gravel, moist. Changing at 3.2 feet to: NO RECOVERY.	0.3' TOPSOIL SAND	1	None
1					1.9 ppm				
2					6.1 ppm		1.8' SILT	2	
3					13.7 ppm		2.7' 2.8' GRAVEL 3.2' SAND NO RECOVERY		
4									
5	2	60/33	5-10						
6									
7					13.6 ppm	NO RECOVERY. Changing at 7.2 feet to: Black, medium to coarse SAND, some Gravel, little Silt, wet. Changing at 7.5 feet to: Black, Clayey SILT, trace Organic Matter (wood), wet. Changing at 8.3 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, wet. Changing at 9.3 feet to: Gray and brown, medium to coarse SAND, little Silt, trace Gravel, wet. Changing at 9.8 feet to: Gray and brown, Clayey SILT, trace Gravel, wet.	7.2' 7.5' SAND Clayey SILT	3 4	
8					4.4 ppm		8.3' SAND		
9					3.2 ppm				
10	3	60/23	10-15				9.8' 10' Clayey SILT NO RECOVERY		
11									
12						NO RECOVERY. Changing at 13.1 feet to: Light brown, Clayey SILT, moist. Changing at 14.4 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 14.7 feet to: Gray and brown, SILT, some fine Sand, moist.			
13					1.5 ppm		13.1' Clayey SILT		
14					1.5 ppm		14.4' 14.7' SAND 15' SILT		
15						Bottom of Borehole at 15.0 Feet		5	
16									
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was encountered at approximately 7.0 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-31

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-32
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Michael Kress
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593663.526 N, 12804513.105 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
0–3	1	60/36	0-5		3.3 ppm 19.4 ppm 10.6 ppm	Dark brown, fine to medium SAND, some Silt, trace Organic Matter (roots), dry (TOPSOIL). Changing at 0.5 feet to: Light brown, fine to medium SAND, little Silt, moist. Changing at 1.0 feet to: Gray, fine to coarse SAND, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND 3' NO RECOVERY	1 2 3	None
3–6	2	60/48	5-10		25.4 ppm 16.8 ppm 18.5 ppm 4.5 ppm	NO RECOVERY. Changing at 6.0 feet to: Brown, fine to medium SAND, little Silt, moist. Changing at 7.0 feet to: Gray, fine to coarse SAND, trace Silt, moist. Changing at 9.5 feet to: Brown, CLAY & SILT, trace fine to coarse Sand, moist.	6' SAND		
6–10	3	60/60	10-15		4.2 ppm 3.2 ppm 2.8 ppm 2.7 ppm 2.8 ppm 2.3 ppm	Brown, CLAY & SILT, trace fine to coarse Sand, moist.	9.5' CLAY & SILT	4	
10–17	4	60/60	15-20		2.8 ppm 3.6 ppm 2.6 ppm 2.9 ppm 2.7 ppm	Brown, CLAY & SILT, trace fine to coarse Sand, moist. Changing at 17.0 feet to: Gray and brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 18.0 feet to: Gray and brown, CLAY & SILT, trace fine to coarse Sand, moist.	17' SAND 18' CLAY & SILT		
17–20							20'		
20–24						Bottom of Borehole at 20.0 Feet		5 6	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Petroleum odor noted in samples between 7.0 to 9.0 feet.
3. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
4. Soil sample was collected from 9.0 to 10.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-32

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-33
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593952.784 N, 12804516.421 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/21	0-5		1.4 ppm	Brown, TOPSOIL, some fine to medium Sand, trace Organic Matter (roots), dry. Changing at 0.2 feet to: Tan and brown, fine to medium SAND, trace Silt, trace Organic Matter (roots), dry. Changing at 0.8 feet to: Brown, fine to medium SAND, little Gravel, little Silt, moist. Changing at 1.0 feet to: Dark brown, fine to coarse SAND, little Silt, trace Gravel, moist. Changing at 1.2 feet to: Dark brown and red, fine to coarse SAND, little Silt, trace Leather, trace Organic Matter (roots), trace Brick, moist. Changing at 1.8 feet to: NO RECOVERY.	0.2' TOPSOIL SAND 1.8' NO RECOVERY	1	None
1					2.0 ppm			2	
2									
3									
4									
5	2	60/27	5-10			NO RECOVERY. Changing at 7.8 feet to: Dark brown, SILT, little fine Sand, trace Leather, moist. Changing at 8.0 feet to: Dark gray, SILT, trace fine Sand, wet. Changing at 8.4 feet to: Gray to dark gray, fine to medium SAND, mottled, trace Silt, wet. Changing at 9.1 feet to: Dark gray, Clayey SILT, trace Organic Matter (wood), wet. Changing at 9.7 feet to: Olive gray, fine to coarse SAND, trace Silt, trace Gravel, wet.			
6									
7					2.5 ppm		7.8' SILT	3	
8					1.3 ppm		8.4' SAND	4	
9					7.1 ppm		9.1' Clayey SILT 9.7' SAND 10'		
10						Bottom of Borehole at 10.0 Feet		5	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was encountered at approximately 8.0 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-33

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-34
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593905.61 N, 12804431.987 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/38	0-4		3.9 ppm	Brown, TOPSOIL, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.3 feet to: Brown, SILT, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.7 feet to: Light brown, SILT, little Gravel, dry. Changing at 1.0 foot to: Light brown, fine to coarse SAND and GRAVEL, little Silt, dry. Changing at 1.6 feet to: Black, SILT, trace Sand, dry. Changing at 2.0 feet to: Black and brown, fine to medium SAND, mottled, little Silt, moist. Changing at 2.2 feet to: Black, SAND and SILT, moist. Changing at 2.5 feet to: Light brown, fine to coarse SAND, trace Silt, moist. Changing at 2.7 feet to: Black and gray, coarse SAND, some Silt, little Gravel, wet. Changing at 3.1 feet to: NO RECOVERY.	TOPSOIL 0.3'	1	None
1					5.2 ppm		SILT 1'		
							SAND 1.6'		
2					4.1 ppm		SILT 2'		
							SAND 2.2'		
							SAND and SILT 2.5'		
3					4.4 ppm		SAND 3.1'	2	
							NO RECOVERY		
4	2	48/24	4-8			NO RECOVERY. Changing at 6.0 feet to: Black, SILT, trace fine to coarse Sand, trace Gravel, some Organic Matter (wood debris), wet. Changing at 6.6 feet to: Brown and gray, SILT, trace fine Sand, fine to coarse Sand lense from 6.7 to 6.8 feet, moist. Changing at 7.1 feet to: Brown and gray, fine to coarse SAND and SILT, moist.			
5									
							6'		
6					3.0 ppm		SILT	3	
7					3.2 ppm		7.1' SAND and SILT		
							8'		
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-34

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-35
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location: 593859.069 N, 12804347.561 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/31	0-4		0.7 ppm	Brown, TOPSOIL, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.5 feet to: Brown, SILT, trace Organic Matter (roots), dry. Changing at 1.0 foot to: Brown, fine to coarse SAND and GRAVEL, little Silt, moist. Changing at 2.0 feet to: Black and brown, fine to coarse SAND, some Silt, little Gravel, trace Brick, moist. Changing at 2.6 feet to: NO RECOVERY.	TOPSOIL	1	None
1					1.1 ppm		0.5' SILT 1' SAND and GRAVEL		
2					1.2 ppm		2' SAND 2.6' NO RECOVERY	2	
3									
4	2	48/39	4-8		1.7 ppm	NO RECOVERY. Changing at 4.8 feet to: Black and brown, fine to coarse SAND, some Silt, little Gravel, moist. Changing at 5.0 feet to: Solid piece of wood/log. Could not XRF screen. Changing at 6.5 feet to: Brown, SILT, trace fine Sand, trace Organic Matter (wood debris), moist. Changing at 7.0 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 7.2 feet to: Brown, SILT, some Organic Matter (wood chips), moist. Fine to medium Sand lense from 7.6 to 7.7 feet.	4.8' 5' SAND WOOD/LOG		
5									
6					1.7 ppm		6.5' SILT 7'	3	
7					1.4 ppm		7.2' SAND SILT 8'		
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-35

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-36
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location: 593762.339 N, 12804346.505 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/42	0-4		1.4 ppm	Brown, TOPSOIL, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.2 feet to: Brown, SILT, trace Organic Matter (roots), dry. Changing at 1.0 feet to: Light brown and orange, fine to medium SAND, little Gravel, trace Silt, moist. Changing at 1.1 feet to: Gray and white, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 2.3 feet to: Black, fine to coarse SAND, some Silt, little Gravel, little Rock fragments, wet. Changing at 3.5 feet to: NO RECOVERY.	0.2' TOPSOIL	1	None
1					1.6 ppm		SILT 1'		
2					2.1 ppm		SAND	2	
3					1.7 ppm		3.5'		
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Black, fine to coarse SAND, little Silt, little Rock fragments, trace Brick, trace Glass, moist (FILL). Changing at 5.3 feet to: Black, SILT & CLAY, trace fine Sand, trace Organic Matter (roots), moist. Changing at 6.0 feet to: Light brown, fine to medium SAND, moist. Changing at 7.0 feet to: Black, SILT & CLAY, little Organic Matter (roots), trace fine Sand, moist.	NO RECOVERY		
5					3.4 ppm		5' SAND (FILL) 5.3' SILT & CLAY		
6					2.8 ppm		6' SAND	3	
7					3.4 ppm		7' SILT & CLAY		
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-36

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-37
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-18-18 / 7-18-18
Boring Location: 593713.041 N, 12804429.571 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/37	0-4		0.7 ppm	Brown, TOPSOIL, some fine Sand, trace Organic Matter (roots), dry. Changing at 0.2 feet to: Brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 0.7 feet to: Dark brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 0.9 feet to: Tan to light brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 1.6 feet to: Dark brown, fine to medium SAND and SILT, little Gravel, moist. Changing at 3.1 feet to: NO RECOVERY.	0.2' TOPSOIL SAND	1	None
1					1.2 ppm		1.6' SAND and SILT	2	
2					1.2 ppm				
3							3.1' NO RECOVERY		
4	2	48/19	4-8			NO RECOVERY. Changing at 6.6 feet to: Black, GRAVEL and medium to coarse SAND, little Silt, wet. Changing at 6.9 feet to: Dark gray, SILT, trace fine Sand, wet.			
5									
6					1.3 ppm		6.6' GRAVEL and SAND	3	
7					0.4 ppm		6.9' SILT		
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-37

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-38
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location: 593666.181 N, 12804345.331 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/40	0-4		2.1 ppm	Brown, TOPSOIL, trace Gravel, dry. Changing at 0.5 feet to: Brown, SILT, little Sand, trace Organic Matter (roots), trace Gravel, dry. Changing at 1.6 feet to: Brown, fine to medium SAND, little Silt, little Gravel, trace Organic Matter (roots), moist. Changing at 2.1 feet to: Brown and gray, SAND and SILT, little Gravel, moist.	TOPSOIL	1	None
1					2.5 ppm		0.5' SILT	2	
2					2.6 ppm		1.6' SAND		
3					2.6 ppm				
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Brown, ROCK fragments, some Silt, wet. Changing at 5.2 feet to: Dark brown and black, CLAY & SILT, trace fine Sand, moist. Changing at 7.5 feet to: Brown, SAND and SILT, trace Organic Matter (wood debris), moist.	4' NO RECOVERY		
5					2.9 ppm		5' 5.2' ROCK Fragments CLAY & SILT		
6					2.7 ppm			3	
7					2.5 ppm		7.5' SAND and SILT		
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 0.5 to 1.5 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-39
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-18-18 / 7-18-18
Boring Location: 593616.697 N, 12804428.077 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		1.2 ppm	Brown, TOPSOIL, trace Organic Matter (roots), dry. Changing at 0.6 feet to: Brown, fine SAND and SILT, trace Gravel, dry. Changing at 1.2 feet to: Gray and Black, SAND and SILT, trace Gravel, moist. Changing at 2.0 feet to: Brown and gray, fine to medium SAND, some Silt, trace Gravel, moist. Changing at 3.0 feet to: NO RECOVERY.	TOPSOIL	1	None
							0.6' SAND and SILT		
1					2.3 ppm			2	
2					0.8 ppm		2' SAND		
3							3' NO RECOVERY		
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Brown and gray, fine to coarse SAND and SILT, trace Gravel, trace Rock fragments, trace Organic Matter (roots), moist to wet. Changing at 5.5 feet to: Brown and gray, fine to coarse SAND, some Silt, trace Gravel, moist. Changing at 6.8 feet to: Black, CLAY & SILT, trace Organic Matter (wood fragments), moist.			
5					3.0 ppm		5' SAND and SILT		
							5.5' SAND		
6					3.6 ppm				
							6.8' CLAY & SILT		
7					2.5 ppm			3	
							8'		
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-39

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-40
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593567.457 N, 12804511.462 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/42	0-4		1.5 ppm	Brown, TOPSOIL, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.5 feet to: Brown and orange, fine SAND, some Gravel, little Silt, little Rock fragments, dry. Changing at 1.0 foot: Light brown, fine to medium SAND, trace Gravel, dry. Changing at 1.8 feet to: Gray and black, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 2.0 feet to: Light brown and black, fine to medium SAND, mottled, trace Gravel, moist. Changing at 2.4 feet to: White and gray, CONCRETE fragments (Gravel). Changing at 2.8 feet to: Black, SAND and SILT, trace Gravel with Concrete fragments from 2.9 to 3.0 feet, moist. Changing at 3.0 feet to: Black and gray, fine to coarse SAND and GRAVEL, some Silt, some Brick, trace Glass, moist. Changing at 3.5 feet to: NO RECOVERY.	TOPSOIL	1	None
1					1.9 ppm		0.5' SAND		
2					2.3 ppm			2	
							2.8' 3' SAND and SILT		
3					2.3 ppm		SAND and GRAVEL 3.5'		
							NO RECOVERY		
4	2	48/24	4-8			NO RECOVERY. Changing at 6.0 feet to: Black and gray, fine to coarse SAND and GRAVEL, some Silt, little Brick, moist. Changing at 6.4 feet to: Black, SILT, trace fine Sand, trace Organic Matter (wood), moist. Changing at 7.0 feet to: Brown and gray, SAND and SILT, trace Organic Matter (wood), trace Gravel, moist.			
5									
6					3.4 ppm		6' SAND and GRAVEL 6.4'	3	
							SILT 7'		
7					2.1 ppm		SAND and SILT		
8							8'	4 5	
						Bottom of Borehole at 8.0 Feet			
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-40

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-41
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593471.11 N, 12804510.095 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/32	0-4		3.4 ppm	Brown, TOPSOIL, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.7 feet to: Brown and orange, fine SAND, some Gravel, little Silt, little Rock fragments, dry. Changing at 1.1 feet to: Light brown, fine to medium SAND, trace Gravel, dry. Changing at 1.4 feet to: Brown, fine SAND, some Gravel, little Silt, moist. Changing at 1.8 feet to: Black, coarse SAND, little Gravel, dry. Changing at 2.0 feet to: Brown and gray, SAND and SILT, moist. Changing at 2.5 feet to: Brown and gray, SAND and SILT, some Rock fragments, moist. Changing at 2.7 feet to: NO RECOVERY.	TOPSOIL	1	None
1					4.1 ppm		0.7' SAND		
2					4.5 ppm		2' SAND and SILT	2	
3							2.7' NO RECOVERY		
4	2	48/33	4-8			NO RECOVERY. Changing at 5.2 feet to: Brown, CLAY & SILT, little fine to medium Sand, trace Gravel, moist to wet. Changing at 7.6 feet to: Light brown and orange, fine to medium SAND, trace Silt, moist.			
5					4.2 ppm		5.2' CLAY & SILT	3	
6					4.5 ppm				
7					4.6 ppm		7.6' SAND		
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-41

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-42
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593374.7 N, 12804508.727 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/22	0-4		3.5 ppm	Brown, TOPSOIL, trace fine Sand, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.2 feet to: Brown, SUBSOIL, trace fine Sand, little Gravel, trace Organic Matter (roots), dry. Changing at 0.7 feet to: Tan, fine to coarse SAND, little Gravel, trace Silt, trace Organic Matter (roots), moist. Changing at 0.9 feet to: Brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 1.1 feet to: Tan, fine to coarse SAND, trace Gravel, trace Silt, moist. Changing at 1.7 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 1.8 feet to: NO RECOVERY.	0.2' TOPSOIL SUBSOIL 0.7' SAND 1.8' NO RECOVERY	1	None
1					3.7 ppm			2	
2									
3									
4	2	48/15	4-8			NO RECOVERY. Changing at 6.8 feet to: Tan and gray, fine to coarse SAND, trace Gravel, trace Silt, wet.			
5									
6					2.0 ppm			3	
7					1.6 ppm		6.8' SAND		
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-43
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Sheryl Stephenson
Date Start/Finish: 7-16-18 / 7-16-18
Boring Location: 593327.2207 N, 12804424.61 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/30	0-5		0.2 ppm 1.2 ppm 1.9 ppm 0.7 ppm	Brown, TOPSOIL, trace Gravel, trace Organic Matter (roots), dry. Fabric liner at 0.3 feet. Changing at 1.0 feet to: brown, fine to coarse SAND, little Silt, trace Gravel, moist. Changing at 1.7 feet to: Black, coarse SAND, little Silt, trace Gravel, moist. Changing at 2.0 feet to: Brown and gray, SAND and SILT, trace Gravel, trace Organic Matter (wood debris), wet. Changing at 2.5 feet to: NO RECOVERY.	TOPSOIL 1' SAND 2' SAND and SILT 2.5' NO RECOVERY	1 2	None
	2	60/36	5-10		0.0 ppm 2.8 ppm 3.3 ppm 2.8 ppm	NO RECOVERY. Changing at 7.0 feet to: Brown and light brown, fine SAND, mottled, some Silt, trace Gravel, moist. Changing at 8.0 feet to: Dark brown, SAND and SILT, moist. Changing at 8.4 feet to: Dark brown, SAND and SILT, trace Organic Matter (wood chips and wood debris), moist. Changing at 8.8 feet to: Dark brown, SAND and SILT, moist. Changing at 9.0 feet to: Dark brown, SILT, trace Sand, moist. Changing at 9.2 feet to: Light brown, SAND and SILT, trace Gravel, wet.	7' SAND 8' SAND and SILT 9' 9.2' SILT SAND and SILT 10'	3	
						Bottom of Borehole at 10.0 Feet		4 5	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-44
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593278.28 N, 12804507.994 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/48	0-4		3.1 ppm	Brown, TOPSOIL, trace Organic Matter (roots), trace Gravel, dry. Changing at 0.7 feet to: White, SILT, little Gravel, trace Sand, dry. Changing at 1.0 foot to: Gray and orange, SILT, little Gravel, trace Sand, dry. Changing at 1.3 feet to: Black, fine to coarse SAND, little Gravel, trace Silt, dry. Changing at 2.0 feet to: Dark gray, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 2.7 feet to: Light brown and tan, fine to medium SAND, trace Silt, moist.	TOPSOIL	1	None
							0.7' SILT		
1					3.7 ppm		1.3' SAND	2	
2					3.4 ppm				
3					1.5 ppm				
4	2	48/30	4-8			NO RECOVERY. Changing at 5.5 feet to: Light brown and orange, fine to medium SAND, trace Silt, moist. Changing at 6.0 feet to: Brown and orange, fine to coarse SAND and GRAVEL, some Silt, moist. Changing at 7.0 feet to: White, ROCK fragments. Changing at 7.3 feet to: Brown and orange, fine to coarse SAND and GRAVEL, some Silt, moist.	4' NO RECOVERY		
5					3.9 ppm		5.5' SAND		
6					4.4 ppm		6' SAND and GRAVEL		
7					3.8 ppm		7' ROCK Fragments 7.3' SAND and GRAVEL	3	
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-44

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-45
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-23-18 / 7-23-18
Boring Location: 593564.983 N, 12804678.98 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/42	0-5		1.5 ppm	Brown, TOPSOIL, trace fine to medium Sand, trace Organic Matter (roots), moist. Changing at 0.4 feet to: Tan, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 1.5 feet to: Light gray to gray, medium to coarse SAND, some Gravel, dry. Changing at 1.8 feet to: Black, fine to coarse SAND, some Gravel, moist. Changing at 2.7 feet to: Gray and brown, fine to medium SAND, trace Silt, moist. Changing at 3.1 feet to: Dark gray, fine to medium SAND, little Silt, moist. Changing at 3.5 feet to: NO RECOVERY.	0.3' TOPSOIL SAND	1	None
1					18.0 ppm				
2					357.0 ppm			2 2 3 2 2	
3					385.0 ppm		3.5' NO RECOVERY		
4									
5	2	60/46	5-10			NO RECOVERY. Changing at 6.5 feet to: Dark gray, fine to medium SAND, little Silt, moist. Changing at 6.8 feet to: Gray and brown, fine SAND and SILT, moist. Changing at 7.5 feet to: Tan, fine to medium SAND, little Silt, moist to wet. Changing at 8.4 feet to: Tan, SILT and fine SAND, moist. Changing at 8.8 feet to: Tan, fine to medium SAND, trace Silt, moist.			
6					5.2 ppm		6.5' 6.8' SAND	4	
7					101.7 ppm		SAND and SILT 7.5' SAND	2 5 2 5	
8					7.4 ppm		8.4' SILT and SAND 8.8' SAND		
9									
10	3	60/44	10-15			NO RECOVERY. Changing at 11.3 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 13.1 feet to: Gray and brown to gray, fine SAND and SILT, little Gravel, moist to wet.	10' NO RECOVERY		
11					3.3 ppm		11.3' SAND		
12					4.2 ppm				
13					3.0 ppm		13.1' SAND and SILT		
14					4.0 ppm				
15						Bottom of Borehole at 15 Feet	15'	6 7	
16									
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Petroleum odor noted in sample.
3. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
4. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
5. Staining sheen noted in sample.
5. Staining sheen noted in sample.
6. Groundwater was not encountered during drilling or upon completion.
7. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-45

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-46
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593563.368 N, 12804846.489 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/42	0-5		2.2 ppm 2.2 ppm 2.0 ppm 1.6 ppm	Brown, TOPSOIL, some fine Sand, trace Organic Matter (roots), moist. Changing at 0.3 feet to: Tan, fine SAND, trace Silt, moist. Changing at 0.8 feet to: Light brown to orange and brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 3.5 feet to: NO RECOVERY.	0.3' TOPSOIL SAND 3.5' NO RECOVERY	1	None
1 2 3 4									
5	2	60/48	5-10			NO RECOVERY. Changing at 6.0 feet to: Light brown to orange and brown, fine to medium SAND, trace Silt, moist. Changing at 6.3 feet to: Tan, fine SAND, trace Gravel, trace Organic Matter (roots), moist. Changing at 7.0 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 7.4 feet to: Light gray, medium to coarse SAND, some Gravel, trace Silt, dry. Changing at 7.8 feet to: Brown, fine to medium SAND, little Silt, moist. Changing at 7.9 feet to: Brown, fine to medium SAND, trace Silt, moist. Changing at 8.2 feet to: Tan to dark brown, coarse SAND and GRAVEL, trace Silt, moist. Changing at 9.4 feet to: Light gray, weathered ROCK.	6' SAND 8.2' SAND and GRAVEL 9.4' Weather ROCK 10'	2 3	
6 7 8 9									
10						Bottom of Borehole at 10.0 Feet		4 5	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 8.0 to 9.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 9.0 to 10.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-46

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-47
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-23-18 / 7-23-18
Boring Location: 593516.0127 N, 12804762.44 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/38	0-4		1.1 ppm	Brown, TOPSOIL, little fine Sand, trace Organic Matter (roots), moist. Changing 0.6 feet to: Tan, fine SAND, trace Silt, moist. Changing at 0.9 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 2.7 feet to: Black, fine to medium SAND, little Silt, moist. Changing at 2.9 feet to: Gray to gray and brown, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 3.1 feet to: NO RECOVERY.	TOPSOIL	1	None
1					1.4 ppm		0.6' SAND		
2					1.3 ppm				
3					1.6 ppm		3.1' NO RECOVERY	2	
4	2	48/32	4-8			NO RECOVERY. Changing at 5.3 feet to: Tan, fine to coarse SAND, trace Silt, moist. Changing at 5.6 feet to: Black, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 5.7 feet to: Black, SILT, little fine to medium Sand, trace Gravel, moist. Changing at 6.1 feet to: Dark brown and light brown, fine to medium SAND, mottled, little Silt, trace Gravel, moist. Changing at 6.9 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 7.1 feet to: Light brown to brown and gray, medium to coarse SAND, little Gravel, trace Silt, moist. Changing at 7.5 feet to: Light brown, medium to coarse SAND, little Gravel, trace Silt, moist.			
5					1.2 ppm		5.3' SAND	3	
							5.7' SILT		
6					1.5 ppm		6.1' SAND		
7					1.6 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-47

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-48
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-23-18 / 7-23-18
Boring Location: 593466.636 N, 12804845.499 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/34	0-4		0.9 ppm	Brown, TOPSOIL, trace fine Sand, trace Organic Matter (roots), damp. Changing at 0.4 feet to: Tan, fine to medium SAND, trace Silt, trace Organic Matter (roots), mmoist. Changing at 1.1 feet to: Brown, SILT, little Gravel, trace fine to medium Sand, moist. Changing at 1.2 feet to: Black, fine to medium SAND, some Silt, moist. Changing at 1.5 feet to: Light brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 2.5 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	0.4' TOPSOIL; SAND	1	None
1					1.3 ppm		1.1' 1.2' SILT; SAND	2	
2					1.2 ppm				
3							3' NO RECOVERY		
4	2	48/32	4-8			NO RECOVERY. Changing at 6.3 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 7.1 feet to: Light brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 7.2 feet to: Tan, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 7.5 feet to: Light brown to brown, fine to medium SAND, trace Silt, trace Gravel, moist.			
5					1.2 ppm				
6					1.6 ppm		6.3' SAND		
7					1.6 ppm				
8	3	48/25	8-12			NO RECOVERY. Changing at 9.9 feet to: Light brown to brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 10.1 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 11.8 feet to: Light brown, medium to coarse SAND, trace Gravel, trace Silt, moist.	8' NO RECOVERY		
9					1.5 ppm				
10					1.3 ppm		9.9' SAND	3	
11					1.4 ppm				
12						Bottom of Borehole at 12.0 Feet	12'	4 5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 10.0 to 11.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-48

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-49
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593419.649 N, 12804761.067 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/42	0-4		1.0 ppm	Brown, TOPSOIL, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.5 feet to: Light brown, fine to medium SAND, dry. Changing at 1.0 foot to: Light brown, fine to medium SAND, moist. Changing at 2.8 feet to: Gray and brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 3.0 feet to: Brown and orange, fine to medium SAND, trace Silt, moist. Black sand lense from 3.1 to 3.2 feet. Changing at 3.5 feet to: NO RECOVERY.	TOPSOIL 0.5' SAND 3.5'	1	None
1					2.0 ppm				
2					1.8 ppm				
3					1.3 ppm			2	
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Light brown, fine to medium SAND, moist. Changing at 5.1 feet to: Brown and orange, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 6.0 feet to: Light brown, fine to medium SAND, moist. Changing at 7.4 feet to: Brown and orange, fine to medium SAND, little Silt, little to some Gravel, moist.	NO RECOVERY 5' SAND		
5					1.5 ppm				
6					2.0 ppm				
7					1.8 ppm		8'	3	
8	3	48/33	8-12			NO RECOVERY. Changing at 9.2 feet to: Brown, SILT, trace fine Sand, trace Gravel, dry. Changing at 9.5 feet to: Brown, coarse SAND and GRAVEL, little Silt, moist. Changing at 11.2 feet to: Brown, SAND and SILT, trace Gravel, moist.	NO RECOVERY 9.2' SILT 9.5' SAND and GRAVEL 11.2' SAND and SILT 12'		
9					1.1 ppm				
10					0.8 ppm				
11					0.3 ppm				
12						Bottom of Borehole at 12.0 Feet		4 5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-49

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-50
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593372.663 N, 12804676.633 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/41	0-4		0.5 ppm	Brown, TOPSOIL, little fine Sand, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.1 feet to: Brown, SUBSOIL, little fine Sand, little Gravel, trace Organic Matter (roots), moist. Changing at 0.7 feet to: Tan, fine SAND, trace Silt, moist. Changing at 1.0 feet to: Tan to light brown, SAND, trace Silt, trace Gravel, moist. Changing at 2.3 feet to: Dark brown, fine to medium SAND, some Silt, trace Gravel, moist. Changing at 2.4 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 2.5 feet to: Dark brown, fine to medium SAND, some Silt, trace Gravel, moist. Changing at 2.9 feet to: Light brown, fine to medium SAND, little Sit, trace Gravel, moist. Changing at 3.4 feet to: NO RECOVERY.	0 0.1' TOPSOIL SUBSOIL 0.7' SAND 3.4' NO RECOVERY	1	None
1					0.7 ppm				
2					0.6 ppm			2	
3					1.1 ppm				
4	2	48/38	4-8		1.6 ppm	NO RECOVERY. Changing at 4.9 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 6.3 feet to: Gray, tan and light brown, medium to coarse SAND, some Gravel, moist. Changing at 7.4 feet to: Light brown, SILT, some fine Sand, trace Gravel, moist.	4.8' SAND		
5					0.5 ppm				
6					0.8 ppm				
7					1.0 ppm		7.4' SILT	3	
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-50

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-51
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-23-18 / 7-23-18
Boring Location: 593370.294 N, 12804843.753 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		1.1 ppm	Dark brown, SAND, some Silt, trace Organic Matter (roots), moist (TOPSOIL). Changing at 0.5 feet to: Light brown, fine to medium SAND, little Silt, dry. Changing at 1.0 foot to: Dark gray and brown, fine to coarse SAND, some Gravel, little Silt, moist. Changing at 2.0 feet to: Light brown, fine to coarse SAND, trace Gravel, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND 0.5' (TOPSOIL)	1	None
1					1.4 ppm		SAND		
2					1.4 ppm			2	
3							3' NO RECOVERY		
4	2	48/30	4-8			NO RECOVERY. Changing at 5.5 feet to: Light brown, fine to coarse SAND, trace Silt, moist.			
5					1.6 ppm		5.5' SAND		
6					1.3 ppm			3	
7									
8	3	48/36	8-12			NO RECOVERY. Changing at 9.0 feet to: Light brown, fine to coarse SAND, trace Silt, moist. Changing at 11.0 feet to: Orange, GRAVEL and fine to coarse SAND, trace Silt, moist.	8' NO RECOVERY		
9					1.3 ppm		9' SAND		
10					1.7 ppm				
11					1.5 ppm		11' GRAVEL and SAND		
12						Bottom of Borehole at 12.0 Feet	12'	4 5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-51

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-52
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-23-18 / 7-23-18
Boring Location: 593421.266 N, 12804593.556 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		1.6 ppm	Dark brown, fine SAND, some Silt, trace Organic Matter (roots), dry (TOPSOIL). Changing at 0.7 feet to: Light brown, fine to medium SAND, little Silt, moist. Changing at 1.0 foot to: Black and gray, GRAVEL and fine to coarse SAND, trace Silt, moist. Changing at 2.0 feet to: Orange, black and gray, fine to coarse SAND and GRAVEL, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND (TOPSOIL) 0.7'	1	None
1					1.8 ppm		1' SAND		
							SAND and GRAVEL	2	
2					2.0 ppm				
3							3' NO RECOVERY		
4	2	48/42	4-8		2.0 ppm	NO RECOVERY. Changing at 4.5 feet to: Light brown, fine to medium SAND, little Gravel, trace Silt, moist. Changing at 5.0 feeet to: Brown, CLAY, little Sand, trace Gravel, moist.	4.5' SAND		
5					2.2 ppm		5' CLAY		
6					2.3 ppm			3	
7					2.2 ppm				
8	3	48/42	8-12		2.1 ppm	NO RECOVERY. Changing at 8.5 feet to: Brown, coarse SAND, trace Silt, moist.	8' NO RECOVERY 8.5' SAND		
9					1.9 ppm				
10					2.1 ppm				
11					2.1 ppm				
12						Bottom of Borehole at 12.0 Feet	12'	4 5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-52

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-53
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Alex Chlapik
Date Start/Finish: 7-16-18 / 7-16-18
Boring Location: 593231.5404 N, 12804423.32 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/21	0-5		0.0 ppm 0.9 ppm 7.5 ppm	Brown, TOPSOIL, some fine to coarse Sand, trace Gravel, trace Organic Matter (roots), moist. Changing at 0.2 feet to: Brown, fine to coarse SAND, trace Gravel, trace Debris (brick), moist (FILL). Changing at 2.0 feet to: NO RECOVERY.	0.2' TOPSOIL SAND (FILL) 2' NO RECOVERY	1 2	None
1									
2									
3									
4						NO RECOVERY. Changing at 7.7 feet to: Gray, medium to coarse SAND, little Gravel, trace Silt and Clay, wet. Changing at 8.2 feet to: Black, Clayey SILT, little fine to coarse Sand, trace Organic Matter (wood-like fragments), petroleum-like odor, moist (WASTE). Changing at 9.1 feet to: Brown, fine to medium SAND, little Clay & Silt, moist.			
5	2	60/26	5-10		0.1 ppm			3	
6									
7					1.2 ppm		7.7' SAND	4	
8					2.0 ppm		8.2' Clayey SILT (WASTE)		
9					1.2 ppm		9.1' SAND		
10							10'		
						Bottom of Borehole at 10.0 Feet		5 6	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 0.0 to 1.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
4. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analysis.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-53

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-54
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-16-18 / 7-16-18
Boring Location: 593181.98 N, 12804.50679 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/40	0-5		0.1 ppm	Brown, fine to coarse SAND, little Silt, little Gravel, moist. Changing at 0.3 to: Orange and brown, fine to medium SAND, trace Silt, moist. Changing at 0.6 to: Black, fine to coarse SAND, some Silt, trace Gravel, moist. Changing at 1.2 feet to: Brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 1.4 feet to: Tan and brown, fine to medium SAND, trace Silt, moist. Changing at 3.3 feet to: NO RECOVERY.	SAND	1	None
					1.1 ppm				
1					1.3 ppm			2	
2					1.2 ppm				
3					1.2 ppm		3.3' NO RECOVERY	3	
4						NO RECOVERY. Changing at 6.1 feet to: Tan and brown, fine to medium SAND, trace Silt, moist. Changing at 6.7 feet to: Tan and brown and dark brown, fine to coarse SAND, trace Gravel, moist. Changing at 6.8 feet to: Tan and brown, fine to medium SAND, trace Silt, moist. Changing at 7.1 feet to: Tan and brown, fine to coarse SAND and GRAVEL, trace Silt, wet. Changing at 8.8 feet to: Tan, fine to medium SAND, trace Silt, moist.			
5	2	60/47	5-10		0.0 ppm				
6					2.1 ppm		6.1' SAND		
7					1.6 ppm		7.1' SAND and GRAVEL		
8					1.8 ppm				
9					1.1 ppm		8.8' SAND		
10							10'		
						Bottom of Borehole at 10 Feet		4 5	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-54

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-55
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Sheryl Stephenson
Date Start/Finish: 7-16-18 / 7-16-18
Boring Location: 593134.8129 N, 12804421.95 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/32	0-5		0.0 ppm	Brown, TOPSOIL, trace Organic Matter (roots), dry. Changing at 0.3 feet to: Light brown, fine to medium SAND, trace Gravel, moist. Changing at 0.8 feet to: Brown, fine SAND, some Silt, little Gravel, trace Organic Matter (roots), dry. Changing at 2.0 feet to: Brown, SAND and SILT, mottled, trace Gravel, trace Organic Matter (roots), wet. Changing at 2.7 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 2.8 feet to: NO RECOVERY.	0.3' TOPSOIL; SAND; 2' SAND AND SILT; 2.7' SAND; 2.8' NO RECOVERY	1	None
1					0.5 ppm				
					0.9 ppm			2	
2					0.8 ppm				
3									
4						NO RECOVERY. Changing at 5.6 feet to: Dark brown, fine SAND, some Silt, moist. Changing at 6.0 feet to: Light brown and orange, fine to coarse SAND and GRAVEL, little Silt, moist. Changing at 6.8 feet to: Light brown and orange, CLAY, trace Gravel, moist. Changing at 7.3 feet to: Brown, CLAY, trace Gravel, moist.			
5	2	60/52	5-10		0.2 ppm			3	
					0.5 ppm		5.6' SAND		
6					0.7 ppm		6' SAND AND GRAVEL; 6.8' CLAY		
7					1.6 ppm				
8					1.0 ppm				
9					1.3 ppm		10'		
10						Bottom of Borehole at 10.0 Feet		4 5	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-55

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-56
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-16-18 / 7-16-18
Boring Location: 593085.235 N, 12804505.64 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/40	0-5		1.6 ppm	Brown, fine to medium SAND, little Gravel, trace Silt, trace Asphalt, Brick fragments, moist. Changing at 0.5 feet to: Dark brown, fine to coarse SAND, trace Silt, trace Gravel, moist. Changing at 0.8 feet to: Brown, SILT, some Organic Matter (wood chips), moist. Changing at 0.9 feet to: Yellow and brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 1.1 feet to: Black, fine to coarses SAND, trace Gravel, trace Silt, trace Coal, Cinders, moist. Changing at 1.7 feet to: Gray to brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 2.0 feet to: Tan and brown, fine to medium SAND, trace Silt, moist. Changing at 3.3 feet to: NO RECOVERY.	SAND	1	None
1					2.0 ppm		0.8' SILT 0.9' SAND	2	
2					2.2 ppm				
3					2.5 ppm		3.3' NO RECOVERY		
4									
5	2	60/48	5-10			NO RECOVERY. Changing at 6.0 feet to: Black, fine to coarse SAND, little Silt, moist. Changing at 6.3 feet to: Dark gray, fine to coarse SAND, some Silt, moist. Changing at 6.7 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 7.2 feet to: Tan, GRAVEL, some fine to coarse Sand, trace Silt, moist. Changing at 9.3 feet to: Light gray, fine to medium SAND, trace Silt, moist.			
6					2.2 ppm		6' SAND		
7					2.3 ppm		7.2' GRAVEL		
8					2.2 ppm				
9					2.2 ppm		9.3' SAND		
10						Bottom of Borehole at 10.0 Feet	10'	3 4	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analytical testing.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-56

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-57
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593177.529 N, 12804842.021 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/34	0-4		3.8 ppm	Brown, TOPSOIL, trace fine Gravel, trace Organic Matter (roots), dry. Changing at 0.5 feet to: Light tan, fine SAND, trace Organic Matter (roots), dry. Changng at 1.0 feet to: Dark brown, SILT, trace to little fine Sand, trace Gravel, dry. Changing 2.0 feet to: Light brown and orange, fine SAND, little Gravel, trace Silt, moist to dry. Changing at 2.6 feet to: Light brown and orange, fine to coarse SAND, little Gravel, little Silt, dry to moist. Changing at 3.0 feet to: NO RECOVERY.	TOPSOIL	1	None
							0.5' SAND		
1					3.6 ppm		1' SILT		
2					3.6 ppm		2' SAND	2	
3							3' NO RECOVERY		
4	2	48/31	4-8			NO RECOVERY. Changing at 5.6 feet to: Brown and orange, fine to coarse SAND, little Gravel, little Silt, moist. Changing at 6.0 feet to: Light brown, GRAVEL, little Sand, trace Silt, dry. Changing at 7.4 feet to: Brown, fine to coarse SAND, little Gravel, little Silt, moist.			
5					4.2 ppm		5.6' SAND		
6					3.2 ppm		6' GRAVEL	3	
7					2.7 ppm		7.4' SAND	4	
8						Bottom of Borehole at 8.0 Feet	8'	5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-57

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-58
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bert Graham
Logged by: Sheryl Stephenson
Date Start/Finish: 8-5-18 / 8-6-18
Boring Location: 593276.008 N, 12,804675.247 E
GS Elev.: 701.91' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	Split Spoon
O.D. / I.D.:	NA	2.0"
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30"
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	12/10	0-1	6-9	11.1 ppm	Brown, TOPSOIL, trace Gravel, dry. Changing at 0.5 feet to: Light brown, fine SAND, little Silt, dry. Changing at 0.8 feet to: NO RECOVERY.	TOPSOIL 0.5' SAND 0.8'	1	None
1	2	12/12	1-2	7-8	10.6 ppm	Light brown, fine SAND, little Silt, dry.	1' NO RECOVERY SAND		
2	3	12/12	2-3	3-6	4.8 ppm	Light brown, fine to medium SAND, trace Silt, moist.			
3	4	12/10	3-4	4-5	10.5 ppm	Light brown, fine to medium SAND, trace Silt, moist. Changing at 3.8 feet to: NO RECOVERY.	3.8'		
4	5	12/9	4-5	3-2	7.1 ppm	NO RECOVERY. Changing at 4.2 feet to: Brown and light brown, fine to medium SAND, mottled, trace Silt, moist.	4.2' NO RECOVERY SAND		
5	6	12/12	5-6	3-4	8.5 ppm	Light brown and tan, fine to medium SAND, trace Silt, moist.			
6	7	12/12	6-7			CONCRETE.	6' CONCRETE		
7	8	12/12	7-8	6-12	8.9 ppm 8.9 ppm	Black and gray, CONCRETE fragments, little Silt. Changing at 7.5 feet to: Orange and brown, SAND and SILT, little Rock fragments.	7' SAND and SILT	2	
8	9	12/12	8-9	16-24	9.1 ppm	Light gray, fine to coarse SAND, moist. Changing at 8.4 feet to: Light gray, fine SAND and SILT, moist.	8' 8.4' SAND SAND and SILT		
9	10	12/10	9-10	5-12	7.5 ppm	NO RECOVERY. Changing at 12.1 feet to: Gray and brown, fine to coarse SAND, little Silt, trace Gravel, moist. Changing at 9.5 feet to: Brown, SAND and SILT, trace Gravel, wet.	9' 9.1' NO RECOVERY 9.5' SAND		
10	11	12/12	10-11	16-16	5.2 ppm		10' SAND and SILT SILT		
11	12	24/19	11-13	9-12 12-14	5.8 ppm	Light brown, SILT, little fine Sand, trace Gravel, wet (hard and compact).	11' 11.4' NO RECOVERY Clayey SILT		
12					7.9 ppm	NO RECOVERY. Changing at 11.4 feet to: Brown, Clayey SILT, trace Gravel, trace Sand, moist.		3	
13	13	12/12	13-14	11-15	8.2 ppm	Brown, Clayey SILT, trace Gravel, trace Sand, moist.			
14	14	12/12	14-15	16-19	8.8 ppm	Brown, Clayey SILT, trace Gravel, trace Sand, moist.	15'		
15						Bottom of Borehole at 15.0 Feet		4 5	
16									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 12.0 to 13.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-58

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-59
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593856.64 N, 12804515.269 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/30	0-4		0.3 ppm	Brown, TOPSOIL, little fine to medium SAND, trace Gravel, trace Organic Matter (roots), moist. Changing at 0.5 feet to: Brown, fine to medium SAND, trace Silt, trace Gravel, trace Organic Matter (roots), moist. Changing at 0.8 feet to: Light brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 1.7 feet to: Yellowish brown and black, fine to medium SAND, little Gravel, trace Silt, moist. Changing at 2.0 feet to: Black, SILT, some fine to medium Sand, trace Gravel, trace Glass, moist. Changing at 2.1 feet to: Yellowish brown and black, fine to medium SAND, little Gravel, trace Silt, moist. Changing at 2.2 feet to: Black, GRAVEL, little fine to medium Sand, trace Silt, moist. Changing at 2.5 feet to: NO RECOVERY.	0.5' TOPSOIL	1	None
1					0.5 ppm		SAND		
2					0.7 ppm		2' 2.1' SILT 2.2' SAND 2.5' GRAVEL NO RECOVERY	2	
3									
4	2	48/34	4-8						
5					0.7 ppm		5.4' SILT		
6					0.7 ppm		6.3' SAND		
7					0.7 ppm		6.9' 7.1' SILT 7.5' SAND 8' SILT NO RECOVERY		
8	3	48/30	8-12			NO RECOVERY. Changing at 5.2 feet to: Black, GRAVEL, little fine to medium Sand, trace Silt, moist. Changing at 5.4 feet to: Black, SILT, trace Gravel, little fine Sand, trace Organic Matter (roots), wet. Changing at 6.3 feet to: Gray, fine to medium SAND, some Silt, wet. Changing at 6.8 feet to: Dark brown, SILT, trace fine Sand, wet. Changing at 7.1 feet to: Dark brown, fine to coarse SAND, some Silt, wet. Changing at 7.5 feet to: Dark brown, SILT, little fine Sand, trace Organic Matter (wood), wet.			
9					1.0 ppm				
10					1.1 ppm		10.3' SAND		
11					6.3 ppm		10.9' SILT	3	
12	4	48/29	12-16			NO RECOVERY. Changing at 9.5 feet to: Dark brown, SILT, little fine Sand, trace Organic Matter (wood), moist. Changing at 10.3 feet to: Dark gray, fine to medium SAND, some Silt, trace Gravel, wet. Changing at 10.9 feet to: Dark brown, SILT, little Clay, wet. Changing at 11.5 feet to: Brown, SILT, some fine to medium SAND, trace Gravel, trace Organic Matter (wood), wet.	12' NO RECOVERY		
13					1.6 ppm		13.6' SILT		
14					1.7 ppm				
15					1.7 ppm		15.3' 15.4' SAND 16' SILT		
16						NO RECOVERY. Changing at 13.6 feet to: Gray and brown, SILT, trace Gravel, moist. Changing at 15.3 feet to: Gray and brown, fine to coarse SAND, trace Silt, little Gravel, moist. Changing at 15.4 feet to: Gray and brown, SILT, trace Gravel, moist.		4 5	
17									
18									
19						Bottom of Borehole at 16.0 Feet			

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 11.0 to 12.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-59

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-60
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-16-18 / 7-16-18
Boring Location: 593038.3966 N, 12804420.9 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/29	0-5		0.0 ppm	Brown, TOPSOIL, little fine to medium Sand, trace Organic Matter (roots), moist. Changing at 0.3 feet to: Brown, SILT, little fine to medium Sand, trace Gravel, trace Organic Matter (roots and wood), moist. Changing at 1.1 feet to: Tan and brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 2.3 feet to: Brown, fine to medium SAND, little Silt, trace Organic Matter (roots), wet. Changing at 2.6 feet to: NO RECOVERY.	0.3' TOPSOIL	1	None
					1.3 ppn		SILT		
1					2.0 ppm		1.1' SAND		
2					2.9 ppm		2.6' NO RECOVERY		
3									
4									
5	2	60/36	5-10		0.0 ppm	NO RECOVERY. Changing at 7.4 feet to: Dark gray and brown, fine to medium SAND, some Silt, trace Gravel, wet. Changing at 8.3 feet to: Brown, SILT, little Organic Matter (wood chips), wet. Changing at 8.8 feet to: Gray and brown, Silty CLAY.			
6									
7					1.1 ppm		7.4' SAND	2	
8					2.4 ppm		8.3' SILT	3	
9					2.7 ppm		8.8' Silty CLAY		
10							10'		
						Bottom of Borehole at 10.0 Feet		4 5	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 8.0 to 9.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-60

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-61
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594595.3107 N, 594595.3107 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/18	0-4		0.0 ppm 12.3 ppm 13.7 ppm	Dark brown, fine to medium SAND, little Gravel, little Silt, trace Organic Matter (roots), dry (FILL). Changing at 1.3 feet to: Black, LEATHER and RUBBER pieces mixed with some fine to medium Sand, moist (WASTE). Changing at 2.0 feet to: NO RECOVERY.	SAND (FILL) 1.3' LEATHER and RUBBER (WASTE) 2' NO RECOVERY	1	None
1 2 3									
4	2	48/36	4-8		0.0 ppm 12.1 ppm 12.3 ppm 12.8 ppm	NO RECOVERY. Changing at 5.0 feet to: Black, LEATHER and RUBBER pieces, moist (WASTE). Changing at 5.3 feet to: Black, fine SAND, little Gravel, trace Silt, wet. Changing at 5.7 feet to: Gray, fine to coarse SAND, little Gravel, trace Silt, wet. Changing at 7.0 feet to: Brown, CLAY, trace fine to coarse Sand, wet.	5' 5.3 LEATHER and RUBBER (WASTE) SAND 7' CLAY 8'	2 3 4	
5 6 7									
8						Bottom of Borehole at 8.0 Feet		5	
9 10 11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
3. Groundwater was encountered at approximately 5.0 feet below ground surface.
4. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analysis.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-61

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-62
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman:
Logged by: Sheryl Stephenson/Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594530.0895 N, 12804749.62 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Hand Auger/Direct Push	
O.D. / I.D.:		
Hammer Wt.:		
Hammer Fall:		
TOC Elev.:		

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
					1.2 ppm	Brown, fine to coarse SAND, little Gravel, trace Silt, trace Organic Matter (roots), dry. Changing at 1.0 foot to: Brown, fine to coarse SAND, mottled, little Gravel, trace Silt, trace Organic Matter (roots), dry. Changing at 2.6 feet to: Brown, fine SAND, trace Silt, dry. Changing at 3.0 feet to: Brown, fine SAND, mottled, trace Silt, trace Gravel, trace Organic Matter (roots), some Leather scraps, Rubber, trace Glass, dry (leather straps range from thick and flat to long and thin) (WASTE).	SAND	1 2	None
1					2.4 ppm				
2					2.2 ppm				
3					1.1 ppm		3' SAND (WASTE)	3	
4	1	48/36	4-8		1.1 ppm	Brown and black, fine to medium SAND, little Silt, some Rubber strips, trace Gravel, trace Leather, moist (WASTE). Changing at 5.0 feet to: Black, fine to medium SAND, some Rubber strips, trace Silt, moist (WASTE). Changing at 5.5 feet to: Light brown, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 6.0 feet to: Brown, CLAY, little Gravel, trace fine to medium Sand, moist.			
5					10.4 ppm		5.5' SAND	4	
6					5.6 ppm		6' CLAY		
7					8.3 ppm				
8							8'		
						Bottom of Borehole at 8.0 Feet		5 6	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Exploration advanced with hand auger from 0 to 4.7 feet below ground surface, followed by direct push to 8.0 feet below ground surface.
3. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analysis.
4. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-62

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-63
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594478.6619 N, 12804719.95 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		0.0 ppm	Dark brown, fine SAND, some Silt, little Organic Matter (roots), dry. Changing at 0.5 feet to: Brown and black, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND	1	None
					10.8 ppm				
1					10.0 ppm			2	
2					11.4 ppm				
3							3' NO RECOVERY		
4	2	48/18	4-8		0.2 ppm	NO RECOVERY. Changing at 6.5 feet to: Black and brown, fine to coarse SAND, little Gravel, trace Silt, dry. Changing at 7.0 feet to: Black and brown, LEATHER shavings and strips, some fine to coarse Sand, moist (WASTE). Changing at 7.8 feet to: Brown, CLAY & SILT, trace fine Sand, moist.			
5									
6					16.1 ppm		6.5' SAND		
7					9.8 ppm		7' LEATHER (WASTE)	3	
							7.8' 8' CLAY & SILT		
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis. First attempt to sample encountered what appeared to be concerete fragments and fines.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-63

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-64
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594423.9242 N, 12804673.99 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		0.0 ppm 18.9 ppm 20.1 ppm 18.9 ppm	Brown, fine to coarse SAND, little Gravel, little Silt, trace Organic Matter (roots), moist. Changing at 1.0 feet to: Brown and gray, fine to coarse SAND, some Gravel, trace Silt, dry. Changing at 3.0 feet to: NO RECOVERY.	SAND 3' NO RECOVERY	1 2	None
4	2	6	4-4.5		14.2 ppm	Dark brown, fine to coarse SAND, little Leather and Rubber strips, dry (WASTE).	4' SAND (WASTE) 4.5'	3	
						Refusal at 4.5 Feet		4 5	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 0.0 to 1.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 4.0 to 4.5 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-64

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-65
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman:
Logged by: Charlie Lindner
Date Start/Finish: 7-10-18 / 7-10-18
Boring Location: 594556.89 N, 12804625.07 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:		
O.D. / I.D.:		
Hammer Wt.:		
Hammer Fall:		
TOC Elev.:		

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
7/10/18	1100	6.2		

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1		0		0.9 ppm	Brown, fine to coarse SAND, trace Silt, trace Gravel, trace Organic Matter (roots), dry. Changing at 1.6 feet to: Brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 2.5 feet to: Brown, fine to coarse SAND, some Leather and Rubber scraps, trace Gravel, trace Silt, trace Plastic, moist.	SAND	1	None
1					3.8 ppm			2	
2					3.8 ppm				
3					1.5 ppm				
4	2		4		2.0 ppm	Dark brown, fine to coarse SAND, some Leather straps, trace Gravel, trace Silt, moist (WASTE). Changing at 5.0 feet to: Dark brown, fine to coarse SAND, some Leather straps, trace Gravel, trace Silt, trace Bone-like fragments, moist (WASTE). Changing at 6.2 feet to: Olive and brown, SILT & CLAY, trace fine to coarse Sand, wet.	4' SAND (WASTE)	3	
5					1.9 ppm				
6					3.8 ppm		6.2' SILT & CLAY	4	
7						Bottom of Borehole at 7.0 Feet	7'	5	
8									
9									
10									
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was encountered at approximately 6.2 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-65

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-66
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-10-18 / 7-10-18
Boring Location: 594341.986 N, 12804675.87 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	36/36	0-3		3.6 ppm	Dark brown, fine to coarse SAND, some Gravel, dry. Changing at 1.0 feet to: Brownish gray, fine to coarse SAND, little Gravel, dry. Changing at 2.3 feet to: Blackish brown, Foundry SANDS, some Gravel, dry. Changing at 2.7 feet to: Leather strips.	SAND	1 2	None
1					2.1 ppm				
2					5.5 ppm			3	
							2.7' LEATHER Strips 3'		
3						Bottom of Borehole at 3.0 Feet		4 5	
4									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 0.0 to 1.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-66

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-66(2)
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Alex Chlapik
Date Start/Finish: 7-16-18 / 7-16-18
Boring Location: 12804675.88 N, 594342.0021 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
								1	None
1									
2									
3									
4									
5	1	60/36	5-10		1.3 ppm	NO RECOVERY. Changing at 7.0 feet to: Leather Strips. Changing at 7.1 feet to: Brown, Clayey SILT, little fine to coarse Sand, moist. Changing at 7.5 feet to: Brown, fine to coarse SAND, little Clay & Silt, moist. Changing at 8.0 feet to: Brown, CLAY & SILT, trace fine to coarse Sand, moist. Changing at 9.4 feet to: Gray, CLAY & SILT, trace fine to coarse Sand, moist.	NO RECOVERY	2	
6									
7							7' 7.1' LEATHER Strips 7.5' Clayey SILT SAND		
8					1.3 ppm		8' CLAY & SILT		
9					1.6 ppm				
10						Bottom of Borehole at 10.0 Feet	10'	3 4	
11									

REMARKS

1. Offset boring using larger Geoprobe rig to continue beyond 3.0 feet below ground surface on 7/10/18.
2. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-66(2)

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-67
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-10-18 / 7-10-18
Boring Location: 594353.9079 N, 12804728.08 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/24	0-4		0.0 ppm 3.3 ppm 2.0 ppm	Brown, fine to coarse SAND, some Gravel, little Silt, trace Organic Matter (roots), dry. Changing at 1.0 feet to: Brown, fine to coarse SAND, trace Gravel, trace Silt, moist. Changing at 2.0 feet to: NO RECOVERY.	SAND	1 2	None
1									
2					0.0 ppm		2' NO RECOVERY		
3									
4	2	48/48	4-8		0.0 ppm 2.5 ppm	Brown, GRAVEL, some Sand, trace Silt, moist. Changing at 5.0 feet to: Brown, CLAY, moist.	4' GRAVEL		
5					2.5 ppm		5' CLAY	3	
6					1.8 ppm				
7					0.5 ppm				
8							8'		
						Bottom of Borehole at 8.0 Feet		4 5	
9									
10									
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 0.0 to 1.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-67

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-68
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman:
Logged by: Charlie Lindner
Date Start/Finish: 7-9-18 / 7-9-18
Boring Location: 594320.75 N, 12804604.16 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:		
O.D. / I.D.:		
Hammer Wt.:		
Hammer Fall:		
TOC Elev.:		

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	12/12	0-1		3.4 ppm	Dark brown, fine to medium SAND, trace Silt, trace Organic Matter (roots), trace Gravel, trace Leather (FILL).	SAND (FILL)	1	None
1	2	12/12	1-2		2.1 ppm	Black and brown, fine to medium SAND, trace Silt, trace Organic Matter (roots) (FILL).		2	
2	3	12/12	2-3		1.0 ppm	Black, fine to medium SAND, trace Organic Matter (roots), dry (FILL).			
3	4	9/9	3-3.8		29.3 ppm	Black, fine to medium SAND, trace Bone-like Fragments, Cinders, Ash, dry (FILL).	3.8'	3	
4						Refusal at 3.8 Feet		4 5	
5									
6									
7									
8									
9									
10									
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 3.0 to 3.8 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-68

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-69
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman:
Logged by: Charlie Lindner
Date Start/Finish: 7-9-18 / 7-9-18
Boring Location: 594286.63 N, 12804585.19 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:		
O.D. / I.D.:		
Hammer Wt.:		
Hammer Fall:		
TOC Elev.:		

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	12/12	0-1		0.5 ppm	Dark brown, fine to coarse SAND, trace Silt, trace Organic Matter (roots) dry (FILL).	SAND (FILL)	1	None
1	2	12/12	1-2		1.0 ppm	Dark brown, fine to coarse SAND, trace Silt, trace Organic Matter (roots), dry (FILL). Changing at 1.3 feet to: Black and brown, fine to medium SAND, trace Silt, trace Organic Matter (roots) (FILL).			
2	3	12/12	2-3		0.1 ppm	Black, fine to medium SAND, trace Silt, trace Organic Matter (roots), trace Brick, dry (FILL).		2	
3	4	12/12	3-4		0.6 ppm	Black, fine to medium SAND, trace Silt, trace Organic Matter (roots), trace Brick, dry (FILL). Changing at 3.7 feet to: Tan, fine to medium SAND, trace Gravel, dry.	3.7' SAND 4'		
4	5	12/12	4-5		1.7 ppm	Tan/gray, Silty CLAY, trace fine Sand, moist.	Silty CLAY 5'	3	
5						Refusal at 5.0 Feet		4 5	
6									
7									
8									
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-69

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-70
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-12-18 / 7-12-18
Boring Location: 594247.3584 N, 12804582.5 E
GS Elev.: ____ **Datum:** ____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: ____ **Survey Date:** ____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/30	0-4		0.0 ppm	Brown, fine to coarse SAND, some Silt, trace Organic Matter (roots), dry. Changing at 1.0 foot to: Black, coarse SAND and GRAVEL, trace Silt, wet. Changing at 2.0 feet to: Black, fine to coarse SAND, trace Silt, wet. Changing at 2.5 feet to: NO RECOVERY.	SAND	1	None
					10.3 ppm			2	
1					6.5 ppm		1' SAND and GRAVEL	3	
2					13.9 ppm		2' SAND		
							2.5' NO RECOVERY		
3									
4	2	48/36	4-8		0.0 ppm	NO RECOVERY. Changing at 5.0 feet to: Black, fine to coarse SAND, some Gravel, trace Silt, wet. Changing at 5.5 feet to: Black, fine SAND and SILT, wet. Changing at 6.8 feet to: Gray and brown, CLAY, little Gravel, wet.			
5					20.6 ppm		5' SAND	4	
							5.5' SAND AND SILT		
6					21.5 ppm				
							6.8' CLAY		
7					17.0 ppm				
8	3	48/48	8-12		0.0 ppm	Brown, CLAY, little Gravel, trace Sand, moist.			
					17.3 ppm				
9					20.6 ppm				
10					15.7 ppm				
11					16.5 ppm				
12							12'		
						Bottom of Borehole at 12.0 Feet		5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 0.0 to 1.0 feet below ground surface and submitted for laboratory analysis.
3. Groundwater was encountered at approximately 1.0 feet below ground surface.
4. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-70

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-71
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-10-18 / 7-10-18
Boring Location: 594298.2504 N, 12804711.3 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/48	0-4		0.2 ppm 0.7 ppm 0.8 ppm 0.8ppm	Brown, fine to coarse SAND, some Gravel, little Silt, dry. Changing at 1.0 foot to: Black, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 2.0 feet to: Brown, fine to coarse SAND, little Gravel, trace Silt, moist.	SAND	1 2 3	None
4	2	48/48	4-8		0.2 ppm 0.9 ppm 1.0 ppm 0.9 ppm 0.8 ppm	Brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 5.0 feet to: Brown, fine to coarse SAND, trace Silt, moist. Changing at 6.0 feet to: Brown, CLAY, trace Gravel, moist.	6' CLAY 8'		
8						Bottom of Borehole at 8.0 Feet		4 5	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-71

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-72
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-10-18 / 7-10-18
Boring Location: 594296.4569 N, 12804695.79 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/48	0-4		0.1 ppm 1.4 ppm 0.9 ppm 0.5 ppm 0.6 ppm	Brown, fine to coarse SAND, some Gravel, little Silt, dry. Changing at 1.5 feet to: Black, fine to coarse SAND, little Gravel, trace Silt, dry. Changing at 3.0 feet to: Brown, fine to coarse SAND, trace Gravel, trace Silt, moist.	SAND	1 2 3	None
4	2	48/36	4-8		0.0 ppm 1.0 ppm 1.1 ppm 1.1 ppm	NO RECOVERY. Changing at 5.0 feet to: Brown, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 6.0 feet to: Brown, fine to medium SAND, trace Silt, moist. Changing at 7.0 feet to: Brown, CLAY, little Gravel, moist.	4' NO RECOVERY 5' SAND 7' CLAY 8'		
8						Bottom of Borehole at 8.0 Feet		4 5	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-72

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-73
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594285.3279 N, 12804695.13 E
GS Elev.: ____ **Datum:** ____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: ____ **Survey Date:** ____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		0.0 ppm	Brown, fine to coarse SAND and GRAVEL, trace Silt, moist. Changing at 1.0 feet to: Black, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 2.0 feet to: Brown, fine to coarse SAND, little Gravel, trace Clay, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND and GRAVEL	1	None
					1.1 ppm				
1					1.3 ppm		1' SAND	2	
2					1.4 ppm				
3							3' NO RECOVERY		
4	2	48/48	4-8		0.2 ppm	Brown, fine to coarse SAND, trace Gravel, trace Silt, moist. Changing at 6.0 feet to: Brown, CLAY, little Gravel, moist.	4' SAND		
					1.3 ppm				
5					1.2 ppm				
6					1.4 ppm		6' CLAY	3	
7					1.5 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									
10									
11									
12									
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-73

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-74
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594272.0255 N, 12804670.06 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/30	0-4		0.2 ppm	Brown, fine to coarse SAND, some Gravel, trace Silt, dry. Changing at 1.0 foot to: Black, fine to coarse SAND and GRAVEL, little Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND	1	None
1					0.5 ppm		1' SAND and GRAVEL		
					0.8 ppm				
2					0.8 ppm				
3							3' NO RECOVERY		
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Brown, fine SAND, trace Silt, moist. Changing at 6.0 feet to: Brown, CLAY, trace Gravel, moist.			
5					0.4 ppm		5' SAND		
6					0.5 ppm		6' CLAY		
7					0.8 ppm				
8							8'		
						Bottom of Borehole at 8.0 Feet		3 4	
9									
10									
11									
12									
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-74

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-75
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman:
Logged by: Sheryl Stephenson
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594136.4266 N, 12804524.97 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:		
O.D. / I.D.:		
Hammer Wt.:		
Hammer Fall:		
TOC Elev.:		

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
		12/12			1.0 ppm	Brown, fine to coarse SAND, trace Silt, trace Gravel, trace Organic Matter (roots), trace Fabric, dry.	SAND (FILL)	1 2	None
1		12/12			6.4 ppm	Brown, fine to coarse SAND, trace Silt, trace Gravel, trace Organic Matter (roots), trace Fabric, dry (0.2 foot diameter aluminum foil and trace Plastic debris).			
2		12/12			1.0 ppm	Brown, fine to coarse SAND, trace Silt, trace Gravel, dry. Changing at 2.3 feet to: Black, fine to coarse SAND, trace Silt, little Leather, trace Organic Matter (roots), dry.			
3		12/12			3.3 ppm	Black, FILL, some Slag, trace Aluminum Foil, sooty.			
4		12/12			2.5 ppm	Black, FILL, trace Silt, trace Slag, trace Organic Matter (roots), trace Gravel, Sooty,			
5		12/12			4.6 ppm	Black, FILL, trace Silt, trace Slag, trace Roots, trace Gravel, Leather Debris, Sooty. Changing at 5.5 feet to: Black, FILL, trace Leather, wet.		3 4	
6		12/12			3.8 ppm	Black, FILL, trace Leather, trace Gravel, wet.			
7		12/12			3.3 ppm	Brown, SILT & CLAY, little fine to coarse Sand, trace Organic Matter (twigs), trace Gravel (large 2-inch by 3-inch piece of hair-like fibers on material), wet.	7' SILT & CLAY	5	
8	1	48/36	8-12		0.0 ppm	Brown, SILT & CLAY, little fine to coarse Sand, trace Organic Material (twigs), trace Gravel (8-inch by 4-inch piece of material with hair-like fibers), wet. Changing at 9.0 feet to: Black, SAND and GRAVEL, trace Silt, wet. Changing at 9.2 feet to: Brown, CLAY, trace Sand, moist.			
9					3.3 ppm		9' 9.2' SAND and GRAVEL / CLAY		
					3.9 ppm				
10					1.2 ppm				
11					3.7 ppm				
12							12'		
						Bottom of Borehole at 12.0 Feet		6	
13									

REMARKS

1. Borehole advanced from 0.0 to 9.0 feet below ground surface utilizing a hand auger; borefole further advanced from 8.0 to 12.0 feet below ground surface utilizing a GeoProbe.
2. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was encountered at approximately 5.5 feet below ground surface.
5. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analysis.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-75

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-76
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-12-18 / 7-12-18
Boring Location: 594043.5974 N, 12804489.77 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/24	0-4		0.0 ppm 2.4 ppm 6.6 ppm	Light brown, fine to medium SAND, trace Gravel, moist. Changing at 1.3 feet to: Dark brown, fine SAND, little Silt, little Organic Matter (roots), dry. Changing at 1.8 feet to: Brown and black, LEATHER and RUBBER strips and pieces, moist (WASTE). Changing at 2.0 feet to: NO RECOVERY.	SAND 1.8' 2' LEATHER and RUBBER (WASTE) NO RECOVERY	1 2	None
1 2 3									
4	2	48/6	4-8		0.0 ppm	NO RECOVERY. Changing at 7.5 feet to: Light brown, fine to medium SAND, trace Gravel, moist. Changing at 7.7 feet to: Black and brown, LEATHER, some fine to medium Sand, wet (WASTE).			
5 6									
7					2.2 ppm		7.5' 7.7' SAND	3	
8	3	48/16	8-12		0.0 ppm	NO RECOVERY. Changing at 10.7 feet to: Gray, fine to coarse SAND, some Silt, some Leather and Rubber, wet (WASTE). Changing at 11.0 feet to: Gray, fine to coarse SAND, some Silt, wet. Changing at 11.2 feet to: Brown, coarse SAND, trace Silt, trace Gravel, wet. Changing at 11.6 feet to: Brown, fine SAND, some Silt, moist.	8' LEATHER (WASTE) NO RECOVERY	4	
9 10					5.6 ppm		10.7'		
11					2.6 ppm		11' SAND (WASTE) SAND 12'		
12						Bottom of Borehole at 12.0 Feet		5	
13									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was encountered at approximately 7.7 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-76

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-77
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-12-18 / 7-12-18
Boring Location: 594003.533 N, 12804442.62 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		0.0 ppm 9.2 ppm 10.8 ppm 8.8 ppm	Brown, fine SAND, some Silt, trace Organic Matter (roots), trace Gravel, dry. Changing at 0.6 feet to: Light brown, fine to medium SAND, trace Gravel, trace Organic Matter (roots), moist. Changing at 1.3 feet to: Light brown, fine to medium SAND, trace Silt, trace Organic Matter (roots), moist. Changing at 2.0 feet to: Black, fine to coarse SAND, some Gravel, some Silt, trace Organic Matter (roots), moist. Changing at 2.7 feet to: Black, SILT & CLAY, trace fine Sand, trace Organic Matter (roots), moist. Changing at 3.0 feet to: NO RECOVERY.	SAND 2.7' SILT & CLAY 3' NO RECOVERY	1 2	None
1 2 3									
4	2	48/33	4-8		0.0 ppm 1.5 ppm 9.0 ppm 8.1 ppm	NO RECOVERY. Changing at 5.3 feet to: Brown, SILT, little fine Sand, trace Gravel, moist. Changing at 5.6 feet to: Brown, fine to medium SAND, some Silt, trace Gravel, moist. Changing at 6.2 feet to: Black. SILT & CLAY, trace Gravel, moist. Changing at 6.6 feet to: Brown, SILT, some fine Sand, wet. Changing at 7.0 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, moist.	5.3' SILT 5.6' SAND 6.2' SILT & CLAY 6.6' SILT 7' SAND 8'	3	
5 6 7									
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-78
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-12-18 / 7-12-18
Boring Location: 593954.4797 N, 12804370.34 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/15	0-4		0.0 ppm 3.9 ppm 5.5 ppm 0.0 ppm	Brown, fine SAND, trace Gravel, trace Silt, trace Organic Matter (roots), moist. Changing at 0.5 feet to: Light brown, fine to medium SAND, little Gravel, trace Silt, moist. Changing at 0.7 feet to: Brown, Clayey SILT, trace fine Sand, moist. Changing at 2.0 feet to: NO RECOVERY.	SAND 0.7' Clayey SILT 2' NO RECOVERY	1	None
1 2 3									
4	2	48	4-8			NO RECOVERY. Changing at 5.0 feet to: Brown, Clayey SILT, trace fine Sand, moist. Changing at 6.0 feet to: Brown, Clayey SILT, trace fine Sand, hair-like Fibers, moist. Changing at 6.2 feet to: Black, SILT, hair-like Fibers. Changing at 6.3 feet to: Black, fine SAND, some Silt, moist. Changing at 6.8 feet to: Brown, fine to coarse SAND, trace Gravel, trace Silt, moist.	5' Clayey SILT 6.2' 6.3' SILT SAND	2 3	
5 6 7									
8	3	48/36	8-12			NO RECOVERY. Changing 9.0 feet to: Gray, fine to medium SAND, trace Gravel, trace Silt. Changing at 9.8 feet to: Brown, fine SAND and SILT, moist. Changing at 11.0 feet to: Light and dark brown, fine SAND, Mottled, little Silt, trace Gravel, moist.	8' NO RECOVERY 9' SAND 9.8' SAND and SILT 11' SAND 12'		
9 10 11 12									
13						Bottom of Borehole at 12.0 Feet		4 5	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-78

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-79
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location: 593918.591 N, 12804306.11 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/38	0-4		0.0 ppm 3.3 ppm 6.5 ppm 11.8 ppm 13.7 ppm	Brown, TOPSOIL. Changing at 0.6 feet to: Brown, fine SAND, some Silt, trace Organic Matter (roots), dry (FILL). Changing at 1.2 feet to: Black, fine to coarse SAND, some Gravel, little Silt, moist (FILL). Changing at 2.4 feet to: Gray/white, CONCRETE FRAGMENTS (FILL). Changing at 2.6 feet to: Black, fine to coarse SAND, little Gravel, little Silt, trace Glass (FILL). Changing at 3.0 feet to: Gray/white, CONCRETE FRAGMENTS (FILL). Changing at 3.2 feet to: NO RECOVERY.	TOPSOIL 0.6' SAND (FILL) 2.4' 2.6' CONCRETE FRAGMENTS (FILL) 3.0' 3.2' SAND (FILL) CONCRETE FRAGMENTS (FILL)	1 2	None
	2	48/40	4-8		0.2 ppm 9.5 ppm 8.2 ppm 11.9 ppm 7.0 ppm	NO RECOVERY. Changing at 4.7 feet to: Brown, SILT & CLAY, trace fine Sand, trace Gravel, moist. Changing at 5.0 feet to: Brown, fine SAND, some Silt, moist. Changing at 5.5 feet to: Brown, SILT & CLAY, trace fine Sand, trace Gravel, moist. Changing at 5.8 feet to: Brown, fine SAND, some Silt, moist. Changing at 7.0 feet to: Brown, fine to medium SAND, trace Silt, trace Organic Matter (wood debris and wood chips).	NO RECOVERY 4.7' 5' SILT & CLAY SAND 5.5' 5.8' SILT & CLAY SAND 8'	3	
	3	48/36	8-12		0.0 ppm 0.0 ppm 10.9 ppm 8.4 ppm 6.2 ppm	NO RECOVERY. Changing at 9.0 feet to: Brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 9.2 feet to: Brown, fine to medium SAND, trace Silt, trace Organic Matter (wood chips and wood debris). Changing at 10.0 feet to: Brown, fine SAND and SILT, trace Organic Matter (wood debris). Changing at 10.4 feet to: Brown, fine SAND, trace Silt, moist. Changing at 11.0 feet to: Brown, fine SAND and SILT, moist.	NO RECOVERY 9' SAND 10' SAND and SILT 10.4' SAND 11' SAND and SILT 12'		
						Bottom of Borehole at 12.0 Feet		4 5	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-79

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-80
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location: 593831.0585 N, 12804258.54 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/34	0-4		6.6 ppm	Brown, TOPSOIL. Changing at 1.0 foot to: Light brown, fine SAND, trace Silt, trace Gravel, moist. Changing at 1.2 feet to: Dark brown, fine SAND and SILT, trace Gravel, trace Organic Matter (roots), odor, moist. Changing at 2.0 feet to: Black, Clayey SILT, little Organics, trace Rock Fragments, moist. Changing at 3.0 feet to: Brown, fine SAND and SILT, moist. Changing at 3.3 feet to: NO RECOVERY.	TOPSOIL	1	None
1					8.7 ppm		1' 1.2' SAND	2	
							SAND and SILT		
2					6.7 ppm		2' Clayey SILT	3	
3					11.0 ppm		3' SAND and SILT 3.3'	4	
							NO RECOVERY		
4	2	48/31	4-8		0.0 ppm	NO RECOVERY. Changing at 5.4 feet to: Brown, fine SAND, some Silt, trace Gravel, wet. Changing at 6.0 feet to: Brown, SILT, trace fine Sand, trace Organic Matter (wood chips and wood debris), wet. Changing at 7.0 feet to: Brown, fine SAND, some Silt, trace Organic Matter (wood debris and wood chips), moist. Changing at 7.4 feet to: Brown, SILT, trace fine Sand, trace Organic Matter (wood chips and wood debris), moist.			
5					5.6 ppm		5.4' SAND	5	
6					8.9 ppm		6' SILT		
7					8.7 ppm		7' SAND 7.4'		
							SILT		
8						Bottom of Borehole at 8.0 Feet	8'	6	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Petroleum odor noted in sample.
3. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analysis.
4. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analysis.
5. Groundwater was encountered at approximately 5.4 feet below ground surface.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-80

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-81
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location: 593719.0746 N, 12804240.77 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/24	0-4		0.0 ppm 2.8 ppm 2.3 ppm	Brown, TOPSOIL, trace Gravel, trace Organic Matter (wood debris). Changing at 0.6 feet to: Brown, fine to coarse SAND, little Silt, trace Gravel, trace Organic Matter (roots) (FILL). Changing at 1.0 foot to: Brown, fine to coarse SAND, little silt, trace Gravel, trace Organic Matter (roots), trace Concrete Fragments (FILL). Changing at 2.0 feet to: NO RECOVERY.	TOPSOIL 0.6' SAND (FILL) 2' NO RECOVERY	1	None
1 2 3									
4	2	48/39	4-8		0.0 ppm 5.6 ppm 2.9 ppm 2.1 ppm	NO RECOVERY. Changing at 4.8 feet to: Brown, fine SAND, little Silt, trace Gravel, trace Concrete Fragments, moist (FILL). Changing at 5.0 feet to: Dark brown, SILT, trace fine Sand, trace hair-like Fibers, moist (FILL). Changing at 6.0 feet to: Brown, SILT, trace fine Sand, little Organic Matter (wood chips), moist (FILL). Changing at 6.2 feet to: Brown, fine SAND, trace Silt, trace Organic Matter (wood chips), wet (FILL). Changing at 6.3 feet to: Brown, fine SAND, trace Silt, little Organic Matter (wood chips), wet (FILL). Changing at 6.6 feet to: Brown, SILT, little Organic Matter (wood chips), trace fine Sand, trace Organic Matter (wood debris), moist (FILL).	4.8' 5' SAND (FILL) SILT (FILL) 6.2' SAND (FILL) 6.6' SILT (FILL) 8'	2 3	
5 6 7									
8	3	48/43	8-12		0.0 ppm 1.1 ppm 1.1 ppm 0.4 ppm	NO RECOVERY. Changing at 8.4 feet to: Light brown, fine to medium SAND, trace Silt, trace Organic Matter (roots), moist (FILL). Changing at 9.4 feet to: Brown, fine SAND, some Silt, trace Organic Matter (roots), wet (FILL). Changing at 10.0 feet to: Brown, fine to medium SAND, trace Silt, wet (FILL). Changing at 11.3 feet to: Brown, fine SAND, some Silt, little Organic Matter (wood chips), wet (FILL).	8.4' NO RECOVERY SAND (FILL) 12'	5	
9 10 11 12									
13						Bottom of Borehole at 12.0 Feet		6	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
5. Groundwater was encountered at approximately 9.4 feet below ground surface.
6. Borehole was backfilled with bentonite chipes upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-81

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-82
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location: 593610.603 N, 12804320.74 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		0.0 ppm 2.8 ppm 5.8 ppm 4.1 ppm 3.1 ppm	Brown, TOPSOIL, trace Organic Matter (wood debris and roots), trace Gravel, dry. Changing at 1.0 foot to: Brown, FILL and SLAG, moist (FILL). Changing at 2.3 feet to: White/gray, CONCRETE FRAGMENTS (FILL). Changing at 3.0 feet to: NO RECOVERY.	TOPSOIL 1' SLAG (FILL) 2.3' CONCRETE FRAGMENTS (FILL) 3' NO RECOVERY	1 2	None
1 2 3									
4	2	48/41	4-8		3.5 ppm 2.6 ppm 3.7 ppm	NO RECOVERY. Changing at 4.6 feet to: Brown, fine to coarse SAND, trace Gravel, little Silt, trace Organic Matter (roots) (FILL). Changing at 5.0 feet to: Brown, fine SAND and SILT, trace Gravel, moist (FILL). Changing at 5.7 feet to: Black, SILT & CLAY, trace hair-like Fibers, dry (FILL). Changing at 6.4 feet to: Brown, fine SAND and SILT, trace Organic Matter (wood debris), moist (FILL). Changing at 7.0 feet to: Brown, SILT, trace fine Sand, little Organic Matter (wood chips), moist (FILL). Changing at 7.4 feet to: Brown, SILT & CLAY, dry.	4.6' SAND (FILL) 5' SAND and SILT (FILL) 5.7' SILT & CLAY (FILL) 6.4' SAND and SILT (FILL) 7' SILT (FILL) 7.4' SILT & CLAY 8'	3	
5 6 7									
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 0.0 to 1.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-82

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-83
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Virginia Larimore
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/33	0-4		0.0 ppm	Brown, TOPSOIL, trace fine to medium Sand, trace Organic Matter (roots), moist. Changing at 0.2 feet to: Dark brown, SILT, trace fine to medium Sand, trace Organic Matter (roots), trace Gravel, moist. Changing at 1.6 feet to: Brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 2.0 feet to: Light brown to orange brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 2.8 feet to: NO RECOVERY.	0.2' TOPSOIL	1	None
					0.9 ppm		SILT		
1					1.3 ppm			2	
							1.6' SAND		
2					1.5 pm				
							2.8' NO RECOVERY		
3									
4	2	48/48	4-8		0.0 ppm	NO RECOVERY. Changing at 4.3 feet to: Light brown and light gray, Silty CLAY, wet.	4.3' Silty CLAY	3	
								4	
					1.3 ppm				
5					1.3 ppm				
6					1.0 ppm				
7					0.8 ppm				
							8'		
8						Bottom of Borehole at 8.0 Feet		5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was encountered at approximately 4.3 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-83

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-84
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Sheryl Stephenson
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/30	0-4		1.3 ppm 1.2 ppm 1.6	Brown, TOPSOIL, trace Gravel, trace Organic Matter (roots), dry. Changing at 0.4 feet to: Brown, fine SAND, little Silt, trace Gravel, dry. Changing at 1.7 feet to: Gray, fine SAND, little Silt, trace Gravel, dry. Changing at 2.0 feet to: Black, fine SAND, little Silt, trace Gravel, Odor, dry . Changing at 2.3 feet to: Brown, LEATHER DEBRIS (WASTE). Changing at 2.5 feet to: NO RECOVERY.	TOPSOIL 0.4' SAND 2.3' 2.5' LEATHER DEBRIS (WASTE) NO RECOVERY	1 2	None
1 2 3									
4	2	48/6	4-8		0.0 ppm 1.1 ppm	NO RECOVERY. Changing at 7.5 feet to: White and orange, CONCRETE/ROCK/BRICK and WOOD DEBRIS (WASTE). Changing at 7.7 feet to: Dark brown, SAND and SILT, trace Gravel, trace Organic Matter (roots), moist.	7.4' 7.7 CONCRETE, ROCK, BRICK AND WOOD DEBRIS (WASTE) 8 SAND and SILT		
5 6 7									
8						Bottom of Borehole at 8.0 Feet		3 4	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Petroleum odor noted in sample.
3. Groundwater was not encountered during drilling or upon completion.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-84

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-85
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Virginia Larimore
Date Start/Finish: 7-13-18 / 7-13-18
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/31	0-4		0.1 ppm 1.5 ppm 0.9 ppm 1.0 ppm	Brown, TOPSOIL, little fine to medium Sand, trace (roots), moist. Changing at 0.3 feet to: Brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 0.6 feet to: Dark brown, medium to coarse SAND, trace Gravel, trace Organic Matter (roots), trace Silt, dry. Changing at 0.9 feet to: Gray and brown, fine to medium SAND, trace Silt, trace Organic Matter (roots), moist. Changing at 1.4 feet to: Gray, fine to coarse SAND and GRAVEL, trace Silt, trace Coal, trace Cinders, trace Organic Matter (roots) (FILL). Changing at 2.4 feet to: Red and brown to brown, SILT, little Gravel, trace fine Sand. Changing at 2.6 feet to: NO RECOVERY.	TOPSOIL 0.3' SAND 1.4' SAND and GRAVEL (FILL) 2.4' 2.6' SILT NO RECOVERY	1 2	None
	2	48/45	4-8		1.1 ppm 0.9 ppm 0.7 ppm 2.2 ppm	NO RECOVERY. Changing at 4.3 feet to: Light brown, fine to medium SAND, little Silt, wet. Changing at 4.7 feet to: Black, SILT, little fine Sand, trace Organic Matter (roots, wood), wet. Changing at 5.1 feet to: Gray, Clayey SILT, some fine Sand, trace Gravel, trace Organic Matter (roots), wet. Changing 6.2 feet to: Gray and brown, Silty CLAY, trace fine Sand, little Silt, trace Organic Matter (roots), wet.	4.3' SAND 4.7' SILT 5.1' Clayey SILT 6.2' Silty CLAY 8'	3	
						Bottom of Borehole at 8.0 Feet		4 5	

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Filler fabric encountered at approximately 0.6 feet below ground surface.
3. Groundwater was encountered at approximately 4.3 feet below ground surface.
4. Borehole was backfilled with bentonite chips upon completion.
5. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analysis.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-85

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-86
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/22	0-5		0.0 ppm	Brown, TOPSOIL, some fine to medium Sand, trace Organic Matter (roots), moist.	0.3' TOPSOIL	1	None
					0.6 ppm	Changing at 0.3 feet to: Orange and brown, fine to medium SAND, little Silt, trace Gravel, moist.	SAND		
1					0.6 ppm	Changing at 0.6 feet to: Dark brown, fine to medium SAND, little Silt, little Gravel, moist. Changing at 0.8 feet to: Orange and brown, fine to medium SAND, trace Silt, little Gravel, moist. Changing at 1.1 feet to: Dark brown, fine to medium SAND, some Silt, trace Gravel, moist. Changing at 1.4 feet to: Orange, fine to medium SAND, little silt, wet. Changing at 1.8 feet to: NO RECOVERY.		2	
2							1.8' NO RECOVERY		
3									
4						NO RECOVERY. Changing at 6.5 feet to: Orange, fine to medium SAND, little Silt, wet. Changing at 6.7 feet: Orange, coarse SAND, little Gravel, little Silt, wet. Changing at 7.2 feet to: Orange, Silty CLAY, wet. Changing at 8.3 feet to: Gray, Silty CLAY, wet.			
5	2	60/42	5-10		0.0 ppm				
6					1.1 ppm		6.5' SAND		
7					0.8 ppm		7.2' Silty CLAY		
8					0.8 ppm				
9					0.6 ppm				
10							10'		
						Bottom of Borehole at 10.0 Feet		3	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was encountered at approximately 1.0 feet below ground surface.
3. Borehole was backfilled with bentonite chips upon completion.

Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analysis.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-86

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-87
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/37	0-5		0.0 ppm 1.3 ppm 0.7 ppm 1.5 ppm	Dark brown, TOPSOIL, little fine to medium Sand, trace Gravel, trace Roots, moist. Changing at 0.3 feet to: Gray and black, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 0.7 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 1.2 feet to: Dark brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 1.8 feet to: Tan, fine to medium SAND, trace Gravel, trace Silt. Changing at 3.1 feet to: NO RECOVERY.	0.3' TOPSOIL SAND 3.1' NO RECOVERY	1	None
1 2 3 4									
5	2	60/48	5-10		0.0 ppm 2.1 ppm 1.5 ppm 1.5 ppm 1.2 ppm	NO RECOVERY. Changing at 6.0 feet to: Light brown and black, fine to medium SAND, little Silt, trace Gravel, dry. Changing at 6.4 feet to: Gray, CLAY & SILT, trace Gravel, moist. Changing at 9.8 feet to: Light brown, SILT.	6' SAND 6.4' CLAY & SILT 9.8' 10' SILT		
6 7 8 9									
10						Bottom of Borehole at 10.0 Feet		2 3	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was not encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-87

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-88
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location:
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/22	0-5		0.0 ppm 0.0 ppm 0.5 ppm	Brown, TOPSOIL, some fine to coarse Sand, trace Gravel, trace Organic Matter (roots), moist. Changing at 0.3 feet to: Light brown, fine to medium SAND, little Gravel, trace Silt, moist. Changing at 0.5 feet to: Brown, fine SAND, trace Silt, trace Gravel, moist. Changing at 0.8 feet to: Brown, LEATHER, some Silt (WASTE). Changing at 1.3 feet to: Dark brown, fine to medium SAND, some Silt, trace Organic Matter (roots), moist. Changing at 1.7 feet to: Light brown, fine to medium SAND, little Silt, moist. Changing at 1.8 feet to: NO RECOVERY.	0.3' TOPSOIL SAND 0.8' LEATHER (WASTE) 1.3' SAND 1.8' NO RECOVERY	1	None
1 2 3 4									
5	2	60/48	5-10		0.0 ppm 0.9 ppm 0.5 ppm 0.9 ppm 0.9 ppm	NO RECOVERY. Changing at 6.3 feet to: Tan and brown, fine to medium SAND, trace Silt, moist. Changing at 7.0 feet to: Orange and brown, Silty CLAY, wet. Changing at 8.5 feet to: Gray and brown, Silty CLAY, wet.	6.3' SAND 7' Silty CLAY 10'	2	
6 7 8 9									
10						Bottom of Borehole at 10.0 Feet		3	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was encountered at approximately 7.0 feet below ground surface.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-88

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-B-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-18-18 / 7-18-18
Boring Location: 593652.786 N, 12804658.733 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
		60/33			1.4 ppm	Brown, TOPSOIL, some fine Sand, trace Gravel, trace Organic Matter (roots). dry. Changing at 0.4 feet to: Tan, fine to medium SAND, trace Gravel, trace Silt, dry. Changing at 1.5 feet to: Brown, fine to medium SAND, little Silt, Gravel, damp. Changing at 1.6 feet to: Light gray, fine to coarse SAND and GRAVEL, trace Silt, dry. Changing at 1.8 feet to: Brown, fine to medium SAND, some fine Gravel, trace Silt, moist. Changing at 2.3 feet to: Light brown to brown, fine to medium SAND, trace Silt, moist. Changing at 3.8 feet to: NO RECOVERY.	TOPSOIL 0.4' SAND	1	None
1					1.9 ppm		1.6'		
2					2.0 ppm		1.8' SAND and GRAVEL NO RECOVERY	2 3	
3									
4									
5	1	60/26	5-10			NO RECOVERY. Changing at 7.7 feet to: Light brown, fine to medium SAND, some Silt, moist.			
6									
7					1.5 ppm		7.7' SAND	4	
8					1.3 ppm				
9					1.2 ppm				
10						Bottom of Borehole at 10.0 Feet	10'	5 6	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Petroleum odor noted in sample.
3. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
4. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-B-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-12-18 / 7-12-18
Boring Location: 593660.269 N, 12804666.136 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
		48/36			17.9 ppm	Dark brown to brown, fine SAND and SILT, trace Organic Matter (roots), moist. Changing at 0.5 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 2.0 feet to: Black, coarse SAND, some Gravel, moist. Changing at 2.1 feet to: Light gray, CONCRETE fragements, dry. Changing at 2.3 feet to: Brown, fine to medium SAND, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND and SILT (TOPSOIL) 0.5' SAND	1	None
1					21.2 ppm				
2					22.7 ppm		2.1' 2.3' CONCRETE Fragments SAND	2	
3							3' NO RECOVERY		
4	1	48/48	4-8		23.4 ppm	Light brown, fine to coarse SAND and SILT, wet.	4' SAND and SILT	3	
5					18.9 ppm				
6					15.1 ppm				
7					10.5 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
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Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-C-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-23-18 / 7-23-18
Boring Location: 593539.284 N, 12804607.675 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		1.1 ppm	Dark brown, fine to medium SAND, some Silt, little Organic Matter (roots), moist (TOPSOIL). Changing at 0.5 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 1.0 feet to: Brown, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 2.0 feet to: Black, fine to medium SAND and SILT, trace Gravel, moist. Changing at 3.0 feet to: NO RECOVERY.	TOPSOIL 0.5'	1	None
1					1.5 ppm		SAND		
2					26.9 ppm		2' SAND and SILT	2	
3							3' NO RECOVERY		
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Black, fine to medium SAND and SILT, trace Gravel, moist. Changing at 6.7 feet to: Brown, CLAY, some fine to medium Sand, little Gravel, moist.			
5					16.7 ppm		5' SAND and SILT		
6					13.3 ppm				
7					12.2 ppm		6.7' CLAY		
8	3	48/48	8-12		13.3 ppm	Brown, CLAY, some fine to medium Sand, little Gravel, moist.			
9					8.9 ppm				
10					1.8 ppm				
11					1.8 ppm			3	
12						Bottom of Borehole at 12.0 Feet	12'	4 5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 11.0 to 12.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-C-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-23-18 / 7-23-18
Boring Location: 593547.157 N, 12804614.259 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		1.1 ppm	Brown, TOPSOIL, little fine to medium Sand, moist. Changing at 0.6 feet to: Light brown, fine to medium SAND, little Silt, moist. Changing at 0.9 feet to: Brown, fine to coarse SAND, little Gravel, little Silt, moist. Changing at 1.7 feet to: Black, SILT, little fine to medium Sand, trace Gravel, moist. Changing at 3.0 feet to: NO RECOVERY.	TOPSOIL 0.6' SAND 1.7' SILT 3' NO RECOVERY	1	None
1					57.9 ppm				
2					205.6 ppm			2	
3									
4	2	48/38	4-8		110.4 ppm	NO RECOVERY. Changing at 4.8 feet to: Black, SILT, little fine to medium Sand, trace Gravel, moist. Changing at 5.0 feet to: Gray, Clayey SILT, trace fine Sand, moist. Changing at 5.8 feet to: Gray and brown, CLAY & SILT, trace Gravel, moist.	4.8' 5' SILT Clayey SILT 5.8' CLAY & SILT		
5					75.2 ppm				
6					17.1 ppm				
7					11.2 ppm				
8	3	48/43	8-12		7.0 ppm	NO RECOVERY. Changing at 8.5 feet to: Gray and brown, CLAY & SILT, trace Gravel, moist. Changing at 8.8 feet to: Light brown, SILT, trace fine Sand, moist. Changing at 9.8 feet to: Gray and brown, fine to medium SAND, little Silt, trace Clay, moist. Changing 9.9 feet to: Light gray and brown, SILT, little fine Gravel, moist.	8' NO RECOVERY 8.8' SILT 9.8' 9.9' SAND SILT		
9					2.5 ppm			3	
10									
11									
12						Bottom of Borehole at 12.0 Feet	12'	4 5	
13									
14									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 9.0 to 10.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-D-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Virginia Larimore
Date Start/Finish: 7-18-18 / 7-18-18
Boring Location: 593458.307 N, 12804646.125 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/35	0-5		0.3 ppm	Brown, TOPSOIL, some fine to medium Sand, trace Organic Matter (roots), moist. Changing at 0.2 feet to: Tan, fine SAND, trace Silt, moist. Changing at 0.6 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 1.4 feet to: Light gray to gray, medium to coarse SAND and fine GRAVEL, trace Silt, moist. Chaning at 0.8 feet to: Brown, fine to medium SAND, little fine Gravel, little Silt, moist. Changing at 2.0 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 2.3 feet to: Dark brown, fine SAND, some Silt, trace Gravel, moist. Changing at 2.5 feet to: Brown, fine to medium SAND, little Silt, moist. Changing at 2.9 feet to: NO RECOVERY.	0.2' TOPSOIL SAND 1.4' SAND and GRAVEL 1.8' SAND 2.9' NO RECOVERY	1	None
1					0.5 ppm				
2					0.6 ppm			2	
3									
4									
5	2	60/42	5-10			NO RECOVERY. Changing at 6.5 feet to: Brown, fine to medium SAND, little Silt, trace Gravel, moist. Changing at 7.4 feet to: Light brown, fine SAND and SILT, trace Gravel, wet. Changing at 8.3 feet to: Light brown, fine to medium SAND, some Silt, trace Gravel, moist. Changing at 8.9 feet to: Light brown, SILT, some fine Sand, trace Gravel, moist. Changing at 9.7 feet to: Tan to light brown, medium to coarse SAND and GRAVEL, trace Silt, moist.	6.5' SAND		
6					0.8 ppm				
7					1.0 ppm				
8					1.0 ppm			3	
9					1.0 ppm		8.9' SILT 9.7'		
10						Bottom of Borehole at 10.0 Feet	10' SAND and GRAVEL	4 5	
11									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 8.0 to 9.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-D-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-12-18 / 7-12-18
Boring Location: 593468.483 N, 12804650.839 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/40	0-4		10.1 ppm	Dark brown, fine SAND and SILT, trace Organic Matter (roots), dry. Changing at 0.5 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 2.0 feet to: Light gray, CONCRETE fragments, dry. Changing at 2.4 feet to: Dark brown, fine to coarse SAND, little Gravel, little Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND and SILT (TOPSOIL) 0.5' SAND	1	None
1					15.0 ppm				
2					11.5 ppm		2' CONCRETE Fragments 2.4' SAND	2	
3							3' NO RECOVERY		
4	2	48/15	4-8			NO RECOVERY. Changing at 6.8 feet to: Dark brown, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 7.0 feet to: Brown, CLAY, some Gravel, little Sand, moist.			
5									
6					16.4 ppm			3	
7					18.1 ppm		6.8' 7' SAND CLAY		
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-E-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593856.767 N, 12804614.089 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/40	0-4		1.6 ppm	Dark brown, fine to medium SAND, little Silt, little Organic Matter (roots), moist (TOPSOIL). Changing at 0.4 feet to: Light brown, fine to coarse SAND, some Gravel, little Silt, dry. Changing at 1.0 foot to: Light brown, fine to medium SAND, little Silt, moist. Changing at 3.0 feet to: Black and brown, GRAVEL, some coarse Sand, moist. Changing at 3.3 feet to: NO RECOVERY.	0.4' SAND (TOPSOIL) / SAND	1	None
2					1.8 ppm				
3					1.1 ppm		3'		
4					1.8 ppm		3.3' GRAVEL / NO RECOVERY	2	
5	2	48/18	4-8			NO RECOVERY. Changing at 6.5 feet to: Black, GRAVEL, some coarse Sand, trace Silt, moist. Changing at 6.8 feet to: Light gray, CONCRETE Fragments, dry. Changing at 7.0 feet to: Dark brown, fine to coarse SAND, little Gravel, trace Silt, wet.			
6					2.3 ppm		6.6'		
7					2.0 ppm		6.8' GRAVEL / 7' CONCRETE / SAND		
8	3	48/36	8-12			NO RECOVERY. Changing at 9.0 feet to: Brown, fine to coarse SAND, little Gravel, trace Silt, wet. Changing 10.8 feet to: Black, PEAT, moist.	8' NO RECOVERY		
9					1.7 ppm		9' SAND		
10								3	
11							10.8' PEAT	4	
12	4	48/30	12-16		1.6 ppm	Gray, fine to coarse SAND, little Gravel, trace Silt, trace Organic Matter (wood), wet. Changing at 13.0 feet to: NO RECOVERY. Changing at 14.5 feet to: Gray, fine to coarse SAND, little Gravel, trace Silt, wet.	12' SAND		
13							13' NO RECOVERY		
14					1.4 ppm		14.5' SAND		
15					1.4 ppm				
16						Bottom of Borehole at 16.0 Feet	16'	5 6	
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 3.0 to 4.0 feet below ground surface and submitted for laboratory analytical testing.
3. Slight petroleum odor noted in samples between 10.0 and 13.0 feet.
4. Soil sample was collected from 10.0 to 11.0 feet below ground surface and submitted for laboratory analytical testing.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-E-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-24-18 / 7-24-18
Boring Location: 593855.445 N, 12804640.406 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/48	0-4		0.8 ppm	Dark brown, fine to medium SAND, some Silt, little Organic Matter (roots), moist (TOPSOIL). Changing at 0.7 feet to: Light brown, fine to medium SAND, little Silt, trace Gravel, moist.	SAND (TOPSOIL) 0.7' SAND	1	None
1					1.2 ppm				
2					1.2 ppm				
3					1.1 ppm				
4	2	48/30	4-8			NO RECOVERY. Changing at 5.5 feet to: Light brown, fine to medium SAND. little Silt, trace Gravel, moist.	4' NO RECOVERY 5.5' SAND		
5					0.9 ppm			2	
6					1.4 ppm 1.2 ppm				
7							8'		
8	3	48/24	8-12			NO RECOVERY. Changing at 9.0 feet to: Gray, fine to coarse SAND, trace Gravel, trace Silt, wet. Changing at 11.0 feet to: NO RECOVERY.	NO RECOVERY 9' SAND		
9					1.5 ppm				
10					1.2 ppm			4 3	
11							11' NO RECOVERY 12'		
12	4	48/36	12-16		1.6 ppm	Gray, GRAVEL and fine to coarse SAND, trace Silt, wet. Changing at 13.0 feet to: Gray and brown, fine to medium SAND, some Silt, wet. Changing at 15.0 feet to: NO RECOVERY.	GRAVEL and SAND 13' SAND		
13					1.4 ppm				
14					1.5 ppm		15' NO RECOVERY 16'		
15									
16						Bottom of Borehole at 16.0 Feet		4 5	
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analytical testing.
4. Soil sample was collected from 10.0 to 11.0 feet below ground surface and submitted for laboratory analytical testing.
3. Black staining noted in sample.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-AOC-E-02

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

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Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-G-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594245.4083 N, 12804643.6 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		0.0 ppm 0.9 ppm 1.1 ppm 0.8 ppm	Brown, fine to coarse SAND and GRAVEL, trace Silt, dry. Changing at 1.0 foot to: Brown, fine to coarse SAND, some Gravel, trace Silt, dry. Changing at 3.0 feet to: NO RECOVERY.	SAND and GRAVEL 1' SAND 3' NO RECOVERY	1 2	None
1 2 3 4	2	48/36	4-8		0.0 ppm 1.2 ppm 1.2 ppm 1.0 ppm	NO RECOVERY. Changing at 5.0 feet to: Brown, fine to coarse SAND and GRAVEL, trace Silt, moist. Changing at 5.4 feet to: Dark brown lens of fine SAND, trace Silt, moist. Changing at 5.6 feet to: Brown, fine SAND, some Silt, wet. Changing at 7.0 feet to: Brown, CLAY, moist.	5' SAND and GRAVEL 5.4' SAND 7' CLAY 8'	3 4	
5 6 7 8						Bottom of Borehole at 8.0 Feet		5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was encountered at approximately 5.6 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

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Rockford, Michigan

Boring No.: TA-SB-AOC-G-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-11-18 / 7-11-18
Boring Location: 594202.7519 N, 12804628.53 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		0.2 ppm	Brown, fine to coarse SAND and GRAVEL, little Silt, dry. Changing at 1.0 foot to: Black, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND and GRAVEL	1	None
					1.1 ppm				
1					0.9 ppm		1' SAND	2	
2					0.9 ppm				
3							3' NO RECOVERY		
4	2	48/24	4-8		0.0 ppm	NO RECOVERY. Changing at 6.0 feet to: Dark brown, fine to coarse SAND and GRAVEL, trace Clay, moist. Changing at 6.3 feet to: Brown, fine SAND, trace Gravel, trace Clay, wet.			
5									
6					1.1 ppm		6' SAND and GRAVEL; 6.3' SAND	3; 4	
7					1.1 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 1.0 to 2.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was encountered at approximately 6.3 feet below ground surface.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

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Rockford, Michigan

Boring No.: TA-SB-AOC-H-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-9-18 / 7-9-18
Boring Location: 594250.9545 N, 12804675.6 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/41	0-4		0.0 ppm	Gray and brown, GRAVEL, some Sand, little Silt, dry. Changing at 0.2 feet to: Brown and gray, GRAVEL and SAND, little Silt, dry. Changing at 2.0 feet to: Brown and black, GRAVEL and SAND, little Silt, moist. Changing at 3.5 feet to: NO RECOVERY.	0.2' GRAVEL; GRAVEL and SAND	1	None
1					0.4 ppm				
					0.2 ppm				
2					0.4 ppm			2	
3					0.3 ppm		3.5' NO RECOVERY		
4	2	48/39	4-8		0.0 ppm	NO RECOVERY. Changing at 4.7 feet to: Brown, GRAVEL and SAND, trace Silt, moist. Changing at 5.0 feet to: Brown, SAND, some Silt, moist. Changing at 6.0 feet to: Brown, CLAY & SILT, moist.		3	
					0.3 ppm		4.7' GRAVEL and SAND		
5					0.3 ppm		5' SAND		
6					0.8 ppm		6' CLAY & SILT		
7					1.0 ppm				
8						Bottom of Borehole at 8.0 Feet	8'	4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 4.0 to 5.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

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Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-H-02
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File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-9-18 / 7-9-18
Boring Location: 594224.7712 N, 12804667.11 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		0.0 ppm	Gray and brown, GRAVEL, some Sand, little Silt, dry. Changing at 0.7 feet to: Black and brown, SAND and GRAVEL, little Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	GRAVEL	1	None
					0.0 ppm		0.7' SAND and GRAVEL		
1					0.0 ppm				
2					0.0 ppm			2	
3							3' NO RECOVERY		
4							4'		
	2	48/48	4-8		3.7 ppm	Black and brown, SAND and GRAVEL, little Silt, moist. Changing at 4.4 feet to: Brown, SILT, trace fine Sand, wet. Changing at 5.4 feet to: Brown, CLAY & SILT, moist.	4.4' SAND and GRAVEL	3	
					0.5 ppm		SILT	4	
5					1.1 ppm		5.4' CLAY & SILT		
6					0.2 ppm			5	
7					0.3 ppm				
8	3	48/48	8-12		0.0 ppm	Brown, CLAY & SILT, moist.			
					1.0 ppm				
9					0.0 ppm				
10					0.6 ppm				
11					0.9 ppm				
12							12'		
						Bottom of Borehole at 12.0 Feet		6	
13									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analysis.
3. Petroleum odor noted in sample.
4. Groundwater wasencountered at approximately 4.4 feet below ground surface.
5. Soil sample was collected from 6.0 to 7.0 feet below ground surface and submitted for laboratory analysis.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 FORMER TANNERY CONTINUATION 9_27_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-H-03
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File No.: 16.0062335.02
Check: Jennifer Baron

Contractor: Cascade
Foreman: Mike Leadingham
Logged by: Michael Kress
Date Start/Finish: 7-9-18 / 7-9-18
Boring Location: 594174.7017 N, 12804646.85 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/30	0-4		0.0 ppm 0.0 ppm 1.1 ppm 3.7 ppm	Gray and brown, GRAVEL, little Sand, trace Silt. Changing at 0.6 feet to: Brown, SAND and GRAVEL, little Silt, dry. Changing at 1.3 feet to: Black, fine to medium SAND, little Silt, dry. Changing at 2.0 feet to: Light brown, coarse SAND and GRAVEL, dry. Changing at 2.2 feet to: Black, LEATHER Shavings and Leather Pieces, dry (WASTE). Changing at 2.5 feet to: NO RECOVERY.	GRAVEL 0.6' SAND and GRAVEL 1.3' SAND 2' 2.2' SAND and GRAVEL 2.5' LEATHER (WASTE) NO RECOVERY	1 2	None
1 2 3									
4	2	19/19	4-5.6		0.9 ppm 3.2 ppm 1.3 ppm	Black, LEATHER Shavings and Pieces, moist (WASTE). Changing at 5.0 feet to: Brown and gray, fine to coarse SAND and GRAVEL, little Silt, moist. Changing at 5.5 feet to: Brown and gray, LEATHER Pieces, moist (WASTE).	4' LEATHER (WASTE) 5' SAND and GRAVEL 5.5' 5.6' LEATHER (WASTE)	3 4 5	
5									
6 7 8 9						Bottom of Borehole at 5.6 Feet			

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 2.5 feet below ground surface and submitted for laboratory analysis.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analysis.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-AOC-H-03

GZA GeoEnvironmental, Inc.
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Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-J-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-12-18 / 7-12-18
Boring Location: 593608.827 N, 12804679.862 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/36	0-4		8.6 ppm	Dark brown, fine SAND and SILT, trace Organic Matter (roots), dry (TOPSOIL). Changing at 0.5 feet to: Light brown, fine to medium SAND, trace Silt, moist. Changing at 2.0 feet to: Light gray, CONCRETE Fragments, dry. Changing at 2.5 feet to: Brown and black, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND and SILT (TOPSOIL) 0.5'	1	None
1					14.2 ppm		SAND 2'		
2					14.9 ppm		CONCRETE Fragments 2.5'	2	
							SAND 3'		
3							NO RECOVERY		
4	2	48/36	4-8		0.2 ppm	NO RECOVERY. Changing at 5.0 feet to: Dark brown, fine to coarse SAND, some Gravel, trace Silt, moist. Changing at 5.7 feet to: Light brown, fine to medium SAND and SILT, wet.	5'		
5					13.2 ppm		SAND 5.7'	3	
							SAND and SILT		
6					16.1 ppm				
7					15.5 ppm				
							8'		
8						Bottom of Borehole at 8.0 Feet		4 5	
9									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 2.0 to 3.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 5.0 to 6.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-AOC-J-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-12-18 / 7-12-18
Boring Location: 593596.342 N, 12804677.401 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/48	0-4		14.8 ppm	Dark brown, fine SAND and SILT, trace Organic Matter (roots), dry. Changing at 0.5 feet to: Light brown, fine to medium SAND, trace Silt, moist.	0.5' SAND and SILT	1	None
1					18.4 ppm		SAND		
2					21.1 ppm				
3					19.2 ppm				
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Light brown, fine to coarse SAND, trace Silt, moist with lens of black and gray from 7.8 to 7.9 feet.	4' NO RECOVERY 5'		
5					15.5 ppm		SAND	2	
6					12.2 ppm				
7					8.5 ppm			3	
8	3	36/36	8-11		0.9 ppm	Light brown,fine to coarse SAND, trace Silt, moist. Changing at 9.2 feet to: Black, fine to coarse SAND, some Silt, moist. Changing at 9.3 feet to: White and gray, fine to coarse GRAVEL, some Sand, moist (possible CONCRETE).		4	
9					0.6 ppm		9.3' GRAVEL	5 3 3	
10									
11	4	48/44	11-15		0.9 ppm	NO RECOVERY. Changing at 11.3 feet to: Light brown, fine SAND and SILT, little Gravel, wet. Changing at 12.0 feet to: Light brown, fine SAND and SILT, fine Gravel, moist. Changing at 13.7 feet to: Light brown, fine to coarse SAND, trace Gravel, moist. Changing at 13.8 feet to: Gray and brown, fine to medium SAND, some Silt, Gravel, moist. Changing at 14.7 feet to: Black, SILT, moist. Changing at 14.8 feet to: Gray and brown, SILT, some fine Sand, trace Gravel, moist.	11' 11.3' NO RECOVERY SAND and SILT		
12					1.0 ppm				
13					1.4 ppm		13.7' SAND	6	
14					2.0 ppm		14.7'		
15							15' SILT	7	
16						Bottom of Borehole at 15.0 Feet			
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was encountered at approximately 5.0 feet below ground surface.
3. Petroleum odor noted in sample.
4. A second core continued on August 9, 2018.
5. Soil sample was collected from 9.0 to 10.0 feet below ground surface and submitted for laboratory analytical testing.
6. Soil sample was collected from 13.0 to 14.0 feet below ground surface and submitted for laboratory analytical testing.
7. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-MA-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593844.697 N, 12804674.843 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/32	0-4		0.9 ppm	Brown, TOPSOIL, trace Organic Matter (roots), moist. Changing at 0.3 feet to: Tan to brown, fine to coarse SAND, little Gravel, trace Brick, trace Silt, moist. Changing at 2.1 feet to: Brown, fine to coarse SAND, little fine Gravel, little Silt, trace Brick, moist. Changing at 2.7 feet to: NO RECOVERY.	0.3' TOPSOIL SAND 2.7' NO RECOVERY	1	None
1					1.0 ppm				
2					1.3 ppm				
3									
4	2	48/21	4-8			NO RECOVERY. Changing at 6.3 feet to: Brown, fine to coarse SAND, little Gravel, little Silt, trace Brick, moist. Changing at 6.4 feet to: White and light gray, CONCRETE Fragments, dry. Changing at 6.8 feet to: Tan, medium to coarse SAND, some Gravel, trace Silt, moist. Changing at 7.5 feet to: Gray, coarse SAND and GRAVEL, trace Silt, wet. Changing at 7.9 feet to: Black, SILT, some fine Sand, trace hair-like Fibers, wet.			
5									
6					1.5 ppm		6.3' 6.4' SAND 6.8' CONCRETE Fragments 7.5' SAND 7.9' SAND and GRAVEL 8' SILT NO RECOVERY	2	
7					1.7 ppm				
8	3	48/16	8-12			NO RECOVERY. Changing at 10.7 feet to: Dark brown and olive gray, fine to medium SAND, mottled, little Silt, moist. Changing at 11.1 feet to: Dark gray, fine to coarse SAND, little Silt, trace Gravel, wet. Changing at 11.4 feet to: Gray and brown, Silty CLAY, moist.			
9									
10					1.6 ppm				
11					1.8 ppm		11.4' 11.7' Silty CLAY 12' SAND NO RECOVERY 13.1' Silty CLAY 13.7' SAND 15.7' 16' Silty CLAY	3	
12	4	48/35	12-16			NO RECOVERY. Changing at 13.1 feet to: Gray and brown, Silty CLAY, moist. Changing at 13.7 feet to: Light gray and brown, fine to medium SAND, little Silt, trace Gravel, wet. Changing at 15.7 feet to: Light gray and brown, Silty CLAY, some fine to medium Sand, trace Gravel, moist.			
13					1.2 ppm				
14					1.5 ppm				
15					1.4 ppm				
16						Bottom of Borehole at 16.0 Feet		4	
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 11.0 to 12.0 feet below ground surface and submitted for laboratory analytical testing.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-MA-01

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-MA-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Virginia Larimore
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593830.575 N, 12804654.083 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/42	0-4		1.1 ppm	Brown, TOPSOIL, trace fine Sand, trace Organic Matter (roots), moist. Changing at 0.2 feet to: Brown, fine SAND, trace Gravel, trace Organic Matter (roots), moist. Changing at 0.8 feet to: Light brown, fine to coarse SAND, little Gravel, moist. Changing at 2.9 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 3.0 feet to: Light brown, fine to coarse SAND, little Gravel, moist. Changing at 3.3 feet to: Tan, fine to medium SAND, trace Silt, moist. Changing at 3.4 feet to: Light brown, fine to coarse SAND, little Gravel, moist. Changing at 3.5 feet to: NO RECOVERY.	0.2' TOPSOIL	1	None
1					1.1 ppm		SAND		
2					1.4 ppm				
3					1.4 ppm		3.5'		
4	2	48/20	4-8		1.4 ppm	NO RECOVERY. Changing at 6.3 feet to: Light brown, fine to coarse SAND, little Gravel, moist. Changing at 7.6 feet to: Black, SILT, trace Gravel, trace Hair-like fibers, moist.	NO RECOVERY		
5								2	
6					0.6 ppm		6.3'		
7					0.9 ppm		SAND	3	
							7.6'		
							8' SILT		
8	3	48/27	8-12			NO RECOVERY. Changing at 9.8 feet to: Dark gray, SILT, trace Organic Matter (wood), wet. Changing at 10.6 feet to: Brown, ORGANIC MATTER (wood). Changing at 11.6 feet to: Gray and brown, fine to medium SAND, little Silt, moist.	NO RECOVERY		
9					1.2 ppm				
10					4.8 ppm		9.8' SILT	4	
							10.6'		
11					3.5 ppm		ORGANIC MATTER (wood)	5	
							11.6'		
							12' SAND		
12	4	48/36	12-16			NO RECOVERY. Changing at 13.0 feet to: Gray and brown, fine to medium SAND, little Silt, moist.	NO RECOVERY		
							13'		
13					3.2 ppm		SAND		
14					4.4 ppm				
15					5.0 ppm				
16						Bottom of Borehole at 16.0 Feet	16'	6	
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Direct push refusal at 5.0 feet.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
4. Slight indistinguishable odor noted in sample.
5. Soil sample was collected from 11.0 to 12.0 feet below ground surface and submitted for laboratory analytical testing.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-MA-02

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-MA-03
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593826.875 N, 12804674.21 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	48/42	0-4		1.6 ppm	Dark brown, fine to medium SAND, some Silt, little Organic Matter (roots), moist (TOPSOIL). Changing at 0.4 feet to: Light brown, fine to medium SAND, some Gravel, little Silt, dry. Changing at 3.5 feet to: NO RECOVERY.	SAND	1	None
1					1.3 ppm				
2					0.9 ppm				
3					0.6 ppm		3.5'		
4	2	48/36	4-8			NO RECOVERY. Changing at 5.0 feet to: Brown, fine to coarse SAND, some Gravel, little Silt, moist. Changing at 7.0 feet to: Gray, fine to medium SAND, little Gravel, little Silt, wet with Concrete fragments in head.	NO RECOVERY		
5					1.5 ppm		5' SAND		
6					2.1 ppm				
7					6.1 ppm			2 3	
8	3	48/36	8-12			NO RECOVERY. Changing at 9.0 feet to: Gray, fine to medium SAND, little Gravel, little Silt, wet. Changing at 10.5 feet to: Black, PEAT, moist. Changing at 11.0 feet to: Dark gray, fine to medium SAND, little Silt, wet.	8' NO RECOVERY		
9					1.2 ppm		9' SAND	2	
10					2.6 ppm		10.5'	2	
11					2.5 ppm		11' PEAT SAND 12'	2	
12	4	48/36	12-16			NO RECOVERY. Changing at 13.0 feet to: Dark gray and brown, fine to medium SAND, little Gravel, little Silt, wet. Changing at 15.0 feet to: Gray, brown, fine to medium SAND and SILT, moist.	NO RECOVERY 13'		
13					2.4 ppm		SAND	2 3	
14					2.9 ppm		15'	2	
15					2.4 ppm		SAND and SILT 16'	2	
16						Bottom of Borehole at 16.0 Feet		4	
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Petroleum odor noted in sample.
3. Soil sample was collected from 7.0 to 8.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 13.0 to 14.0 feet below ground surface and submitted for laboratory analytical testing.
4. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-MA-03

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-MA-04
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bert Graham
Logged by: Sheryl Stephenson
Date Start/Finish: 8-6-18 / 8-6-18
Boring Location: 593822.390 N, 12804696.230 E
GS Elev.: 697.42' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	24/19	0-2	3-3 1-2	13.0 ppm 9.3 ppm	Brown, TOPSOIL, dry. Changing at 0.6 feet to: White and gray, SILT, trace Gravel, trace Organic Matter (roots), dry. Changing at 1.0 foot to: White and gray, SILT, some Silt, trace Gravel, trace Organic Matter (roots), dry. Changing at 1.6 feet to: NO RECOVERY.	TOPSOIL 0.6' SILT 1.6'	1	None
1									
2	2	24/15	2-4	3-4 3-4	13.2 ppm 12.8 ppm	NO RECOVERY. Changing at 2.8 feet to: Brown, SILT, little fine Sand, trace Gravel, trace Organic Matter (roots), dry. Changing at 3.1 feet to: Light brown and tan, fine to medium SAND, trace Gravel, moist.	NO RECOVERY 2.8' 3.1' SILT SAND 4.3'		
3									
4	3	18	4-5.5	15	6.4 ppm	Light brown and tan, fine to medium SAND, trace Gravel, moist. Changing at 4.3 feet to: CONCRETE.	CONCRETE 7'		
5									
6									
7	4	24/10	7-9	2-1 1-1		NO RECOVERY. Changing at 8.1 feet to: Black and brown, SILT, mottled, little fine Sand, trace Hair-like fibers, moist.	NO RECOVERY 8.1'		
8					5.9 ppm		SILT 9'	2	
9	5	24/9	9-11	0-0 2-1		NO RECOVERY. Changing at 10.2 feet to: Brown, SILT, mottled, trace fine Sand, trace Organic Matter, wet.	NO RECOVERY 10.2'		
10					6.4 ppm		SAND 11'	3	
11	6	24/16	11-13	3-2 2-3	13.2 ppm 11.4 ppm	NO RECOVERY. Changing at 11.7 feet to: Black and brown, SILT, little fine to coarse Sand, trace Organic Matter (wood debris), moist. Changing at 12.0 feet to: Light brown, SILT & CLAY, trace Gravel, dry.	NO RECOVERY 11.7' 12' SILT SILT & CLAY 13'		
12									
13	7	24/22	13-15	3-3 7-10	13.2 ppm 11.6 ppm	NO RECOVERY. Changing at 13.1 feet to: Light brown, SILT & CLAY, trace Gravel, dry. Changing at 14.0 feet to: Light brown, SILT & CLAY, trace Gravel, dry.	13.1' NO RECOVERY SILT & CLAY 15'		
14									
15						Bottom of Borehole at 15.0 Feet		4 5	
16									
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Soil sample was collected from 8.0 to 9.0 feet below ground surface and submitted for laboratory analytical testing.
3. Soil sample was collected from 10.0 to 11.0 feet below ground surface and submitted for laboratory analytical testing.
4. Groundwater was not encountered during drilling or upon completion.
5. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-MA-04

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SB-MA-05
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Cascade
Foreman: Mike Ledingham
Logged by: Michael Kress
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 594191.580 N, 12804585.440 E
GS Elev.: 697.52' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
1	1	48/40	0-4		0.2 ppm	Dark brown, fine to medium SAND, some Silt, trace Organic Matter (roots), moist (TOPSOIL). Changing at 0.5 feet to: Light brown, fine to coarse SAND, little Gravel, little Silt, moist. Changing at 3.1 feet to: Light gray, CONCRETE. Changing at 3.3 feet to: NO RECOVERY.	0.5' SAND (TOPSOIL) / SAND	1	None
2									
3					0.3 ppm		3' / 3.3' CONCRETE / NO RECOVERY		
4	2	48/12	4-8			NO RECOVERY. Changing at 7.0 feet to: Brown, GRAVEL and SAND, trace Silt, moist.			
5									
6									
7					0.1 ppm		7' / GRAVEL and SAND		
8	3	48/0	8-12			NO RECOVERY.	8' / NO RECOVERY		
9									
10									
11									
12	4	48/36	12-16			NO RECOVERY. Changing at 13.0 feet to: Brown, GRAVEL and SAND, trace Silt, wet. Changing 13.0 feet to: Brown, GRAVEL and SAND, trace Silt, wet. Changing at 13.5 feet to: Brown, fine to medium SAND, little Silt, wet.			
13					0.2 ppm		13' / 13.5' GRAVEL and SAND / SAND		
14					0.7 ppm				
15					0.3 ppm				
16						Bottom of Borehole at 16.0 Feet	16'	2 3	
17									
18									
19									

REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was not encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SB-MA-05

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-GW-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Jason Chrzanowski
Date Start/Finish: 6-25-18 / 6-25-18
Boring Location: 593680.893 N, 12804320.564 E
GS Elev.: 693.08' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

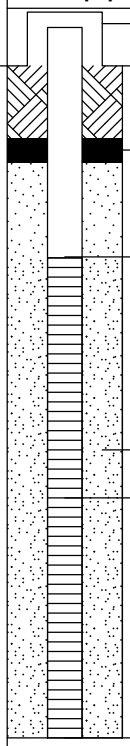
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	24/16	0-2	3-4 5-6	1.3 ppm 1.2 ppm	Loose, brown, fine to medium SAND, little Gravel, trace Silt, trace Organic Matter (grass, roots, wood), trace Concrete, dry. Changing at 1.7 feet to: NO RECOVERY.	SAND 1' NO RECOVERY	1
1								
2	2	16/8	2-3.3	7-8-50/4	0.7 ppm 2.6 ppm	Very dense, orange and brown, fine to coarse SAND, little Silt, trace Organic Matter (ash and roots), dry. Changing at 3.0 feet to: Crushed CONCRETE. Changing at 3.7 feet to: NO RECOVERY.	2' SAND 3' CONCRETE	
3								
4	3	24/4	4-6	50/4	0.7 ppm 1.7 ppm	Very dense, dark gray, fine to coarse SAND, some Silt, some Concrete fragments, wet. Changing at 4.7 feet to: NO RECOVERY (Gray, fine SAND, dry from 5.0 to 9.0 feet).	4' SAND 4.3' NO RECOVERY	2
5								
6	4	24/0	6-8	1-1 1-1		NO RECOVERY.		3 4
7								
8						Bottom of Borehole at 8.0 Feet	8'	5 6
9								
10								
11								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Auger flights had wet, dark gray "muck" (silt and sand) when retracting.
3. Stearns Drilling used "sand bailer" to clear Hollow Stem Auger casing approximately 1/8 to 1/4 of 5 gallon bucket with dark gray, fine Sand, wet.
4. Per note 3 and no recovery, Sand stratum is estimated from sand bailer recovery.
5. Groundwater was not encountered during drilling or upon completion.
6. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-GW-01

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-GW-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bryan Marshall
Logged by: Jason Chrzanowski
Date Start/Finish: 6-27-18 / 6-27-18
Boring Location: 594108.198 N, 12804703.186 E
GS Elev.: 694.96' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

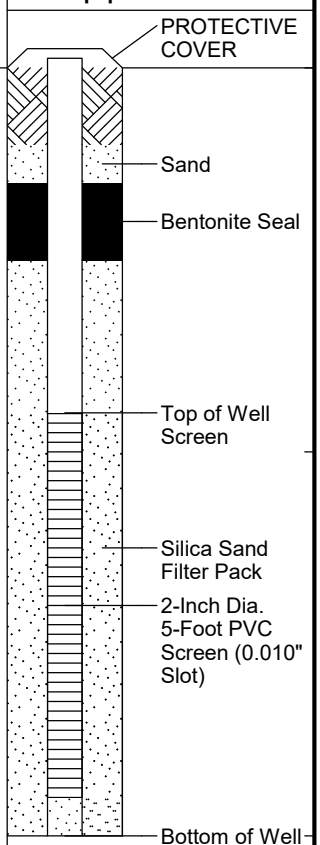
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	24/20	0-2	7-7 5-7	0.1 ppm 6.6 ppm	Medium dense, dark brown to black, fine to coarse SAND, some Ash, some Cinders and Coal fragments, little Gravel. Changing at 1.3 feet to: Brown, fine SAND, little Silt, trace Gravel. Changing at 1.7 feet to: NO RECOVERY.	SAND	1
1					0.3 ppm		1.3' NO RECOVERY	
2	2	24/18	2-4	2-3 3-3	0.2 ppm	Loose, brown and orange brown, fine to medium SAND, little Silt, trace Gravel. Changing at 2.8 feet to: NO RECOVERY.	2' SAND	
3					0.1 ppm		2.8' NO RECOVERY	
4	3	24/21	4-6	2-3 3-4	0.1 ppm	Loose, brown, fine to medium SAND, some Clayey Silt, moist to wet. Changing at 4.4 feet to: Medium stiff, brown, Silty CLAY, moist.	4' 4.3' SAND Silty CLAY	
5					0.2 ppm			
6	4	24/24	6-8	3-5 8-11	0.1 ppm	Stiff, brown and tan, Silty CLAY, mottled, trace Gravel.		
7					0.2 ppm			
8	5	24/24	8-10	4-7 11-22	0.3 ppm	Stiff, brown and tan, Silty CLAY, mottled, trace Gravel. 9.8 feet to: Brown, fine SAND, little Silt, wet.		
9							9.5' Silty SAND	
10	6	24/20	10-12	3-8 15-14	0.3 ppm	Very stiff, tan, SILT & CLAY, little fine Sand, wet. Changing at 11.2 feet to: Tan, fine SAND, trace Silt, trace Gravel, wet. Changing at 11.6 feet to: Light brown, Silty CLAY, trace fine Sand, trace Gravel, dry.	10' SILT & CLAY	
11					0.3 ppm		11' 11.2' Silty SAND Silty CLAY	
12						Bottom of Borehole at 12.0 Feet	12'	2 3
13								
14								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was not encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-GW-02

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-GW-04
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bryan Marshall
Logged by: Jason Chrzanowski
Date Start/Finish: 6-26-18 / 6-26-18
Boring Location: 593631.665 N, 12804548.457 E
GS Elev.: 695.37' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

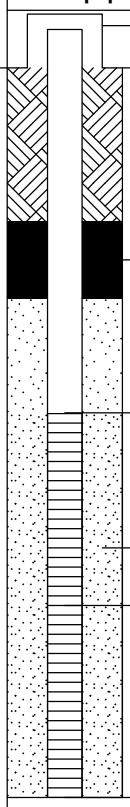
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	24/18	0-2	4-13 14-10	0.1 ppm	Medium dense, light brown, fine to medium SAND, trace Gravel, trae Organic Matter (grass and roots). Changing at 0.5 feet to: Medium dense, tan, fine to medium SAND, trace Gravel, trace Organic Matter (ash), dry. Changing at 1.0 foot to: Medium dense, brown and gray to dark brown, fine to medium SAND, little Organic Matter (ash), little Cinder, trae Gravel, trace Concrete, dry.	SAND 0.5' (TOPSOIL) SAND (FILL)	1
1					0.3 ppm			
2	2	24/10	2-4	18-6 3-3	0.3 ppm			
3								
4	3	24/21	4-6	3-1 1-3	0.3 ppm	Medium dense, CONCRETE chips and orange and brown, fine to coarse SAND, trace Gravel, trace Cinders, trace Organic Matter (ash). Changing at 2.8 feet to: NO RECOVERY.		
5					0.3 ppm	Very loose, brown, fine to medium SAND, little Clayey Silt, trace Concrete, trace Organic Matter (ash), moist to wet. Changing at 4.8 feet to: NO RECOVERY.	4.8' 5' NO RECOVERY SILT & CLAY	
6	4	24/23	6-8	1-1 1-2	0.3 ppm	Changing at 5.0 feet to: Soft, brown grading to orange and brown, SILT & CLAY, little fine to medium Sand, trace Gravel.	5.8' SILT	
7						Changing at 5.8 feet to: Soft, orange and brown, Clayey SILT, little fine to medium Sand.	7' CLAY & SILT	
8	5	24/18	8-10	3-7 9-11	0.1 ppm	Soft, light brown, Clayey SILT, little fine to medium Sand, trace Gravel, wet. Changing at 6.1 feet to: Soft, light brown, CLAY & SILT, wet.		
9					0.2 ppm	Loose, orange and brown, fine to medium SAND and Clayey SILT, little Gravel, wet. Changing at 9.0 feet to: Very stiff, brown and brown gray, CLAY & SILT, trace fine Sand, trace Gravel, wet. Changing at 9.5 feet to: NO RECOVERY.		
10						Bottom of Borehole at 10.0 Feet	10'	2 3
11								
12								
13								
14								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was not encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-GW-04

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-GW-05
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bryan Marshall
Logged by: Jason Chrzanowski
Date Start/Finish: 6-28-18 / 6-28-18
Boring Location: 594191.562 N, 12,804585.429 E
GS Elev.: 695.43' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

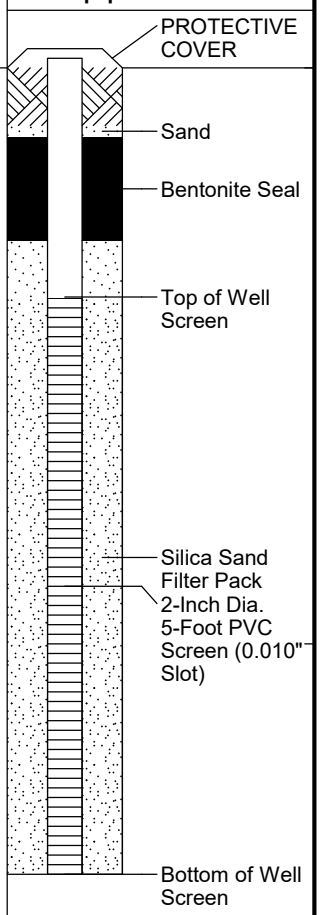
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	24/17	0-2	3-4 7-5	0.2 ppm 0.2 ppm	Medium dense, brown, fine to medium SAND, little Gravel, trace Organic Matter (roots), dry. Changing at 0.6 feet to: Dark brown and black, fine to medium SAND, some Ash, some Cinders, trace Coal fragments, trace Gravel. Changing at 1.6 feet to: NO RECOVERY.	SAND (TOPSOIL) 0.6' SAND (FILL) 1.8'	1
1								
2	2	24/15	2-4	3-3 2-1	0.1 ppm 0.1 ppm	Loose, black, medium to coarse SAND and ASH/CINDERS, trace Gravel, dry. Changing at 3.2 feet to: Loose, black, medium to coarse SAND and ASH/CINDERS, trace Gravel, moist. Changing at 3.8 feet to: NO RECOVERY.	2' NO RECOVERY SAND and ASH/CINCERS (FILL) 4'	
3								
4	3	24/14	4-6	1-1 2-12	0.1 ppm 0.2 ppm	Very loose, dark gray, medium to coarse SAND, trace Clinker, trace Gravel, wet. Changing at 4.4 feet to: NO RECOVERY. Changing at 5.0 feet to: Dark gray, Organic Clayey SILT, trace fine to medium Sand, trace Gravel. Changing at 5.8 feet to: NO RECOVERY.	SAND (FILL) 5' 5.2' Clayey SILT NO RECOVERY 6'	
5								
6	4	24/19	6-8	1-2 1-4	0.1 ppm 0.1 ppm	Gray, fine to coarse SAND and GRAVEL, little Silt, wet. Changin gat 6.8 feet to: NO RECOVERY. Changing at 7.0 feet to: Soft, gray and tan, Silty CLAY, trace Gravel, wet becoming moist to dry.	SAND and GRAVEL 7' Silty CLAY 8'	
7								
8						Bottom of Borehole at 8.0 Feet		2 3
9								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was not encountered during drilling or upon completion.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-GW-05

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-GW-06
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bryan Marshall
Logged by: Jason Chrzanowski
Date Start/Finish: 6-26-18 / 6-26-18
Boring Location: 593894.354 N, 12,804383.200 E
GS Elev.: 693.42' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

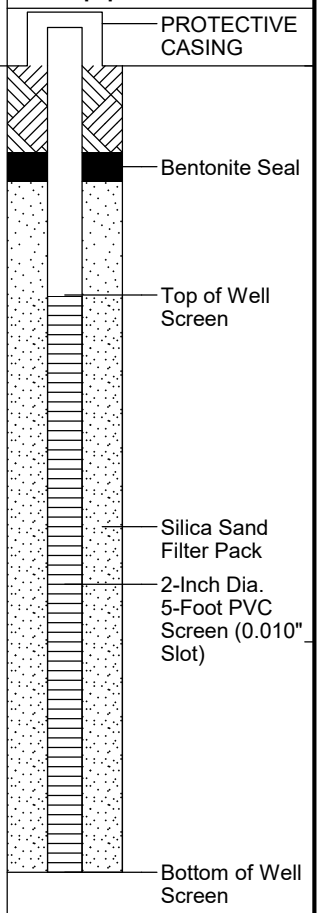
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	24/19	0-2	5-9 9-8	0.5 ppm 10.6 ppm	Medium dense, brown, fine to medium SAND, little Silt, little Organic Matter (roots), dry (TOPSOIL). Changing at 0.5 feet to: Medium dense, light brown, fine to coarse SAND, little Gravel, dry. Changing at 1.0 foot to: Medium dense, dark brown to gray, fine to coarse SAND, some Ash, little Gravel, dry. Changing at 1.6 feet to: NO RECOVERY.	SAND (TOPSOIL) 0.5' SAND (FILL) 1.4' NO RECOVERY 2'	1 2
1								
2	2	24/17	2-4	5-8 9-3	2.5 ppm 7.6 ppm	Medium dense, dark gray, medium to coarse SAND and SILT, trace Ash, trace Gravel, wet. Changing at 3.0 feet to: Medium dense, dark gray, fine to coarse SAND and GRAVEL, wet. Changing at 3.6 feet to: NO RECOVERY.	SAND and SILT 3.4' SAND and GRAVEL 3.6' NO RECOVERY 4'	3 4 5
3								
4	3	24/17	4-6	2-1 1-2	5.0 ppm 0.5 ppm	Very loose, dark gray, fine to medium SAND, some Silt, trace Gravel, wet. Changing at 4.5 feet to: Very loose, dark gray, SAND and SILT, trace Peat figers, wet. Changing at 5.0 feet to: Very loose, dark gray, fine SAND and SILT, trace Peat fibers, wet. Changing at 5.6 feet to: NO RECOVERY.	SAND 4.5' SAND and SILT 5.4' NO RECOVERY 6'	
5								
6	4	24/15	6-8	WR-1 1-4	0.4 ppm 0.2 ppm	Very loose, dark gray, fine to medium SAND, little Silt, wet. Changing at 6.8 feet to: NO RECOVERY. Changing at 7.0 feet to: Very loose, dark gray, fine SAND and Silt with interbedded lenses alternating, wet. Changing at 7.6 feet to: NO RECOVERY.	SAND 6.7' NO RECOVERY 7' SAND and SILT 7.6' NO RECOVERY 8'	6 7
7								
8						Bottom of Borehole at 8.0 Feet		
9								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.6 ppm.
2. Petroleum odor noted in sample.
3. Sheen and petroleum odor noted in sample.
4. Groundwater was encountered at approximately 2.0 feet below ground surface.
5. Sheen and petroleum odor noted in sample.
6. Groundwater was not encountered during drilling or upon completion.
7. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-GW-06

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-GW-07
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bryan Marshall
Logged by: Jason Chrzanowski
Date Start/Finish: 6-26-18 / 6-26-18
Boring Location: 593536.772 N, 12804480.244 E
GS Elev.: 694.12' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

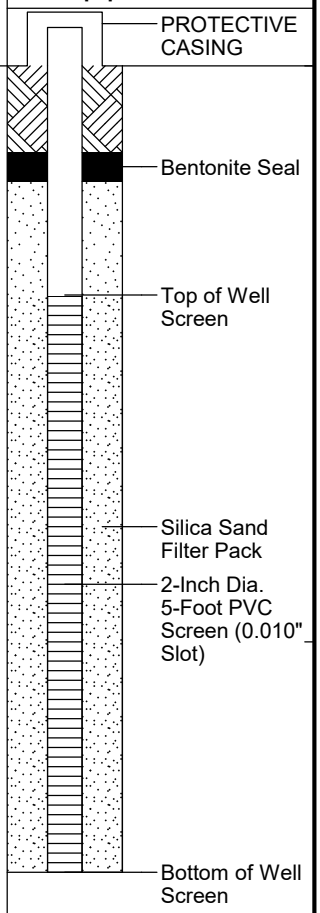
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	24/15	0-2	4-3 5-8	0.4 ppm	Loose, light brown, fine to coarse SAND, little Gravel, trace Organic Matter (grass and roots), dry. Changing at 0.5 feet to: Loose, tan, fine to medium SAND, trace Gravel, dry. Changing at 1.0 foot to: Loose, brown, fine SAND, trace Gravel, moist. Changing at 1.2 feet to: NO RECOVERY.	SAND (TOPSOIL) 0.5' SAND (FILL) 1.2' NO RECOVERY 2'	1
1								
2	2	24/17	2-4	3-3 5-3	0.1 ppm	Loose, light brown to brown, fine to medium SAND, trace Silt, trace Gravel, moist. Changing at 2.5 feet to: NO RECOVERY. Changing at 3.0 feet to: Loose, brown and gray, fine SAND, little Silt, trace Gravel, wet. Changing at 3.9 feet to: Stiff, gray, SILT and CLAY, wet.	SAND 2.5' NO RECOVERY 3' SAND 3.9'	2
3								
4	3	24/20	4-6	2-2 1-1	0.2 ppm	Loose, gray, SAND and SILT, trace Gravel, wet. Changing at 5.6 feet to: Soft, dark brown, SILT and CLAY, some Organic Matter (peat and wood), wet. Changing at 5.7 feet to: NO RECOVERY.	4' SILT & CLAY SAND and SILT 5' SILT & CLAY 5.6'	
5					0.9 ppm			
6	4	24/14	6-8	2-8 4-7	0.2 ppm	Medium dense, gray, fine to medium SAND, trace Silt, trace Sedges, trace Gravel, trace Organic Matter (wood), wet. Changing at 6.2 feet to: Soft, gray, SILT & CLAY, wet. Changing at 7.0 feet to: Loose, light brown, fine SAND, wet. Changing at 7.1 feet to: NO RECOVERY.	NO RECOVERY 6' 6.2' SAND SILT & CLAY 8'	
7					0.2 ppm			
8						Bottom of Borehole at 8.0 Feet		3
9								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.4 ppm.
2. Groundwater was encountered at approximately 3.0 feet below ground surface.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-GW-07

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-GW-08
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bryan Marshall
Logged by: Jason Chrzanowski
Date Start/Finish: 6-26-18 / 6-26-18
Boring Location: 593305.111 N, 12804451.084 E
GS Elev.: 694.29' **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

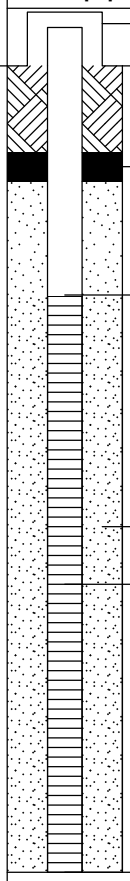
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	24/23	0-2	4-13 11-11	0.1 ppm 0.2 ppm	Medium dense, light brown to light tan, fine to coarse SAND, little Gravel, trace Organic Matter (grass, roots), dry. Changing at 1.0 foot to: Medium dense, brown and orange-brown, fine to coarse SAND, little Gravel, trace Silt, trace Ash, dry.	SAND (TOPSOIL) 1' SAND (FILL)	1
1								
2	2	24/17	2-4	2-1 3-3	0.5 ppm 0.4 ppm	Loose, dark brown, SAND and SILT, moist to wet. Changing at 3.0 feet to: Loose, light brown and tan, fine to medium SAND, little Gravel, little Silt, wet. Changing at 3.4 feet to: NO RECOVERY.	1.9' 2' NO RECOVERY SAND and SILT 3' SAND 3.4' NO RECOVERY	2
3								
4	3	24/23	4-6	3-2 1-1	0.3 ppm 0.5 ppm	Loose, gray, fine to medium SAND, little Gravel, wet. Changing at 5.5 feet to: Loose, dark gray, Organic SILT, some Organic Matter (peat fiber, wood chunks), trace fine to medium Sand, wet. Changing at 5.9 feet to: NO RECOVERY.	4' SAND 5.4' Organic SILT 5.9'	
5								
6	4	24/17	6-8	2-1 2-10	0.5 ppm 0.4 ppm	Soft, dark gray, Organic SILT, little Organic Matter (peat fibers, wood), wet. Changing at 6.8 feet to: NO RECOVERY. Changing at 7.0 feet to: Very loose, gray grading to tan, fine to coarse SAND and GRAVEL, little Silt, wet. Changing at 7.6 feet to: NO RECOVERY.	6' NO RECOVERY Organic SILT 6.8' 7' NO RECOVERY SAND 7.6' NO RECOVERY 8'	
7								
8						Bottom of Borehole at 8.0 Feet		3
9								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.2 ppm.
2. Groundwater was encountered at approximately 3.0 feet below ground surface.
3. Borehole was backfilled with bentonite chips upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-GW-08

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-GW-09
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Bert Graham
Logged by: Sheryl Stephenson
Date Start/Finish: 8-7-18 / 8-7-18
Boring Location: 594316.151 N, 12804,667.618 E
GS Elev.: 696.59' **Datum:**

	Auger/ Casing	Sampler
Type:	Hollow Stem Auger	Split Spoon
O.D. / I.D.:	7 5/8" / 4.25"	NA
Hammer Wt.:	Auto	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

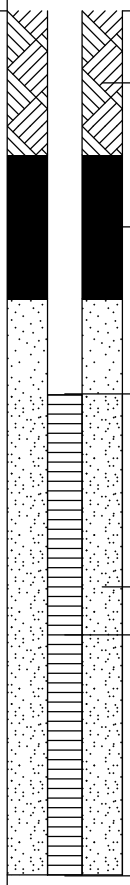
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
1								1
2								
3	1	24/3	3-5	11-14 6-5		NO RECOVERY. Changing at 4.8 feet to: Brown, SILT, trace Sand, trace Glass, trace Organic Matter (wood).	NO RECOVERY	
4								
5	2	24/17	5-7	4-2 1-4		NO RECOVERY. Changing at 5.6 feet to: Brown, SILT, trace Sand, trace to little Glass, trace Organic Matter (wood).	4.8' 5' SILT; NO RECOVERY; 5.6' SILT	
6							6.5' SAND	
7	3	24/20	7-9	3-5 5-5		NO RECOVERY. Changing at 7.3 feet to: Light brown, SILT & CLAY, trace fine Sand, trace Gravel, moist.	7' 7.3' NO RECOVERY; SILT & CLAY	
8								
9						Bottom of Borehole at 9.0 Feet	9'	
10								
11								

Equipment Installed



REMARKS

1. Advanced Hand Auger to 3.0 feet below ground surface and began sampling.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-GW-09

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 10_16_18.GPJ GZA_CORP.GDT 10/23/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-01
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Shachaf Boaz
Date Start/Finish: 7-16-18 / 7-16-18
Boring Location: 594476.027 N, 12804860.232 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

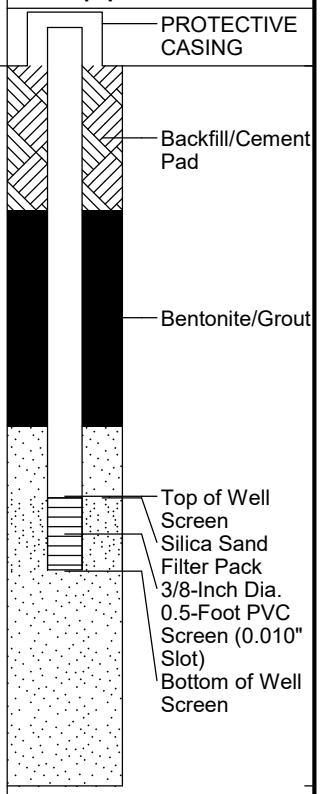
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/32	0-5			Brown, fine to coarse SAND and SILT, some Gravel, moist. Changing at 0.8 feet to: Brown, fine to coarse SAND, trace Silt, moist. Changing at 1.9 feet to: Tan, fine to medium SAND, moist. Changing at 2.7 feet to: NO RECOVERY.	SAND and SILT; 0.8' SAND; 2.7' NO RECOVERY; 5'	
5						Bottom of Borehole at 5.0 Feet		1 2

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 5.0 feet below ground surface.
2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 3.0 to 3.5 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-01

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-02
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Shachaf Boaz
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location: 594428.391 N, 12804928.851 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

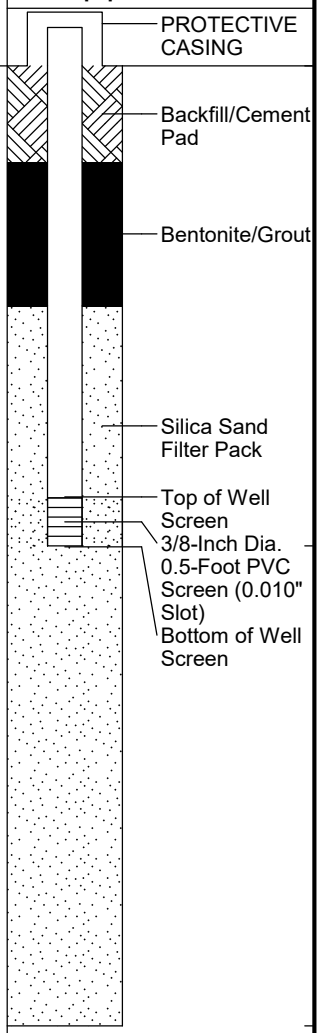
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/30	0-5			GRASS and GRAVEL (FILL). Changing at 0.8 feet to: Dark brown, fine to medium SAND, some Silt. Changing at 1.8 feet to: Tan, fine to medium SAND, trace Silt. Changing at 2.5 feet to: NO RECOVERY.	GRASS and GRAVEL (FILL) 0.8' SAND	
1								
2								
3								
4								
5	2	60/20	5-10			Dark, brown, fine to coarse SAND and SILT, wet. Changing at 5.8 feet to: Fine to coarse SAND and GRAVEL. Changing at 6.6 feet to: NO RECOVERY.	5' SAND and SILT 5.8' SAND and GRAVEL 6.6' NO RECOVERY	
6								
7								
8								
9								
10						Bottom of Borehole at 10.0 Feet	10'	1 2
11								

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 5.0 feet below ground surface.
2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 4.5 to 5.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-02

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-03
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Shachaf Boaz
Date Start/Finish: 7-18-18 / 7-18-18
Boring Location: 594339.51 N, 12804880.528 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

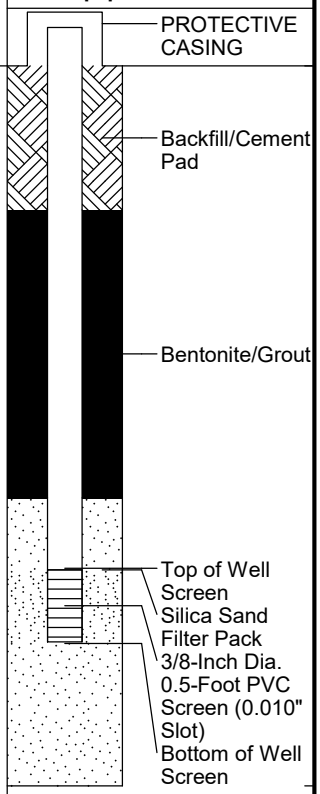
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/34	0-5			Dark brown, fine to coarse SAND and SILT, trace Gravel, trace Coal Residue. Changing at 2.0 feet to: Tan, fine to coarse SAND, trace Gravel, moist. Changing at 3.0 feet to: NO RECOVERY.	SAND and SILT	
1								
2							2' SAND	
3							3' NO RECOVERY	
4								1
5						Bottom of Borehole at 5.0 Feet	5'	2
6								
7								

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 4.5 feet below ground surface.
2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 3.0 to 3.5 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-03

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-04
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Shachef Boaz
Date Start/Finish: 7-17-18 / 7-17-18
Boring Location: 594118.909 N, 12804705.876 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	1	60/40	0-5			Black, SAND and SILT, Coal residue. Changing at 0.8 feet to: Dark brown, CLAY and SAND. Changing at 1.2 feet to: Brown, SAND and SILT, trace Clay. Changing at 1.8 feet to: Brown, CLAY, moist. Changing at 3.3 feet to: NO RECOVERY.	SAND and SILT (0.8') / CLAY and SAND (1.2') / SAND and SILT (1.8') / CLAY (3.3') / NO RECOVERY (5')	1	None
5						Bottom of Borehole at 5.0 Feet		2 3	

REMARKS

1. Groundwater was not encountered during drilling or upon completion.
2. TA-SG-04 was relocated inside the courtyard of the building. See TA-SG-04(2) for additional descriptions.
3. Borehole was backfilled with original soil upon completion.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-04

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-04(2)
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Mike Ledingham
Logged by: Keith Hedinger
Date Start/Finish: 8-3-18 / 8-3-18
Boring Location: 594118.909 N, 12804705.876 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	Hand Auger
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

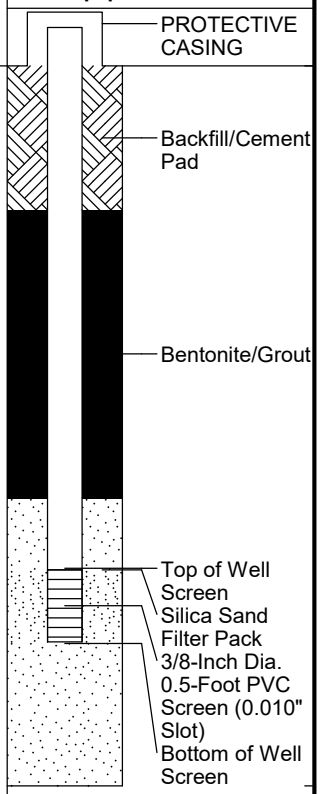
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/60	0-5		0.2 ppm	Dark brown, SILT, some fine to medium Sand, trace Organic Matter (roots), moist. Changing at 1.0 foot to: Brown and black, fine to medium SAND, some Silt, trace Organic Matter (roots). Changing at 2.0 feet to: Brown, medium SAND, trace Silt, trace Gravel, moist. Changing at 4.0 feet to: Gray and brown, fine to medium SAND, trace Silt, moist.	SILT	1
1					0.1 ppm		1' SAND	
2					0.0 ppm			
3					0.3 ppm			
4					0.0 ppm			
5						Bottom of Borehole at 5.0 Feet	5'	2 3
6								
7								

Equipment Installed



REMARKS

1. Field screening of samples for organic vapors was performed with a MiniRae 2000 photoionization detector equipped with a 10.6 eV lamp. Readings are shown in parts per million (ppm) of isobutylene. Background was measured at 0.0 ppm.
2. Groundwater was encountered at approximately 4.8 feet below ground surface.
3. Monitoring well was installed in borehole upon completion. Well screen set from approximately 3.5 to 4.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-04(2)

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-05
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Shachef Boaz
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593991.752 N, 12804864.014 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

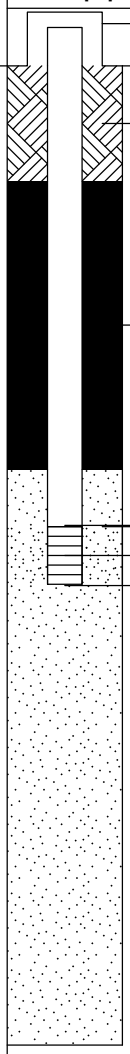
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/30	0-5			Brown, fine to medium SAND and SILT, dry. Changing at 0.5 feet to: Tan, fine to medium SAND, moist. Changing at 1.5 feet to: GRAVEL and CONCRETE. Changing at 2.1 feet to: Fine to medium SAND and SILT, Coal residue. Changing at 2.5 feet to: NO RECOVERY.	SAND and SILT (0.5')	
1							SAND (1.5')	
							GRAVEL and CONCRETE (2.1')	
2							SAND and SILT (2.5')	
							NO RECOVERY	
3								
4								
5	2	42/18	5-8.5			Black, fine to medium SAND and SILT, Coal residue. Changing at 5.5 feet to: Black, fine to coarse SAND and SILT, some Gravel, Coal residue. Changing at 6.0 feet to: Brown, GRAVEL. Changing at 6.5 feet to: NO RECOVERY.	SAND and SILT (5')	
6							GRAVEL (6')	
							NO RECOVERY (6.5')	1
7								
8							(8.5')	2
						Bottom of Borehole at 8.5 Feet		3
9								

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 6.5 feet below ground surface.
2. Refusal at 8.5 feet due to concrete.
3. Monitoring well was installed in borehole upon completion. Well screen set from approximately 4.0 to 4.5 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-05

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-06
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Shachef Boaz
Date Start/Finish: 7-19-18 / 7-19-18
Boring Location: 593604.079 N, 12804613.217 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

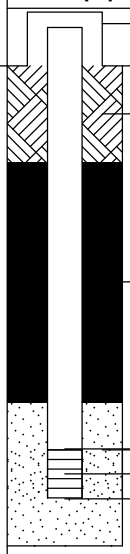
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/48	0-5			Brown, SAND and SILT, dry. Changing at 2.0 feet to: GRAVEL, Coal residue. Changing at 3.0 feet to: Brown, SAND, moist. Changing at 4.0 to: NO RECOVERY.	SAND and SILT	
1								
2							2' GRAVEL	
3							3' SAND	
4							4' NO RECOVERY	
5	2	60/60	5-10			Brown, SAND, wet. Changing at 8.0 feet to: Dark brown, SAND and CLAY, wet.	5' SAND	1
6								
7								
8							8' SAND and CLAY	
9								
10						Bottom of Borehole at 10.0 Feet	10'	2
11								

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 5.0 feet below ground surface.
2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 4.0 to 4.5 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-06

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-07
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Andrew Martin
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593195.633 N, 12804633.966 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

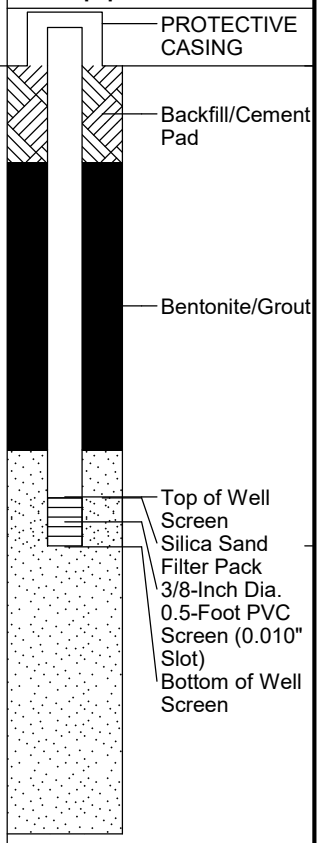
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/30	0-5			Brown, TOPSOIL, dry. Changing at 0.5 feet to: Black, fine to coarse SAND, trace Gravel. Changing at 1.5 feet to: Brown, fine to medium SAND, trace Silt, moist. Changing at 2.0 feet to: Brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 2.5 feet to: NO RECOVERY.	TOPSOIL 0.5' SAND	
1								
2								
3								
4								
5	2	60/60	5-10			Brown, fine to coarse SAND, trace Silt, moist. Changing at 5.5 feet to: Dark brown, fine SAND, some Silt, moist. Changing at 6.0 feet to: Brown, fine SAND, some Silt and Clay, moist. Changing at 6.0 feet to: Brown, fine SAND, some Silt and Clay, wet. Changing at 7.0 feet to: Brown, fine SAND, some Silt and Clay, wet.		1
6								
7								
8								
9								
10						Bottom of Borehole at 10.0 Feet	10'	2 3
11								

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 6.0 feet below ground surface.
2. Borehole collapsed to 8.0 feet at end of boring. Well installed to 8.0 feet below ground surface.
3. Monitoring well was installed in borehole upon completion. Well screen set from approximately 4.5 to 5.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-07

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-08
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Andrew Martin
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593195.247 N, 12804696.913 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

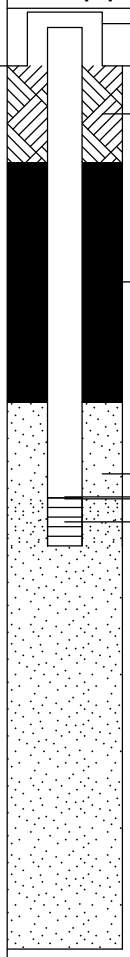
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample Information: No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
	1	60/36	0-5			Dark brown, TOPSOIL, dry. Changing at 0.3 feet to: Brown, fine to medium SAND, dry. Changing at 0.8 feet to: Dark brown, fine to medium SAND, trace Silt. Changing at 1.5 feet to: Brown, fine to medium SAND, trace Silt, moist. Changing at 2.3 feet to: Brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 3.0 feet to: NO RECOVERY.	0.3' TOPSOIL; SAND; 3' NO RECOVERY	
1								
2								
3								
4								
5	2	60/50	5-10			Gray and brown, fine to medium SAND, little Silt, little Gravel, moist. Changing at 5.7 feet to: Gray and brown, fine to medium SAND, little Silt, moist. Changing at 6.3 feet to: Brown, fine SAND, little Silt. Changing at 6.7 feet to: Brown, SILT, some fine Sand, trace Gravel, wet. Changing at 9.2 feet to: NO RECOVERY.	5'	1
6								
7								
8								
9								
10						Bottom of Borehole at 10.0 Feet		2 3
11								

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 6.0 feet below ground surface.
2. Borehole collapsed to 9.2 feet at end of boring. Well installed to 9.2 feet below ground surface.
3. Monitoring well was installed in borehole upon completion. Well screen set from approximately 4.5 to 5.0 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-08

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-09
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Andrew Martin
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593178.351 N, 12804827.135 E
GS Elev.: _____ **Datum:** _____

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

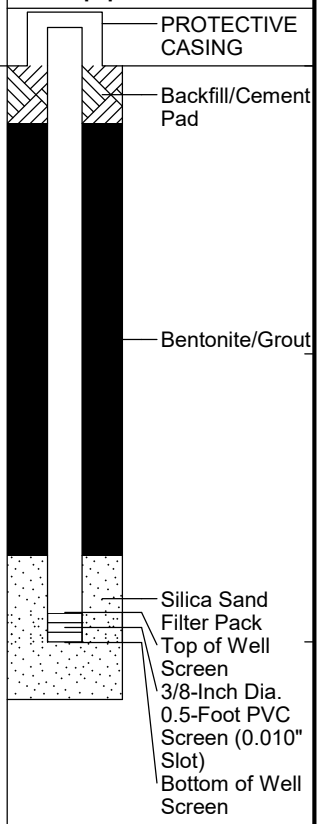
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: _____ **Survey Date:** _____

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
0–1	1	60/27	0-5			Brown, TOPSOIL, dry. Changing at 0.5 feet to: Light brown, fine to medium SAND, moist. Changing at 1.8 feet to: Brown, fine to medium SAND, little Gravel, little Silt, moist. Changing at 2.3 feet to: NO RECOVERY.	0.5' TOPSOIL; SAND; 2.3' NO RECOVERY	
5–8	2	60/40	5-10			Brown, fine to medium SAND, moist. Changing at 5.8 feet to: Brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 7.4 feet to: Light brown, fine to coarse SAND, trace Gravel, moist. Changing at 7.9 feet to: Light brown, fine to coarse SAND, little Gravel, trace Silt, moist. Changing at 8.3 feet to: NO RECOVERY.	5' SAND; 8.3' NO RECOVERY	
10–14	3	60/43	10-15			Brown, fine to coarse SAND, trace Gravel, moist. Changing at 11.2 feet to: Orange and brown, fine to coarse SAND, trace Silt, moist. Changing at 11.6 feet to: Brown, fine to coarse SAND, trace Gravel, trace Silt, wet. Changing at 12.5 feet to: Brown, fine to coarse SAND, some Gravel, trace Silt, wet. Changing at 13.6 feet to: NO RECOVERY.	10' SAND; 13.6' NO RECOVERY; 15'	1
15						Bottom of Borehole at 15.0 Feet		2

Equipment Installed



REMARKS

1. Groundwater was encountered at approximately 11.5 feet below ground surface.
2. Monitoring well was installed in borehole upon completion. Well screen set from approximately 9.5 to 10 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-09

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.
Former Tannery
Rockford, Michigan

Boring No.: TA-SG-10
Page: 1 **of** 1
File No.: 16.0062335.02
Check: John Morehouse

Contractor: Stearns Drilling Company
Foreman: Jim Gryska
Logged by: Andrew Martin
Date Start/Finish: 7-25-18 / 7-25-18
Boring Location: 593441.494 N, 12804859.802 E
GS Elev.: **Datum:**

	Auger/ Casing	Sampler
Type:	Direct Push	GeoProbe
O.D. / I.D.:	NA	NA
Hammer Wt.:	NA	NA
Hammer Fall:	NA	NA
TOC Elev.:	NA	NA

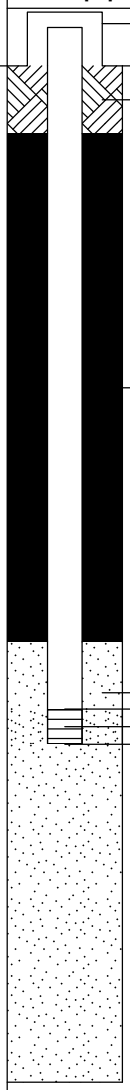
GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Surveyed By: **Survey Date:**

Depth	Sample No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data	Sample Description & Classification	Stratum Desc.	Remarks
0–3	1	60/40	0-5			Brown, TOPSOIL, dry. Changing at 0.1 feet to: Light brown, fine SAND, dry. Changing at 0.7 feet to: Brown, fine SAND, trace Gravel, dry. Changing at 1.0 feet to: Brown, fine SAND, dry. Changing at 2.0 feet to: Brown, fine to medium SAND, trace Gravel, dry. Changing at 3.3 feet to: NO RECOVERY.	0.1' TOPSOIL; SAND; 3.3' NO RECOVERY	
5–8	2	60/42	5-10			Brown, fine to medium SAND, dry. Changing at 5.5 feet to: Light brown, fine SAND, dry. Changing at 6.0 feet to: Light brown, fine to coarse SAND, little Gravel, dry. Changing at 7.7 feet to: Brown, CLAY, some fine to coarse Sand, dry. Changing at 8.0 feet to: Brown, fine to medium SAND, little Gravel, dry. Changing at 8.5 feet to: NO RECOVERY.	5' SAND; 7.7' 8' CLAY; SAND; 8.5' NO RECOVERY	
10–15	3	60/10	10-15			Light brown, fine to medium SAND, little Gravel, dry. Changing at 10.8 feet to: NO RECOVERY.	10' SAND; 10.8' NO RECOVERY; 15'	1
15–16						Bottom of Borehole at 15.0 Feet		2 3

Equipment Installed



REMARKS

1. Borehole collapsed at 11.0 feet.
2. Groundwater was not encountered during drilling or upon completion.
3. Monitoring well was installed in borehole upon completion. Well screen set from approximately 9.5 to 10 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: TA-SG-10

BORING_WELL_6233502 WWW FORMER TANNERY ROCKFORD 9_19_18.GPJ GZA_CORP.GDT 10/9/18

Appendix B – Sediment Core Logs

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc. 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504	Client:	Wolverine World Wide	TA-SED-BOAT RAMP
	Project:	Tannery	SHEET 1 of 1
	City, State:	Rockford, MI	GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593172.258	E 12804382.942	
FOREMAN:	Jeff Greene			DATUM	NAD83
GZA Oversight	Alan Welch	FINAL CORE PENETRATION (FT)	3.6	CORE RECOVERY (FT)	1.9
GZA Processor	Sheryl Stephenson				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018-06-29	15:59	1.9'			2.2	
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.2	(0-1) Black SILT and ORGANICS, Trace Wood Debris, Trace Gravel,	(0-1) Sampled at 1324. Split with EPA
					Trace Leafy Debris, very moist	
	2	1-1.9	1-1.9		Same As Above	(1-1.9) Sampled at 1342

REMARKS:

Processor Initials SIS

EXPLORATION NO. TA-SED-BOAT RAMP

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-RC-1
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593951.769	E 12804438.297	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	4'	CORE RECOVERY (FT)	2.7'
GZA Processor	Sheryl Stephenson				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018-06-18	12:07	1.3'			3'	
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.7	(0-1) Mottled Brown-Gray Fine to Medium SAND, Trace Silt, medium moisture	(0-1) Sampled at 0945
1	2	1-1.2		0.6	(1-1.2) Same As Above	Core cut at 1.1'
	3	1.2-2.2	1.2-2.2	0.2	(1.2-1.8) Gray Fine to Coarse SAND, Little Gravel, Trace Silt, medium moisture	(1.2-2.2) sampled at 1000
					(1.8-2.0) Brown SILT, Trace to Little Sand, medium moisture	(1.8-2.2) Very compact and hard.
2						
	4	2.2-2.7		0.1	(2.0-2.2) Same As Above	
					(2.2-2.4) Brown Fine SAND, Little Silt, Trace Shells, Trace Gravel, medium moisture	
					(2.4-2.7) Brown SILT and ORGANICS, Trace Sand, Trace Wood Debris	
					medium to very moist	

REMARKS:
SAA = Same As Above

Processor Initials SIS

EXPLORATION NO. TA-SED-RC-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-RC-2
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	593919.947	12804573.759	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	5.3'	CORE RECOVERY (FT)	3'
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLING METHOD		SAMPLER O.D.: 3 in	DATE	TIME	WATER DEPTH	WATER ELEV		2.6'	
	Vibracore	SAMPLER LENGTH: 8 ft	2018-06-18	12:27	1.6'	NA			

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	1.8	(0-0.5) Gray-Light Brown, Fine to Medium SAND, medium moisture	(0-1) Sampled at 1043. Split with EPA
					(0.5-0.9) Brown SILT and ORGANICS, Trace Leafy Debris, med to very moist	
					(0.9-1.0) Brown SILT and ORGANICS, Little Gravel, Trace Leafy Debris,	
					medium to very moist	
1	2	1-2	1-2	0.8	(1-1.1) Brown SILT and ORGANICS, Tr Gravel, Tr Leafy Debris, med to v moist	(1-2) Sampled at 1116
					(1.1-1.2) Brown SILT and ORGANICS, Trace Wood Debris, medium to very moist	
					(1.2-2) Brown SILT, Trace Fine Sand, Trace Wood Debris, Trace Silt, med moist	
2	3	2-3	2-3	0.6	(2-2.2) Brown, Fine SAND, Trace Silt, medium moisture	(2-3) Sampled at 1128
					(2.2-3) Brown-Black SILT, Trace Fine Sand, Trace Wood Debris,	
					medium to low moisture	

REMARKS:
SAA = Same As Above

Processor Initials	SIS
EXPLORATION NO.	TA-SED-RC-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-RC-3
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	593890.511	12804995.464	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	0.4	CORE RECOVERY (FT)	0.4
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
DATE	TIME	WATER DEPTH	WATER ELEV			
2018-06-18	13:46	0.8				

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-0.4	0-0.4	0.2	(0-0.4) Light brown, Fine to Med SAND, trace leafy debris, med moist, trace (-) gravel	Penetrated > 1.5ft each time. Only able to recover <6in per sample.
						(0-0.4) Sampled at 16.39
						(0-0.4) Trace leafy debris (0-0.1)

REMARKS:
SAA = Same As Above

Processor Initials	SIS
EXPLORATION NO.	TA-SED-RC-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-RCAccess
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 595928.988	E 12804320.189	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Alan Welch	FINAL CORE PENETRATION (FT)	5.3	CORE RECOVERY (FT)	2.8
GZA Processor	Sheryl Stephenson				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018-06-29	1840	2.4				3.0
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.3	(0-0.3) Brown SILT, and ORGANICS, Trace Leafy Debris, Trace Hair-Like Fibers,	(0-1) Sampled at 1430
					medium moisture	
					(0.3-0.9) Brown, Fine SAND, trace Silt, trace hair-like fibers, medium moisture	
					(0.9-1) Brown, SILT, Little fine wood debris, trace fine Sand, trace hair-like fibers,	
					medium to very moist	
1	2	1-1.5		0.5	(1-1.4) Brown, SILT, Trace Fine Sand, Trace Hair-Like Fibers, Trace	(1.5-2.5) Sampled at 1440
					Wood Debris, medium moisture	
	3	1.5-2.5	1.5-2.5		(1.4-1.6) Brown Fine SAND, Trace Silt, Trace Hair-Like Fibers,	
					medium to very moist	
					(1.6-2.5) Brown, SILT, Trace Fine Sand, Trace Hair-Like Fibers,	
2					medium to very moist	
	4	2.5-2.8		0.2	(2.5-2.6) Same as Above	No visible hair-like fibers in bottom sand
					(2.6-2.8) Brown, Fine SAND, Trace Silt, medium moisture	

REMARKS:

Processor Initials	SIS
EXPLORATION NO.	TA-SED-RCAccess

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc. 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504	Client: Wolverine World Wide Project: Tannery City, State: Rockford, MI		TA-SED-T1-1 SHEET 1 of 1 GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	12804163.080
FOREMAN:	Jeff Greene		DATUM: MI State Plane South Zone, NAD83
GZA Oversight	Alan Welch	FINAL CORE PENETRATION (FT) 1.6'	CORE RECOVERY (FT) 1.6'
GZA Processor	Sheryl Stephenson		

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER			
DATE	TIME	WATER DEPTH	WATER ELEV
2018-07-24	12:43	1.6'	677.510

Sediment Thickness (ft)		
		<0.1

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.8	(0-0.3) Black, silts, fines, organics, wet	(0-1) Sampled at 1532 7/24/18 Dup.
					(0.3-1) Brown/gray, fine to medium sand, trace silt, trace leafy debris, trace wood	
					debris, moist	
	2	1-1.6		10.5	(1-1.6) Brown/gray sand and silt, trace leafy debris, trace wood debris, moist	
					Bottom of boring at 1.6'.	

REMARKS:
SAA = Same As Above

Processor Initials SIS

EXPLORATION NO. TA-SED-T1-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc. 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504	Client: Wolverine World Wide Project: Tannery City, State: Rockford, MI	SHEET GZA PROJECT NO.	TA-SED-T1-2 1 of 1 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	591908.592 12804225.978
FOREMAN:	Jeff Greene	DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Alan Welch	FINAL CORE PENETRATION (FT)	CORE RECOVERY (FT)
GZA Processor	Sheryl Stephenson		

			DEPTH OF SURFACE WATER				Sediment Thickness (ft)
SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV	
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018-07-24	13:29	1.5'	677.310	
	Vibracore	SAMPLER LENGTH: 8 ft					<10

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
					(0-0.2 Brown, fine to coarse sand, some gravel, some cobbles, trace shells, wet.	No core retrieved. Six grab attempts with a Ponar sampler.

REMARKS:
SAA = Same As Above

Processor Initials SIS

EXPLORATION NO. TA-SED-T1-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc. 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504	Client: Wolverine World Wide Project: Tannery City, State: Rockford, MI	SHEET GZA PROJECT NO.	TA-SED-T1-3 1 of 1 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	591879.809	12804255.439	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Alan Welch	FINAL CORE PENETRATION (FT)		CORE RECOVERY (FT)	0.7'
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER			
DATE	TIME	WATER DEPTH	WATER ELEV
2018-07-24	13:46	0.2'	677.105

Sediment Thickness (ft)		
	0.3	

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
		0-1	0-1	1.3	(0-0.4) Brown/gray, fine to medium sand, little silt, tract (-) shells, trace leafy debris,	(0-1) sampled dup. 16-20 7/24/18
					moist	
					(0.4-0.5) Brown/black, silt, some organics, little wood ebris, moist	
					(0.5-0.8) Brown, fine to coarse sand and gravel, little cobble, little silt, little shells,	
					moist	
					Bottom of boring at 0.8'	

REMARKS:
SAA = Same As Above

Processor Initials SIS

EXPLORATION NO. TA-SED-T1-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client: Wolverine World Wide
Project: Tannery
City, State: Rockford, MI

TA-SED-T2-1
SHEET 1 of 1
GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO: Affiliated Researchers
FOREMAN: Jeff Greene
GZA Oversight Nolan Fonda
GZA Processor Ally Suding

LOCATION COORDINATES (International Feet) N 689087.133 E 193656.909
DATUM MI State Plane South Zone, NAD83
FINAL CORE PENETRATION (FT) 8.2
CORE RECOVERY (FT) 5.5

SAMPLE TYPE: Sediment
SAMPLING METHOD Vibracore
TYPE SAMPLER: Core
SAMPLER O.D.: 3 in
SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
2018-06-22	10:00	1.2'	688.228	6'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.7	(0-1) Black, SILT, Little Fine Sand, Trace Leaf Debris,	(0-1) Sample collected at 1059
					medium to high moisture	
1	2	1-2		3.6	(1-1.5) Same as Above	
						Cut core at 1.5'
				0.8	(1.5-2) Black, SILT, Some Fine Sand, medium moisture	(0.2' sand layer at 1.7')
2		2-3	2-3	0.2	(2-2.4) Black SILT, Little Fine Sand, Mottled, medium moisture	(2-3) Sample collected at 1122
					(2.4-3.0) Black SILT, Trace Fine Sand, medium moisture	
3	4	3-4		1.2	(3.0-3.1) Greenish-Gray Fine SAND, medium moisture	
					(3.1-3.2) WOOD CHIPS	
					(3.2-4) Black SILT, Some Wood Chips, Little Fine Sand, Trace Clay, medium moisture	
4	5	4-5	4-5	0.8	(4-5) Dark gray fine SAND and SILT, Trace Clay, medium to low moisture	(4-5) Sample collected at 1135
5	6	5-5.4		3.1	(5-5.4) Same as Above	

REMARKS:
SAA = Same As Above
Core measured 5.4' at time of sampling.
Suspect bottom of core fell out

Processor Initials AMS
EXPLORATION NO. TA-SED-T2-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client: Wolverine World Wide
Project: Tannery
City, State: Rockford, MI

TA-SED-T2-2
SHEET 1 of 1
GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO: Affiliated Researchers
FOREMAN: Jeff Greene
GZA Oversight Nolan Fonda
GZA Processor Charlie Lindner

LOCATION COORDINATES (International Feet) N 592972.187 E 12804241.314
DATUM MI State Plane South Zone, NAD83
FINAL CORE PENETRATION (FT) 10.3
CORE RECOVERY (FT) 6.7

SAMPLE TYPE: Sediment
SAMPLING METHOD Vibracore
TYPE SAMPLER: Core
SAMPLER O.D.: 3 in
SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
2018-06-25	08:45	1.8'	690.427	5.0

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	2.2	(0-1) Greenish Gray Fine to Coarse SAND, Trace Gravel, Trace Shells, Trace Silt	(0-1) Sample collected at 1202. DUP collected
					moist	
1						
2	2	1.5-2			(1.5-2) Greenish Gray Fine to Coarse SAND, Trace Gravel, Trace Silt, Trace	(1.6-1.85) High density of shells in sand
					Shells, moist	
3	3	2-3	2-3	2.9	(2-3) Same as Above	(2-3) Sample colected at 1042
4	4	3-3.35		3.5	(3-3.35) Greenish Gray Fine to Coarse SAND, Trace Gravel, Trace Silt,	
					Trace Shells,Trace Wood Debris	Core cut at 3.35'
		3.35-4		4.6	(3.35-4) Greenish Gray Fine to Coarse SAND, Trace Gravel, Trace Shells, Trace	
					Wood, moist	
5	5	4-5	4-5	4.3	Black-Gray, Fine to	(4-5) Sample Collected at 1120
					moist	
6	6	5-6		6.0	(5-5.2) WOOD DEBRIS, Black-brown Silt, Fine to Coarse Sand.	
					(5.2-6) Black-Brown SILT,	
					Shells, moist	
	7	6-6.7		2.7	Black/brown SILT and Fine SAND, trace Wood Debris med moist	

REMARKS:
SAA = Same As Above

Processor Initials CL
EXPLORATION NO. TA-SED-T2-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T2-3
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 69000.625	E 19365871.586	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.5	CORE RECOVERY (FT)	6.5
GZA Processor	Ally Suding				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLING METHOD		SAMPLER O.D.: 3 in	DATE	TIME	WATER DEPTH	WATER ELEV		5.3	
	Vibracore	SAMPLER LENGTH: 8 ft	2018-06-22	14:30	3.2'	688.155			

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	1.8	(0-1) Greenish Gray, Fine to Medium SAND, Little Silt, Trace Shells,	(0-1) Sample collected at 1458. Split with EPA/DEQ
					medium to low moisture	
1						
	2	1-2		0.8	(1-1.1) White SHELLS, Some Fine to Medium Sand	
					(1.1-1.4) Greenish Gray Fine to Medium SAND, Little Silt, Trace Shells,	
					medium to low moisture	
					(1.4-2) Black CLAYEY SILT, Trace Shells, medium moisture	
2						
	3	2-3	2-3	1.4	(2-3) Black SILT, Some Fine Sand, Trace Clay, Wood Debris observed at 2.5',	(2-3) Sample collected at 1517
					medium moisture	
3						
	4	3-3.5		1.0	(3-3.5) Black CLAYEY SILT, medium moisture	
						Core cut at 3.5'
	5	3.5-4		3.7	(3.5-4) Black CLAYEY SILT, Some Fine Sand, Trace Wood Debris,	
4					mottled, medium moisture	
	6	4-5	4-5	2.4	(4-4.5) Same as Above, large wood chunk present	(4-5) sample collected at 16:06
					(4.5-5) Greenish Gray Fine SAND, Litle Silt, Trace Wood, medium moisture	
5						
	7	5-6		1.1	(5-6) Greenish Gray Fine SAND, Little Silt, Trace Shells, low to medium moisture	
6	8	6-6.5		2.1		

REMARKS:
SAA = Same As Above
Core measured 5.4' at time of sampling.
Suspect bottom of core fell out

Processor Initials	AMS
EXPLORATION NO.	TA-SED-T2-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T3-1A
Project:	Tannery	SHEET	1 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	68772.090	19365719.635	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10'	CORE RECOVERY (FT)	7.7'
GZA Processor	Ally Suding				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
2018/06/22	07:56	1.3'	688.285	6.3'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.0	(0-1) Black SILT, Trace Leafy Debris, high moisture	(0-1) Sample collected at 0844
1	2	1-2		0.0	(1-2) Black SILT, Little Clay, Trace Fine Sand, mottled, medium moisture	0.1' fine SAND layer at 1.5'
2	3	2-3	2-3	0.0	(2-3) Black SILT, Trace Fine Sand, Trace Wood Debris, Trace Shells, med moisture	(2-3) sample collected at 0906
					medium moisture	
3	4	3-4	3-4	0.0	(3-4) Black SILT, Little Fine Sand, Trace Shells, Trace Wood/Leafy Debris,	
					mottled, medium moisture	
4	5			0.8	(4-4.5) Black CLAYEY SILT, Little Fine Sand, Trace Shells, medium moisture	Core cut at 4'
					(4.5-4.6) Fine SAND	
					(4.6-5) Thick WOOD DEBRIS	
5	6	5-6	5-6	0.5	(5-5.6) Black CLAYEY SILT, Little Fine Sand, medium moisture	(5-6) Sample collected at 0847
					(5.6-6) Tan Fine SAND, Trace Gravel, medium moisture	

REMARKS:

Processor Initials	AMS
EXPLORATION NO.	TA-SED-T3-1A

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T3-1A
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	68772.090	19365719.635	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10'	CORE RECOVERY (FT)	7.7'
GZA Processor	Ally Suding				

			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018/06/22	07:56	1.3'	688.285		6.3'	
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6	7	6-7		0.5	(6-6.35) Tan Fine to Coarse SAND and Fine to Coarse GRAVEL, med moisture	
					(6.35-6.65) Brown Silty CLAY, Some Fine to Coarse Gravel, Some Fine Sand	
					medium moisture	
					(6.65-7) Void space with air and water	
7	8	7-7.7		0.7	(7-7.35) Same as 6.35-6.65	
					(7.35-7.7) Tan Silty CLAY, Some Fine to Coarse Sand, Little Fine to Coarse Gravel	
					Gravel	

REMARKS:
SAA = Same As Above

Processor Initials	AMS
EXPLORATION NO.	TA-SED-T3-1A

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T3-2
Project:	Tannery	SHEET	1 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	-68804.953	19365845.064	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	11.7	CORE RECOVERY (FT)	7.7'
GZA Processor	Ally Suding				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLING METHOD		SAMPLER O.D.: 3 in	DATE	TIME	WATER DEPTH	WATER ELEV			
	Vibracore	SAMPLER LENGTH: 8 ft	2018/06/1	09:15	3.5'	688.229		4.2'	

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	1-1.2	0.0	(0-1.4) Greenish Gray, Fine to Med SAND, Trace Shells, medium moisture	(0-1.2) Sample collected at 1402
	2	1-2	1.7-2.7	0.0		
1					(1.3-1.7) Greenish Gray Fine to Medium SAND, low moisture	Core cut at 1.4'
					(1.7-2.7) Black CLAYEY SILT, Trace Hair-Like Fibers, Trace Sand,	(1.7-2.7) Sample collected at 1326
					medium moisture	
	3	2-3	2.0-2.7	0.0		
2						
						Core cut at 3.5'
					(2.7-3) Greenish Gray Fine SAND, Trace Medium Sand, medium moisture	
	4	3-4		0.0	(3-3.9) Black CLAYEY SILT, Little Fine Sand, medium moisture	
3						
	5	4-5		0.0	(4-5) GreenishGray Fine SAND, Trace Hair-Like Fiber, medium moisture	(4-5) Sample collected at 1534
4						
	6	5-6		0.0	(5-6) Black CLAYEY SILT, Trace Fine Sand, Trace Hair-Like Fiber,	
5					medium moisture	

REMARKS:

Processor Initials	AMS
EXPLORATION NO.	TA-SED-T3-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T3-2
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES	-68804.953	19365845.064	
FOREMAN:	Jeff Greene	(International Feet)		DATUM	Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	11.7	CORE RECOVERY (FT)	7.7'
GZA Processor	Ally Suding				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV	(ft)
SAMPLING METHOD		SAMPLER O.D.: 3 in					
	Vibracore	SAMPLER LENGTH: 8 ft	2018/06/1	09:15	3.5'	688.229	4.2'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6		6-7			(5-6) Black CLAYEY SILT, Trace Fine Sand, Trace Hair-Like Fiber,	
					medium moisture	(6.2-7.2) Sample collected at 1605
					(6.2-7) Black CLAYEY SILT, Trace Fine Sand, Trace Fine Gravel, Trace Shells,	
					Trace Hair-Like Fiber, low to medium moisture	
					(6.2-7.2) Black Clayey SILT, Trace Fine Sand, Trace Fine Gravel, Trace Shells,	
7		7-7.7			Trace Hair-Like Fiber, low to medium moisture	
					(7.2-7.4) Greenish Gray Fine SAND and SILT, Trace Shells low moisture	
					(7.-7.65) Greenish Gray Fine to Coarse SAND, Some Fine Gravel,	
					Trace Shells, low moisture	Lost 0.15' of coarse SAND, some Gravel, low moisture while inserting extruder

REMARKS:

Processor Initials	AMS
EXPLORATION NO.	TA-SED-T3-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T3-3
Project:	Tannery	SHEET	1 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	-68796.877	19365885.307	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	7.9'	CORE RECOVERY (FT)	6.4'
GZA Processor	Ally Suding				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
2018/06/21	08:40	1.1'	688.166	5.5'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.0	(0-1) Black, SILT Trace Fine Sand, Trace Clay, Trace twigs, high moisture	(0-1) Sample collected at 0934
1	2	1-2	1-2	0.0	(1-2) Black CLAYEY SILT, Woody Debris, Trace Fine Sand, mottled, medium moisture	
2	3	2-3	2-3	0.0	(2-3) Black CLAYEY SILT, Some Fine Sand, Some Hair-Like Fibers throughout, Trace Fine Gravel, medium moisture	(2-3) Sample collected at 0953
3	4	3-4		0.0	(3-4) Black CLAYEY SILT, Some Wood Debris, medium moisture	
4	5	4-5			(4-4.3) Gray Fine SAND (4.3-4.6) SAWDUST (4.6-5) Gray Fine SAND and SAWDUST/WOOD CHIPS, Trace Shells, medium moisture	Core cut at 4'
5	6	5-6	5-6		(5-5.5) Gray Fine SAND and SAWDUST/WOOD CHIPS, medium moisture (5.5-6) Black SILT, Some Wood Debris, Trace Fine Sand, mottled	(5-6) Sample collected at 1101

REMARKS:
SAA = Same As Above

Processor Initials	AMS
EXPLORATION NO.	TA-SED-T3-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T3-3
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES	N 68796.877	E 19365885.307	
FOREMAN:	Jeff Greene	(International Feet)		DATUM	Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	7.9'	CORE RECOVERY (FT)	6.4'
GZA Processor	Ally Suding				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV	(ft)
SAMPLING METHOD		SAMPLER O.D.: 3 in					
	Vibracore	SAMPLER LENGTH: 8 ft	2018/06/21	08:40	1.1'	688.166	5.5'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6	7	6-6.4			(6-6.3) Olive Fine SAND, medium moisture	
					(6.3-6.4) Olive SILT, Trace Fine Sand, medium moisture	
7						

REMARKS:
SAA = Same As Above

Processor Initials AMS

EXPLORATION NO. TA-SED-T3-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T4-1
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	593421.405	12804238.219	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	11.8'	CORE RECOVERY (FT)	4.2'
GZA Processor	Charlie Lindner				

			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in			5.4"	690.841		4'	
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	3.6	(0-1) Greenish Gray Fine to Coarse SAND, Trace Shells, Trace Silt	(0-1) sample collected at 1441
					medium to low moisture	MS/MSD Collected
1	2	1-2			(1-1.4) Same as Above	
						Core cut at 1.4'
				2.8	(1.4-2) Greenish Gray Fine to Medium SAND, Trace Silt, medium moisture	
2	3	2-3	2.5-3	2.6	(2-2.5) Same as Above	
					(2.5-3) Brown-Black SILT and SAND, Trace Fine Gravel, Trace Shells, Trace	(2.5-3.5) Sample collected ar 1552
					Hair-Like Fibers, medium to high moisture	(2.8) hair-like fibers
3	4	3-4	3-4	5.0	(3-3.5) Same as Above	
					(3.5-3.8) Gray-Brown Fine to Medium SAND, Trace Silt, medium moisture	(3.5-4.5) Sample collected at 1616
					(3.8-4) Gray-Brown Fine to Coarse SAND, Little Fine Gravel, Trace Silt,	
					Trace Shells, medium moisture	
4	5	4-4.2	4-4.2		(4-4.2) Same as Above	
5						

REMARKS:
SAA = Same As Above

Processor Initials CL

EXPLORATION NC TA-SED-T4-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client: Wolverine World Wide
Project: Tannery
City, State: Rockford, MI

TA-SED-T4-2
SHEET 1 of 1
GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593506.564 E 12804365.250
FOREMAN:	Jeff Greene	DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	NO READING
GZA Processor	Charlie Lindner	CORE RECOVERY (FT)	3.5

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018/06/28	15:56	1.1'	691.017		2.8	
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.6	(0-1) Black SILT and ORGANICS, Trace Leafy Debris, very moist	(0-1) sample collected at 0816
	2	1-2	1-2	0.3	(1-1.6) Same as Above	(1-2) Sample collected at 0825
1						
					(1.6-1.8) Gray Fine SAND, Little Silt, Trace Shells, Trace Leafy Debris,	
					medium moisture	
					(1.8-2) Black SILT and ORGANICS, Trace Leafy Debris, very moist	(2-3) Sample collected at 0855
	3	2-3	2-3		(2-2.8) Brown, SILT, Trace Fine Sand, Trace Gravel, Trace Silt, Trace Shells	
2						
					medium moisture	
					(2.8-3.2) Gray Fine to Coarse SAND, Trace Gravel, Trace Silt, Trace Shells,	
	4	3-3.45		0.8	medium moisture	
3						
					(3.2-3.45) Brown Fine SAND, Trace Silt, Trace Leafy Debris, low moisture	
4						
5						

REMARKS:
SAA = Same As Above

Processor Initials SIS
EXPLORATION NC TA-SED-T4-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client: Wolverine World Wide
Project: Tannery
City, State: Rockford, MI

TA-SED-T4-3
SHEET 1 of 2
GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO: Affiliated Researchers
FOREMAN: Jeff Greene
GZA Oversight Nolan Fonda
GZA Processor Sheryl Stephenson

LOCATION COORDINATES (International Feet) N 593503.4879 E 12804427.85
DATUM MI State Plane South Zone, NAD83
FINAL CORE PENETRATION (FT) NO READING
CORE RECOVERY (FT) 1.75'

SAMPLE TYPE: Sediment
SAMPLING METHOD Vibracore
TYPE SAMPLER: Core
SAMPLER O.D.: 3 in
SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
DATE	TIME	WATER DEPTH	WATER ELEV			
2018/06/28	15:31	1.4'	691.101		3.2'	

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0.1	0.1	5.6	(0-1) Black SILT and ORGANICS, Trace Leafy Debris, very moist	(0-1) Sample collected at 0859
1	2	1-1.7	1-1.7	2.2	(1-1.7) Black SILT and ORGANICS, Trace Leafy Debris, medium to very moist	(1-1.7) Sample collected at 0908
2						
3						
4						
5						

REMARKS:
SAA = Same As Above

Processor Initials SIS
EXPLORATION NC TA-SED-T4-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		HA-TA-SED-T4-ISLAND
Project:	Tannery	SHEET	1 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 43.12235461	E 85.56184341	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	7	CORE RECOVERY (FT)	
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD	Vibracore	SAMPLER O.D.: 3 in SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER			
DATE	TIME	WATER DEPTH	WATER ELEV
2018/07/11	8:20	0.5	

Sediment Thickness (ft)		

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1		3.1	(0-0.5) Black, fine sand and organics, some roots, very moist	(0-0.5) sample collected at 0821
					(0.5-1) Black, fine sand and organics, trace root fibers, traace fine sand, wet, loose	
1	2	1-2		4.6	SAA	
2	3	2-4		4.1	I	
3	4	3-4		0.7	SAA	
4	5	4-5		0.8	Black, fine sand and organics, trace fine sand, trace hair-like fibers, trace wood,	(4-5) Sample collected at 0915
					debris, trace shells, wet	
5	6	5-6		1.3	(5-5.8) SAA	
					(5.8-6.3) Olive brown, clay and ogranis, trace fine sand, trace root fibers, very moist	

REMARKS:
SAA = Same As Above

Processor Initials SIS

EXPLORATION NC TA-SED-T4-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		HA-TA-SED-T4-ISLAND
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 43.12235461	E 85.56184341	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	7	CORE RECOVERY (FT)	
GZA Processor	Sheryl Stephenson				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018/07/11	8:20	0.5				
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6	7	6-7		1.6	(6.3-6.5) Olive brown, fine to coarse sand, some clayey silt, very moist	(6-7) Sample collected 0940
					(6.5-7) Olive, brown, silt and sand, trace hair-like fibers, trace wood debris, wet	
7						
8						
9						
10						

REMARKS:
SAA = Same As Above

Processor Initials SIS

EXPLORATION NC TA-SED-T4-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc. 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504	Client: Wolverine World Wide Project: Tannery City, State: Rockford, MI		TA-SED-T5-1 SHEET 1 of 2 GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	593578.974	12804164.774	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.2'	CORE RECOVERY (FT)	2.5'
GZA Processor	Charlie Lindner				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD	Vibracore	SAMPLER O.D.: 3 in SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
2018/06/25	1400	7.2'	690.561	2.5'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.4	(0-0.4) Brown-Black SILT and ORGANICS, Trace Leafy Debris, Trace Sand,	(0-1) sample collected at 0830
					moist	
					(0.4-1) Greenish Gray Fine to Coarse SAND, Trace Shells, Trace Silt, moist	
1						
	2	1-1.5		1.0	(1-1.5) Greenish Gray Fine to Coarse SAND, Trace Shells, Moist	
2						
	3	2-3	2-3	1.5	(2-3) Same As Above	(2-3) sample collected at 0850
3						
	4	3.5-3.9		1.0		Cut at 3.5 '
4						
	5	4-5	4-5	0.7	(4-4.2) Same As Above	(4-5) sample collected at 0907
					(4.2-5) Black-Brown Mottled CLAYEY SILT, Trace Fine Sand, Trace Hair-Like	
					Fibers, Trace Rock, medium moisture	
5						
	6	5-6		2.2	(5-5.6) Greenish Gray Fine to Medium Sand, Medium Moisture	(5-6) sample collected at 0940
					(5.6-5.8) Gray-Brown Fine to Medium Sand, Some Silt, Little Wood Debris, Trace	
					Wood Chips	
6					(5.8-6) Black Clayey Silt, Trace Fine Sand, medium moisture	

REMARKS:

Processor Initials CL

EXPLORATION NO. TA-SED-T5-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T5-1
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	593578.974	12804164.774	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.2'	CORE RECOVERY (FT)	2.5'
GZA Processor	Charlie Lindner				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018/06/25	1400	7.2'	690.561		2.5'	
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6						
	7	6-7	6-7	2.0	(6-7) Same as Above	
	8	7-7.4			(7-7.4) Greenish Gray Fine to Medium Sand	
7						

REMARKS:

Processor Initials CL

EXPLORATION NO. TA-SED-T5-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc. 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504	Client: Wolverine World Wide Project: Tannery City, State: Rockford, MI	SHEET GZA PROJECT NO.	TA-SED-T5-2 1 of 1 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593565.507 E 12804191.036
FOREMAN:	Jeff Greene	DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.2'
GZA Processor	Charlie Lindner	CORE RECOVERY (FT)	2.5'

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	6/25/18	1600	5.4'	690.389			3 ft
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	2.4	(0-1) Greenish Gray Fine to Medium Sand, Trace Shells, medium moisture	(0-1) sample collected at 1020
1	2	1-1.7		3.2	(1-1.7) Same As Above	
2	3	1.7-2.7	1.7-2.7	1.5	(1.7-2.7) Greenish Gray Fine to Medium SAND, Little Shells, Trace Wood Debris, medium moisture	
3	4	2.7-3.7		6.5	(2.7-3.7) Greenish Gray Fine to Coarse SAND, Trace Shells, Trace Gravel, medium moisture	
4	5	3.7-4.7	3.7-4.7	2.3	(3.7-4.0) Same As Above (4.0-4.7) Black-Brown SILT and CLAY, Trace Fine Sand, Trace Gravel, Trace Hair-Like Fibers, medium moisture	
5	6	4.7-5.0		8.7	(4.7-5.0) Black-Brown SILT and CLAY, Trace Fine Sand, Trace Gravel, Trace Hair-Like Fibers, Trace Wood Debris	

REMARKS:
Clay plug at bottom

Processor Initials CL

EXPLORATION NO. TA-SED-T5-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc. 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504	Client: Wolverine World Wide Project: Tannery City, State: Rockford, MI		TA-SED-T5-3 SHEET 1 of 2 GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593573.978	E 12804210.237	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.7'	CORE RECOVERY (FT)	7.8'
GZA Processor	Charlie Lindner				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
6/25/18	1620	2.4'	690.347	4.7

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.4	(0-0.4) Brown/black fine silt and organics, trace sand, moist, leafy debris	(0-1) sample collected at 0830
					(0.4-1) Greenish gray fine to coarse sand, trace shells, trace silt	
1						
	2	1-1.5		1.0	Greenish gray fine to coarse sand, trace shells, moist	
2	3	2-3	2-3	1.5	SAA	(2-3) sample collected at 0850
3						
	4	3.5-3.9		1.0		Cut at 3.5
4	5	4-5	4-5	0.7	(4-4.2) SAA	(4.2) hair-like fibers
					(4.2-5) Black/brown silt mottled clayey silt, trace fine sand, trace hair-like fibers,	(4-5) sample collected at 0907
					trace rock, medium, moist	
5	6	5-6		2.2	(5-5.6) Greenish gray fine sand, medium, moist	(5.6-5.8) wood debris, trace wood chips
					(5.6-5.8) Gray/brown fine to medium sand, some silt, little wood debris, trace	(5-6) sample collected at 0940
					wood chips	
	7	6-7	6-7	2.0	(5.8-6) Black clayey silt, trace fine sand, medium moist	

REMARKS:
Clay plug at bottom

Processor Initials CL

EXPLORATION NO. TA-SED-T5-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T5-3
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593573.978	E 12804210.237	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.7'	CORE RECOVERY (FT)	7.8'
GZA Processor	Charlie Lindner				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
6/25/18	1620	2.4'	690.347	4.7

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6						
	7	6-7	6-7	2.0	(5.8-6) Black clayey silt, trace fine sand, medium moist	
					(6-7) SAA	
					(7-7.4) Greenish gray fine to medium sand	
7						
8						
9						
10						

REMARKS:
Clay plug at bottom

Processor Initials CL

EXPLORATION NO. TA-SED-T5-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T6-1
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593990.801 E 12804145.161
FOREMAN:	Jeff Greene	DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	9.2
GZA Processor	Charlie Lindner & Sheryl Stephenson	CORE RECOVERY (FT)	7.1

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
6/26/2018	1000	1.9'	690.478	2.1 '

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.6	(0-0.7) Black SILT, Trace Fine Sand, very moist	(0-1) Sample collected at 1309.
					(0.7-1) Black SILT, Trace Shells, Trace Fine Sand, very moist	
1	2	1-2		5.8	(1.0-1.8) Olive Brown, Fine to Coarse SAND, Little Silt, Trace Shells,	
					medium moisture	
2						
						Cut core at 2.3'
		2.5-3.5	2.5-3.5	1.7	(2.5-2.7) Mottled Olive Brown Fine to Medium SAND, Little Silt, Little Wood Chips	(2.5-2.7) Wood Chips
					(2.7-3.5) Mottled Olive Brown, Fine to Medium SAND, Little Silt.	(2.5-3.5) Sample Collected at 1345
3						
		3.5-4.1		4.8	(3.5-4.1) Greenish gray, Fine to Course SAND, Trace Silt, Trace Wood Debris,	
					medium moisture.	
4						
		4.1-5.1		1.1	(4.1-4.4) WOOD CHIPS and WOOD DEBRIS	(4.1-4.4) Wood Chips and
						Wood Debris
						(4.1-5.1) Sample collected at 1403.
					(4.4-5.1) Olive Brown, Fine to Medium SAND, Little Wood Debris,	
5					medium moisture	
		5.1-5.6		1.2	(5.1-5.6) Greenish gray, Fine to Medium SAND, Trace Wood Debris, med. moist.	
		5.6-6.6		1.3	(5.6-6.6) Greenish gray, Fine to Medium SAND, Little Wood Debris,	Cut core at 5.6'
6					medium moisture	
7						

REMARKS:
Organic odor when pulling up core, clay plug on bottom.

Processor Initials	CML & SS
EXPLORATION NO.	TA-SED-T6-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T6-2
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593969.008	E 12804184.123	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	8.5	CORE RECOVERY (FT)	5.0
GZA Processor	Charlie Lindner & Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER DATE	TIME	WATER DEPTH	WATER ELEV	Sediment Thickness (ft)
SAMPLING METHOD		SAMPLER O.D.: 3 in	6/26/2018	1140	2.9'	690.470	3.1'
	Vibracore	SAMPLER LENGTH: 8 ft					

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1		4.4	(0-1) Greenish Gray/Brown Fine to Coarse SAND, Trace Shells, medium moisture	(0-1) Sample collected at 1048
1	2	1-2		4.1	(1-2) Same As Above	
2	3	2-3		2.6	(2-2.2) Greenish Gray Fine to Coarse SAND, Some Shells, medium moisture	(2-3) Sample collected at 1112
					(2.2-3) Greenish Gray Fine to Coarse SAND, Trace Shells, medium moisture.	
3	4	3-3.6		3.4	(3-3.6) Same As Above	
	5	3.6-4.6		0.9	(3.6-3.7) Same As Above	(3.6-4.6) Sample collected at 1136
4					(3.7-4.6) Brown CLAY AN D SILT, Trace Fine Sand, Trace Leafy Debris, trace Wood Debris, medium moisture.	
	6	4.6-4.8		1.0	(4.6-4.8) Same As Above	
5						

REMARKS:
SAA = Same As Above

Processor Initials CML & SS

EXPLORATION NO. TA-SED-T6-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T6-3
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 593947.355	E 12804256.551	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	9.5	CORE RECOVERY (FT)	5.8
GZA Processor	Charlie Lindner & Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLING METHOD		SAMPLER O.D.: 3 in	DATE	TIME	WATER DEPTH	WATER ELEV			
	Vibracore	SAMPLER LENGTH: 8 ft	6/26/2018	1410	3'	690.430			4'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	(0-1)	0-1	0.9	(0-0.8) Black-Brown SILT and ORGANICS, trace Fine Sand, very moist	leafy debris
					(0.8-1) Gray Fine to Coarse SAND, trace silt, medium moisture	
1						
		(1-2)		1.9	(1-1.6) Same As Above	
					(1.6-1.9) Gray Fine to Coarse SAND, Trace Silt, Little Shells, medium moisture	
2						1.9' wood debris
		(2-3)	2-3	3.4	(2-3) Black-Brown SILT, Trace Fine Sand, Trace Shells and Wood Debris,	
					medium moisture	trace wood debris
3						
		(3-3.8)		2.6	(3-3.6) Dark Brown SILT, trace Fine Sand, medium moisture	
					(3.6-3.8) Same As Above with Little Wood Debris	
					(3.8-4.0) Gray Fine to Coarse SAND, Little Gravel, Little Silt, medium moisture	hair-like fibers
4		(3.8-4.8)	3.8-4.8	2.6	(4.0-4.8) Black SILT, Trace to Fine Sand, medium moisture	hair-like fibers
					(4.8-5.6) Greenish Gray Fine to Coarse SAND, Trace Silt, medium moisture	
5		(4.8-5.8)		1.6		
					(5.6-5.8) Greenish Gray Fine to Coarse SAND, Trace Gravel, Trace Silt, medium	
					moisture	
6						

REMARKS:
SAA = Same As Above

Processor Initials CML & SS

EXPLORATION NO TA-SED-T6-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T7-1
Project:	Tannery	SHEET	1 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594101.873	E 12804325.582	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.1	CORE RECOVERY (FT)	7.7
GZA Processor	Charlie Lindner				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD	Vibracore	SAMPLER O.D.: 3 in SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
6/26/2018	1505	1.5'	690.377	3.8'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	3.1	(0-1) Greenish Gray Fine to Coarse SAND, Trace Shells, Trace Wood Debris, medium moisture	(0-1) Sample collected at 1211
1						
	2	1-2			(1-1.6) Same As Above	
					(1.6-2) Black Clayey SILT, Little Fine to Coarse Sand, Trace Shells, medium moisture	
2						
	3	2-3		3.1	(2-3) Black Clayey SILT, Trace Fine Sand, Trace Leavy Debris, medium moisture	(2-3) Sample collected at 1228
3						
				5.9	(3-3.3) Black Fine SILT and ORGANICS, very moist.	leafy debris
	4	3.3-4.2		4.8	(3.3-4.2) Greenish Gray Fine to Medium SAND, Trace Shells, medium moisture	Cut at 3.3'
4						
	5	4.2-5.2	4.2-5.2	0.8	(4.2-5.2) Black SILT and CLAY, Trace Fine to Medium Sand, Trace Wood Debris	(4.2-5.2) Sample collected at 1246
5	6	5.2-6.4		3.0	(5.2-5.8) Same As Above	
					(5.8-6.4) Greenish Gray Fine to Medium SAND, Trace Silt, medium moisture	
6						

REMARKS:

Processor Initials CML

EXPLORATION NO. TA-SED-T7-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T7-1
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594101.873	E 12804325.582	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.1	CORE RECOVERY (FT)	7.7
GZA Processor	Charlie Lindner				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLING METHOD		SAMPLER O.D.: 3 in	DATE	TIME	WATER DEPTH	WATER ELEV			
	Vibracore	SAMPLER LENGTH: 8 ft	6/26/2018	1505	1.5'	690.377			3.8'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6						
	7	6.4-7.4	6.4-7.4	6.8		Sample collected at 1316
					(6.4-6.8) Black-Brown GRAVEL, Little Fine to Coarse Sand, Trace Silt,	
					medium moisture	
7					(6.8-7.4) Brown CLAY, Trace Fine Sand, medium moisture	
	8	7.4-7.7		4.4	(7.4-7.7) Same As Above	
8						

REMARKS:

Processor Initials CML

EXPLORATION NO. TA-SED-T7-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T7-2
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594023.979	E 12804419.547	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	5.7	CORE RECOVERY (FT)	3.7
GZA Processor	Charlie Lindner				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	6/27/18	1045	2.3	690.8322			2.5'
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	2.4	(0-0.6) Brown-Black Fine SILT and ORGANICS, trace leafy debris, very moist	(0-1) Sample and MS/MSD collected at 1519
					(0-6-0.9) Brown Fine SAND, Some Silt, Trace Gravel, medium to very moist	
1					(0.9-1) Brown Fine SAND, Some Silt, Little Gravel, very moist	
	2	1-2	1-2	4.2	(1-1.3) Brown, CLAYEY SILT, Trace Fine Sand, Trace Wood Debris,	(1-2) Sample collected at 1544
					medium moisture	
					(1.3-2) Brown Fine SAND, Some Silt, Trace Gravel, medium mosture	
2					Cobble	Cobble
	3	2-3.7		6.8	(2-3.7) Light Brown Fine to Coarse SAND, Little Gravel, Some Silt, Trace Wood	
					Debris, very moist	
3						
						3" of coarse gravel at 3.5'
4						
5						

REMARKS:

Processor Initials	CML
EXPLORATION NO.	TA-SED-T7-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		HA-TA-SED-T7-ISLAND
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 43.12375323	E 85.56167448	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	6	CORE RECOVERY (FT)	
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLING METHOD		SAMPLER O.D.: 3 in	DATE	TIME	WATER DEPTH	WATER EL			
	Vibracore	SAMPLER LENGTH: 8 ft	2018/07/09	1725	0.5				

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1		0.0	(0-0.5) Very dark brown, fine coarse sand and silt, little root fibers, moist	(0-0.5) sample collected at 1725
					(0.5-1) Black, fines and organis, trace fine sand, trace root fibers, medium, moist	
1	2	1-2		0.7	(1-2) Black, fines and organics, trace fine sand, trace shell, very moist	(1-2) sample collected at 917
2	3	2-3		0.8	Black, fines and organics, trace sand, very moist	
3	4	3-4		0.5	SAA	(3-4) sample collected at 1028
4	5	4-5		1.1	Dark brown, fine medium sand, little silt, trace shells, very moist	
5	6	5-6		1.1	Dark brown, fine medium sand, trace silt, very moist	
	7	6-7		0.4	SAA	(6-7) sample collected at 952

REMARKS:
SAA = Same As Above

Processor Initials CML

EXPLORATION NO. TA-SED-T7-ISLAND

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T8-1
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594408.172	E 12804412.773	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	9.6'	CORE RECOVERY (FT)	6.8'
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER DATE	TIME	WATER DEPTH	WATER ELEV	Sediment Thickness (ft)		
SAMPLING METHOD		SAMPLER O.D.: 3 in	6/28/18	0820	1.4'	690.963			5.4'
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.7	(0-1) Brown-Black SILT and ORGANICS, trace leafy debris, very moist	(0-1) sampled at 1129
1						
	2	1-1.5		0.8	(1-1.2) Same As Above	
					(1.2-1.5) Brown-Black SILT and ORGANICS, Trace Fine Sand, Trace Leafy	Cut core at 1.2 feet
					Debris, medium to very moist	
	3	1.5-2.5	1.5-2.5	6.4	(1.5-2.4) Same As Above with Trace Wood Debris	(1.5-2.5) sampled at 1157
2						
					(2.4-2.5) Brown Coarse SAND, Trace Shells, medium to low moisture.	
	4	2.5-4		3.2	(2.5-2.7) Same As Above	
					(2/7-3.7) Same As Above with Trace Silt	
3						
					(3.7-4) Brown SILT and CLAY, Trace Fine Sand, Tracy Leafy Debris,	
4					low moisture	
	5	4-5	4-5	3.0	(4-4.4) Same As Above, medium moisture	(4-5) sampled at 1215
					(4.4-5) Brown SILT and CLAY, Trace Fine Sand, Trace Leafy Debris,	
					Trace Coarse Gravel, low moisture.	
5						
	6	5-6.8		2.1	(5-6.8) Brown SILT and CLAY, Little Fine Sand, Trace Gravel, Trace	(5-6.8) slightly mottled
					Leafy Debris, low moisture	

REMARKS:

Processor Initials SS

EXPLORATION NO. TA-SED-T8-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T8-2
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594346.427	E 12804531.722	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	9.7	CORE RECOVERY (FT)	4.1
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
6/27/18	1714	4.8	690.852	5

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	4.0	(0-0.1) Light Brown Fine SAND, Trace Silt, medium moisture.	(0-1) sampled at 1728
					(0.1-0.4) Black-Brown SILT, Trace Fine Sand, Trace Leafy Debris, Trace	
					Wood Debris, medium moisture	
					(0.4-0.6) Light Brown Fine SAND, Trace Silt, medium moisture	
1					(0.6-1) Black-Brown SILT, Trace Fine Sand, Tracy Leafy Debris, Trace Wood	
	2	1-2	1-2	1.3	Debris, medium Moisture	(1-2) sampled at 1750
					(1-1.7) Same As Above	
2					(1.7-2) Light Brown Fine SAND, Trace Silt, Trace Shells, Trace Leafy Debris,	
	3	2-3		2.3	medium moisture.	
					(2-2.5) Same As Above)	
					(2.5-2.7) Black-Brown SILT, Trace Fine Sand, Trace Leafy Debris, very moist	
3					(2.7-3) Black-Brown SILT and CLAY, Trace Fine Sand, Trace Leafy Debris,	
	4	3-4.1	3-4.1	1.5	low moisture	(3-4.1) sampled at 1713
					(3-3.3) Same As Above	
					(3.3-3.6) Light Brown Coarse SAND, Trace Silt, Trace Wood Debris,	
					medium moisture	
4					(3.6-4.1) Black-Brown SILT, Trace Fine Sand, Trace Leafy Debris, medium	
					moisture	
5						

REMARKS:

Processor Initials	SS
EXPLORATION NO.	TA-SED-T8-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T8-3
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594325.889	E 12804555.820	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	6.8	CORE RECOVERY (FT)	5.4
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
6/27/18	1230	1.0	690.848	4.9

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	2.2	(0-0.4) Brown-Black SILT and ORGANICS, Trace Leafy Debris, very moist	(0-1) Sampled at 0937 (split)
					(0.4-1) Brown-Black SILT, Little Fine Sand, Trace Leafy Debris,	
					medium moisture	
1						
	2	1-1.5		2.8	(1-1.2) Brown-Black SILT and ORGANICS, Trace Leafy Debris, very moist	Cut core at 1.2 feet
					(1.2-1.5) Same As Above	
	3	1.5-2.5	1.5-2.5		(1.5-2.5) Same As Above	(1.5-2.5) Sampled at 0825 (DUP)
2						
	4	2.5-3		3.2	(2.5-2.8) Same As Above)	
3					(2.8-3.0) Brown Fine SAND< Trace Silt, medium moisture	
	5	3-4	3-4	3.1	(3-3.4) Brown-Black SILT and ORGANICS, Trace Fine Sand, Trace Leafy	(3-4) Sampled at 0858
					Debris, medium moisture	
					(3.4-4) Brown Fine to Medium SAND, Little Silt, Trace Shells, Trace Leafy	
					Debris, medium moisture	
4						
	6	4-4.9		1.3	(4-4.6) Brown SILT, Trace Fine Sand, Trace Wood Debris, very moist	
					(4.6-4.9) Light Brown Fine SAND, Trace Silt, Trace Wood Debris, medium to	
5					low moisture	

REMARKS:

Processor Initials	SS
EXPLORATION NO.	TA-SED-T8-3

GZA GeoEnvironmental, Inc.	Client: Wolverine World Wide	TA-SED-T9-1
601 Fifth Street NW Suite 102	Project: Tannery	SHEET 1 of 1
Grand Rapids, MI 49504	City, State: Rockford, MI	GZA PROJECT NO. 16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594591.518 E 12804504.506
FOREMAN:	Jeff Greene		DATUM: MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	10.8 CORE RECOVERY (FT) 6.4
GZA Processor	Sheryl Stephenson		

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
SAMPLING METHOD		SAMPLER O.D.: 3 in	DATE	TIME	WATER DEPTH	WATER ELEV			
	Vibracore	SAMPLER LENGTH: 8 ft	6/29/18	0848	4'	691.186			4.1'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1		(0-1) Brown SILT and ORGANICS, trace leafy debris, very moist	(0-1) sampled at 950, collected MS/MSD
1	2	1-2		0.4	(1-1.3) Same As Above	
					(1.3-2) Brown Fine SAND, Little Silt, Trace Wood Debris, medium to very moist	
2	3	2-3	2-3	0.4	(2-3) Brown SILT, Trace Very Fine Sand, Trace Organic Matter, medium moisture	(2-3) sampled at 1010
3	4	3-4		0.5	(3-3.2) Brown SILT, Trace Fine Sand, Trace Leafy Debris and Organic Matter Medium Moisture	Cut core at 3.2'
4	5	4-5	4-5	1.3	(4-5) Brown SILT, Trace Wood Debris, Trace Wood Chips, Trace Very Fine Sand, medium moisture	(4-5) sampled at 1050
5	6	5-6		1.7	(5-5.3) Light Brown SILT and Fine to Medium SAND, medium moisture	Cut core at 5.2'
					(5.3-5.9) Brown CLAY and SILT, Trace Fine Sand, low to medium moisture	
6	6	6-6.4		0.7	(5.9-6.4) Brown Sediment and Wood Chips, Trace Leafy Debris, low to medium moisture	

REMARKS:

Processor Initials SS

EXPLORATION NO. TA-SED-T9-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T9-2
Project:	Tannery	SHEET	1 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594443.858	E 12804580.772	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	7.8	CORE RECOVERY (FT)	7.0
GZA Processor	Sheryl Stephenson				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV	(ft)
SAMPLING METHOD		SAMPLER O.D.: 3 in	6/28/18	0905	2.0'	691.186	7.1
	Vibracore	SAMPLER LENGTH: 8 ft					

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	2.9	(0-1) Black-Brown SILT and ORGANICS, Trace Fine sand, Trace Leafy	(0-1) sampled at 1432, collected MS/MSD
					Debris, very moist	
1						
	2	1-2		5.1	(1-1.4) Same As Above	
					(1.4-1.7) Same As Above, Little Leafy Debris	
					(1.7-2) Gray Fine to Medium SAND, Trace Wood Debris	
2						
	3	2-3	2-3	2.4	(2-3) Black-Brown SILT and ORGANICS, Little Wood Debris and Leafy Debris	(2-3) sampled at 1454
					medium moisture	
3					(2.9-3) Trace Shells	Whole shells at 2.9-3.0
	4	3-4		2.4	(3-3.2) Black-Brown SILT and ORGANICS, Little Wood Debris and Leafy	
					Debris, medium moisture	
					(3.2-4) Mottled Brown SILT, Little Fine sand, Trace Leafy Debris, medium to	Cut core at 3.5 feet
					low moisture	
4						
	5	4-5	4-5	1.5	(4-4.4) Black-Brown SILT and ORGANICS, trace leafy debris, very moist	(4-5) sampled at 1547
					(4.4-4.6) Brown SILT, Trace Fine Sand, Little Wood Chips, Trace Wood	
					Debris, medium moisture	
					(4.6-5) Brown SILT, Trace Fine and Coarse Sand, Trace Wood Chips,	Layer of wood ccips
5					Trace Wood Debris, medium moisture	
	6	5-6	5-6	1.5	(5-6) Black-Brown SILT, Little Wood Chips, Little Leafy Debris, Trace Fine	coarse sand at 5 feet
					Sand, Trace Wood Debris, Trace Shells, medium moisture	(5-6) sampled at 1612
						Layers of little wood chips at 5.2-5.4
						Trace wood chips 5.4-6

REMARKS:

Processor Initials SS

EXPLORATION NO. TA-SED-T9-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T9-2
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594443.858	E 12804580.772	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	7.8	CORE RECOVERY (FT)	7.0
GZA Processor	Sheryl Stephenson				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	6/28/18	0905	2.0'	691.186			7.1
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6						
	7	6-7		1.7	(6-6.9) Brown CLAY and SILT trace leafy debris, very low moisture	
7					(6.907) Mottled Brown Fine SAND, Trace Silt, Trace Leafy Debris,	
					medium moisture	

REMARKS:

Processor Initials	SS
EXPLORATION NO.	TA-SED-T9-2

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T9-3
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 594654.842	E 12804813.520	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	3.95	CORE RECOVERY (FT)	1.6
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Mini Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
6/29/18	1814	1.5'	NA	2.4

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1	0-1	0.7	(0-1) Brown SILT and ORGANICS, Trace Wood Debris, very moist	(0-1) sampled at 1507
1	2	1-1.6		0.8	(1-1.6) Same As Above but medium moisture	
2						
3						
4						
5						

REMARKS:

Processor Initials	SS
EXPLORATION NO.	TA-SED-T9-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		HA-TA-SED-T9-ISLAND
Project:	Tannery	SHEET	1 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 43.12540841	E 85.56069171	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	11	CORE RECOVERY (FT)	
GZA Processor	Sheryl Stephenson				

			DEPTH OF SURFACE WATER				Sediment Thickness (ft)
SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER EL	
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018/07/13	1610	0.6		
	Vibracore	SAMPLER LENGTH: 8 ft					

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1		0.1	Dark brown, fines and organics, little root fibers, very moist	(0-0.5) sample collected at 1451
1	2	1-2		0.3	Black, fines and organics, trace root fibers, wet, loose	(1-2) sample collected at 1508
2	3	2-3			No recovery	
3	4	3-4		0.2	Black, fines and organics, trace root fibers, wet, loose	(3-4) sample collected at 1028
4	5	4-5		0.5	(4-4.5) SAA	(4-5) sample collected at 1525
					(4.5-4.6) Wood debris	
					(4.6-5) Black fines and organics, trace fine sand, wet	
5	6	5-6		0.6	Dark brown fines and organics, little fine sand, trace root fibers, wet	
	7	6-7		1.1	Dark brown, clay and organics, trace fine sand, trace roots, wet	(6.5-7.5) sample collected at 1552

REMARKS:
SAA = Same As Above

Processor Initials CML

EXPLORATION NO. TA-SED-T9-ISLAND

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		HA-TA-SED-T9-ISLAND
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 43.12540841	E 85.56069171	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	11	CORE RECOVERY (FT)	
GZA Processor	Sheryl Stephenson				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER EL	(ft)
SAMPLING METHOD		SAMPLER O.D.: 3 in	2018/07/13	1610	0.6		
	Vibracore	SAMPLER LENGTH: 8 ft					

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6	7	6-7		1.1	Dark brown, clay and organics, trace fine sand, trace roots, wet	(6.5-7.5) sample collected at 1552
7	8	7-8		0.1	(7-7.5) SAA	0
					(7.5-8.0) Dark brown, wood chips and sil, trace fine sand, medium moist	
8	9	8-9		1.4	(8-8.5) Dark brown, fines and organics, trace wood debris, wet	
9	10	9-10		0.9	(9-9.5) SAA	
					(9.5-10) Brown clay and organics, little sand, wet	
10	6	5-6		0.6	Dark brown fines and organics, little fine sand, trace root fibers, wet	
	11	10-11		NA	No recovery	

REMARKS:
SAA = Same As Above

Processor Initials CML

EXPLORATION NO. TA-SED-T9-ISLAND

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		TA-SED-T10-1
Project:	Tannery	SHEET	1 of 1
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 595031.345	E 12804794.964	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	9.3	CORE RECOVERY (FT)	5.6
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core
SAMPLING METHOD		SAMPLER O.D.: 3 in
	Vibracore	SAMPLER LENGTH: 8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER ELEV	
6/29/18	0940	2.5'	691.120	4.2'

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	(0-1)	(0-1)	3.9	(0-1) Brown SILT and ORGANICS, Trace Wood Debris, very moist	(0-1) sampled at 1301, MS/MSD collected
						2 inches of large wood debris at 0.7'
1						
	2	(1-1.5)		5.1	(1-1.5) Brown SILT and ORGANICS, Trace Wood Debris Trace Fine Sand,	
					very moist	
	3	(1.5-2.5)		0.8	(1.5-1.7) Brown Medium to Coarse SAND, Little Silt, Trace Shells, Trace	(1.5-2.5) sampled at 1318, DUP collected
					Leafy Debris, low to medium moisture	
2					(1.7-2.5) Brown SILT, Trace Fine Sand, Trace Leafy Debris,	
	4	2.5-3		0.8	(2.5-2.9) Same As Above	
3					(2.9-3.0) Same As Above, trace wood chips	
	5	3-4	3-4	1.0	(3-3.4) Same As Above	(3-4) sampled at 1338
					(3.4-4) Brown SILT, Trace Fine Sand, Trace Organic Matter and Wood	
					Debris, medium moisture	
4	6	4-5.2		1.0	(4-4.3) Brown Fine SAND, Trace silt, Trace Leafy Debris, medium-low	
					moisture	Core cut at 4.2'
					(4.3-5.2) Brown Fine to Coarse SAND, Little to Some Gravel, Trace Silt,	
					medium to high moisture.	
5						
	7	5.2-5.6		2.0		
					(5.2-5.6) Brown Fine SAND, Some Silt, Trace Wood Debris, Low Moisture	
6						

REMARKS:

Processor Initials SS

EXPLORATION NO. TA-SED-T10-1

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc. 601 Fifth Street NW Suite 102 Grand Rapids, MI 49504	Client: Wolverine World Wide Project: Tannery City, State: Rockford, MI	SHEET	TA-SED-T10-3 1 of 1
		GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N 595986.261	E 12804859.733	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	4.6	CORE RECOVERY (FT)	3.1
GZA Processor	Sheryl Stephenson				

SAMPLE			DEPTH OF SURFACE WATER				Sediment Thickness (ft)		
TYPE:	Sediment	TYPE SAMPLER: Core	DATE	TIME	WATER DEPTH	WATER ELEV			
SAMPLING METHOD		SAMPLER O.D.: 3 in	6/28/18	1730	1.7'	691.155			3.0'
	Vibracore	SAMPLER LENGTH: 8 ft							

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	(0-1)	(0-1)	1.4	(0-1) Brown SILT and ORGANICS, trace leafy debris	(0-1) collected at 1550
1	2	(1-2)	(1-2)	0.8	(1-1.7) Brown-Gray Fine SAND, Trace Silt, Trace Shells, medium moisture	(1-2) collected at 1602
2					(1.7-2.0) Brown SILT, Trace Fine Sand, Trace Organic Debris, medium	
	3	(2-3.1)		0.7	moisture	
					(2-3.1) Same As Above	
3						
4						
5						
6						

REMARKS:

Processor Initials SS

EXPLORATION NO. TA-SED-T10-3

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		HA-TA-SED-T10-ISLAND
Project:	Tannery	SHEET	1 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	N	E	
FOREMAN:	Jeff Greene			DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	8	CORE RECOVERY (FT)	
GZA Processor	Sheryl Stephenson				

SAMPLE TYPE:	Sediment	TYPE SAMPLER: Core	DEPTH OF SURFACE WATER				Sediment Thickness (ft)	
SAMPLING METHOD		SAMPLER O.D.: 3 in	DATE	TIME	WATER DEPTH	WATER EL		
	Vibracore	SAMPLER LENGTH: 8 ft						

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
	1	0-1		0.7	(0-12") Brown, clayey, silt, some fine sand, trace roots, moist	
1	2	1-2		0.6	(0-6") SAA	
					(6-12") Brown, fine-coarse sand, some silt, trace shells, wet	
2	3	2-3		0.8	(0-12") Brown, clayey silt, little fine sand, trace wood, moist.	
3	4	3-4		1.3	(0-6") SAA	(3-4) sample collected at 1028
					(6-12") Brown, fine-coarse sand, some silt, trace shells, wet.	
4	5	4-5		0.9	(0-12") Mottled brown, sand and silt, trace roots, moist, wood debris at 1'-6"	(4-5) sample collected at 1525
					(4.5-4.6) Wood debris	
					(4.6-5) Black fines and organics, trace fine sand, wet	
5	6	5-6		1.5	(0-12") SAA	
						(6.5-7.5) sample collected at 1552

REMARKS:
SAA = Same As Above

Processor Initials	CML
EXPLORATION NO.	TA-SED-T10-ISLAND

SEDIMENT CORE LOG

GZA GeoEnvironmental, Inc.
601 Fifth Street NW Suite 102
Grand Rapids, MI 49504

Client:	Wolverine World Wide		HA-TA-SED-T10-ISLAND
Project:	Tannery	SHEET	2 of 2
City, State:	Rockford, MI	GZA PROJECT NO.	16.0062335.02 T2

SAMPLING CO:	Affiliated Researchers	LOCATION COORDINATES (International Feet)	
FOREMAN:	Jeff Greene	DATUM	MI State Plane South Zone, NAD83
GZA Oversight	Nolan Fonda	FINAL CORE PENETRATION (FT)	8
GZA Processor	Sheryl Stephenson	CORE RECOVERY (FT)	

SAMPLE TYPE:	Sediment	TYPE SAMPLER:	Core
SAMPLING METHOD	Vibracore	SAMPLER O.D.:	3 in
		SAMPLER LENGTH:	8 ft

DEPTH OF SURFACE WATER				Sediment Thickness (ft)
DATE	TIME	WATER DEPTH	WATER EL	

DEPTH feet	SAMPLE NO	DEPTH (feet)	SUBMITTED TO LAB	PID SWEEP	SAMPLE DESCRIPTION & IDENTIFICATION MODIFIED BURMISTER Color | Grain Size | MAJOR | Minor | Organics | Debris | Other	NOTES
6	7	6-7		2.0	(0-12") SAA	
7	8	7-8		1.5	(0-12") Brown, silt, some fine sand, wet	
					Bottom of boring at 8'	
8						
9						
10						
	11	10-11		NA	No recovery	

REMARKS:
SAA = Same As Above

Processor Initials	CML
EXPLORATION NO.	TA-SED-T10-ISLAND

Appendix C – Sample Data Sheets (Groundwater & Surface Water)

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/14/18 Well ID: TA-GW-01

Weather Conditions: Sunny, 65°F

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump # 6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of casing

Well Depth (ft, ref. to measuring point): 10.29

Screen Interval (ft, ref. to measuring point): ~~2~~ CM 4.75-9.75

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Purging Start Time: 08:30 (24 hour cycle) Sample Time: 09:25 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): CM ~~5.99~~ 5.99

Tubing Intake (ft, ref. to measuring point): 7.87

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 10:26 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
08:40	6.28	0.29	0.29	90	140	17.83	7490	1.80	6.83	-135.0	15.7	
08:45	6.28	0.00	0.29	90	140	17.76	7489	1.11	6.84	-126.2	17.1	
08:50	6.31	0.03	0.32	90	140	17.78	7440	0.65	6.84	-127.5	34.6	
08:55	6.33	0.02	0.34	90	140	17.96	7389	0.63	6.86	-130.4	17.7	
09:00	6.36	0.03	0.37	90	140	17.96	7364	0.57	6.87	-129.3	12.6	
09:05	6.37	0.01	0.38	90	140	17.96	7337	0.49	6.88	-130.3	18.1	
09:10	6.37	0.00	0.38	90	140	17.99	7343	0.47	6.89	-130.2	18.9	
09:15	6.38	0.01	0.39	90	140	18.02	7331	0.44	6.89	-129.8	17.9	
09:20	6.39	0.01	0.40	90	140	18.09	7324	0.41	6.90	-130.6	18.4	

FPV (gallons) = Calculations: $= (10' \times 0.0012) + (0.40' \times 0.16) = 0.012 + 0.064 = 0.076$

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Colin McGarry

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/13/18 Well ID: TA-GW-02

Weather Conditions: Sunny, 84°F

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Paristaltic Geopump # 6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of casing

Well Depth (ft, ref. to measuring point): ~~10~~ cm 9.50

Screen Interval (ft, ref. to measuring point): ~~4.5 - 9.5~~ cm 4.1 - 9.1

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Purging Start Time: 13:30 (24 hour cycle) Sample Time: 14:15 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.30

Tubing Intake (ft, ref. to measuring point): 6.70

Total Purge Volume (gallons): 2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 15:20 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
13:40	4.81	0.51	0.51	88	140	22.69	6289	9.81	7.23	36.5	3.73	
13:45	4.94	0.13	0.64	88	140	22.21	6939	6.21	7.09	39.1	3.70	
13:55	5.20	0.26	0.90	44	100	22.22	7252	5.02	7.00	44.8	0.02	
14:00	5.27	0.07	0.97	44	100	22.15	7252	3.55	6.97	46.4	0.02	
14:05	5.38	0.11	01.08	44	100	22.25	7250	3.20	6.95	48.1	0.02	
14:10	5.45	0.07	01.15	44	100	22.31	7232	2.98	6.96	48.8	0.02	
14:15	5.56	0.11	1.26	44	100	22.36	7226	2.96	6.95	49.5	0.02	

FPV (gallons) = Calculations: $= (10.5' \times 0.0012) + (1.26 \times 0.16) = 0.0126 + 0.2016 = 0.2142$ gal.

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/14/18 Well ID: TA-GW-03

Weather Conditions: Sunny, 75°F, Humid

Sampler's Name (Print) Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 11.71

Screen Interval (ft, ref. to measuring point): 6.85-11.85

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 8.73

Tubing Intake (ft, ref. to measuring point): 10.22

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 11:23 (24 hour cycle) Sample Time: 12:20 (24 hour cycle) Time at Sample Completion: 13:10 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
11:45	8.95	0.22	0.22	100	180	19.89	1568	0.65	7.41	-120.1	12.6	
11:50	8.95	0.00	0.22	100	180	20.00	1550	0.57	7.29	-117.0	2.88	
11:55	8.95	0.00	0.22	100	180	19.81	1524	0.49	7.23	-116.9	2.18	
12:00	8.95	0.00	0.22	100	180	19.75	1523	0.44	7.22	-115.1	2.24	
12:05	8.95	0.00	0.22	100	180	19.67	1521	0.42	7.23	-116.0	2.68	
12:10	8.95	0.00	0.22	100	180	19.80	1521	0.43	7.24	-112.8	2.23	
12:15	8.95	0.00	0.22	100	180	19.75	1522	0.38	7.25	-108.3	1.87	

FPV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/14/18 Well ID: TA-GW-04

Weather Conditions: Sunny 90's

Sampler's Name (Print) Brenden Edwards

Purging Device & Serial # (pump type): geopump (6219)

Reference Measuring Point (Top of PVC/Top of Casing): top of pvc north

Well Depth (ft, ref. to measuring point): 12.2'

Screen Interval (ft, ref. to measuring point): BME 7.2-12.2

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 7.65

Tubing Intake (ft, ref. to measuring point): 9.65 BME

Total Purge Volume (gallons): 4.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 955 (24 hour cycle) Sample Time: 1115 (24 hour cycle) Time at Sample Completion: 1120 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/-1 ºC (ºC)	Spec. Cond. +/-3% (µS/cm)	DO +/-10% if>0.5 (mg/L)	pH +/-0.1 units	ORP +/-10 (mV)	Turbidity +/-10% if >5 (NTU)	Comments/Adjustments
1035	8.11	0.46	0.46	120	100	20.4	1.518	1.54	7.08	15.2	0.02	
1040	8.18	0.07	0.53	120	100	20.5	1.521 BME	1.72	7.04	27.3	0.02	
1045	8.29	0.11	0.64	120	100	20.8	1.522	1.39	7.00	27.9	0.02	
1050	8.31	0.02	0.66	120	100	20.6	1.529	1.34	6.99	27.8	0.02	
1055	8.40	0.09	0.75	120	100	20.3	1.528	1.13	6.97	26.7	0.02	
1100	8.49	0.09	0.84	120	100	20.5	1.533	0.97	6.96	26.2	0.03	
1105	8.53	0.04	0.88	120	100	20.7	1.535	0.93	6.96	25.3	0.02	
1110	8.56	0.03	0.91	120	100	20.6	1.535	0.91	6.96	25.4	0.03	
1115	8.58	0.02	0.93	120	100	20.8	1.533	0.91	6.95	25.3	0.02	

(gallons) = 0.16518

Calculations: $(13.65)\times(0.0012) + (0.93)(0.16) = 0.01638 + 0.1488 = 0.16518$

es: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

Tube = 0.0012 Well = 0.16

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8/14/18 Well ID: ~~TA-MW-05~~ TA-GW-05

Weather Conditions: 62° Sunny

Sampler's Name (Print) B. Wordman V. Larimore, S. Stephenson, J. Martin

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 6.58

Screen Interval (ft, ref. to measuring point): 1.46 - 6.46

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 4.60

Tubing Intake (ft, ref. to measuring point): 5.46

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 0825 (24 hour cycle) Sample Time: 0920 (24 hour cycle) Time at Sample Completion: 0950 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0830	4.67	0.07	–	150	160	16.19	943	1.09	6.32	-4.5	0.02	
0835	4.73	0.06	0.13	175	250	15.99	946	0.92	6.47	-36.4	0.02	
0840	4.75	0.02	0.15	175	250	15.94	944	0.66	6.56	-47.0	0.02	
0845	4.82	0.07	0.22	175	250	15.94	939	0.61	6.62	-52.7	0.02	
0850	4.84	0.02	0.24	175	250	15.95	936	0.64	6.65	-55.4	0.02	
0855	4.87	0.03	0.27	175	250	15.99	933	0.62	6.67	-57.7	0.02	
0900	4.87	0.00	0.27	175	250	16.04	932	0.59	6.68	-58.9	0.02	
0905	4.89	0.02	0.29	175	250	16.04	931	0.59	6.69	-59.4	0.02	
0910	4.90	0.01	0.30	175	250	16.06	930	0.63	6.69	-58.9	0.02	
0915	4.90	0.00	0.30	175	250	16.06	929	0.64	6.69	-59.2	0.02	

FPV (gallons) = 0.06

Calculations: FPV = (Tot tubing length x Tub Cap) + (Tot Drawdown x Well Cap) = (8.46 x 0.0012) + (6.30 x 0.16) = 0.010152 + 0.048 = 0.058152

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8/14/18 Well ID: ~~TA-GW-OC~~ TA-GW-06

Weather Conditions: 72° Sunny

Sampler's Name (Print): B. Woolman, V. Larimore, S. Stephenson, J. Martin

Purging Device & Serial # (pump type): Geotech Grpump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 10.38

Screen Interval (ft, ref. to measuring point): 4.57-9.57

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.86

Tubing Intake (ft, ref. to measuring point): 7.69

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1015 (24 hour cycle) Sample Time: 1050 (24 hour cycle) Time at Sample Completion: 1120 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1020	6.13	0.27	–	175	300	21.02	2890	0.66	7.51	-118.5	0.02	
1025	6.15	0.02	0.29	175	300	19.84	2922	0.47	7.39	-125.8	0.02	
1030	6.19	0.04	0.33	175	300	19.21	2900	0.40	7.35	-122.6	0.02	
1035	6.19	0.00	0.33	175	300	19.07	2893	0.35	7.30	-125.6	0.02	
1040	6.19	0.00	0.33	175	300	19.22	2896	0.37	7.30	-121.8	0.02	
1045	6.19	0.00	0.33	175	300	19.18	2899	0.38	7.31	-118.7	0.02	

FPV (gallons) = 0.07

Calculations: FPV = (Tot tubing length x Tubing Cap.) + (Tot Drawdown x Well Cap) = (11.26 x 0.0012) + (0.33 x 0.16) = 0.01344 + 0.0528 = 0.06624

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8/13/18 Well ID: TA-GW-07

Weather Conditions: 84° Sunny

Sampler's Name (Print) B. Woodman, V. Larimore, J. Martin

Purging Device & Serial # (pump type): Geotech Grepump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 10.29

Screen Interval (ft, ref. to measuring point): 4.74 - 9.74

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 6.56

Tubing Intake (ft, ref. to measuring point): 8.15

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1325 (24 hour cycle) Sample Time: 1445 (24 hour cycle) Time at Sample Completion: 1625 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1330	6.79	0.23	—	175	250	23.19	1322	1.06	7.32	-101.0	13.7	
1335	6.94	0.15	0.38	175	250	22.80	1299	0.72	7.11	-88.5	5.55	
1340	6.97	0.03	0.41	(W) ~~175~~ 160	200	22.69	1297	0.66	7.05	-87.8	8.72	
1345	7.05	0.08	0.49	(W) ~~175~~ 160	200	22.17	1294	0.49	7.00	-79.4	2.11	
1350	7.07	0.02	0.51	131	180	22.10	1292	0.50	6.96	-85.4	0.02	
1355	6.96	-0.11	0.40	131	180	21.93	1290	0.48	6.97	-79.0	0.02	
1400	6.94	-0.02	0.38	131	180	21.91	1286	0.45	6.96	-70.8	0.02	
1405	6.95	0.01	0.39	131	180	22.09	1283	0.89	7.02	-79.7	0.02	
1410	6.95	0.00	0.39	131	180	21.99	1286	0.90	7.07	-83.4	0.02	
1415	6.95	0.00	0.39	131	180	22.07	1282	0.93	7.08	-79.8	0.02	
1420	6.96	0.01	0.40	131	180	22.41	1280	1.00	7.12	-84.0	0.02	

FPV (gallons) = 0.09

Calculations:

FPV = (Tot Tubing Length × Tubing Cap.) + (Tot Drawdown × Well Cap) = (9.65 × 0.0012) + (0.51 × 0.16) = 0.09329 gallons

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8/13/18 Well ID: TA-GW-07

Weather Conditions: 84° Sunny

Sampler's Name (Print): B. Woodrow, V. Larimore, J. Martin

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 10.29

Screen Interval (ft, ref. to measuring point): 4.74 - 9.74

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 6.56

Tubing Intake (ft, ref. to measuring point): 8.15

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1325 (24 hour cycle) Sample Time: 1445 (24 hour cycle) Time at Completion: 1625 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1425	6.96	0.00	0.40	131	180	~~24~~ 22.55	1278	~~1.08~~	7.13	-77.5	0.02	1.02
1430	6.96	0.00	0.40	131	180	22.78	1276	0.75	7.13	-78.4	0.02	
1435	6.96	0.00	0.40	131	180	22.64	1273	0.77	7.14	-85.1	0.02	
1440	6.96	0.00	0.40	131	180	22.46	1268	0.80	7.13	-81.1	0.02	

FPV (gallons) = 0.09

Calculations: See page 1

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/14/18 Well ID: TA-GW-08

Weather Conditions: sunny 90's

Sampler's Name (Print) Brendan Edwards

Purging Device & Serial # (pump type): geopump (6219)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC North

Well Depth (ft, ref. to measuring point): 10.3

Screen Interval (ft, ref. to measuring point): 5-10'

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 6.93

Tubing Intake (ft, ref. to measuring point): 8.5

Total Purge Volume (gallons): 2.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 0800 (24 hour cycle) Sample Time: 845 (24 hour cycle) Time at Sample Completion: 925 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
825	6.96	0.03	0.03	120	100	18.2	1.276	0.64	6.89	-133.6	0.33	
830	6.99	0.03	0.06	120	100	18.2	1.260	0.57	6.90	-137.9	0.02	
835	6.99	0.0	0.06	120	100	18.3	1.266	0.48	6.90	-139.6	0.02	
840	7.00	0.01	0.07	120	100	18.5	1.257	0.45	6.90	-139.8	0.02	
845	7.00	0.0	0.07	120	100	18.4	1.255	0.41	6.90	-140.3	0.02	

(gallons) = NA Calculations:

es: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/27/18 Well ID: TA-GW-09

Weather Conditions: 72° Cloudy

Sampler's Name (Print): V. Larimore, S. Stephenson

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 12.21

Screen Interval (ft, ref. to measuring point): 6.93 - 11.93

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): ~~9.25~~ 9.33

Tubing Intake (ft, ref. to measuring point): ~~12.27~~ 10.59

Total Purge Volume (gallons): 2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1055 (24 hour cycle) Sample Time: — (24 hour cycle) Time at Sample Completion: — (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1100	9.91	0.58	—	131	150	16.87	5337	9.52	6.36	137.7	13.0	
1105	9.97	0.06	0.64	~~131~~ (W)	~~150~~ (W)	17.35	5322	7.00	6.37	127.3	7.75	109, 125
1110	10.05	0.08	0.72	~~131~~ (W)	~~150~~ (W)	17.58	5321	9.36	6.44	121.4	6.03	109, 125
1115	10.12	0.07	0.79	~~131~~ (W)	~~150~~ (W)	17.72	5321	9.02	6.48	116.8	6.49	109, 125
1120	10.29	0.17	0.96	~~131~~ (W)	~~150~~ (W)	18.09	5306	8.30	6.56	109.1	4.25	109, 125
1125	10.39	0.10	1.06	88	90	18.27	5285	7.79	6.60	107.1	5.05	
1130	10.51	0.12	1.18	88	90	18.86	5276	~~6~~ 7.11 (W)	6.64	105.4	4.31	
1135	10.62	0.11	1.29	88	90	19.05	5271	6.96	6.67	105.8	5.38	
1140	10.79	0.17	1.46	88	90	19.13	5253	7.01	6.66	108.5	4.17	
1145	11.00	0.21	1.67	88	90	19.04	5243	6.94	6.66	111.2	6.56	
1150	10.92*	-0.08	1.59	88	90	19.88	5210	6.41	6.67	112.0	7.34	* used different w/m, measurements slightly different

FPV (gallons) = 0.3

Calculations: FPV = (Tot Tub. Length × Tub Cap) + (Tot Drawdown × Well Cap) = (13 × 0.0012) + (1.67 × 0.16) = 0.0156 + 0.2672 = 0.2828 gallons

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Pump set at incorrect midpoint (approximately 11.10 ft bgs). Stopped pump to allow for recharge and to adjust tubing intake depth. See page 2 for purge data.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/27/18 Well ID: TA-GW-09

Weather Conditions: 84° Partly Cloudy

Sampler's Name (Print): V. Larimore, S. Stephenson

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 12.21

Screen Interval (ft, ref. to measuring point): 6.93 - 11.93

Samples Collected: VOCs, SVOCs, TAL Metals, ~~TAL~~ Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 9.33

Tubing Intake (ft, ref. to measuring point): 10.59

Total Purge Volume (gallons): 1.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1335 (24 hour cycle)

Sample Time: 1445, 1105 (24 hour cycle) 8/27/18, 8/28/18

Time at Sample Completion: 1310, 1145 (24 hour cycle) 8/27/18, 8/28/18

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1340	~~11.04~~ @	1.16	–	88	90	19.91	5174	7.40	6.59	111.6	11.0	~~12.25~~ @ 10.49
1345	10.54	0.05	1.21	88	90	20.73	5150	6.92	6.55	112.0	11.8	
1350	10.55	0.01	1.22	88	90	22.48	5155	6.35	6.68	109.1	5.45	
1355	10.55	0.00	1.22	88	90	23.36	5157	6.15	6.71	110.3	3.03	
1400	10.55	0.00	1.22	88	90	23.68	5158	6.08	6.73	110.6	2.17	
1405	10.55	0.00	1.22	88	90	23.96	5155	6.02	6.73	111.5	3.53	
1410	10.55	0.00	1.22	88	90	24.41	5156	5.92	6.75	112.0	3.92	
1415	10.55	0.00	1.22	88	90	24.51	5155	5.89	6.75	112.3	2.90	
1420	10.55	0.00	1.22	88	90	24.59	5155	5.86	6.75	111.5	3.31	
1425	10.55	0.00	1.22	88	90	24.52	5154	5.84	6.74	110.7	3.23	
1430	10.55	0.00	1.22	88	90	24.49	5153	5.81	6.74	109.2	2.62	

FPV (gallons) = 0.2

Calculations: FPV = (Tot. Tub Length x Tub Cap) + (Tot Drawdown x Well Cap) = (13 x 0.0012) + (1.22 x 0.16) = 0.0156 + 0.1952 = 0.2108 gallons

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Virginia Larimore

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/27/18 Well ID: TA-GW-09

Weather Conditions: 84° Partly Cloudy

Sampler's Name (Print): V. Lorinda, S. Stephenson

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 12.21

Screen Interval (ft, ref. to measuring point): 6.93 - 11.93

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom

Initial Water Level (ft, ref. to measuring point): 9.33

Tubing Intake (ft, ref. to measuring point): 10.59

Total Purge Volume (gallons): 1.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/2

Indicator Parameter Stabilization (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 1335 (24 hour cycle)

Sample Time: 1445 (8/27/18), 1105 (8/28/18) (24 hour cycle)

Time at Sample Completion: 1310 (8/27/18), 1145 (8/28/18) (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1435	10.55	0.00	1.22	88	90	24.45	5154	5.83	6.73	108.0	3.17	
1440	10.55	0.00	1.22	88	90	24.44	5156	5.81	6.73	106.0	2.92	
Attempted to sample at 1445 on 8/27/18. Stopped after PFAS was collected due to air bubbles in the line (pumped well dry). PDA to come back the following day and sample well for remaining analytes.												
Water level at 1045 am on 8/28/18 was 8.83. Sampled at 1105 per SOP.												

FPV (gallons) = 0.2

Calculations: See page 2 for calc.

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Virginia Lorinda

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/8/18 Well ID: ~~TN~~ TA-MW-1

Weather Conditions: SUNNY, 75°F

Sampler's Name (Print) BEN WOODMAN / Colin McGarry

Purging Device & Serial # (pump type): PERISTALTIC GEO PUMP 6184

Reference Measuring Point (Top of PVC/Top of Casing): NORTH SIDE / TOP OF CASING

Well Depth (ft, ref. to measuring point): 8.65'

Screen Interval (ft, ref. to measuring point): 3.42'- 8.12'

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 3.25

Tubing Intake (ft, ref. to measuring point): 5.77

Total Purge Volume (gallons): ~4 gal

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 12:59 (24 hour cycle) Sample Time: 13:45 (24 hour cycle) Time at Sample Completion: 14:30 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
13:04	3.44	0.19	0.19	175	290	20.29	572	~~9.60~~ 0.90	~~-4.2~~ CM	-108.6	0.02	DO: 0.90 mg/L, PH: 7.04
13:09	3.47	0.03	0.22	175	290	20.06	564	0.90	7.09	-106.5	0.02	
13:14	3.47	0.00	0.22	175	290	20.07	562	0.61	7.18	-114.5	0.02	
13:19	3.48	0.01	0.23	175	290	20.09	555	0.49	7.28	-117.5	0.02	
13:24	3.48	0.00	0.23	175	290	20.13	549	0.80	7.43	-132.5	0.02	
13:29	3.50	0.02	0.25	175	290	19.93	546	0.52	7.35	-134.9	0.02	
13:34	3.49	-0.01	~~0.25~~ 0.24	175	290	20.08	543	0.47	7.42	-139.5	0.02	
13:39	3.49	0.00	0.24	175	290	19.79	541	0.44	7.42	-148.1	0.02	
13:44	3.49	0.00	0.24	175	290	19.71	540	0.52	7.34	-151.3	0.02	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/10/18 Well ID: TA-MW-2

Weather Conditions: Sunny 70's

Sampler's Name (Print): Andrew Martin

Purging Device & Serial # (pump type): Geo Pump 4788

Reference Measuring Point (Top of PVC/Top of Casing): Northside Top of Casing

Well Depth (ft, ref. to measuring point): 7.94

Screen Interval (ft, ref. to measuring point): 2.45 - 7.35

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 3.61

Tubing Intake (ft, ref. to measuring point): ~~7.52~~ 5.465

Total Purge Volume (gallons): 2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0855 (24 hour cycle) Sample Time: 0935 (24 hour cycle) Time at Sample Completion: 1010 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
~~0915~~ 0920	3.63	0.02	0.02	140	120	19.9	1.054	0.42	7.61	-199.5	0.54	
0925	3.63	0	0.02	140	120	19.8	1.044	0.41	7.62	-207.0	0.02	
0930	3.63	0	0.02	140	120	19.6	1.036	0.24	7.63	-189.3	0.02	
0935	3.63	0	0.02	140	120	19.7	1.020	0.24	7.64	-207.8	0.02	

gallons) = N/A Calculations:

: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Andrew Martin
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/8/18 Well ID: TA-MW-3

Weather Conditions: Sunny, Humid

Sampler's Name (Print): Andrew Martin, Brenden Edwards, Ben Woodman

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 7.35

Screen Interval (ft, ref. to measuring point): 2.11-6.81

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.64

Tubing Intake (ft, ref. to measuring point): 6.255

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 15:42 (24 hour cycle)

Sample Time: 1650 (24 hour cycle)

Time at Sample Completion: 1735 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
~~1547~~	~~5.70~~	~~0.06~~	~~0.06~~	~~117~~	~~100~~	~~23.4~~	~~0.013~~	~~1.25~~	~~7.45~~	~~258.3~~	~~2.07~~	Flow thrgh cell not full
1557	5.80	0.16	0.16	117	100	23.2	1.196	0.74	~~7.19~~ 7.55	184.3	9.52	
1602	5.79	0	0.16	117	100	23.4	1.184	0.57	11.17	180.4	3.88	
1607	5.79	0	0.16	117	100	23.6	1.173	0.51	12.03	171.4	1.38	
1612	5.79	0	0.16	117	100	23.4	1.170	0.42	12.25	~~12~~ 140.3	2.03	
1617	5.79	0	0.16	117	100	23.1	1.178	0.39	12.44	-16.9	1.50	
1622	5.79	0	0.16	117	100	23.1	1.162	0.41	12.41	-18.0	0.02	
~~1627~~ 1628	5.79	0	0.16	117	100	23.59	1.188	1.84	7.41	13.09	0.64	Switched YSI's
1635	5.79	0	0.16	117	100	23.52	1.182	1.44	7.28	~~1640~~ 1670	0.70	Last 4 lines rewritten
1640	5.80	0.01	0.17	117	100	23.42	1.177	~~1.23~~ 1.54	7.14	21.2	0.02	Page 2 of 2.
1645	5.80	0	0.17	117	100	23.43	1.173	1.48	7.14	17.9	0.02	

FPV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date : 8/8/18 Well ID : TA-MW-3

Weather Conditions : Sunny, Humid

Sampler's Name (Print) Andrew Motor, Brooke Eckers, Ben Woodman

Purging Device & Serial # (pump type): Geo pump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 235

Screen Interval (ft, ref. to measuring point): 2.11 - 6.81

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.64

Tubing Intake (ft, ref. to measuring point): 6.255

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : 15:42 (24 hour cycle) Sample Time: 1650 (24 hour cycle) Time at Sample Completion: 1735 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1630	5.79	0	0.16	117	100	23.59	11.88	1.84	7.41	13.09	0.64	
1635	5.79	0	0.16	117	100	23.52	11.82	1.44	7.28	16.70	0.70	
1640	5.80	0.01	0.17	117	100	23.42	11.77	1.54	7.14	21.2	0.02	
1645	5.80	0	0.17	117	100	23.43	11.73	1.48	7.14	17.9	0.02	
1650	5.81	0.01	0.18	117	100	23.47	11.70	1.44	7.19	13.2	0.02	

FPV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8/13/18 Well ID: TA-MW-4

Weather Conditions: 66° Fair

Sampler's Name (Print): B. Woodman V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump 6219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 11.63

Screen Interval (ft, ref. to measuring point): 3.50 - 8.50

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.97

Tubing Intake (ft, ref. to measuring point): 7.23

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization (circle one): yes OR no

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0820 (24 hour cycle) Sample Time: 0910 (24 hour cycle) Time at Sample Completion: 1010 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0825	6.11	0.14	—	~~180~~ 175	180	16.2	2.033	0.49	7.22	-91.0	1.67	
0830	6.09	-0.02	0.12	175	180	16.3	2.022	0.21	7.17	-103.1	3.48	
0835	6.13	0.04	0.16	175	180	16.5	2.020	0.18	7.16	-105.3	2.43	
0840	6.14	0.01	0.17	175	180	16.3	2.018	0.13	7.17	-109.1	0.80	
0845	6.14	0.00	0.17	175	180	16.5	2.011	0.11	7.17	-112.3	3.32	
0850	6.14	0.00	0.17	175	180	16.6	2.015	0.09	7.17	-114.8	4.04	
0855	6.14	0.00	0.17	175	180	16.4	2.013	0.08	7.18	-117.7	3.27	
0900	6.14	0.00	0.17	175	180	16.6	2.013	0.07	7.18	-120.2	2.52	
0905	6.14	0.00	0.17	175	180	16.8	2.013	0.07	7.18	-122.5	3.07	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/9/18 Well ID: TA-MW-5

Weather Conditions: 81° Mostly Cloudy

Sampler's Name (Print): B. Woodman, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump H15038595

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 10.33

Screen Interval (ft, ref. to measuring point): 4.56 - 9.56

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.17

Tubing Intake (ft, ref. to measuring point): 7.365

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1550 (24 hour cycle) Sample Time: 1630 (24 hour cycle) Time at Sample Completion: 1700 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1555	5.21	0.04	–	175	250	22.30	567	1.01	7.08	-95.8	12.5	
1600	5.20	-0.01	0.03	175	250	22.74	556	~~2.12~~ (U)	6.95	-78.8	0.02	0.74
1605	5.21	0.01	0.04	175	250	22.62	555	0.54	6.87	-88.6	0.02	
1610	5.21	0.00	0.04	175	250	22.60	554	0.50	6.85	-88.8	0.02	
1615	5.21	0.00	0.04	175	250	22.69	554	0.46	6.88	-93.1	0.02	
1620	5.21	0.00	0.04	175	250	22.68	555	0.40	6.89	-89.4	0.02	
1625	5.21	0.00	0.04	175	250	22.59	555	0.40	6.89	-88.7	0.02	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Virginia Larimore

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8-9-18 Well ID: MW-110

Weather Conditions: SUNNY 85°

Sampler's Name (Print) Colin McGarry

Purging Device & Serial # (pump type): PERISTALTIC GEOPUMP 6184

Reference Measuring Point (Top of PVC/Top of Casing): NORTH SIDE TOP OF CASING

Well Depth (ft, ref. to measuring point): 10.10

Screen Interval (ft, ref. to measuring point): 5.23'-9.99'

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.20

Tubing Intake (ft, ref. to measuring point): 7.58

Total Purge Volume (gallons): ~6 gals

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 15:41 (24 hour cycle) Sample Time: 16:15 (24 hour cycle) Time at Sample Completion: 17:19 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (Rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
15:46	5.34	0.14	0.14	120	170	19.57	14711	3.41	7.50	-165.1	5.05	
15:51	5.34	0.00	0.14	120	170	19.70	14347	0.85	7.41	-168.6	3.78	
15:56	5.34	0.00	0.14	120	170	19.49	14235	0.49	7.35	-172.4	4.77	
16:01	5.34	0.00	0.14	120	170	19.58	14445	0.35	7.34	-182.3	4.84	
16:06	5.34	0.00	0.14	120	170	19.44	14684	0.31	7.34	-187.5	5.06	
16:11	5.34	0.00	0.14	120	170	19.41	14841	0.29	7.34	-191.4	5.67	
												GROUNDWATER REACTIVE WITH HCL IN VOC VOA VIALS

FPV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name IA Point

Date: 8/10/18 Well ID: ~~IN~~-MW-301B

Weather Conditions: Sunny, 75°

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 10.94

Screen Interval (ft, ref. to measuring point): 8.83 - 10.83

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 3.52

Tubing Intake (ft, ref. to measuring point): 9.83

Total Purge Volume (gallons): ~~~2.5 gal~~ 4 gal.

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 0935 (24 hour cycle) Sample Time: 1050 (24 hour cycle) Time at Sample Completion: 11:20 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0942	3.97	0.45	0.45	JM ~~130~~ 110	180	17.90	1823	2.63	7.49	43.9	14.9	
0947	4.00	0.03	0.48	110	180	17.36	1750	1.85	7.16	43.8	6.11	
0952	4.00	0.00	0.48	110	180	17.32	1671	1.74	7.12	36.1	3.75	
0957	4.00	0.00	0.48	110	180	17.18	1605	1.12	7.10	27.8	0.78	
1002	4.00	0.00	0.48	110	180	17.25	1523	0.96	7.10	19.0	0.02	
10:07	4.00	0.00	0.48	110	180	17.27	1478	0.87	7.11	10.2	0.02	
1012	4.00	0.00	0.48	110	180	17.07	1467	0.83	7.14	3.4	0.20	
1017	4.00	0.00	0.48	110	180	17.24	1441	0.65	7.15	-2.8	0.56	
1022	4.00	0.00	0.48	110	180	17.16	1424	0.66	7.18	-9.7	0.02	
1027	4.00	0.00	0.48	110	180	17.27	1399	0.65	7.19	-14.3	0.02	
1032	4.02	0.02	0.50	110	180	17.15	1393	0.53	7.22	-18.6	0.02	

PV (gallons) = Calculations: = 0.09656 gal.

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Colin McGarry

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name: TA RBH

Date: 8/10/18 Well ID: TA-MW-301B

Weather Conditions: Sunny, 75°

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 10.94

Screen Interval (ft, ref. to measuring point): 8.83 - 10.83

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 3.52

Tubing Intake (ft, ref. to measuring point): 9.83

Total Purge Volume (gallons): 4 gal.

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0935 (24 hour cycle) Sample Time: 1050 (24 hour cycle) Time at Sample Completion: 1120 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1035	4.02	0.00	0.50	110	180	17.20	1372	0.52	7.23	-24.0	0.02	
1042	4.02	0.00	0.50	110	180	17.24	1366	0.52	7.23	-29.2	0.02	
1047	4.02	0.00	0.50	110	180	17.37	1359	0.51	7.25	-31.8	0.02	

PV (gallons) = Calculations: = (0.~~30~~ 13.8 cm x 0.0012) + (0.50' x 0.16) = 0.~~0006~~ 0.01656 cm + 0.08 = ~~0.0806 gal.~~ cm 0.09656 gal

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/13/18 Well ID: TA-MW-301C

Weather Conditions: Sunny 80s

Sampler's Name (Print): Brendan Edwards

Purging Device & Serial # (pump type): geopump 6219

Reference Measuring Point (Top of PVC/Top of Casing): North top of PVC

Well Depth (ft, ref. to measuring point): 24.97

Screen Interval (ft, ref. to measuring point): 22.33 - 27.33

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 7.02

Tubing Intake (ft, ref. to measuring point): ~~24.83~~ 23.65

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1230 (24 hour cycle) Sample Time: 1300 (24 hour cycle) Time at Sample Completion: 1324 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1240	7.06	0.04	0.04	230	300	16.5	0.879	0.89	7.42	16.3	0.52	
1245	7.06	0.0	0.04	230	300	16.6	0.883	0.47	7.30	22.6	0.02	
1250	7.06	0.0	0.04	230	300	16.7	0.876	0.46	7.28	25.9	1.37	
1255	7.07	0.01	0.05	230	300	16.4	0.880	0.39	7.27	26.9	0.02	
1300	7.07	0.0	0.05	230	300	16.4	0.876	0.38	7.26	27.8	0.02	

PV (gallons) = Calculations:

otes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8-7-18 Well ID: ~~TM~~-MW-301D

Weather Conditions: Hot, partly cloudy

Sampler's Name (Print): BW/DMG

Purging Device & Serial # (pump type): Peristaltic Geopump # ~~687~~ 6184

Reference Measuring Point (Top of PVC/Top of Casing): Northside, top of casing

Well Depth (ft, ref. to measuring point): 76.85 ft

Screen Interval (ft, ref. to measuring point): 59.28 – 74.28 ft

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Mercury, Hardness, Hexavalent Chromium, Ammonia, Nitrate/Nitrite, Chloride, Total Cyanide, Total phosphorus, Sulfate, Acetic Acid, Formic Acid, Sulfide, Available Cyanide

Purging Start Time: 14:33 pm (24 hour cycle)

Sample Time: 15:10 pm (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 10.03

Tubing Intake (ft, ref. to measuring point): 71.78 ft

Total Purge Volume (gallons): ~4 gal.

PVC/Inner Well Casing ID (inches): 2"

Tubing ID (inches): 1/4"

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 15:26 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
14:38	10.11	00.08	00.08	263	420	14.67	1916	7.3	6.83	-81.3	0.02	
14:43	10.12	00.01	00.09	263	420	14.69	1918	6.4	6.84	-55.4	0.02	
14:48	10.12	00.00	00.09	263	420	14.59	1920	4.8	6.88	-53.2	0.02	
14:53	10.12	00.00	00.09	263	420	14.67	1919	4.6	6.91	-51.7	0.02	
14.58	10.12	00.00	00.09	263	420	14.63	1923	4.5	6.96	-45.4	0.02	
15:03	10.12	00.00	00.09	263	420	14.70	1923	4.7	7.00	-48.1	0.02	

FPV (gallons) = Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/10/18 Well ID: TA-MW-302A

Weather Conditions: Sunny, 75°

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 5.75

Screen Interval (ft, ref. to measuring point): 3.25 - 5.65

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 3.34

Tubing Intake (ft, ref. to measuring point): 4.455

Total Purge Volume (gallons): ~2 gal

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: ~~yes~~ OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 08:08 (24 hour cycle)

Sample Time: Not sampled (24 hour cycle)

Time at Sample Completion: Not sampled (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
08:15	3.79	0.45	0.45	110	140	20.47	1066	0.93	7.14	-117.7	760	
08:20	4.03	0.24	0.69	88	120							
0825	4.25	0.22	0.91	88	120	20.72	1016	1.10	7.11	-112.1	2.22	Well Purged Dry at 66 ml/min
0830	4.42	0.17	1.08	88	120	20.37	1013	0.67	7.03	-108.1		Turned pump off to allow recharge
0850	4.49	-0.07	1.01	66	100							Moved intake to 4.955 ft
0856	4.65	0.16	1.17	66	100	20.61	1031	1.72	7.08	-112.7	20.9	
0901	4.75	0.10	1.27	66	100	20.64	1027	0.76	7.02	-108.9	11.2	
0906	4.87	0.12	1.39	66	100	20.66	1020	0.57	7.01	-105.9	6.92	
0911	4.96	0.09	1.48	66	100	20.68	1019	0.49	7.01	-106.2	8.71	
0913	5.00	-0.04	1.44									Turned pump off to allow recharge
0955	4.64											11:35 Well ran dry and did not stabilize 423@

/ (gallons) = Calculations: (8.5' x 0.0012) + (1.48' x 0.16) = 0.0102 + 0.2368 = 0.2470 gal.

tes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Colin McGarry

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/9/18 Well ID: TA-MW-302B

Weather Conditions: 69° Partly Cloudy

Sampler's Name (Print): B. Woodman, V. Latimore

Purging Device & Serial # (pump type): Geotech Geopump HI 50085 3095

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC (N)

Well Depth (ft, ref. to measuring point): 14.32

Screen Interval (ft, ref. to measuring point): 9.27 - 14.07

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.92

Tubing Intake (ft, ref. to measuring point): 11.67

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0820 (24 hour cycle) Sample Time: 0910 (24 hour cycle) Time at Sample Completion: 1005 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0825	3.07	0.15	—	175	200	16.83	2167	2.28	7.25	-145.3	0.02	
0830	3.08	0.01	0.16	175	200	16.58	2169	2.11	7.00	-130.8	0.02	
0835	3.09	0.01	0.17	175	200	16.33	2138	1.12	6.98	-136.0	0.02	
0840	3.09	0.00	0.17	175	200	16.36	2113	0.80	7.04	-140.6	0.02	
0845	3.10	0.01	0.18	180	250	16.63	2101	0.74	7.11	-142.1	0.02	
0850	3.11	0.01	0.19	180	250	16.37	2086	0.68	7.17	-141.0	0.02	
0855	3.11	0.00	0.19	180	250	16.49	2079	0.62	7.21	-142.4	0.02	
0900	3.11	0.00	0.19	180	250	16.66	2072	0.59	7.25	-137.9	0.02	
0905	3.11	0.00	0.19	180	250	16.53	2056	0.56	7.28	-138.2	0.02	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Latimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name EA DBH

Date: 8/13/18 Well ID: EA-MW-303A

Weather Conditions: Sunny, 65°F

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Geopump (Peristaltic) #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 7.80

Screen Interval (ft, ref. to measuring point): 2.43 – 7.13

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 3.44

Tubing Intake (ft, ref. to measuring point): 5.21

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 08:24 (24 hour cycle) Sample Time: 09:03 (24 hour cycle) Time at Sample Completion: 09:35 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (RPM)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
08:35	3.50	0.06	0.06	165	200	17.46	3926	7.56	6.86	-88.9	0.02	
08:40	3.51	0.01	0.07	165	200	17.47	3924	1.40	6.82	-92.5	0.02	
08:45	3.51	0.00	0.07	165	200	17.66	3924	0.73	6.77	-90.8	0.02	
08:50	3.51	0.00	0.07	165	200	17.78	3929	0.70	6.77	-93.3	0.02	
08:55	3.51	0.00	0.07	165	200	17.93	3920	0.66	6.78	-99.7	0.02	
09:00	3.51	0.00	0.07	165	200	17.99	3917	0.64	6.79	-99.9	0.02	

FPV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Colin McGarry

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/10/18 Well ID: ~~TA-303~~ ATM TA-MW-303B

Weather Conditions: Sunny 80's

Sampler's Name (Print): Andrew Martin

Purging Device & Serial # (pump type): Gespump 4788

Reference Measuring Point (Top of PVC/Top of Casing): North Side Top of Casing

Well Depth (ft, ref. to measuring point): 15.64

Screen Interval (ft, ref. to measuring point): 9.75 - 14.55

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.65

Tubing Intake (ft, ref. to measuring point): 12.15

Total Purge Volume (gallons): 2.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 1030 (24 hour cycle) Sample Time: 1115 (24 hour cycle) Time at Sample Completion: 1215 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1055	2.86	0.21	0.21	110	100	17.5	3.356	0.27	6.77	-144.2	0.02	
1100	2.90	~~0.25~~ 0.04	0.25	110	100	17.5	3.352	0.34	6.68	-141.3	3.11	slight sheen, sulfur odor
1105	2.90	0	0.25	110	100	17.3	3.343	0.40	6.63	-134.2	0.02	
1110	2.90	0	0.25	110	100	17.2	3.330	0.11	6.59	-136.0	2.46	
1115	2.91	0.01	0.26	110	100	17.1	3.347	0.12	6.55	-137.3	1.53	

(gallons) = N/A Calculations:

es: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Andrew Martin
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/10/18 Well ID: TA-MW-303C

Weather Conditions: Sunny 80's

Sampler's Name (Print): Andrew Martin

Purging Device & Serial # (pump type): GeoPump 4788

Reference Measuring Point (Top of PVC/Top of Casing): Northside Top of casing

Well Depth (ft, ref. to measuring point): 21.79

Screen Interval (ft, ref. to measuring point): 16.8- 21.6

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.38

Tubing Intake (ft, ref. to measuring point): 19.2

Total Purge Volume (gallons): 2.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1235 (24 hour cycle) Sample Time: 1315 (24 hour cycle) Time at Sample Completion: 1335 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1300	2.62	0.04	0.04	190	220	14.7	3.986	0.12	6.94	-162.5	8.67	
1305	2.62	0.00	0.04	190	220	14.7	3.981	0.08	6.92	-160.1	7.34	
1310	2.63	0.01	0.05	190	220	14.8	3.984	0.18	6.90	-158.2	BWC 0.77	

gallons) = N/A Calculations:

: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Andrew Martin
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8/7/18 Well ID: MW-303D

Weather Conditions: 74° Partly Cloudy

Sampler's Name (Print) B. Woodman, V. Lehimore

Purging Device & Serial # (pump type): Geotech Geopump 0219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 47.26

Screen Interval (ft, ref. to measuring point): 69.28 - 74.28

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 8.48

Tubing Intake (ft, ref. to measuring point): 46.23

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 1025 (24 hour cycle) Sample Time: 1100 (24 hour cycle) Time at Sample Completion: 1175 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1030	8.51	0.03	-	175	~~175~~ 140	16.9	2.041	1.21	7.19	-118.2	6.62	140
1035	8.51	0.00	0.03	175	140	17.0	2.085	0.88	7.16	-108.2	2.07	
1040	8.51	0.00	0.03	175	140	16.2	2.060	0.43	7.14	-115.3	0.02	
1045	8.51	0.00	0.03	175	140	16.6	2.057	0.32	7.15	-119.7	0.32	
1050	8.51	0.00	0.03	175	140	16.5	2.054	0.34	7.17	-120.6	0.02	
1055	8.51	0.00	0.03	175	140	16.6	2.053	0.33	7.18	-129.0	0.02	

FPV (gallons) = NA Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Lehimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date : 8/7/18 Well ID : MW-303 E

Weather Conditions : 66° Fog

Sampler's Name (Print) B. Wordlman, V. Lasimore

Purging Device & Serial # (pump type): Geotech Geopump 0219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 53.98

Screen Interval (ft, ref. to measuring point): 44.59 - 47.59

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot. CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail. CN

Initial Water Level (ft, ref. to measuring point): 8.33

Tubing Intake (ft, ref. to measuring point): 46.09

Total Purge Volume (gallons): 4.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : 0825 (24 hour cycle) Sample Time: 0910 (24 hour cycle) Time at Sample Completion: 1020 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (mS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0830	8.37	0.04	–	175	140	15.4	2.322	0.54	6.99	-66.7	1.01	
0835	8.37	0.00	0.04	175	140	14.9	2.308	0.81	7.07	-80.2	1.79	
0840	8.36	-0.01	0.03	175	140	14.7	2.306	0.14	7.09	-82.3	0.72	
0845	8.38	0.02	0.05	175	140	14.7	2.306	0.07	7.11	-86.4	1.47	
0850	8.38	0.00	0.05	175	140	14.8	2.316	0.08	7.12	-88.5	1.03	
0855	8.37	-0.01	0.04	175	140	14.6	2.329	0.03	7.12	-87.8	0.02	
0900	8.37	0.00	0.04	175	140	14.9	2.342	-0.01	7.13	~~-88.~~ -87.6	0.02	-87.6
0905	8.37	0.00	0.04	175	140	14.6	2.349	0.02	7.14	-88.2	0.02	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Lasimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

8/13/18 Well purged dry
8/14/18 Sampled using No purge method

Date: 8/13/18 Well ID: TA-MW-304A
Weather Conditions: Sunny, dry
Sampler's Name (Print): Sheryl Stephenson
Purging Device & Serial # (pump type): Geotech Geopump 3631
Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC (North)
Well Depth (ft, ref. to measuring point): ~~Top of PVC (North)~~ss 5.20 ft.
Screen Interval (ft, ref. to measuring point): 2.26 - 15.06
Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.87
Tubing Intake (ft, ref. to measuring point): 3.94
Total Purge Volume (gallons): 1.0
PVC/Inner Well Casing ID (inches): 2
Tubing ID (inches): 1/4
Indicator Parameter Stabilization: yes OR no (circle one)
Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 10.15 (24 hour cycle) Sample Time: N/A (24 hour cycle) Time at Sample Completion: N/A (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1020	3.69	0.82	0.82	175	250	21.16	2327	0.65	7.47	+121.7	0.20	
1025	3.70	0.01	0.83	87.5	120	21.43	2319	0.61	7.44	-125.9	2.05	
10.30	3.76	0.06	0.89	87.5	120	21.53	2350	0.87	7.44	-117.4	0.02	
10.35	3.85	0.09	0.98	87.5	120	21.39	2324	0.68	7.44	-121.9	0.89	
10.40	4.00	0.15	1.13	87.5	120	21.34	2297	0.60	7.42	-124.0	0.02	
1045	4.00	0.00	1.13	87.5	120	21.52	2441	1.43	7.41	-91.8	0.02	
1050	4.04	0.04	1.17	87.5	120	20.97	2503	1.66	7.42	-82.7	0.02	
1055	4.10	0.06	1.23	87.5	120	20.86	2521	0.96	7.41	-97.8	0.02	
11.00												Drawing air - stopped purging @ 11.00

FPV (gallons) = Calculations: = (7.94 ft × 0.0012 gal/foot) + (1.23 ft × 0.16 gal/ft) = 0.206 gal/ft²

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter
4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers.
When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L.
When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.
5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed
6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Stephenson
Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/8/18 Well ID: TA-MW-304B

Weather Conditions: 69° Mostly Cloudy

Sampler's Name (Print): B. Woodman, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump 0219

Reference Measuring Point (Top of PVC/Top of Casing): Northside of PVC

Well Depth (ft, ref. to measuring point): 14.80

Screen Interval (ft, ref. to measuring point): 9.85-14.55

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.35

Tubing Intake (ft, ref. to measuring point): 12.20

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0810 (24 hour cycle) Sample Time: 0925 (24 hour cycle) Time at Sample Completion: 1025 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0815	2.64	0.29	–	175	200	17.2	2.702	0.53	7.10	-134.1	12.4	lowered flow rate due to high drawdown
0820	2.65	~~0.30~~ 0.01	0.30	131	100	16.8	2.687	0.43	7.12	-135.4	9.87	0.01
0825	2.65	0.00	0.30	109	70	17.1	2.709	0.39	7.11	-129.4	13.2	
0830	2.67	0.02	0.32	109	70	17.2	2.729	0.51	7.12	-130.8	11.4	
0835	2.68	0.01	0.33	109	70	16.9	2.753	0.22	7.10	-136.2	6.92	
0840	2.68	0.00	0.33	109	70	17.0	2.759	0.51	7.11	-134.8	5.44	
0845	2.69	0.01	0.34	109	70	16.9	2.782	0.33	7.10	-132.5	2.30	
0850	2.70	0.01	0.35	109	70	16.7	2.800	0.34	7.10	-132.2	1.72	
0855	2.70	0.00	0.35	109	70	16.8	2.808	0.31	7.08	-131.9	0.71	
0900	2.71	0.01	0.36	109	70	16.8	2.821	0.17	7.07	-111.1	0.65	
0905	2.71	0.00	0.36	109	70	16.9	2.828	0.32	7.08	-118.7	0.02	

FPV (gallons) = 0.08

Calculations: FPV = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) = (18.2 x 0.0012) + (0.36 x 0.16) = 0.02184 + 0.0576 = 0.07944 gallons

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/8/18 Well ID: TA-MW-304B

Weather Conditions: 69° Mostly Cloudy

Sampler's Name (Print) R. Woodman, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump 0219

Reference Measuring Point (Top of PVC/Top of Casing): Northside of PVC

Well Depth (ft, ref. to measuring point): 14.86

Screen Interval (ft, ref. to measuring point): 9.85 - 14.55

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.35

Tubing Intake (ft, ref. to measuring point): 12.20

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0810 (24 hour cycle) Sample Time: 0925 (24 hour cycle) Time at Sample Completion: 1025 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0910	2.71	0.00	0.36	109	70	16.7	2.831	0.20	7.08	-117.3	0.02	
0915	2.71	0.00	0.36	109	70	16.5	2.833	0.17	7.08	-114.0	0.02	
0920	2.71	0.00	0.36	109	70	16.7	2.836	0.22	7.07	-114.8	0.02	

FPV (gallons) = 0.08

Calculations: See page 1

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/10/18 Well ID: ~~SN~~ TA-MW-305B RBH

Weather Conditions: Sunny, 80°F

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): Northside top of PVC

Well Depth (ft, ref. to measuring point): 16.23

Screen Interval (ft, ref. to measuring point): 11.74-16.44

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Purging Start Time: 12:05 (24 hour cycle) Sample Time: 12:50 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 5.27

Tubing Intake (ft, ref. to measuring point): 14.09

Total Purge Volume (gallons): ~2.5 gal

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 13:20 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
12:10	5.60	0.33	0.33	165	220	~~18.70~~ CM						
12:15	5.65	~~0.38~~ 0.05	0.38	120	180							Drawdown: 0.05'
12:20	5.65	0.00	0.38	120	180	18.70	2142	2.60	7.45	-97.2	8.35	
12:25	5.65	0.00	0.38	120	180	18.08	2127	0.69	7.12	-74.7	7.69	
12:30	5.65	0.00	0.38	120	180	17.79	2121	0.52	7.07	-65.5	3.11	
12:35	5.65	0.00	0.38	120	180	17.72	2123	0.45	7.05	-62.2	3.03	
12:40	5.65	0.00	0.38	120	180	17.75	2115	0.39	7.05	-63.3	2.22	
12:45	5.65	0.00	0.38	120	180	17.80	2120	0.36	7.06	-62.1	2.90	

PV (gallons) = Calculations: $= (18.0' \times 0.0012) + (0.38' \times 0.16) = 0.0216 + 0.0608 = 0.0824$ gal.

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/13/18 Well ID: TA-MW-305C

Weather Conditions: Sunny, dry

Sampler's Name (Print): Sheryl Stephenson

Purging Device & Serial # (pump type): Geopump easy-load II (Geotech) 3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC (North)

Well Depth (ft, ref. to measuring point): 23.62 ft

Screen Interval (ft, ref. to measuring point): 19.74 – 24.44

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.25

Tubing Intake (ft, ref. to measuring point): 22.09

Total Purge Volume (gallons): 3.0

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0825 (24 hour cycle)

Sample Time: ~~0900~~ SS 0909 (24 hour cycle)

Time at Sample Completion: 10.00 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0830	5.35	0.10	0.10	175	200	16.31	1930	1.98	6.93	-87.7	6.65	
0835	5.36	0.01	0.11	175	200	16.13	1927	1.00	6.73	-66.6	2.58	
0840	5.38	0.02	0.13	175	200	15.66	1931	1.05	6.70	-59.2	0.67	
0845	5.39	0.01	0.14	175	200	15.58	1927	0.85	6.74	-59.2	~~4.62~~ SS 1.13	wiped glass sample bottle clean + re read.
0850	5.40	0.01	0.15	175	200	15.42	1925	0.93	6.77	-56.2	2.90	
0855	5.40	0.00	0.15	175	200	15.31	1923	0.90	6.81	-56.3	1.83	
0900	5.40	0.00	0.15	175	200	15.12	1923	0.87	6.85	-57.1	2.99	
0905	5.40	0.00	0.15	175	200	15.09	1921	0.95	6.89	-60.4	3.23	

FPV (gallons) = Calculations: N/A

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/9/18 Well ID: TA-MW-306A

Weather Conditions: 78° Cloudy

Sampler's Name (Print): B. Woodmansee, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump H15083095

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 11.30

Screen Interval (ft, ref. to measuring point): 5.44 - 11.04

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 4.96

Tubing Intake (ft, ref. to measuring point): 8.37

Total Purge Volume (gallons): 6

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 1340 (24 hour cycle) Sample Time: 1455 (24 hour cycle) Time at Sample Completion: 1525 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1345	4.99	0.03	—	175	250	17.70	4361	0.64	7.15	-138.2	95.6	
1350	5.03	0.04	0.07	175	250	18.14	3401	0.46	7.12	-134.6	66.0	
1355	5.04	0.01	0.08	175	250	18.34	2896	0.53	7.18	-142.0	67.1	
1400	5.04	0.00	0.08	175	250	18.45	2486	0.54	7.25	-152.9	45.7	
1405	5.04	0.00	0.08	175	250	18.36	2197	0.55	7.25	-153.7	37.6	
1410	5.04	0.00	0.08	175	250	18.57	1985	0.48	7.26	-153.3	25.7	
1415	5.02	-0.02	@ 0.06 ~~0.10~~	175	250	18.37	1840	0.42	7.26	-152.3	13.8	
1420	5.03	0.01	0.07	175	250	18.53	1720	0.44	7.27	-152.0	6.97	
1425	5.03	0.00	0.07	175	250	18.77	1655	0.42	7.28	-153.2	7.45	
1430	5.03	0.00	0.07	175	250	18.83	1601	0.41	7.29	-152.4	1.68	
1435	5.03	0.00	0.07	175	250	19.01	1556	0.40	7.31	-154.0	2.61	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore — Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/9/18 Well ID: TA-MW-306A

Weather Conditions: 78° Cloudy

Sampler's Name (Print): B. Woodman, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump H15003095

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 11.30

Screen Interval (ft, ref. to measuring point): 5.44 - 11.04

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 4.96

Tubing Intake (ft, ref. to measuring point): 8.37

Total Purge Volume (gallons): 6

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 1340 (24 hour cycle) Sample Time: 1455 (24 hour cycle) Time at Sample Completion: 1525 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1440	5.03	0.00	0.07	175	250	18.80	1528	0.44	7.36	-153.1	0.03	
1445	5.03	0.00	0.07	175	250	18.85	1504	0.43	7.28	-150.8	0.02	
1450	5.03	0.00	0.07	175	250	18.85	1486	0.43	7.28	-150.9	0.02	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Virginia Larimore

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/9/18 Well ID: TA-MW-306B

Weather Conditions: 75° Partly Cloudy

Sampler's Name (Print): B. Woodrow, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump H15003695

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 15.50

Screen Interval (ft, ref. to measuring point): 10.21 - 14.91

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 4.85

Tubing Intake (ft, ref. to measuring point): 12.56

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1035 (24 hour cycle) Sample Time: 1120 (24 hour cycle) Time at Sample Completion: 1145 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1040	5.09	0.24	—	175	250	16.17	4769	0.70	7.56	-102.6	17.7	
1045	5.10	0.01	0.25	175	250	15.84	5116	0.73	7.44	-95.2	5.46	
1050	5.11	0.01	0.26	175	250	15.78	5208	0.64	7.40	-94.0	4.68	
1055	5.11	0.00	0.26	175	250	15.75	5273	0.54	7.39	-93.2	4.55	
1100	5.11	0.00	0.26	175	250	15.71	5239	0.50	7.39	-96.9	0.02	
1105	5.11	0.00	0.26	175	250	15.60	5193	0.55	7.40	-95.9	0.02	
1110	5.11	0.00	0.26	175	250	15.44	5171	0.55	7.39	-98.4	0.02	
1115	5.11	0.00	0.26	175	250	15.33	5171	0.50	7.39	-96.7	0.02	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Virginia Larimore

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Page 1 of 2

Date: 8.9.18 Well ID: ~~TA~~ RBA-MW-307A

Weather Conditions: OVERCAST 80°

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): PERISTALTIC GEOPUMP 6184

Reference Measuring Point (Top of PVC/Top of Casing): NORTH SIDE TOP OF CASING

Well Depth (ft, ref. to measuring point): 16.15

Screen Interval (ft, ref. to measuring point): 5.58 - 10.58

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.09

Tubing Intake (ft, ref. to measuring point): 7.88

Total Purge Volume (gallons): ~4.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 13:40 (24 hour cycle) Sample Time: 1447 (24 hour cycle) Time at Sample Completion: 1515 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1347	5.35	0.26	0.26	165	190	15.36	410	6.50	7.62	142.6	12.0	
1352	5.36	0.01	0.27	165	190	14.66	512	6.06	7.08	130.9	27.6	
1357	5.37	0.01	0.28	165	190	14.52	1839	2.55	6.62	-0.6	17.0	
1402	5.37	0.00	0.28	165	190	14.57	2332	1.01	6.69	-24.4	10.9	
1407	5.38	0.01	0.29	165	190	14.36	2533	0.64	6.71	-24.7	8.01	
1412	5.38	0.00	0.29	165	190	14.23	2537	0.50	6.73	-17.6	4.70	
1417	5.38	0.00	0.29	165	190	14.19	2528	0.47	6.76	-29.8	1.83	
1422	5.38	0.00	0.29	165	190	14.26	2501	0.43	6.79	-36.2	2.07	
1427	5.38	0.00	0.29	165	190	14.48	2444	0.41	6.83	-40.6	0.71	
1432	5.38	0.00	0.29	165	190	14.74	2420	0.40	6.90	-43.4	0.02	
1437	5.38	0.00	0.29	165	190	14.72	2376	0.46	6.94	-48.0	0.02	

PV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Colin McGarry

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/9/18 Well ID: ~~TA~~ MW-307A

Weather Conditions: Overcast 80°

Sampler's Name (Print) Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of casing

Well Depth (ft, ref. to measuring point): 16.15

Screen Interval (ft, ref. to measuring point): 5.58 — 10.58

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Purging Start Time: 13:40 (24 hour cycle) Sample Time: 14:47 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 5.09

Tubing Intake (ft, ref. to measuring point): 7.88

Total Purge Volume (gallons): ~4.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 15:15 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1442	5.38	0.00	0.29	~~140~~ 165 JM	190	14.76	2344	0.37	6.96	-42.0	0.75	

FPV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

DBB TA

Page 1 of 2

Date: 8/9/18 Well ID: ~~TA~~-MW-307B

Weather Conditions: CLOUDY, 70'S

Sampler's Name (Print): COLIN McGARRY

Purging Device & Serial # (pump type): PERISTALTIC GEOPUMP #6184

Reference Measuring Point (Top of PVC/Top of Casing): NORTH SIDE, TOP OF CASING

Well Depth (ft, ref. to measuring point): 10.35

Screen Interval (ft, ref. to measuring point): UNKNOWN

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Purging Start Time: 1045 (24 hour cycle) Sample Time: 1145 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 5.11

Tubing Intake (ft, ref. to measuring point): 8

Total Purge Volume (gallons): ~7 gal

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 13:07 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1050	5.42	0.31	0.31	165	280							
1053	5.42	0.0	0.31	165	280	16.31	2412	5.59	6.89	140.7	12.0	
1058	5.42	0.0	0.31	165	280	15.73	2455	1.89	6.34	110.8	3.45	
1103	5.42	0.0	0.31	165	280	15.93	2489	1.51	6.24	109.2	0.24	
1108	5.42	0.0	0.31	165	280	15.88	2504	1.35	6.19	100.9	1.36	
1113	5.42	0.0	0.31	165	280	15.75	2533	1.09	6.17	89.7	1.21	
1118	5.42	0.0	0.31	165	280	15.80	2541	0.95	6.17	87.3	1.91	
1123	5.42	0.0	0.31	165	280	15.68	2554	0.84	6.17	86.5	1.21	
1128	5.42	0.0	0.31	165	280	15.57	2558	0.70	6.17	84.3	1.22	
1133	5.42	0.0	0.31	165	280	15.58	2563	0.94	6.18	84.5	1.89	
1138	5.42	0.0	0.31	165	280	15.60	2559	0.89	6.18	83.3	1.07	

PV (gallons) = 0.0640

Calculations: FPV = (12 x 0.0012) + (0.31 x 0.16) = 0.0~~784~~ 640 gal

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name: PPW

Date: 8/9/18 Well ID: TB-MW-307B

Weather Conditions: CLOUDY, 70's

Sampler's Name (Print): COLIN MCGARRY

Purging Device & Serial # (pump type): PERISTALTIC PUMP #6184

Reference Measuring Point (Top of PVC/Top of Casing): NORTH SIDE, TOP OF CASING

Well Depth (ft, ref. to measuring point): 10.35

Screen Interval (ft, ref. to measuring point): UNKNOWN

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.11

Tubing Intake (ft, ref. to measuring point): 8

Total Purge Volume (gallons): ~7 gal.

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached? yes OR (no) (circle one)

Purging Start Time: 1045 (24 hour cycle) Sample Time: 1145 (24 hour cycle) Time at Sample Completion: 13:07 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1143	5.42	0.0	0.31	165	280	15.68	2563	0.93	6.20	83.8	0.57	
												MS/MSD COLLECTED

FPV (gallons) = Calculations: 0.0640 ~~0.784~~ KMA gal

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/10/18 Well ID: TA-MW-308A

Weather Conditions: 64° Sunny

Sampler's Name (Print): B. Woodman, V. Larimore, S. Stephenson

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 8.11

Screen Interval (ft, ref. to measuring point): 3.45 - 8.15

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 4.54

Tubing Intake (ft, ref. to measuring point): 6.34

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0800 (24 hour cycle) Sample Time: 0840 (24 hour cycle) Time at Sample Completion: 0910 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0805	4.69	0.15	–	175	200	19.11	1372	1.86	6.91	-68.7	0.02	
0810	4.72	0.03	0.18	175	200	19.37	1354	0.96	6.80	-82.2	0.02	
0815	4.75	0.03	0.21	175	200	19.43	1338	0.87	6.85	-90.6	0.02	
0820	4.75	0.00	0.21	175	200	19.54	1305	0.84	6.90	-92.0	0.02	
0825	4.77	0.02	0.23	175	200	19.62	1258	0.66	6.96	-90.0	0.02	
0830	4.77	0.00	0.23	175	200	19.61	1244	0.65	6.96	-89.2	0.02	
0835	4.77	0.00	0.23	175	200	19.65	1225	0.66	6.97	-86.4	0.02	

(gallons) = NA Calculations:

es: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginie Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date : 8/7/18 Well ID : MW-308B

Weather Conditions : 81° Cloudy

Sampler's Name (Print) B. Woodman, V. Lorimore

Purging Device & Serial # (pump type): Geotech Geopump 6219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 21.02

Screen Interval (ft, ref. to measuring point): 15.63 - 20.33

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals -Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 4.45

Tubing Intake (ft, ref. to measuring point): 17.98

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : 1330 (24 hour cycle) Sample Time: 1425 (24 hour cycle) Time at Sample Completion: 1430 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1335	4.49	0.04	-	175	140	18.1	1.166	0.60	7.65	-146.7	58.5	
1340	4.53	0.04	0.08	175	140	17.5	1.143	0.28	7.58	-154.3	54.0	
1345	4.55	0.02	0.10	175	140	17.5	1.143	0.28	7.56	-155.1	48.1	
1350	4.57	0.02	0.12	175	140	17.1	1.139	0.16	7.54	-151.3	42.2	
1355	4.56	-0.01	0.11	175	140	16.8	1.139	0.11	7.52	-148.0	36.8	
1400	4.57	0.01	0.12	175	140	16.9	1.139	0.15	7.50	-144.9	28.5	
1405	4.56	-0.01	0.11	175	140	16.8	1.134	0.11	7.47	-142.8	25.2	
1410	4.56	0.00	0.11	175	140	17.1	1.135	0.06	7.45	-143.8	22.5	
1415	4.56	0.00	0.11	175	140	17.1	1.137	0.05	7.44	-143.2	21.1	
1420	4.56	0.00	0.11	175	140	17.3	1.134	0.05	7.43	-143.0	20.9	

PV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Lorimore
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date : 8/7/18 Well ID : TA-MW-308C

Weather Conditions : 82° Mostly Cloudy

Sampler's Name (Print) B. Woodman, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump 6219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 26.56

Screen Interval (ft, ref. to measuring point): 20.95-25.65

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail. CN

Purging Start Time : 1530 (24 hour cycle) Sample Time: 1630 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.47

Tubing Intake (ft, ref. to measuring point): 23.30

Total Purge Volume (gallons): 5.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1700 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% M (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1535	4.53	0.06	–	~~200~~	200	15.5	1.196	0.43	7.77	-144.7	3.28	~~200~~ 220
1540	4.54	0.01	0.07	220	200	15.8	1.197	0.46	7.61	-142.8	2.34	
1545	4.56	0.02	0.09	220	200	15.3	1.185	0.34	7.56	-145.7	0.86	
1550	4.57	0.01	0.10	220	200	15.4	1.184	0.17	7.53	-144.8	0.15	
1555	4.58	0.01	0.11	220	200	15.4	1.181	0.07	7.50	-144.4	0.02	
1600	4.58	0.00	0.11	220	200	15.5	1.183	0.10	7.49	-126.5	0.02	
1605	4.59	0.01	0.12	220	200	15.6	1.189	0.19	7.46	-130.4	0.02	
1610	4.59	0.00	0.12	220	200	15.5	1.183	0.25	7.45	-136.1	0.02	
1615	4.59	0.00	0.12	220	200	15.5	1.185	0.12	7.45	-135.5	0.02	
1620	4.59	0.00	0.12	220	200	15.2	1.184	0.02	7.44	-134.1	0.02	
1625	4.59	0.00	0.12	220	200	15.4	1.185	0.00	7.43	-136.2	0.02	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Virginia Larimore

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/9/18 Well ID: TA-MW-309A

Weather Conditions: Sunny 80's

Sampler's Name (Print): Andrew Martin

Purging Device & Serial # (pump type): GeoPump P 4788

Reference Measuring Point (Top of PVC/Top of Casing): North Side Top of Casing

Well Depth (ft, ref. to measuring point): 11.5

Screen Interval (ft, ref. to measuring point): 6.99 - 11.99

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 7.97

Tubing Intake (ft, ref. to measuring point): 9.995

Total Purge Volume (gallons): 2.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 9:50 (24 hour cycle) Sample Time: 1030 (24 hour cycle) Time at Sample Completion: 12:30 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/-1 ºC (ºC)	Spec. Cond. +/-3% (µS/cm)	DO +/-10% if > 0.5 (mg/L)	pH +/-0.1 units	ORP +/-10 (mV)	Turbidity +/-10% if > 5 (NTU)	Comments/Adjustments
015	8.39	0.42	0.42	~~175~~ 117	~~200~~ 100	20.1	1290	0.50	6.91	-121.4	49.8	
020	8.39	0	0.42	117	100	20.2	1.238	0.50	6.91	-123.2	29.8	
025	8.39	0	0.42	117	100	19.9	1.256	0.49	6.89	-123.9	23.2	
030	8.39	0	0.42	117	100	20.3	1.225	0.52	6.90	-123.4	4.51	
												MS/MSD collected

gallons) = Calculations: 0.0012(16ft) + 0.16(0.42) = 0.0864 gal

: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/10/18 Well ID: TA-MW-309B

Weather Conditions: Cloudy 70's

Sampler's Name (Print): Andrew Martin

Purging Device & Serial # (pump type): GeoPump? 4780

Reference Measuring Point (Top of PVC/Top of Casing): Northside TOP of Casing

Well Depth (ft, ref. to measuring point): 20.27

Screen Interval (ft, ref. to measuring point): 14.84 - 19.84

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 7.79

Tubing Intake (ft, ref. to measuring point): 17.34

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0645 (24 hour cycle) Sample Time: 0740 (24 hour cycle) Time at Sample Completion: 0835 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/- 10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0705	7.85	0.06	0.06	175	200	13.5	1.189	0.27	7.16	-158.2	102	
0710	7.85	0	0.06	175	200	13.6	1.197	0.36	7.17	-158.7	90.4	
0715	7.85	0	0.06	175	200	13.8	1.200	0.25	7.17	-157.7	81.8	
0720	7.85	0	0.06	175	200	13.6	1.207	0.41	7.17	-159.4	62.6	
0725	7.86	0.01	0.07	175	200	13.6	1.215	0.36	7.17	-148.7	45.8	
0730	7.86	0	0.07	175	200	13.6	1.221	0.26	7.17	-151.2	45.3	
0735	7.86	0	0.07	175	200	13.7	1.218	0.25	7.17	-152.3	35.4	
0740	7.86	0	0.07	175	200	13.8	1.225	0.29	7.16	-153.6	36.1	
												Duplicate collected

gallons) = N/A Calculations:

: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/9/14 Well ID: TA-MW-3096

Weather Conditions: Cloudy 80 degrees

Sampler's Name (Print): Andrew Martin

Purging Device & Serial # (pump type): Geo Pump 4788

Reference Measuring Point (Top of PVC/Top of Casing): North side Top of Casing

Well Depth (ft, ref. to measuring point): ~~33.72 feet~~ ATM 35 feet

Screen Interval (ft, ref. to measuring point): ~~31.18 - 38.18~~ ATM ~~UNKNOWN~~ 31.18ft - 32.18ft TOC

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Purging Start Time: 1410 (24 hour cycle) Sample Time: 1500 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 8.03

Tubing Intake (ft, ref. to measuring point): ~~34.68~~ ATM 33

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1536 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1425	8.09	0.06	0.06	140	120	16.9	1.158	0.47	7.26	-157.9	52.7	
1430	8.09	0	0.06	140	120	17.2	1.150	0.43	7.22	-158.8	44.5	
1435	8.10	0.01	0.07	140	120	16.9	1.143	0.67	7.20	-158.5	29.3	
1440	8.10	0	0.07	140	120	16.6	1.129	0.17	7.18	-154.7	28.4	
1445	8.10	0	0.07	140	120	16.7	1.135	0.14	7.17	-152.6	16.2	
1450	8.10	0	0.07	140	120	17.1	1.131	0.13	7.15	-158.1	13.6	
1455	8.10	0	0.07	140	120	16.6	1.128	0.10	7.16	-160.0	10.9	
1500	8.10	0	0.07	140	120	16.7	1.118	0.10	7.16	-159.6	8.80	

(gallons) = N/A Calculations:

es: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Martin
Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date : 8/10/18 Well ID : TA-MW-309D

Weather Conditions : 76° Sunny

Sampler's Name (Print) B. Woodman, V. Larimore, S. Stephenson

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 49.83

Screen Interval (ft, ref. to measuring point): 44.67-49.67

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 8.17

Tubing Intake (ft, ref. to measuring point): 47.17

Total Purge Volume (gallons): 10

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : 1105 (24 hour cycle) Sample Time: 1225 (24 hour cycle) Time at Sample Completion: 1330 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1110	8.23	0.06	—	175	200	17.41	1010	1.25	7.72	26.3	18.3	
1115	8.25	0.02	0.08	197	300	16.27	994	1.43	7.54	18.1	11.4	
1120	8.24	-0.01	0.07	197	300	15.45	1003	1.45	7.41	11.8	12.0	
1125	8.25	0.01	0.08	197	300	15.27	1003	1.37	7.39	2.1	6.32	
1130	8.25	0.00	0.08	197	300	15.22	1004	1.27	7.43	-8.2	3.61	
1135	8.26	0.01	0.09	197	300	15.39	1009	1.19	7.45	-16.9	0.02	
1140	8.26	0.00	0.09	197	300	15.15	1009	1.06	7.44	-20.4	0.02	
11:40	8.26	0.00	0.09	197	300	15.03	1006	1.00	7.42	-20.8	0.02	
1150	8.26	0.00	0.09	197	300	15.23	1005	1.32	7.40	-22.3	0.02	
11.55	8.26	0.00	0.09	197	300	15.04	1003	1.09	7.40	-23.8	0.02	
200	8.26	0.00	0.09	197	300	14.94	1002	1.23	7.40	-24.3	0.02	

V (gallons) = NA

Calculations:

otes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/10/18 Well ID: TA-MW-309D

Weather Conditions: 76° Sunny

Sampler's Name (Print) B. Woodmen, V. Larimore, S. Stephenson

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 49.83

Screen Interval (ft, ref. to measuring point): 44.67 - 49.67

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 8.17

Tubing Intake (ft, ref. to measuring point): 47.17

Total Purge Volume (gallons): 10

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1105 (24 hour cycle) Sample Time: 1225 (24 hour cycle) Time at Sample Completion: 1330 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1205	8.26	0.00	0.09	197	300	15.02	1002	0.91	7.37	-25.5	0.06	
1210	8.26	0.00	0.09	197	300	15.01	996	1.09	7.39	-26.7	0.02	
1215	8.26	0.00	0.09	197	300	15.15	997	1.14	7.41	-28.1	0.02	
1220	8.26	0.00	0.09	197	300	15.10	995	1.12	7.42	-30.6	0.02	

V (gallons) = ND

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/8/18 Well ID: ~~TN~~ TA-MW-310A

Weather Conditions: Overcasts, Humid

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of casing

Well Depth (ft, ref. to measuring point): 12.64

Screen Interval (ft, ref. to measuring point): 7.40 - 12.40

Samples Collected: VOCs, SVOCs, TAL Metals, TAL-Metals-Mercury, Hardness, Hexavalent Chromium, Ammonia, Nitrate/Nitrite, Chloride, Total cyanide, Total phosphorus, Sulfate, Acetic Acid, Formic Acid, Sulfide, Available cyanide

Purging Start Time: 09:40 (24 hour cycle) Sample Time: 10:25 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 11.31

Tubing Intake (ft, ref. to measuring point): 11.825

Total Purge Volume (gallons): ~2.5 gal

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 11:50 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
09:45	11.37	00.06	00.06	120	170	~~29.36~~	~~1~~	~~6.39~~	~~7.71~~	~~147.2~~		CM
09:52	11.39	00.02	00.08	120	170	18.49	575	6.69	7.82	101.8	0.02	
09:57	11.38	-00.01	00.07	120	170	18.39	566	5.43	7.27	118.4	0.02	
~~09~~ CM 10:02	11.38	00.00	00.07	120	170	18.68	567	4.83	7.36	97.3	0.02	
10:07	11.39	00.01	00.08	120	170	18.38	568	4.61	7.42	87.4	0.02	
10:12	11.39	00.00	00.08	120	170	18.37	568	4.49	7.32	88.2	0.02	
10:17	11.39	00.00	00.08	120	170	18.39	568	4.47	7.36	81.0	0.02	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/8/18 Well ID: TN-MW-310B

Weather Conditions: Overcast, humid

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump # 6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of casing

Well Depth (ft, ref. to measuring point): 20.20

Screen Interval (ft, ref. to measuring point): 14.68 - 19.68

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Met.-Mercury, Hardness, Hexavalent Chromium, Ammonia, Nitrate/Nitrite, Chloride, Total Cyanide, Total Phosphorus, Sulfate, Acetic Acid, Formic Acid, Sulfide, Amenable Cyanide

Purging Start Time: 08:26 (24 hour cycle) Sample Time: 09:05 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 11.29

Tubing Intake (ft, ref. to measuring point): 17.18

Total Purge Volume (gallons): 3 gal.

PVC/Inner Well Casing ID (inches): 2"

Tubing ID (inches): 1/4"

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached? yes OR (no) (circle one)

Time at Sample Completion: 09:38 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed RPM	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (~~mg/L~~) %	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
08:31	11.30	00.01	00.01	120	180	16.63	869	61.1	6.89	185.1	0.02	
08:36	11.30	00.00	00.01	120	180	16.49	694	52.5	6.85	194.8	0.02	
08:41	11.30	00.00	00.01	120	180	16.19	626	52.9	7.01	184.4	0.02	
08:46	11.30	00.00	00.01	120	180	16.04	572	50.4	7.08	174.9	0.02	
08:51	11.31	00.01	00.02	120	180	16.13	570	50.7	7.18	166.8	0.02	
08:56	11.31	00.00	00.02	120	180	16.03	567	49.2	7.28	155.5	0.02	
09:01	11.31	00.00	00.02	120	180	16.18	566	49.5	7.32	149.1	0.02	
09:06	11.31	00.00	00.02	120	180	16.09	566	48.6	7.35	146.3	0.02	

FPV (gallons) = N/A Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Zm4 Former Tannery

Date: 8-7-18 Well ID: TA-MW-310C

Weather Conditions: Hot partly cloudy

Sampler's Name (Print) BW/DMG

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of casing

Well Depth (ft, ref. to measuring point): 53.02

Screen Interval (ft, ref. to measuring point): 50.16-53.16

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Mercury, Hardness, Hexavalent Chromium, Ammonia, Nitrate/Nitrite, Chloride, Total Cyanide, Total phosphorus, Sulfate, Acetic Acid, Formic Acid, Sulfide, Available cyanide

Purging Start Time: 16:07 (24 hour cycle)

Sample Time: 17:05 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 11.72 ft

Tubing Intake (ft, ref. to measuring point): 51.66

Total Purge Volume (gallons): ~4 gal.

PVC/Inner Well Casing ID (inches): 2"

Tubing ID (inches): 1/4"

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 17:40 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
16:12	13.23	1.51	1.51	263	420	16.34	25731	9.3	7.41	-70.1	~~>40.0~~ cm	Turbidity: 23.0 NTU
16:25	13.25	00.02	1.53	175	250							
16:35	13.46	00.21	1.74	117	160							
16:39	13.59	00.13	1.87	117	160	18.26	26072	11.1	7.01	-55.0	12.6	
16:44	13.69	00.10	1.97	117	160	18.23	26120	10.1	6.98	-56.4	7.24	
16:49	13.78	00.09	2.06	117	160	18.09	26107	8.8	6.96	-56.3	0.02	
16:54	13.85	00.07	2.13	117	160	17.98	26099	8.9	6.96	-57.3	~~0.56~~ cm	Turbidity: 0.02 NTU
16:59	13.91	00.06	2.19	117	160	17.98	26200	8.8	6.96	-58.4	0.02	
17:04	13.95	00.04	2.23	117	160	17.82	26087	8.8	6.96	-58.3	0.02	

PV (gallons) = Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colo McSenny

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/14/18 Well ID: TA-P-1

Weather Conditions: 83° Fair

Sampler's Name (Print): B. Woodman, V. Lorimore, S. Stephenson, J. Martin

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 8.62

Screen Interval (ft, ref. to measuring point): 3.62 - 8.32

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.97

Tubing Intake (ft, ref. to measuring point): 5.97

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1250 (24 hour cycle) Sample Time: 1330 (24 hour cycle) Time at Sample Completion: 1405 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (W)	Purge Rate (W) (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1255	3.32	0.35	—	~~175~~ 150	~~300~~ 180	20.31	2356	0.83	8.07	-68.7	0.02	
1300	3.34	0.02	0.37	150	180	19.30	2282	0.52	7.60	-100.0	0.02	
1305	3.38	0.04	0.41	150	180	19.17	2301	0.43	7.56	-109.5	0.02	
1310	3.36	-0.02	0.39	150	180	18.99	2299	0.32	7.53	-113.3	0.02	
1315	3.35	-0.01	0.38	150	180	18.96	2308	0.30	7.52	-116.7	0.02	
1320	3.35	0.00	0.38	150	180	19.01	2311	0.30	7.47	-119.2	0.02	
1325	3.35	0.00	0.38	150	180	18.82	2313	0.31	7.44	-119.9	0.02	

/ (gallons) = 0.07

Calculations: FPV = (Tot tubing length x Tub. Cap) + (Tot Drawdown x Well Cap) = (8.0 x 0.0012) + (0.41 x 0.16) = 0.0096 + 0.0656 = 0.0752

tes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Lorimore

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/14/18 Well ID: TA - P-2

Weather Conditions: Sunny 90s

Sampler's Name (Print): Brendan Edwards

Purging Device & Serial # (pump type): geopump (6219)

Reference Measuring Point (Top of PVC/Top of Casing): top of pvc mon

Well Depth (ft, ref. to measuring point): 9.53

Screen Interval (ft, ref. to measuring point): 4.43 - 9.13

Samples Collected: VOCs, SVOCs, TAL metals, TAL metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.65

Tubing Intake (ft, ref. to measuring point): 6.9

Total Purge Volume (gallons):

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1315 (24 hour cycle) Sample Time: 1345 (24 hour cycle) Time at Sample Completion: 1430 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1330	2.74	0.09	0.09	140	130	20.1	2.586	0.55	6.8	-158.4	40.0	
1335	2.74	0.0	0.09	140	130	20.1	2.640	0.21	6.71	-159.2	19.0	
1340	2.77	0.03	0.12	140	130	19.1	2.616	0.14	6.70	-160.5	20.0	
1345	2.79	0.02	0.14	140	130	19.4	2.581	0.12	6.70	-160.6	18.20	

FPV (gallons) = NA

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/14/18 Well ID: TA-P-3

Weather Conditions: Sunny, 85°F, Humid

Sampler's Name (Print): Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 9.05

Screen Interval (ft, ref. to measuring point): 4.48-9.08

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 2.94

Tubing Intake (ft, ref. to measuring point): 6.01

Total Purge Volume (gallons): 2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 13:37 (24 hour cycle) Sample Time: 14:07 (24 hour cycle) Time at Sample Completion: 15:10 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
13:45	3.23	0.29	0.29	100	140	21.82	2563	1.56	7.00	-130.4	6.68	
13:50	3.23	0.00	0.29	100	140	21.66	2554	0.88	6.88	-129.0	5.92	
13:55	3.23	0.00	0.29	100	140	21.37	2556	0.50	6.80	-127.9	6.50	
14:00	3.23	0.00	0.29	100	140	21.09	2544	0.47	6.76	-127.7	5.94	
14:05	3.23	0.00	0.29	100	140	21.15	2539	0.41	6.75	-118.3	5.99	

V (gallons) = N/A

Calculations:

tes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers.
When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L.
When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Colin McGarry
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8/15/18 Well ID: TA-D-4

Weather Conditions: 66° Partly Cloudy

Sampler's Name (Print) Colin McGarry

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 7.75

Screen Interval (ft, ref. to measuring point): 1.73-6.43

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metal-Hg, Hardness, Hexavalent Chr., Ammonia, Nitrate/Nitrite, Chloride, Total CN, Total Phosphorus, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail. CN

Purging Start Time: 08:05 (24 hour cycle) Sample Time: 09:05 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 3.13

Tubing Intake (ft, ref. to measuring point): 4.73

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached? yes OR (no) (circle one)

Time at Sample Completion: 10:20 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
08:15	3.33	0.20	0.20	120	150	18.39	3323	2.15	7.14	-93.9	2.92	
08:20	3.34	0.01	0.21	120	150	18.40	3230	0.93	7.05	-106.6	1.64	
08:25	3.34	0.00	0.21	120	150	18.43	3120	0.70	7.05	-109.0	0.92	
08:30	3.34	0.00	0.21	120	150	18.46	2911	0.49	7.06	-111.5	0.02	
08:35	3.34	0.00	0.21	120	150	18.50	2701	0.46	7.07	-104.1	0.98	
08:40	3.35	0.01	0.22	120	150	18.51	2662	0.49	7.07	-106.2	0.02	
08:45	3.35	0.00	0.22	120	150	18.52	2598	0.47	7.07	-106.3	0.02	
08:50	3.35	0.00	0.22	120	150	18.53	2503	0.50	7.08	-105.3	0.02	
08:55	3.35	0.00	0.22	120	150	18.57	2373	0.40	7.08	-96.4	0.02	
09:00	3.35	0.00	0.22	120	150	18.59	2354	0.35	7.08	-93.3	0.02	
09:05	3.35	0.00	0.22	120	150	18.61	2338	0.33	7.08	-89.6	0.02	

FPV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Page 1 of ____

Date: 8/15/18 Well ID: TA-P-5

Weather Conditions: Cloudy 80's

Sampler's Name (Print): Brenda Edwards

Purging Device & Serial # (pump type): Geopump (6219)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC North

Well Depth (ft, ref. to measuring point): 9.27

Screen Interval (ft, ref. to measuring point): 4.48-9.08

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 6.06

Tubing Intake (ft, ref. to measuring point): 7.8

Total Purge Volume (gallons): NA

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 0800 (24 hour cycle) Sample Time: 10:00 (24 hour cycle) Time at Sample Completion: 1200 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
815	Dry	NA	NA	NA	80	—	—	—	—	—	—	-Dry after 15 min
												1/2 gallon purged
												This well purged dry
												during low flow purging.
												Sampled without purging.

FPV (gallons) = Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 8/13/18 Well ID: TA-TMW-101

Weather Conditions: 77° Sunny

Sampler's Name (Print): B. Woodman, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump 0219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 8.72

Screen Interval (ft, ref. to measuring point): 5.33 - 10.13

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 3.52

Tubing Intake (ft, ref. to measuring point): ~~7.73~~ 7.02

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 1100 (24 hour cycle) Sample Time: 1140 (24 hour cycle) Time at Sample Completion: 1210 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (mS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1105	3.75	0.23	—	175	250	19.8	0.806	0.64	7.38	49.3	5.33	
1110	3.77	0.02	0.25	175	250	19.7	0.764	0.31	7.09	47.0	5.58	
1115	3.80	0.03	0.28	175	250	20.0	0.760	0.30	7.03	45.1	1.06	
1120	3.79	-0.01	0.27	175	250	20.4	0.784	0.25	7.04	41.9	0.47	
1125	3.79	0.00	0.27	175	250	20.2	0.795	0.21	7.06	39.1	1.55	
1130	3.79	0.00	0.27	175	250	20.2	0.791	0.20	7.05	36.8	1.57	
1135	3.79	0.00	0.27	175	250	20.1	0.793	0.19	7.05	35.4	0.69	

PV (gallons) = N/A Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

~~8/13/18 well purged dry~~ SS

~~8/14/18 No purge method used for sampl~~

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Page ___ of ___

Date: 8/13/18 Well ID: TA-TMW-102

Weather Conditions: Sunny, warm, dry

Sampler's Name (Print): Sheryl Stephenson

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC (North)

Well Depth (ft, ref. to measuring point): 10.13 ft.

Screen Interval (ft, ref. to measuring point): 5.02 - 9.82

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.05

Tubing Intake (ft, ref. to measuring point): 7.42

Total Purge Volume (gallons): SS ~~2.00~~ 3.0

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 11.42 (24 hour cycle)

Sample Time: 1220 (24 hour cycle)

Time at Sample Completion: 13.05 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
11.45	5.18	0.13	0.13	~~280~~ 175 SS	280	17.71	3461	2.75	7.14	-78.3	7.15	
1150	5.30	0.12	0.25	175	280	16.72	3376	1.26	6.74	-63.2	6.07	
1155	5.35	0.05	0.30	175	280	16.35	3553	0.81	6.68	-58.8	3.40	
1200	5.37	0.02	0.32	175	280	16.33	3840	0.49	6.66	-66.4	3.02	
1205	5.40	0.03	0.35	175	280	16.23	4030	0.42	6.68	-70.5	3.37	
1210	5.40	0.00	0.35	175	280	16.11	4145	0.37	6.68	-71.4	3.20	
1215	5.40	0.00	0.35	175	280	16.16	4257	0.32	6.69	-73.9	3.16	

FPV (gallons) = Calculations: FPV = (11.42 ft × 0.0012) + (0.35 × 0.16) = 0.0697 gal/ft²

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/8/18 Well ID: TA-TMW-10.3

Weather Conditions: 77° Partly Cloudy

Sampler's Name (Print): B. Woodman, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump 6219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 13.57

Screen Interval (ft, ref. to measuring point): 8.25-13.05

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.55

Tubing Intake (ft, ref. to measuring point): 10.65

Total Purge Volume (gallons): 2.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1255 (24 hour cycle) Sample Time: 1400 (24 hour cycle) Time at Sample Completion: 1445 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1300	7.12	1.57	-	175	160	18.1	0.678	0.29	7.81	-166.9	6.90	turned pump off for 15 minutes to allow for recharge
1320	6.90	-0.22	1.35	131	100	19.8	0.697	0.24	7.65	-162.4	10.9	
1325	7.37	0.47	1.82	131	100	19.6	0.676	0.25	7.52	-156.9	7.81	
1330	7.55	0.18	2.00	131	100	20.2	0.671	0.52	7.52	-154.2	7.33	
1335	8.25	~~2.70~~ 0.70	2.70	131	100	19.0	0.659	0.34	7.51	-148.0	6.51	0.70
1340	8.63	0.38	3.08	131	100	18.4	0.641	0.28	7.49	-146.8	6.11	
1345	8.84	0.21	3.29	131	100	18.5	0.636	0.27	7.48	-146.7	6.04	
1350	8.96	0.12	3.41	131	100	18.6	0.629	0.38	7.48	-144.1	6.84	
1355	9.13	0.17	3.58	131	100	18.5	0.627	0.35	7.48	-145.6	6.54	

FPV (gallons) = 0.59

Calculations: FPV = (Tot Tubing Length × Tubing Capacity) + (Tot Drawdown × Well Capacity) = (16.65 × 0.0012) + (3.58 × 0.16) = 0.01998 + 0.5728 = 0.59278

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/8/18 Well ID: TMW-104
Weather Conditions: Sunny, Humid
Sampler's Name (Print): Colin McGarry
Purging Device & Serial # (pump type): Peristaltic Geopump #6184
Reference Measuring Point (Top of PVC/Top of Casing): North-side, top of casing
Well Depth (ft, ref. to measuring point): 10.00
Screen Interval (ft, ref. to measuring point): 5.04 - 9.94
Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 6.67
Tubing Intake (ft, ref. to measuring point): 8.27
Total Purge Volume (gallons): ~3.5 gal
PVC/Inner Well Casing ID (inches): 2
Tubing ID (inches): 1/4
Indicator Parameter Stabilization: yes OR no (circle one)
Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 14:58 (24 hour cycle) Sample Time: 16:10 (24 hour cycle) Time at Sample Completion: ~~16:10~~ 17:25 CM (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
15:03	7.11	KMPA 0.44 ~~1.56~~	KMPA 0.44 ~~1.56~~	175	220	19.25	1419	3.56	7.41	-46.3	0.02	
15:15	7.50	0.39	0.83	117	160	19.36	1456	1.51	7.58	-68.3	0.80	
15:20	7.60	0.10	0.93	117	160	19.02	1457	1.43	7.57	-73.9	11.5	
15:25	7.70	0.10	1.03	117	160	19.33	1458	1.29	7.57	-81.8	36.0	
15:30	7.81	0.11	1.14	117	160	19.40	1466	1.33	7.58	-88.8	30.4	
15:35	7.89	0.08	1.22	117	160	19.28	1465	1.52	7.58	-90.8	34.4	
15:40	7.94	0.05	1.27	117	160	19.54	1458	1.67	7.58	-85.1	32.4	
15:45	8.01	0.07	1.34	117	160	19.66	1452	1.86	7.56	-84.8	18.1	
15:50	8.11	0.10	1.44	117	160	19.45	1440	2.73	7.51	-80.0	22.6	
15:55	8.13	0.02	1.46	~~100~~ CM 95	100	19.60	1430	2.72	7.48	-70.0	21.4	
16:00	7.90	-0.23	1.23	95	100	20.40	1435	3.07	7.55	-73.9	23.1	

PV (gallons) = 0.25 Calculations: (13.5ft x 0.0012) + (1.46 x 0.16) = 0.25 gallons

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter
4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.
5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed
6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Colin McGarry
Sampler's Signature

\\ezegr1\Jobs\62000\623xx\62335.02 - WWW Tannery 2017 2018 Work\QAPP Docs - EPA and MDEQ\0-EPA & MDEQ REVISED DRAFT APPENDICES\Appendix A - SOP\SOP A16 - Gen G - Peristaltic.xlsx

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/10/18 Well ID: TA-TMW-105

Weather Conditions: 71° Sunny

Sampler's Name (Print): B. Woodmark, V. Larimore, S. Stephenson

Purging Device & Serial # (pump type): Geotech Geopump 3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 10.23

Screen Interval (ft, ref. to measuring point): 5.12-9.92

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.07

Tubing Intake (ft, ref. to measuring point): 7.52

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0930 (24 hour cycle) Sample Time: 1010 (24 hour cycle) Time at Sample Completion: 1035 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0935	5.29	0.22	–	175	250	18.83	1745	1.24	7.44	-88.6	0.02	
0940	5.30	~~0.23~~ 0.01	0.23	175	250	18.62	1737	1.17	7.35	-92.0	0.02	
0945	5.31	0.01	0.24	175	250	18.43	1727	1.09	7.39	-95.5	0.02	
0950	5.31	0.00	0.24	175	250	18.44	1721	0.97	7.45	-100.4	0.02	
0955	5.31	0.00	0.24	175	250	18.28	1716	0.77	7.46	-103.2	0.02	
1000	5.31	0.00	0.24	175	250	18.35	1710	0.76	7.45	-104.1	0.02	
1005	5.31	0.00	0.02	175	250	18.34	1708	0.75	7.46	-105.0	0.02	

V (gallons) = N/A Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/9/18 Well ID: TMW-108

Weather Conditions: Sunny, Humid

Sampler's Name (Print) Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump # 6184

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of casing

Well Depth (ft, ref. to measuring point): 10.29

Screen Interval (ft, ref. to measuring point): 5.14 – 9.84

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.27

Tubing Intake (ft, ref. to measuring point): 7.57

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 08:10 (24 hour cycle) Sample Time: 0930 (24 hour cycle) Time at Sample Completion: 1030 (24 hour cycle)

EPA SPLIT

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
08:15	5.75	CM ~~00.048~~ 00.48	00.48	175	250							
08:20	5.79	00.04	00.52	117	180							
08:25	5.84	00.05	00.57	117	180	16.03	2521	2.55	6.15	200.2	1.91	
08:30	5.85	00.01	00.58	117	180	15.56	2529	2.18	5.97	166.8	2.18	
08:35	5.88	00.03	00.61	117	180	15.34	2539	2.02	5.97	146.5	1.85	
08:40	5.89	00.01	00.62	117	180	15.26	2550	1.85	6.01	132.2	2.26	
08:45	5.91	00.02	00.64	117	180	15.27	2556	1.67	6.06	118.6	2.86	
08:50	5.91	00.00	00.64	117	180	15.27	2591	1.67	6.11	110.7	2.11	
08:55	5.91	00.00	00.64	117	180	15.36	2641	1.70	6.16	103.7	1.71	
09:00	5.92	00.01	00.65	117	180	15.43	2691	1.73	6.19	99.5	0.56	
09:05	5.92	00.00	00.65	117	180	15.57	2763	1.84	6.23	94.6	0.02	

V (gallons) = Calculations: 0.1202 gal (see page 2)

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers.
When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L.
When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Colin McGarry
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed
6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET
For use with Peristaltic Pumps
Site Name

Date: 8/9/18 Well ID: TMW - 108

Weather Conditions: Sunny, humid

Sampler's Name (Print) Colin McGarry

Purging Device & Serial # (pump type): Peristaltic Geopump #6184

Reference Measuring Point (Top of PVC/Top of Casing): North Side, top of casing

Well Depth (ft, ref. to measuring point): 10.29

Screen Interval (ft, ref. to measuring point): 5.14 - 9.84

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.27

Tubing Intake (ft, ref. to measuring point): 7.57

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 08:10 (24 hour cycle) Sample Time: 09:20 (24 hour cycle) Time at Sample Completion: 1030 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
09:10	5.92	00.00	00.65	117	180	15.67	2813	~~1.63~~ 1.74	6.27	90.0	0.02	
09:15	5.92	00.00	00.65	117	180	15.68	2892	1.74	6.31	86.7	0.02	

FPV (gallons) = Calculations: FPV = (13.5 x ~~0.16~~ 0.0012) + (00.65 x 0.16) = 0.1202 gal

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Colin McGarry
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name: TA-

Date: 8/8/18 Well ID: TMW-109

Weather Conditions: 71° Mostly Cloudy

Sampler's Name (Print): B. Woodman, V. Lasimore

Purging Device & Serial # (pump type): Geotech Geopump 6219

Reference Measuring Point (Top of PVC/Top of Casing): Northside of PVC

Well Depth (ft, ref. to measuring point): 10.26

Screen Interval (ft, ref. to measuring point): 4.91-9.61

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.36

Tubing Intake (ft, ref. to measuring point): 7.485

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1040 (24 hour cycle) Sample Time: 1145 (24 hour cycle) Time at Sample Completion: 1235 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1045	5.65	0.29	–	153	160	20.7	1.136	0.65	7.45	-8.2	4.68	
1050	5.72	0.07	0.36	131	~~100~~ (a)	20.8	1.119	0.43	7.29	-15.4	4.52	100
1055	5.75	0.03	0.39	131	~~100~~ (a)	21.4	1.119	0.42	7.26	-15.6	4.23	100
1100	5.78	0.03	0.42	131	100	21.3	1.122	0.42	7.25	-15.2	1.77	
1105	5.82	0.04	0.46	131	100	21.3	1.122	0.46	7.22	-29.6	1.71	
1110	5.84	0.02	0.48	131	100	21.4	1.121	0.33	7.23	-33.0	1.69	
1115	5.87	0.03	0.51	131	100	21.4	1.125	0.37	7.26	-41.3	1.39	
1120	5.88	0.01	0.52	131	100	21.5	1.131	0.34	7.26	-56.2	1.83	
1125	5.89	0.01	0.53	131	100	21.4	1.142	0.24	7.27	-55.6	3.31	
1130	5.90	0.01	0.54	131	100	21.3	1.155	0.23	7.23	-65.0	3.92	
1135	5.90	0.00	0.54	131	100	21.6	1.168	0.32	7.25	-72.0	3.70	

FPV (gallons) = 0.10

Calculations: FPV = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) = (13.5 x 0.0012) + (0.54 x 0.16) = 0.0162 + 0.0864 = 0.1026

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name TA-

Date: 8/8/18 Well ID: TMW-109

Weather Conditions: 71° Mostly Cloudy

Sampler's Name (Print) B. Woodman, V. Lattmore

Purging Device & Serial # (pump type): Geotech Geopump 6219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 10.26

Screen Interval (ft, ref. to measuring point): 4.91-9.61

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals-Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.36

Tubing Intake (ft, ref. to measuring point): 7.485

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1040 (24 hour cycle) Sample Time: 1145 (24 hour cycle) Time at Sample Completion: 1235 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1140	5.90	0.00	0.54	131	100	21.2	1.195	0.24	7.19	-73.0	3.90	

FPV (gallons) = 0.10

Calculations: See page 1

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name

Date: 8/8/18 Well ID: TA-IMW-111

Weather Conditions: 82° Fair

Sampler's Name (Print) R. Woodman, V. Larimore

Purging Device & Serial # (pump type): Geotech Geopump 6219

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC

Well Depth (ft, ref. to measuring point): 7.69

Screen Interval (ft, ref. to measuring point): 2.43-7.23

Samples Collected: VOCs, SVOCs, TAL Metals, TAL Metals - Hg, Hardness, Hex Chrom, Ammonia, Nitrate/Nitrite, Chloride, Tot CN, Tot Phos, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail CN

Initial Water Level (ft, ref. to measuring point): 5.06

Tubing Intake (ft, ref. to measuring point): 6.135

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Purging Start Time: 1505 (24 hour cycle) Sample Time: 1540 (24 hour cycle) Time at Sample Completion: 1640 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1510	5.19	0.13	—	117	100	23.4	1.309	0.59	6.72	-66.3	0.77	
1510	5.21	0.02	0.15	117	100	22.1	1.445	0.25	6.58	-58.2	0.34	
1515	5.23	0.02	0.17	117	100	22.4	1.459	0.42	6.58	~~-54~~ (a)	0.02	-57.4
1520	5.23	0.00	0.17	117	100	21.8	1.487	0.17	6.57	-56.1	0.02	
1525	5.23	0.00	0.17	117	100	22.1	1.490	0.32	6.57	-55.7	0.32	
1530	5.23	0.00	0.17	117	100	21.7	1.501	0.18	6.56	-54.2	0.02	
1535	5.23	0.00	0.17	117	100	21.5	1.502	0.15	6.56	-53.1	0.02	

FPV (gallons) = N/A

Calculations:

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Virginia Larimore
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

SURFACE WATER WORKSHEET

Site name TA-SW-01
Date: 7/25/18

Field Personnel: Sheryl Stephenson

WEATHER CONDITIONS

Current Information		Rainfall over the past 7 days (or not applicable)							
Barometric Pressure (in mm/hg)	763.5	www.wunderground.com Dates:	7/18/18	7/19/18	7/20/18	7/21/18	7/22/18	7/23/18	7/24/18
Conditions at Sampling (sunny, cloudy, rain, showers)	Sunny	Gerald Ford Int, Mi Estimated Rainfall (in)	0.00	0.00	0.86	1.02	0.04	0.04	0.00
USGS ave daily discharge at Rockford Dam	148 Ft³/s	Storm Event Comments:	NA						
Comments	NA								

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12545912	West or	Easting	} need (MI State Plane South Zone, NAD83) (set new point)
Longitude	-85.56013702	North	Northing	
Location Description	In wooded area behind parking lot			
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):
	Notes:			
Photographs Taken	Yes	No	Number Taken:	Upstream Downstream
	If not, provide reason:			
Photograph #	N/A			

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-01 initial	22.48	344	~~13.59~~ 11.59	9.35	145.6	~~1.70~~ 1.3	1059	1.2	
TA-SW-01 2min	22.44	341	9.69	9.35	127.2	1.76	1101	1.2	
TA-SW-01 4min	22.41	342	9.14	9.31	120.1	2.96	1103	1.2	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

SURFACE WATER WORKSHEET

Site name ~~Sheryl~~ SS TA-SW-02
Date: 7/24/18

Field Personnel: Sheryl Stephenson

WEATHER CONDITIONS

Current Information		wunderground.com	Rainfall over the past 7 days (or not applicable)						
Barometric Pressure (in mm/hg)	763.0	Gerald R. Ford Int., Mi Dates:	7/17	7/18	7/19	7/20	7/21	7/22	7/23
Conditions at Sampling (sunny, cloudy, rain, showers)	Cloudy	Estimated Rainfall (in)	0.00	0.00	0.00	0.86	1.02	0.04	0.04
USGS ave daily discharge at Rockford Dam	148 ft^3/s	Storm Event Comments:	NA						
Comments									

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12385759	West or	Easting	12804447.23	(MI State Plane South Zone, NAD83)
Longitude	-85.56130865	North	Northing	594041.69	
Location Description	Entrance to the left of the N side of the bridge (facing N). (Through trees) Sample collected ~4 feet off bank.				
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):	
	Notes:				
Photographs Taken	Yes	No	Number Taken:	Upstream	Downstream
	If not, provide reason:				
Photograph #	NA				

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO % ~~(mg/L)~~	pH units	ORP (mV)	Turbidity (NTU)	~~Sample~~ Time Screen	Water Depth (ft)	Comments
TA-SW-02 initial	21.78	592	107.8	8.41	52.1		1.45	0.75	
TA-SW-02 2min	21.09	582	77.9	7.96	83.5	2.22	1.47	0.75	
TA-SW-02 4min	21.02	582	84.5	7.83	92	2.07	1.49	0.75	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

SURFACE WATER WORKSHEET

Site name TA-SW-03
Date: 7/24/18

Field Personnel: Sheryl Stephenson

WEATHER CONDITIONS

Current Information		www.wunderground.com	Rainfall over the past 7 days (or not applicable)						
Barometric Pressure (in mm/hg)	763.0	Gerald R. Ford. Int., Mi Dates:	7/17	7/18	7/19	7/20	7/21	7/22	7/23
Conditions at Sampling (sunny, cloudy, rain, showers)	Cloudy	Estimated Rainfall (in)	0.00	0.00	0.00	0.86	1.02	0.04	0.04
USGS ave daily discharge at Rockford Dam	148 ft^3/s	Storm Event Comments:	NA						
Comments	NA								

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12359946	West or	Easting	12804330.17	(MI State Plane South Zone, NAD83)
Longitude	-85.56174217	North	Northing	593949.26	
Location Description	Flat 'entrance' to Rogue River via trial. Sample taken 1-2 feet off bank!				
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):	
	Notes:				
Photographs Taken	Yes	No	Number Taken:	✓ Upstream ✓ Downstream	
	If not, provide reason: NA				
Photograph #					

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO % ~~(mg/L)~~	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-03 initial	19.26	590	121.5	7.27	150.0		10.21	1.4 ft	
TA-SW-03 2 mins	18.95	584	110.6	7.59	135.5	0.22	10.23	1.4 ft	
TA-SW-03 4 mins	18.91	585	107.0	7.64	134.3	1.08	10.25	1.4 ft.	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

SURFACE WATER WORKSHEET

Site name TA-SW-04
Date: 7/24/18

Field Personnel: Sheryl Stephenson

WEATHER CONDITIONS

Current Information		Gerald R. Ford Int., Mi	Rainfall over the past 7 days (or not applicable)						
Barometric Pressure (in mm/hg)	763.0	www.wunderground.com Dates:	7/17	7/18	7/19	7/20	7/21	7/22	7/23
Conditions at Sampling (sunny, cloudy, rain, showers)	Sunny	Estimated Rainfall (in)	0.00	0.00	0.00	0.86	1.02	~~1.83~~ 8.04 SS	0.04
USGS ave daily discharge at Rockford Dam	148 ft^3/s	Storm Event Comments:	NA						
Comments	NA								

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12364664	West or	Easting	12804450.20	(MI State Plane South Zone, NAD83)
Longitude	-85.56129343	North	Northing	593964.76	
Location Description	Where Rum ~~River~~ Creek meets Rogue River. Sampler taken while standing on bridge.				
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):	
	Notes:				
Photographs Taken	Yes	No	Number Taken:	✓ Upstream ✓ Downstream	
	If not, provide reason:				
Photograph #	NA				

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO % ~~(mg/L)~~	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-04 initial	18.48	609	138.7	8.24	142.2	0.02	11.31	0.4	
TA-SW-04 2mins	17.50	608	113.3	8.22	122.4	0.02	11.33	0.4	
TA-SW-04 4mins	17.37	606	108.2	8.08	120.4	0.02	11.35	0.4	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

SURFACE WATER WORKSHEET

Site name TA-SW-05
Date: 7/25/18

Field Personnel: Sheryl Stephenson

WEATHER CONDITIONS

Current Information		wunderground.com	Rainfall over the past 7 days (or not applicable)						
Barometric Pressure (in mm/hg)	761.49	Gerald R. Ford Int, Mi Dates:	7/19/18	7/20/18	7/21/18	7/22/18	7/23/18	7/24/18	7/25/18
Conditions at Sampling (sunny, cloudy, rain, showers)	Cloudy	Estimated Rainfall (in)	0.00	0.86	1.02	0.04	0.04	0.00	0.00
USGS ave daily discharge at Rockford Dam	148 ~~ft~~ $^3/s$	Storm Event Comments:	NA						
Comments	NA								

STREAM / SAMPLING LOCATION INFORMATION

Latitude	West	or	Easting	"Need." (MI State Plane South Zone, NAD83)
Longitude	North		Northing	
Location Description	Through weeds @ bend in trail. Facing N, location is on the left			
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):
	Notes:			
Photographs Taken	Yes	No	Number Taken:	✓ Upstream ✓ Downstream
	If not, provide reason:			
Photograph #	N/A			

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-05	21.15	~~72~~ 474	10.13	6.92	136.0	4.60	9.04	0.85	
TA-SW-05	21.78	473	2.96	7.03	124.4	4.67	9.06	0.85	
TA-SW-05	21.84	472	3.27	7.13	118.9	4.83	9.08	0.85	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

Site name TA-SW-06
Date: 7/25/18

SURFACE WATER WORKSHEET

Field Personnel: Sheryl Stephenson

WEATHER CONDITIONS

Current Information		www.wunderground.com	Rainfall over the past 7 days (or not applicable)						
Barometric Pressure (in mm/hg)	763.5	Gerald R Ford Int, MI Dates:	7/18/18	7/19/18	7/20/18	7/21/18	7/22/18	7/23/18	7/24/18
Conditions at Sampling (sunny, cloudy, rain, showers)	Sunny	Estimated Rainfall (in)	0.00	0.00	0.86	1.02	0.04	0.04	0.00
USGS ave daily discharge at Rockford Dam	148 Ft³/s	Storm Event Comments:	NA						
Comments	NA								

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12344569	West or	Easting 12804951.38	(MI State Plane South Zone, NAD83)
Longitude	-85.55941203	North	Northing 593884.40	
Location Description	Run creek in Wolverine Property (back yard). 1 foot from bank, 3 feet upstream of bridge.			
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):
	Notes:			
Photographs Taken	Yes	No	Number Taken:	Upstream Downstream
	If not, provide reason:			
Photograph #	NA			

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-06 initial	15.9	643	12.89	7.57	177.4	0.02	9.01	1.5 ft	
TA-SW-06 2 mins	15.56	628	15.82	7.49	172.1	0.02	9.03	1.5 ft	
TA-SW-06 4 mins	15.55	624	14.88	7.36	164.2	0.02	9.05	1.5 ft	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

SURFACE WATER WORKSHEET

ite name TA-SW-07
Date: 7/25/18

Field Personnel: Sheryl Stephenson

WEATHER CONDITIONS

Current Information		Wundergound.com	Rainfall over the past 7 days (or not applicable)						
Barometric Pressure (in mm/hg)	763.5	Gerald R. Ford, Int. Mi Dates:	7/18/18	7/19/18	7/20/18	7/21/18	7/22/18	7/23/18	7/24/18
Conditions at Sampling (sunny, cloudy, rain, showers)	Sunny	Estimated Rainfall (in)	0.00	0.00	0.86	1.02	0.04	0.04	0.00
USGS ave daily discharge at Rockford Dam	148 ft^3/s	Storm Event Comments:	NA						
Comments	NA								

TREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12142019	West or	Easting	~~12804330.17~~ 12804377.01 (MI State Plane South Zone, NAD83)
Longitude	-85.56152448	North	Northing	~~593,949.26~~ 593154.27
Location Description	1 foot ~~for~~ out from boat landing.			
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):
	Notes:			
Photographs Taken	Yes	No	Number Taken:	✓ Upstream ✓ Downstream
	If not, provide reason:			
Photograph #	NA			

N SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-07 initial	23.04	608	9.16	8.50	135.4	0.02	1.27	0.55	
TA-SW-07	22.22	606	8.76	8.23	110.9	0.02	1.29	0.55	
TA-SW-07	22.22	604	8.82	7.97	112.8	0.02	1.31	0.55	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (FS) Tannery

Turbidimeter: 4449

Date: 10/16/18 Well ID: TA-MW-308B

Weather Conditions: 48°F, Sunny, windy

Sampler's Name (Print) FLORA SU, KEVIN SCHIAVONE

Purging Device & Serial # (pump type): GeoTech Geo Pump #31631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 20.86

Screen Interval (ft, ref. to measuring point): 15.9 to 20.6

Initial Water Level (ft, ref. to measuring point): ~~6.852~~ (FS) 3.86

Tubing Intake (ft, ref. to measuring point): 18

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrate/Nitrite, Total P, Ammonia, Total CN, Sulfide, Sulfate, Cl, Cr(VI), Acetic Acid, Formic Acid, Av. CN

Purging Start Time: 1333 (24 hour cycle) Sample Time: 1440 (24 hour cycle) Time at Sample Completion: 1518 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1338	3.95	0.09	0.09	NR	~~120~~ 360 (FS)	15.17	1191	0.28	7.07	99.7	4.82	
1343	4.02	.07	0.16 ~~.07~~ (FS)	NR	~~120~~ 360 (FS)	14.60	1129	0.11	7.12	61.1	4.25	
1348	4.00	-0.02 ~~.05~~ (FS)	0.14 ~~.07~~ (FS)	NR	~~100~~ 300 (FS)	14.55	1134	0.17	7.09	47.2	3.11	
1353	4.02	0.07	0.16 ~~.19~~ (FS)	NR	330	14.58	1130	0.25	7.00	34.7	1.07	
1358	4.03	0.01 ~~.08~~ (FS)	0.17 ~~.27~~ (FS)	NR	330	14.72	1129	0.09	7.11	20.2	1.78	
1403	4.06	0.03 ~~.11~~ (FS)	0.20 ~~.38~~ (FS)	NR	270	14.57	1129	0.09	7.12	12.4	1.29	
1408	4.06	0.0 ~~.11~~ (FS)	~~.19~~ (FS) 0.20	NR	270	14.69	1130	0.06	7.12	5.3	1.69	
1413	4.06	0.0 ~~.11~~ (FS)	0.20 ~~.60~~ (FS)	NR	270	14.63	1131	0.09	7.14	-2.7	1.14	
1418	4.06	0.0 ~~.11~~ (FS)	0.20 ~~.71~~ (FS)	NR	270	14.72	1136	0.09	7.15	-9.8	1.11	
1423	4.05	-0.01 ~~.10~~ (FS)	0.19 ~~.81~~ (FS)	NR	~~14~~ KS 240	14.62	1136	0.16	7.18	-16.7	0.68	
1428	4.05	0.0 ~~.10~~ (FS)	0.19 ~~.91~~ (FS)	NR	240	14.71	1137	0.10	7.18	-19.5	0.68	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (FS) Tannery

Date: 10/17/2018 Well ID: TA-MW-303D

Weather Conditions: 45°F, partly cloudy, breezy

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of PVC top

Well Depth (ft, ref. to measuring point): 47.08

Screen Interval (ft, ref. to measuring point): 42.5-45.5

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phos., Total CN, Sulfide, Sulfate, Cl, Cr(VI), Acetic Acid, Formic Acid, Av. CN

Initial Water Level (ft, ref. to measuring point): 7.77

Tubing Intake (ft, ref. to measuring point): 44

Total Purge Volume (gallons): ~4.2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1429 (24 hour cycle) Sample Time: 1535 (24 hour cycle) Time at Sample Completion: 1622 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1434	7.85	0.03	-	NR	330	12.54	1500	8.61	8.72	83.6	2.00	
1439	7.85	0.0 (FS) ~~0.08~~	0.03 (FS) ~~0.16~~	NR	330	12.38	2354	8.98	8.22	-33.8	2.82	
1444	7.86	0.01 ~~0.09~~ (FS)	0.09 ~~0.25~~ (FS)	NR	330	12.46	2250	7.85	7.83	-62.4	1.79	
1449	7.85	-0.01 ~~0.05~~ (FS)	0.08 ~~0.33~~ (FS)	NR	210	12.33	2197	~~7.75~~ (FS) 8.37	7.75	-55.1	1.82	
1454	7.82	-0.03 ~~0.05~~ (FS)	0.05 ~~0.39~~ (FS)	NR	210	12.16	2127	8.59	7.70	-52.5	1.58	
1459	7.83	0.01 ~~0.06~~ (FS)	0.06 ~~0.44~~ (FS)	NR	180	12.24	2179	3.03	7.58	-38.5	1.45	
1504	7.83	0.0 ~~0.06~~ (FS)	0.06 ~~0.50~~ (FS)	NR	180	12.49	2171	1.80	7.69	-48.3	2.04	
1509	7.82	-0.01 ~~0.05~~ (FS)	0.05 ~~0.55~~ (FS)	NR	180	12.33	2151	1.42	7.67	-48.3	1.64	
1514	7.83	0.01 ~~0.06~~ (FS)	0.06 ~~0.61~~ (FS)	NR	150	12.13	2150	1.44	7.68	-48.8	0.84	
1519	7.83	0.0 ~~0.06~~ (FS)	0.06 ~~0.67~~ (FS)	NR	180	12.28	2138	0.34	7.51	-39.6	0.73	
1524	7.83	0.0 ~~0.06~~ (FS)	0.06 ~~0.73~~ (FS)	NR	180	12.22	2117	0.24	7.47	-39.5	1.00	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name Tannery

Date: 10/17/18 Well ID: TA-MW-303D

Weather Conditions: 45°F, partly cloudy, breezy

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side of top of PVC

Well Depth (ft, ref. to measuring point): 47.08

Screen Interval (ft, ref. to measuring point): 42.5-45.5

Samples Collected: See page 1

Purging Start Time: 1429 (24 hour cycle) Sample Time: 1535 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 7.77

Tubing Intake (ft, ref. to measuring point): 44

Total Purge Volume (gallons): ~4.2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1622 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1529	7.82	-0.01 ~~0.05~~ (FS)	0.05 ~~0.78~~ (FS)	NR	180	12.54	2098	0.23	7.47	-39.7	1.10	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (FS) Tannery

Date: 10/17/2018 Well ID: TA-MW-303E

Weather Conditions: 43°F, cloudy, breezy

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech Geopump Serial # 3631

Reference Measuring Point (Top of PVC/Top of Casing): V-notch at top of ~~casing~~ PVC (FS)

Well Depth (ft, ref. to measuring point): 52.92

Screen Interval (ft, ref. to measuring point): 42.5 - 45.5

Initial Water Level (ft, ref. to measuring point): ~~7.61~~ 9.61 (FS)

Tubing Intake (ft, ref. to measuring point): 44

Total Purge Volume (gallons): 8.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO_2/NO_3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Cl, Cr(VI), Acetic Acid, Formic Acid, Av. CN (FS)

Purging Start Time: ~~1030~~ (FS) 1038 (24 hour cycle) Sample Time: 1120 (24 hour cycle) Time at Sample Completion: 1234 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1043	6.70	0.09	—	NR	300	12.41	1962	0.26	6.87	-64.3	0.30	
1048	6.71	0.01 ~~0.10~~ (FS)	0.10 ~~0.19~~ (FS)	NR	300	12.57	2106	0.79	6.89	-46.7	0.82	
1053	6.70	-0.01 ~~0.09~~ (FS) 0.10 (FS)	0.09 ~~0.28~~ (FS)	NR	300	12.48	2111	0.66	6.91	-40.3	1.48	
1058	6.71	+0.01 ~~0.10~~ (FS)	0.10 ~~0.38~~ (FS)	NR	330	12.44	2118	0.21	6.92	-37.3	0.82	
1103	6.72	0.01 ~~0.11~~ (FS)	0.11 ~~0.49~~ (FS)	NR	330	12.33	2140	0.07	6.96	-35.4	0.60	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (FS) Former Tannery

 4.47

Date: 10/18/18 Well ID: TA-MW-307A

Weather Conditions: 39°F, Sunny, clear

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 15.91

Screen Interval (ft, ref. to measuring point): 5.6-10.2 (*)

Samples Collected: None

Purging Start Time: 1240 (24 hour cycle) Sample Time: NA (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): ~~0~~ (FS) ~~12.94~~ (FS)

Tubing Intake (ft, ref. to measuring point): 8

Total Purge Volume (gallons): NA

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one) NA

Two Hour Time Limit Reached? yes OR no (circle one) NA

Time at Sample Completion: NA (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1245	4.81	0.34	~~0.34~~	NR	300	13.89	1905	2.35	6.98	140.6	5.21	~~Casing filled with water upon opening well~~ (FS)
1250	4.78	0.~~0~~ (FS) -0.0~~31~~	~~0.65~~ (FS) 0.31	NR	300	13.86	2132	(FS) ~~4~~1.04	6.98	121.3	2.78	
1255	4.70	~~0.23~~ (FS) -0.08	~~0.88~~ (FS) 0.23	NR	210	14.00	2233	0.75	7.00	98.7	1.71	
1300	4.70	~~0.23~~ (FS) 0.0	~~1.11~~ (FS) 0.23	NR	210	13.89	2247	0.80	7.03	91.8	1.60	
1305	4.70	~~0.23~~ (FS) 0.0	~~1.34~~ (FS) 0.23	NR	210	13.88	2267	0.67	7.05	84.5	1.71	
1310	4.61	~~0.14~~ (FS) -0.09	~~1.48~~ (FS) 0.14	NR	150	13.98	2276	0.62	7.09	78.2	0.99	
1315	4.60	~~0.13~~ (FS) -0.01	~~1.61~~ (FS) 0.13	NR	150	13.66	2278	0.55	7.09	72.9	1.02	
												(*) Mislabelled screening interval led to improper tubing length used.
												New tubing installed, restarted purging.
												Actions approved by Leslie Nelson.
												Sample data on page 2

FPV (gallons) = NA

Calculations: ~~NA~~ BH - Drawdown Stabilized

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (3) Former Tannery

Date: 10/18/18 Well ID: TA-MW-307A

Weather Conditions: 50°F, Sunny + clear

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech bladder pump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 15.91

Screen Interval (ft, ref. to measuring point): 11.0 - 15.7

Initial Water Level (ft, ref. to measuring point): 4.48

Tubing Intake (ft, ref. to measuring point): ~~13.35~~ (3) ~13.5

Total Purge Volume (gallons): ~3.8

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hex, Hardness, Nitrate/Nitrite/Ammonia, Phos, Total CN, Sulfide, Sulfate, Cl, Cr(VI), Acetic Acid, Formic Acid, Av. CN

Purging Start Time: 1422 (24 hour cycle) Sample Time: 1510 (24 hour cycle) Time at Sample Completion: 1547 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1427	4.72	0.24	0.24	175	270	13.64	2283	0.62	7.14	77.5	4.00	
1432	4.74	0.02	0.26	175	270	13.61	2219	6.88	7.16	68.4	2.65	
1437	4.74	0.00	0.26	175	270	13.63	2192	0.92	7.13	65.1	1.21	
1442	4.75	0.01	0.27	175	270	13.75	2181	0.69	7.11	60.5	1.15	
1447	4.76	0.01	0.28	175	270	13.73	2185	1.24	7.13	58.3	1.75	
1452	4.76	0.0	0.28	175	270	13.79	2197	0.57	7.13	56.0	1.34	
1457	4.76	0.0	0.28	175	270	13.83	2187	0.54	7.14	53.7	0.95	
1502	4.77	0.01	0.29	175	270	13.83	2196	0.57	7.14	51.9	0.90	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Flora Su
Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

(FS) ~~Site Name~~ Former Tannery

Date: 10/19/2018 Well ID: TA-MW-310A

Weather Conditions: 44°F, Sunny/partly cloudy

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC (standing pipe)

Well Depth (ft, ref. to measuring point): 12.43

Screen Interval (ft, ref. to measuring point): ~~4.5-9.5~~ (FS) 7.5-12.5

Initial Water Level (ft, ref. to measuring point): ~~10.03~~ (FS) 10.03

Tubing Intake (ft, ref. to measuring point): 11

Total Purge Volume (gallons): 41.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrate/Nitrite/~~Phos~~ (FS) Ammonia, Phos, Total CN, Sulfide, Sulfate, Cl, Cr(VI), Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 0955 (24 hour cycle) Sample Time: 1040 (24 hour cycle) Time at Sample Completion: 1109 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1000	10.14	0.11	0.11	~200	270	16.85	647	3.84	7.20	125.1	0.32	Tubing placed 1 ft below screened interval midpoint – water level at midpt.
1005	10.14	0.0	0.11	~200	270	16.87	649	3.81	7.20	121.9	0.52	
1010	10.14	0.0	0.11	~200	270	16.85	647	3.65	7.19	120.2	0.44	Note: PFAS field blank taken here.

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (B) Former Tannery

Date: 10/19/2018 Well ID: TA-MW-310B

Weather Conditions: 54°F, Cloudy, breezy, raining

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 19.98

Screen Interval (ft, ref. to measuring point): 14.8-19.8

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrate/Nitrite/Ammonia, Phos., Total CN, Sulfide, Sulfate, Cl, Cr(VI), Acetic Acid, Formic Acid, Avail CN

Purging Start Time: 1325 (24 hour cycle) Sample Time: 1415 (24 hour cycle) Time at Completion: 1502 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 10.03

Tubing Intake (ft, ref. to measuring point): 17.3

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1330	10.06	0.03	0.03	NR	240	16.51	630	3.44	7.40	114.9	~~NA~~ 0.24	
~~1335~~ (B)											0.24	
1340	10.06	0.0	0.03	NR	300	16.60	631	3.21	7.30	114.0	0.31	
1345	10.06	0.0	0.03	NR	300	16.37	633	3.16	7.35	113.6	0.26	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date : 10-23-2018 Well ID : TA-GW-08

Weather Conditions : 50°F, Sunny/partly cloudy

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 10.07

Screen Interval (ft, ref. to measuring point): 5-10

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrite/Nitrate/Ammonia, Phos, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 5.86

Tubing Intake (ft, ref. to measuring point): 8

Total Purge Volume (gallons): 3.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : 1502 (24 hour cycle) Sample Time: 1555 (24 hour cycle) Time at Sample Completion: 1629 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1507	6.24	0.38	–	260	390	14.92	763	0.28	7.00	134.2	5.09	
1512	6.28	0.04	0.42	260	390	15.31	776	0.25	7.02	115.5	19.7	
1517	6.25	-0.03	0.39	145* 220 ~~130~~ (B)	360	15.35	774	0.24	7.04	104.2	14.0	
1522	6.19	-0.06	0.33	~~175~~ (B)	270	15.40	781	0.22	7.08	90.8	4.61	
1527	6.17	-0.02	0.31	175	270	15.09	783	2.72	7.08	81.8	3.17	
1532	6.17	0	0.31	175	270	15.21	783	1.44	7.08	73.9	2.53	
1537	6.11	-0.06	0.25	150	240	15.52	783	0.56	7.05	62.3	2.85	
1542	6.11	0	0.25	150	240	15.41	784	0.38	7.05	55.3	2.25	
1547	6.11	0	0.25	150	240	15.54	784	0.30	7.05	50.3	1.75	
1552	6.11	0	0.25	150	240	15.15	785	0.24	7.05	47.6	1.72	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (B) Former Tannery

Date: 10-23-2018 Well ID: TA-MW-302A

Weather Conditions: 49°F, partly cloudy, occasional showers

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, Top of PVC

Well Depth (ft, ref. to measuring point): ~~5.95~~ (B) 5.51

Screen Interval (ft, ref. to measuring point): 3.6-6.0

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hex. Hardness, Nitrite/Nitrate/Ammonia, Phos., Total CN, Sulfide, Sulfate, Chloride, Hex. Chromium, Acetic Acid, Formic Acid, Avi. CN

Purging Start Time: 1258 (24 hour cycle) Sample Time: 1315 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 1.79

Tubing Intake (ft, ref. to measuring point): 5

Total Purge Volume (gallons): 250 mL

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one) (NA)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1345 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
												Given the prior history of the well running dry when using the normal purging/sampling protocol, the no-purge allowed flow was followed instead. One tubing length was purged prior to collecting PFAS samples: 9.25 ft × 9.8 mL/ft = 91 mL (rounded up to 100 mL)
												120 mL → 1.96 water level (purged) (0.20' drawdown)

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name (FS) Former Tannery

Date: 10-23-2018 Well ID: TA-MW-302B

Weather Conditions: 42°F, Sunny/partly cloudy, breezy

Sampler's Name (Print): Flora Su, Andrew Beaton

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, Top of PVC

Well Depth (ft, ref. to measuring point): ~~14.50~~ (FS) 10

Screen Interval (ft, ref. to measuring point): 9.6-14.4

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrite/Nitrate/Ammonia, Phos, Total CN, Sulfide, Sulfate, Chloride, Hex. Chromium, Acetic Acid, Formic Acid, Av. CN

Initial Water Level (ft, ref. to measuring point): 2.26

Tubing Intake (ft, ref. to measuring point): 12

Total Purge Volume (gallons): 5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0949 (24 hour cycle) Sample Time: 1040 (24 hour cycle) Time at Sample Completion: 1145 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0954	2.51	0.25	—	260	390	15.12	2382	1.60	7.06	-25.1	1.51	
0959	2.51	0	0.25	260	390	15.34	(FS) ~~0.010~~	~~7.03~~ 1.18 (FS)	7.08	-23.6	1.16	Conductivity: 2264
1004	2.51	0	0.25	260	390	14.99	2220	0.95	7.14	-35.2	1.44	
1009	2.52	0.01	0.26	260	390	15.12	2204	0.54	7.17	-46.9	1.23	
1014	2.52	0	0.26	260	390	15.06	2166	0.29	7.19	-52.0	1.35	
1019	2.52	0	0.26	260	390	15.05	2165	0.34	7.20	-56.2	1.41	
1024	2.53	0.01	0.27	260	390	14.97	2157	0.18	7.20	-59.9	1.00	
1029	2.51	-0.02	0.25	130°	360	15.02	2203	0.18	7.19	-63.9	1.16	
												Collected MS + MSD
												for all analytes

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (KS) Tannery

Date: 10/24/18 Well ID: TA-MW-5

Weather Conditions: 50°F Partly Cloudy

Sampler's Name (Print): Kevin Schiesser

Purging Device & Serial # (pump type): Geopump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 10.33

Screen Interval (ft, ref. to measuring point): 4.56 - 9.56

Samples Collected: PFAS, VOC, SVOC, Hex. Chromium, Nitrite/Nitrate, Tot. CN, Avail. CN, TAL Metals, TAL Metal - Hg, Acetic Acid, Formic Acid, Sulfide, Sulfate, Ammonia, Hardness, Phosphorus, Chloride

Purging Start Time: 1553 (24 hour cycle) Sample Time: 1635 (24 hour cycle) Time at Sample Completion: 1711 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.74

Tubing Intake (ft, ref. to measuring point): 7.06

Total Purge Volume (gallons): 5.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (KS) 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1558	4.78	0.04	—	175	300	16	650	<0.5	6.9	14	<5	
1603	4.78	0.00	0.04 ~~0.00~~ (KS)	175	300	16	653	<0.5	6.9	-9	<5	
1608	4.78	0.00	0.04 ~~0.00~~ (KS)	175	300	16	656	<0.5	6.9	-25	<5	
1613	4.79	0.01	0.05	175	300	16	656	<0.5	6.9	-32	<5	
1618	4.80	0.01	0.06	175	300	16	658	<0.5	6.9	-35	<5	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

(KS) ~~Site Name~~ Tannery

Date: 10/24/18 Well ID: TA-MW-306B

Weather Conditions: 40°F, Overcast

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Grundfos pump 2 unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 15.50

Screen Interval (ft, ref. to measuring point): 10.21 - 14.91

Samples Collected: PFAS, VOC, SVOC, Hex. chromium, Nitrate/Nitrite, Sulfide, Sulfate, Avail. CN, Tot. CN, Ammonia, Chloride, Hardness, Tot. Phos., Acetic Acid, Formic Acid, TAL Metals, TAL Metals-Hg

Purging Start Time: 1304 (24 hour cycle) Sample Time: 1420 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.34

Tubing Intake (ft, ref. to measuring point): 12.91

Total Purge Volume (gallons): 7.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (KS) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached? yes OR (no) (circle one)

Time at Sample Completion: 1455 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1308	4.61	0.27	—	180	300	15	3305	0.6	7.1	-118	102	
1313	4.56	-0.05	0.22	160	270	15	2854	0.5	7.2	-126	55	
1318 (KS)	4.56	0.00	0.22	160	270	15	2527	0.5	7.2	-133	<5	
1323	4.56	0.00	0.22	160	270	15	2195	0.4	7.2	-132	14.7	
1328	4.56	0.00	0.22	160	270	14	1856	(KS) <0.5	7.2	-134	14.4	
1333	4.56	0.00	0.22	160	270	14	1705	<0.5	7.2	-134	11.8	
1338	4.57	0.01	0.23	160	270	15	1570	<0.5	7.2	-132	9	
1343	4.57	0.00	0.23	160	270	15	1463	<0.5	7.2	-136	7	
1348	4.57	0.00	0.23	160	270	15	1441	<0.5	7.2	-135	5	
1353	4.57	0.00	0.23	160	270	15	1360	<0.5	7.2	-135	6	
1358	4.57	0.00	0.23	160	270	15	1307	<0.5	7.2	-133	6	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

KS ~~Site Name~~ Tannery

Date: 10/24/18 Well ID: TA-MW-306B

Weather Conditions: 40s°F, overcast

Sampler's Name (Print) Kevin Sullivan

Purging Device & Serial # (pump type): Geopump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 15.50

Screen Interval (ft, ref. to measuring point): 10.21 - 14.91

Samples Collected: See page 1

Purging Start Time: 1304 (24 hour cycle) Sample Time: 1420 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.34

Tubing Intake (ft, ref. to measuring point): 12.91

Total Purge Volume (gallons): 7.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ KS 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1455 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1403	4.57	0.00	0.23	160	270	15	1318	<0.5	7.2	-131	6	
1408	4.57	0.00	0.23	160	270	15	1281	<0.5	7.2	-131	6	

FPV (gallons) = N/A Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Sullivan

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date: 10-24-18 Well ID: TA-MW-309A

Weather Conditions: 46°F, Cloudy

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, Top of PVC

Well Depth (ft, ref. to measuring point): 11.27

Screen Interval (ft, ref. to measuring point): 6.99 - 11.99

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phos, Total CN, Sulfide, Sulfate, Chloride, Hex Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1402 (24 hour cycle) Sample Time: 1445 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 7.19

Tubing Intake (ft, ref. to measuring point): ~~8.5~~ 9.35

Total Purge Volume (gallons): 2.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~1/4~~ ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1524 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1407	7.40	0.21	-	175	~~50~~ 300	14.37	1125	0.29	6.92	102.2	11.3	Water level within screening interval;
1412	7.54	0.14	0.35	175	300	14.38	1125	0.29	6.95	95.5	8.66	tubing intake placed at halfway
1417	7.51	-0.03	0.32	146	240	14.24	1125	0.27	6.99	88.9	4.76	into the water column, per SOP.
1422	7.53	0.02	0.34	146	240	14.25	1128	0.24	6.99	83.5	4.64	
1427	7.48	-0.05	0.29	131	180	14.02	1127	0.24	7.00	77.6	2.84	
1432	7.48	0	0.29	131	180	13.84	1126	0.22	7.00	74.0	2.90	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name:~~ (FS) Former Tannery

Date: 10-24-2018 Well ID: TA-MW-309B

Weather Conditions: 38°F, Cloudy

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, Top of PVC

Well Depth (ft, ref. to measuring point): 20.07

Screen Interval (ft, ref. to measuring point): 14.84 - 19.84

Samples Collected: PFAS, VOCs, SVOCs, TPH, Metals, Hg, Hardness, NO2/NO3/Ammonia, Phos., Total CN, Sulfide, Sulfate, Chloride, Hex. Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 7.0

Tubing Intake (ft, ref. to measuring point): 17.34

Total Purge Volume (gallons): 4.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~1/4~~ (KS) ~~3/8~~ (KS) 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1127 (24 hour cycle) Sample Time: 1205 (24 hour cycle) Time at Sample Completion: 1237 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed mL/min	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1132	7.15	0.15	—	380	380	13.87	1202	1.68	7.40	52.7	7.54	
1137	7.16	0.01	0.16	380	380	13.91	1200	1.03	7.40	36.9	4.51	
1142	7.16	0	0.16	380	380	14.00	1200	0.52	7.39	25.6	3.04	
1147	7.16	0	0.16	380	380	14.01	1199	0.35	7.40	17.4	2.66	
1152	7.16	0	0.16	380	380	14.00	1199	0.29	7.40	13.6	3.18	
1157	7.16	0	0.16	380	380	14.04	1199	0.25	7.39	10.4	4.03	
												EPA split (all but PFAS)

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (F3) Former Tannery

Date: 10-24-2018 Well ID: TA-P-3

Weather Conditions: 28°F, Partly Cloudy, Frost

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 8.35

Screen Interval (ft, ref. to measuring point): 4.48-9.08

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Total CN, Nitrite/Nitrate/Ammonia, Phos., Sulfide, Sulfate, Chloride, Hex. Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 2.27

Tubing Intake (ft, ref. to measuring point): 4.78

Total Purge Volume (gallons): 3.25

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~1/4~~ (F3) 3/8 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 0900 (24 hour cycle) Sample Time: 1000 (24 hour cycle) Time at Sample Completion: 1032 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0905	2.69	0.42	—	730° 204	240	14.05	1914	6.27	6.80	21.6	0.81	
0910	2.59	-0.10	0.32	730° 146	180	13.49	1880	1.20	6.71	22.5	0.95	
0915	2.58	-0.01	0.31	146	180	13.46	1851	1.16	6.71	21.6	0.88	
0920	2.59	0.01	0.32	146	180	13.68	1829	0.84	6.71	21.8	0.70	
0925	2.56	-0.03	0.29	131	140	13.36	1815	0.81	6.68	24.6	0.81	
0930	2.55	-0.01	0.28	131	140	13.20	1810	0.68	6.69	25.2	1.45	
0935	2.55	0	0.28	131	140	13.46	1812	0.48	6.70	25.3	0.80	
0940	2.55	0	0.28	131	140	13.36	1812	0.41	6.68	27.0	0.74	
0945	2.55	0	0.28	131	140	13.53	1815	0.38	6.70	26.3	0.63	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

(KS) ~~Site Name~~ Former Tannery

Date: 10-24-18 Well ID: TA-P-5

Weather Conditions: 48°F, Partly cloudy/Sunny

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, Top of PVC

Well Depth (ft, ref. to measuring point): Not measured

Screen Interval (ft, ref. to measuring point): 4.48 - 9.08

Samples Collected: ~~[illegible]~~ No Sample

Initial Water Level (ft, ref. to measuring point): ~~3.85~~ (KS) NA

Tubing Intake (ft, ref. to measuring point): ~~8~~ (KS) NA

Total Purge Volume (gallons): NA

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~1/2~~ (KS) ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one) NA

Two Hour Time Limit Reached ? yes OR no (circle one) NA

Purging Start Time: NA (24 hour cycle) Sample Time: NA (24 hour cycle) Time at Sample Completion: NA (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
												Well has prior history of going dry during purging → use no-purge procedure.
												Water level did not stabilize by end of day ~~[illegible]~~ (KS) - removed tubing + allowed water level to equilibrate overnight.
												(KS) See p. 2 for sampling info.

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10-25-18 Well ID: TA-P-5

Weather Conditions: 30°F, Partly cloudy, Frost

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 9.08

Screen Interval (ft, ref. to measuring point): 4.48-9.08

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 4.21

Tubing Intake (ft, ref. to measuring point): 7.0 (12.3 total)

Total Purge Volume (gallons): 0.12 (1 cup, 7 oz)

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~1/4~~ ~~3/8~~ 1/4

NA Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Purging Start Time: 0855 (24 hour cycle) Sample Time: 0900 (24 hour cycle) Time at Sample Completion: 0955 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
												Purged 1 tubing length (125 mL)
												prior to sample collection.
												Available Cyanide indicator strip turned
												brown (water was mostly clear,
												slight yellow tint).
												Strong sulfur odor

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Flora Su

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/25/18 Well ID: TA-MW-308A

Weather Conditions: 30°F, Sunny

Sampler's Name (Print) Kevin Schiavone, Andrew Beaton

Purging Device & Serial # (pump type): geopump2 unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 8.11

Screen Interval (ft, ref. to measuring point): 3.45 - 8.15

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3 Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail CN

Purging Start Time: 931 (24 hour cycle) Sample Time: 1030 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.11

Tubing Intake (ft, ref. to measuring point): 6.13

Total Purge Volume (gallons): 7

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 11:23 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
936	4.31	0.20	—	175	300	14	1319	<.5	6.9	-70	13	Duplicate sample
941	4.31	0.00	0.20	165	240	14	1300	0.54	6.9	-77	11	taken at this
946	4.31	0.00	0.20	165	240	14	1288	0.7	6.9	-80	<5	location
951	4.32	0.01	0.21	165	240	14	1274	0.6	6.9	-83	<5	
956	4.33	0.01	0.22	165	240	14	1262	~~0.5~~ <5	6.9	-84	<5	
1001	4.33	0.00	0.22	165	240	14	1252	<.5	6.9	-85	<5	
1006	4.34	0.01	0.23	165	240	14	1251	<.5	6.9	-86	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/25/18 Well ID: TA-P-2

Weather Conditions: 48°F, Cloudy

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North Side

Well Depth (ft, ref. to measuring point): ~~9.53~~ 9.34

Screen Interval (ft, ref. to measuring point): 4.43 - 9.13

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3, Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1608 (24 hour cycle) Sample Time: 1715 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 1.75

Tubing Intake (ft, ref. to measuring point): 6.9

Total Purge Volume (gallons): 8

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ ~~1/4~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1732 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (mL/min)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1613	1.92	0.17	—	380	380	14.84	2023	0.41	6.90	149.2	31.1	
1618	1.95	0.03	0.20	380	380	14.96	2090	0.41	6.92	129.3	22.8	
1623	1.97	0.02	0.22	380	380	14.93	2125	0.31	6.93	106.3	17.1	
1628	1.97	0	0.22	380	380	15.03	2156	0.17	6.93	85.5	9.22	
1633	1.98	0.01	0.23	380	380	15.02	2162	0.26	6.95	75.1	12.3	
1638	1.99	0.01	0.24	380	380	15.04	2194	0.34	6.91	64.1	6.89	
1643	1.99	0	0.24	380	380	14.91	2183	0.26	6.92	53.0	6.57	
1648	1.99	0	0.24	380	380	15.00	2184	0.20	6.92	49.6	5.10	
1653	1.99	0	0.24	380	380	14.96	2186	0.22	6.92	45.6	4.65	
1658	2.00	0.01	0.25	380	380	15.03	2208	0.16	6.91	42.3	4.53	
~~1705~~ 1703	2.00	0	0.25	380	380	15.04	2226	0.36	6.92	39.0	4.59	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10-25-18 Well ID: TA-TMW-104

Weather Conditions: 45°F, Partly cloudy

Sampler's Name (Print) Flora Su, Kevin Schiavone

Purging Device & Serial # (pump type): Geotech Geopump (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North side

Well Depth (ft, ref. to measuring point): 9.78

Screen Interval (ft, ref. to measuring point): 5.04 - 9.99

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3 Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1321 (24 hour cycle) Sample Time: 1415 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.18

Tubing Intake (ft, ref. to measuring point): 7.5

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~1/4~~ (KS) ~~3/8~~ (KS) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1451 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1326	4.26	0.08	–	140	180	15	931	4.0	7.0	124	<5	
1331	4.27	0.01	0.09	130	170	14	930	3.1	6.9	128	<5	
1336	4.27	0.00	0.09	130	170	14	932	2.2	6.9	130	<5	
1341	4.27	0.00	0.09	130	180	14	935	1.9	6.9	130	<5	
1346	4.28	0.01	0.10	130	180	14	940	1.7	6.9	129	<5	
1351	4.28	0.00	0.10	130	180	14	947	1.5	6.7	129	<5	
1356	4.28	0.00	0.10	130	180	14	952	1.4	6.9	129	<5	
1401	4.29	0.01	0.11	130	180	14	956	1.3	~~6.9~~ 7.0 (FS)	129	<5	
1406	4.29	0.00	0.11	130	180	15	958	1.3	7.0	128	<5	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10-26-18 Well ID: TA-MW-303B

Weather Conditions: 44°F, Cloudy

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North side

Well Depth (ft, ref. to measuring point): 14.41

Screen Interval (ft, ref. to measuring point): 9.75-14.55

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 2.02

Tubing Intake (ft, ref. to measuring point): 12.15

Total Purge Volume (gallons): 2.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1129 (24 hour cycle) Sample Time: 1200 (24 hour cycle) Time at Sample Completion: 1238 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (mL/min)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1134	2.56	0.54	—	~~260~~ 360 (FS)	360	13.32	3574	1.15	6.66	-78.9	0.83	
1139	2.40	-0.16	0.38	220	220	13.14	3667	0.65	6.65	-81.9	1.35	
1144	2.41	0.01	0.39	220	220	13.16	3681	0.53	6.64	-84.7	0.86	
1149	2.32	-0.09	0.30	160	160	13.06	3735	0.47	6.63	-86.9	2.80	
1154	2.31	-0.01	0.29	160	160	12.88	3760	0.45	6.63	-89.5	0.95	
1159	2.31	0	0.29	160	160	13.01	3773	0.45	6.64	-90.8	4.04	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Flora Su

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10-26-2018 Well ID: TA-MW-303C

Weather Conditions: 40°F, Cloudy

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 21.57

Screen Interval (ft, ref. to measuring point): 16.8-21.6

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 0914 (24 hour cycle) Sample Time: 1020 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): ~~1.2~~ 1.92

Tubing Intake (ft, ref. to measuring point): 19.2

Total Purge Volume (gallons): 8

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1043 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0919	2.02	0.10	—	260	380							Missed readings due to YSI cord problems - resolved w/o issue or interruption.
0924	2.02	0	0.10	260	380	12.35	3524	0.89	7.18	-130.6	13.3	
0929	2.02	0	0.10	260	380	12.36	3513	0.75	7.19	-132.9	6.16	
0934	2.02	0	0.10	260	380	12.39	3497	0.55	7.21	-135.2	7.60	
0939	2.02	0	0.10	260	380	12.30	3494	0.45	7.22	-136.2	6.02	
0944	2.02	0	0.10	260	380	12.34	3492	0.35	7.23	-136.9	7.72	
0949	2.03	0.01	0.11	260	380	12.35	3496	0.32	7.22	-135.6	4.56	
0954	2.03	0	0.11	260	380	12.29	3495	0.30	7.21	-135.1	4.00	
~~10~~ 959	2.03	0	0.11	260	380	12.29	3480	0.30	7.22	-135.2	2.01	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Flora Su

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10-29-18 Well ID: TA-MW-2

Weather Conditions: cloudy, 40's

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump unit c (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top PVC North side

Well Depth (ft, ref. to measuring point): 7.94

Screen Interval (ft, ref. to measuring point): 2.45 - 7.35

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3, Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1602 (24 hour cycle) Sample Time: 1640 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 2.68

Tubing Intake (ft, ref. to measuring point): 4.9

Total Purge Volume (gallons): 2.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (1/4) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1721 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1607	2.70	0.02	—	140	180	14	793	1.2	7.5	-29	5	
1612	2.70	0.00	0.02	140	180	14	797	0.9	7.5	-30	(AB) ~~5~~ <5	
1617	2.70	0.00	0.02	140	180	14	798	0.6	7.6	-31	(AB) ~~5~~ <5	
1622	2.71	0.01	0.03	140	180	14	797	0.5	7.6	-32	<5	
1627	2.71	0.00	0.03	140	180	14	798	0.4	7.6	-34	<5	
1632	2.71	0.00	0.03	140	180	15	805	0.3	7.7	-37	<5	
1637	2.71	0.00	0.03	140	180	14	804	0.3	7.7	-40	<5	
1642	2.71	0.00	0.03	140	180	15	813	0.3	7.7	-40	<5	

FPV (gallons) = N/A

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10-29-18 Well ID: TA-MW-303A

Weather Conditions: Cloudy, 40°s

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump unit C (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC (North side)

Well Depth (ft, ref. to measuring point): 7.80

Screen Interval (ft, ref. to measuring point): 2.43' - 7.13

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 2.11

Tubing Intake (ft, ref. to measuring point): 4.8

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1341 (24 hour cycle) Sample Time: 1430 (24 hour cycle) Time at Sample Completion: 1510 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1346	2.16	0.05	–	165	210	13	2665	<0.5	7.0	81	16.1	
1351	2.16	0.00	0.05	155	180	13	2704	<0.5	6.9	68	10	
1356	2.17	0.01	0.06	155	180	13	2723	<0.5	6.9	62	8	
1401	2.18	0.01	0.07	155	180	13	2732	<0.5	6.9	56	7	
1406	2.19	0.01	0.08	155	180	13	2744	<0.5	6.9	52	6	
1411	2.19	0.00	0.08	155	180	13	2740	<0.5	6.9	48	<5	
1416	2.19	0.00	0.08	155	180	13	2737	<0.5	6.9	46	<5	

FPV (gallons) = N/A Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ KS Former Tannery

Date: 10/17/18 Well ID: TA-MW-301D

Weather Conditions: 40-50°F, Overcast 40-50°F Overcast

Sampler's Name (Print): Kevin Schianne

Purging Device & Serial # (pump type): Geopump 2 (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 76.85

Screen Interval (ft, ref. to measuring point): 66.7-71.7

Samples Collected: PFAS, VOC, SVOC, TAL Metals, Mercury, Hardness, Nitrate, Nitrite, Total Phosphorus, Ammonia, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Available Cyanide

Purging Start Time: 1439 (24 hour cycle) Sample Time: 1610 (24 hour cycle) Time at Sample Completion: 1630 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 9.31

Tubing Intake (ft, ref. to measuring point): 68.7

Total Purge Volume (gallons): 7.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1444			—	NR	270	13.78	1758	0.36	7.19	-31.7	14.4	Water level Probe ~~Malfunction~~ KS Malfunction
1449	9.37	0.06	—	NR	270	13.87	1777	7.14	7.08	-63.6	5.77	
1454	9.41	0.04 ~~0.04~~ KS	0.10	NR	300	13.74	1824	4.84	6.98	-60.6	2.06	
1459	9.37	-0.04 ~~0.06~~ KS	0.06	NR	300	14.03	1831	8.64	7.08	-56.9	1.95	
~~1504~~ KS 1504	9.36	-0.01 ~~0.05~~ KS	0.05	NR	270	13.94	1830	7.94	7.08	-36.7	1.75	
1509	9.36	0.00 ~~0.05~~ KS	0.05	NR	270	14.10	1843	6.54	7.08	-46.0	6.65	
1514	9.36	0.00 ~~0.05~~ KS	0.05	NR	240	14.00	1884	6.15	7.09	-40.5	1.68	
1519	9.36	0.00 ~~0.05~~ KS	0.05	NR	240	13.86	1884	5.83	7.04	-40.5	1.10	
1524	9.36	0.00 ~~0.05~~ KS	0.05	NR	210	14.25	1881	5.30	7.05	-36.1	1.12	
1529	9.36	0.00 ~~0.05~~ KS	0.05	NR	210	14.27	1877	5.00	7.03	-37.1	0.81	
1534	9.36	0.00 ~~0.05~~ KS	0.05	NR	210	13.88	1880	4.73	7.04	-30.7	1.64	

FPV (gallons) = ~~NA~~ KS Calculations: NA

RBH NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schianne

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date: 10/17/18 Well ID: TA-MW-30iD

Weather Conditions: ~~Kevin Schiavone~~ KS 40-50°F overcast

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 76.85

Screen Interval (ft, ref. to measuring point): 66.7 - 71.7

Samples Collected: See Page 1

Purging Start Time: 1439 (24 hour cycle) Sample Time: 1610 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 9.31

Tubing Intake (ft, ref. to measuring point): 68.7

Total Purge Volume (gallons): 7.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1630 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1539	9.36	0.00 DBH ~~0.06~~	0.05	NR	210	13.59	1886	4.42	7.00	-31.2	0.71	
1544	9.37	0.01 DBH ~~0.07~~	0.06	NR	240	13.70	1885	4.12	6.99	-22.8	0.80	
1549	9.37	0.00 DBH ~~0.07~~	0.06	NR	240	13.58	1886	3.88	6.99	-27.6	0.54	
1554	9.37	0.00 DBH ~~0.07~~	0.06	NR	240	13.97	1880	3.51	7.00	-27.4	0.50	
1559	9.37	0.00 DBH ~~0.07~~	0.06	NR	240	13.67	1886	3.43	6.97	-28.0	0.77	
1604	9.37	0.00 DBH ~~0.07~~	0.06	NR	210	13.63	1886	3.21	6.96	-16.4	1.01	

DBH FPV (gallons) = ~~7.75~~ N/A Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Site Former Tannery

Date: 10/19/18 Well ID: TA-GW-02

Weather Conditions: 40s °F, Rainy

Sampler's Name (Print): Kevin Schisrose, Flora Su, Andrew Beaton

Purging Device & Serial # (pump type): Grouper 2 Unit B (~~[illegible]~~) RBH (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 9.5

Screen Interval (ft, ref. to measuring point): 2-7

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrate/Nitrite/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Available CN

Initial Water Level (ft, ref. to measuring point): 4.02

Tubing Intake (ft, ref. to measuring point): 4.5

Total Purge Volume (gallons): 3.25

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1348 (24 hour cycle)

Sample Time: 10-22-2018 1625 (24 hour cycle)

Time at Sample Completion: 10-22-2018 1650 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1353	4.68	.66	-	225	360	16.78	3827	7.89	6.91	87.1	2.3	
1358	5.15	.37	1.03	210	330	16.90	4543	7.75	6.88	80.7	1.22	
1403	5.46	.31	1.34	175	270	16.90	4888	7.41	6.88	77.2	2.03	
1408	5.69	.23	1.57	140	210	16.90	5407	7.24	6.88	77.8	1.30	
1413	5.82	.13	1.70	100	150	15.73	5552	6.60	6.98	81.4	34.7	
1418	5.89	.07	1.77	100	150	16.57	7460	0.95	6.81	81.8	19.6	
1423	6.02	.03	1.80	100	150	16.75	7432	1.20	6.82	78.8	12.7	
1428	6.12	.10	1.90	90	120	16.67	7353	1.58	6.83	78.2	16.0	
1433	6.24	.12	2.02	90	120	16.37	7091	2.09	6.84	77.3	10.3	
1438	6.33	.11	2.13	90	120	16.30	6802	2.45	6.84	80.3	6.49	
1443	6.44	.11	2.24	90	120	16.18	6604	2.46	6.84	82.4	4.46	

FPV (gallons) = ~~0.37~~ 0.43

Calculations: ~~(10.5 x 0.0012) + (2.6 x 0.16) = 0.43~~ ~~(7.5ft x 0.0012 gallons/ft) + (2.24ft x 0.16 gallons/ft) = 0.3674 gallons~~ RBH

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature: Kevin Schisrose, Flora Su, Andrew Beaton

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name: Tannery

RBH 2

Page 1 of 2

Date: 10/19/18 Well ID: TA-GW-02

Weather Conditions: 40s°F, Rainy

Sampler's Name (Print): Kevin Schiavone, Flora Su, Andrew Beaton

Purging Device & Serial # (pump type): Geopump 2 (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 9.5

Screen Interval (ft, ref. to measuring point): 2-7

Samples Collected: See page 1

Purging Start Time: 1348 (24 hour cycle) Sample Time: 10-22-2018 1625 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.02

Tubing Intake (ft, ref. to measuring point): 4.5

Total Purge Volume (gallons): 3.25

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 10-22-2018 1650 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1448	6.54	.12	2.36	90	120	16.07	6450	2.43	6.84	83.7	5.59	
1453	6.70	.16	2.52	90	120	16.04	6387	2.34	6.83	87.1	5.34	
1458	6.78	.08	2.60	90	120	16.20	6380	2.31	6.83	88.8	5.49	
												Due to low water table, pumping rate could not be maintained; Low Flow protocol was followed.
												Sampling took place on 10-22-18, from 1625-1650. One tube
												length was purged prior to sampling: the opening was
												placed 8ft down, plus 5ft
												additional tubing = 13ft x 9.8 ml/ft
												≈127.4 mL (150 purged).
												PFAS samples collected first;
												VOCs + Hexavalent Chromium
												collected last. Total purge volume
												was 0.75 gal.

FPV (gallons) = ~~3.25~~ 0.43 Calculations: (10.5 x 0.0012) + (2.6 x 0.16) = 0.43

~~(7.5ft x 0.0012 gallons/ft) + (2.6ft x 0.16 gallons/ft) = 0.425 gallons~~ RBH

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ vs Former Tannery

Page 1 of 1

Date : 10/14/18 Well ID : TA-MW-1

Weather Conditions : 40-50°F, Partly Cloudy

Sampler's Name (Print) Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit B ~~(missing Serial #)~~ RBH (NO Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 8.68

Screen Interval (ft, ref. to measuring point): 3.6-8.3

Initial Water Level (ft, ref. to measuring point): 1.87

Tubing Intake (ft, ref. to measuring point): 6.1

Total Purge Volume (gallons): 6.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Samples Collected: PFAS, VOC, SVOC, Hexavalent Chromium, TAL Metal, Mercury, Hardness, Nitrate, Nitrite, Total Phosphorus, Available CN, Ammonia, Total CN, Sulfide, Sulfate, Chloride, Acetic Acid, Formic Acid

Purging Start Time : 935 (24 hour cycle) Sample Time: 1050 (24 hour cycle) Time at Sample Completion: 1135 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
940	2.12	.25	-	225	360	15.57	473	8.49	7.41	3.3	9.35	
945	2.15	.03	.28	225	360	15.71	500	7.96	7.48	-83.4	7.40	
950	2.17	.02	.30	225	360	15.73	523	7.43	7.45	-115.5	4.90	
955	2.19	.02	.32	225	300	15.62	528	7.07	7.47	-127.5	2.84	
1000	2.17	-.02	.30	200	270	15.59	530	6.55	7.46	-135.1	2.84	
1005	2.16	-.01	.29	200	270	15.55	529	6.27	7.50	-142.0	2.61	
1010	2.15	-.01	.28	200	270	15.39	531	5.91	7.50	-147.2	1.71	
1015	2.11	-.04	.24	225	300	15.26	535	5.64	7.49	-151.4	2.73	

FPV ~~Gallons~~ RBH ~~6.5~~ NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/22/18 Well ID: TA-GW-05

Weather Conditions: 40°F, Sunny

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 6.58

Screen Interval (ft, ref. to measuring point): 1.46 - 6.46

Samples Collected: PHAs, VOC, SVOC, Hexavalent chromium, TAL metals, TAL metals-Hg, Hardness, Ammonia, Nitrate, Nitrite, Chloride, Total CN, Sulfate, Acetic Acid, Formic Acid, Sulfide, Avail. CN

Purging Start Time: 944 (24 hour cycle) Sample Time: 1024 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 3.79

Tubing Intake (ft, ref. to measuring point): 5.09

Total Purge Volume (gallons): 4.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1103 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
949	3.80	0.01	—	175	240	13.3	614	1.1	6.4	126	1	
954	3.81	0.01	0.02	175	240	13.3	623	1.0	6.4	121	1	
959	3.81	0.00	0.02	175	240	13.3	624	0.9	6.4	121	<5	
1004	3.81	0.00	0.02	175	240	13.4	635	0.8	6.4	122	<5	
1009	3.81	0.00	0.02	175	240	13.5	630	0.7	6.4	123	<5	
1014	3.81	0.00	0.02	175	270	13.6	633	0.6	6.4	124	<5	
1019	3.81	0.00	0.02	175	240	13.6	631	0.6	6.3	126	<5	

FPV (gallons): ~~4.5~~ NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tennery

Date : 10/22/18 Well ID : TATMW-111

Weather Conditions : 40s°F, Sunny

Sampler's Name (Print) Kevin Schiavone, Andrew Beaton

Purging Device & Serial # (pump type): Geopump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC North

Well Depth (ft, ref. to measuring point): 7.69

Screen Interval (ft, ref. to measuring point): 2.43 - 7.23

Samples Collected: PFAS, VOC, SVOC, Hexavalent Chromium, Ammonia, Nitrate, Nitrite, Sulfide, Sulfate, TAL Metals, TAL Metals-lts, Hardness, Chloride, Tot CN, Avail CN, Tot Phosphorus, Acetic Acid, Formic Acid

Purging Start Time : 1153 (24 hour cycle) Sample Time: 1240 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.4

Tubing Intake (ft, ref. to measuring point): 5.8

Total Purge Volume (gallons): 2.25

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1330 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1158	4.57	.13	—	145	180	14.9	1574	1.5	6.7	-4	<5	
1203	4.60	0.03	.16	135	180	15.2	1577	1.0	6.7	-14	<5	
1208	4.45	-0.15	0.01	125	180	15.0°	1588	0.9	6.7	-15	<5	
1213	4.55	0.10	0.11	~~150~~ 125 AB	150	15.2°	1598	0.9	6.7	-16	<5	
1218	4.55	0.00	0.11	125	150	15.1	1602	0.8	6.7	-14	<5	

FPV (gallons): ~~2.25~~ RBH NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tennery

Page 1 of 1

Date : 10/22/18 Well ID : TA-TMW-103

Weather Conditions : 50s°F, Sunny

Sampler's Name (Print) Kevin Schiavone

Purging Device & Serial # (pump type): Geo pump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC; North

Well Depth (ft, ref. to measuring point): 13.57

Screen Interval (ft, ref. to measuring point): 8.25 - 13.05

Samples Collected: PFAS, VOC, SVOC, Hexavalent Chromium, Nitrate, Nitrite, Ammonia, Sulfide, Sulfate, Avail. CN, TAC metals, ~~Tot~~ Metal-Hg Chloride, Tot Phosphorus, Acetic Acid, Formic Acid, Hardness, Tot CN,

Purging Start Time : ~~1433~~ KS 1458 (24 hour cycle) Sample Time: 1545 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.82

Tubing Intake (ft, ref. to measuring point): 9.25

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1645 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1503 ~~1438~~ KS	7.41 ~~6.65~~ KS	3.41	–	130	120	16.04	523	0.8	7.5	-68	8.4	
1508	7.65	0.24	3.65	130	120	16.3	528	0.7	7.5	-79	<5	
1513	7.74	0.09	3.74	80	100	16.4	532	0.8	7.5	-89	<5	
1518	7.77	0.03	3.77	80	100	16.3	534	1.3	7.5	-94	<5	
1523	8.02	0.25	4.02	80	100	16.2	536	1.3	7.5	-100	<5	
1528	8.13	0.11	4.13	80	100	16.4	536	1.3	7.5	-105	<5	
1533	8.27	0.14	4.27	80	100	16.4	536	1.3	7.5	-108	<5	
~~1538~~ KS												

FPV (gallons) = 0.69 ~~0.68~~ KMH

Calculations:

FPV = (Tot Tubing Length x Tubing Capacity) + (Tot drawdown x Well Capacity) = (11.75 x 0.0012) + (4.27 x 0.16) = 0.0141 + 0.6832 = ~~0.68~~ 0.6973 KMH

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (FS) Former Tannery

Date: 10/22/18 Well ID: TA-MW-109

Weather Conditions: 33°F, Sunny

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech bladder pump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 10.04

Screen Interval (ft, ref. to measuring point): 4.91-9.61

Initial Water Level (ft, ref. to measuring point): 4.90

Tubing Intake (ft, ref. to measuring point): 7.5

Total Purge Volume (gallons): 2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrite/Nitrate/Ammonia, Phos., Total CN, Sulfide, Sulfate, Chloride, Cr(VI), Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 0924 (24 hour cycle) Sample Time: 1020 (24 hour cycle) Time at Sample Completion: 1115 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0929	5.09	0.19	–	146	120	14.63	1129	(FS) ~~[illegible]~~	7.07	141.2	1.62	
0934	5.18	0.09	(FS) 0.28	146	120	14.82	1132	2.01	7.12	128.5	1.55	
0939	5.26	0.08	0.36	146	120	15.00	1125	2.12	7.10	120.7	1.33	
0944	5.32	0.06	0.42	146	120	15.36	1123	1.90	7.11	115.6	1.19	
0949	5.34	0.02	0.44	131	120	15.10	1121	5.64	7.09	113.3	1.74	
0954	5.36	0.02	0.46	131	120	15.28	1118	1.58	7.05	110.0	1.44	
0959	5.34	-0.02	0.44	97	90	14.57	1119	1.47	7.03	109.3	1.68	
1004	5.30	-0.04	0.40	97	90	14.65	1112	1.56	6.98	108.7	1.94	

FPV (gallons) = 0.08

Calculations: FPV = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) = (12.75 x 0.0012) + (0.40 x 0.16) = 0.0793

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ KS Tannery

Date: 10/24/18 Well ID: TA-GW-09

Weather Conditions: 30s°F, Partly Cloudy

Sampler's Name (Print) Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit (No serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 12.21

Screen Interval (ft, ref. to measuring point): 6.93 - 11.93

Samples Collected: PFAS, VOC, SVOC, Hex. chromium, TAL Metal, TAL Metal - Hg, Nitrite/Nitrate, Sulfide, Sulfate, Avail. CN, Ammonia, Chloride, Hardness, Tot. Phos, Acetic Acid, Formic Acid, chloride

Purging Start Time: 854 (24 hour cycle) Sample Time: 1035 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 8.59

Tubing Intake (ft, ref. to measuring point): ~~7.43~~ KS 9.68

Total Purge Volume (gallons): 2.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ KS 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1119 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
859	8.70	0.11	—	90	90	9.11	5166	0.8	6.1	51	<5	
904	8.79	0.09	0.20	90	90	10	5106	1.0	6.3	62.1	<5	
909	8.88	0.09	0.29	90	90	10	5100	0.7	6.4	35	<5	
~~1004~~ 914 KS	8.97	0.09	0.38	90	90	10	5032	1.1	6.5	17	<5	
~~1009~~ 919 KS	9.06	0.09	0.47	90	90	10	5018	1.2	6.5	10	<5	
924	9.09	0.03	0.50	90	90	10	5035	1.00	6.5	5	<5	
929	9.19	0.10	0.60	90	90	10	5011	0.8	6.5	1	<5	
934	9.27	0.08	0.68	90	90	11	4995	0.7	6.5	0	<5	
939	9.34	0.07	0.75	90	90	11	4982	0.6	6.5	1	<5	
944	9.43	0.09	0.84	90	90	11	4992	0.6	6.5	4	<5	
949	9.46	0.03	0.87	90	90	10	5006	0.6	6.5	8	<5	

FPV (gallons) = 0.20

Calculations: FPV = (11.28 * 0.0012) + (1.17 x 0.16) = 0.013536 + 0.1872 = 0.200736

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

KS ~~Site Name~~ Tannery

Date : 10/24/18 Well ID : TA-GW-09

Weather Conditions : 30s°F Partly Cloudy

Sampler's Name (Print) Kevin Schiavone

Purging Device & Serial # (pump type): Geopump2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 12.21

Screen Interval (ft, ref. to measuring point): 6.93-11.93

Samples Collected: See Page 1

Initial Water Level (ft, ref. to measuring point): 8.59

Tubing Intake (ft, ref. to measuring point): 9.68

Total Purge Volume (gallons): 2.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ KS 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : 854 (24 hour cycle) Sample Time: 1035 (24 hour cycle) Time at Sample Completion: 1119 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
954	9.54	0.08	0.95	90	90	11	5010	0.5	6.5	9.0	<5	
959	9.60	0.06	~~0~~ 1.01 KS	90	90	11	5034	0.6	6.5	10	<5	
1004	9.67	0.07	1.08	90	90	11	5102	0.5	6.5	16	<5	
1009	9.71	0.04	1.12	90	90	11	5109	0.5	6.5	16	<5	
1014	9.73	0.02	1.14	90	90	11	5136	0.5	6.5	17	<5	
1019	9.76	0.03	1.17	90	90	11	5120	0.5	6.5	20	<5	

FPV (gallons) ~~0.20~~ NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10/25/18 Well ID: TA-GW-03

Weather Conditions: Sunny, 50's

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump 2 unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 11.71

Screen Interval (ft, ref. to measuring point): 6.85 - 11.85

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 12:02 (24 hour cycle) Sample Time: 12:57 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 8.26

Tubing Intake (ft, ref. to measuring point): 10.05

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (yes) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached? yes OR (no) (circle one)

Time at Sample Completion: 1340 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1207	8.56	0.30	—	145	180	15	1672	<.5	7.5	52	7	
1212	8.52	0.04	0.34	100	150	15	1633	<.5	7.5	-48	3	
1217	8.53	0.01	0.35	100	150	15	1609	<.5	7.4	-73	3	
1222	8.52	-0.01	0.34	100	150	15	1594	<.5	7.4	-84	1	
1227	8.52	0.00	0.34	100	150	15	1584	<.5	7.4	-90	1	
1232	8.52	0.00	0.34	100	150	15	1572	<.5	7.4	-95	1	
1237	8.53	0.01	0.35	100	150	15	1567	<.5	7.4	-98	1	
1242	8.53	0.00	0.35	100	150	15	1561	<.5	7.4	-100	1	

FPV (gallons) = 0.07

Calculations: FPV = (12.05 x 0.0012) + (0.35 x 0.16) = 0.01446 + 0.056 = 0.07046

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton
Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ VS Former Tannery

Page 1 of 1

Multimeter: YSI 556 MPS

Date: 10/18/18 Well ID: TA-GW-07

Weather Conditions: 50°F, Sunny

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 unit B ~~(missing serial #)~~ RBH (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 10.28

Screen Interval (ft, ref. to measuring point): 2-7

Initial Water Level (ft, ref. to measuring point): 5.31

Tubing Intake (ft, ref. to measuring point): 4.5

Total Purge Volume (gallons): 4.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Samples Collected: PHAS, VOC, SVOC, Hexavalent Chromium, TAL Metals, Mercury, Hardness, Nitrate, Nitrite, Total Phosphorus, Available CN, Ammonia, Total CN, Sulfide, Sulfate, Chloride, Acetic Acid, Formic Acid

Purging Start Time: 1636 (24 hour cycle) Sample Time: 1720 (24 hour cycle) Time at Sample Completion: 1752 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1641	5.54	0.23	—	200	270	15.48	880	0.23	7.07	-83.9	22.3	
1646	5.63	0.09	.32	175	270	15.29	859	0.21	6.87	-79.9	8.26	
1651	5.62	0.01	.31	160	210	15.21	876	0.23	6.96	-88.1	6.62	
1656	5.62	0.00	.31	160	210	15.27	898	0.30	6.98	-92.0	2.74	
1701	5.62	0.00	.31	160	210	15.21	909	0.19	7.00	-95.3	2.61	
1706	5.63	0.01	.32	160	210	15.25	909	0.18	6.98	-95.5	1.26	

FPV (gallons) = ~~4.75~~ KMH

Calculations: (9.65 x .0012) + (0.33 x 0.16) = 0.06

~~(7.5ft x 0.0012) + (0.32ft x 0.16 gallons/ft) = 0.0602 gallons~~ RBH

~~RBH 0.0602~~ 0.06

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/17/18 Well ID: TA-MW-308C

Weather Conditions: 40-50°F, Overcast

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 26.4

Screen Interval (ft, ref. to measuring point): 21.6 - 26.0

Samples Collected: PHAS, VOC, SVOC, Hexavalent Chromium, TAL Metals, Mercury, Hardness, Nitrate, Nitrite, Total Phosphorus, Available CN, Ammonia, Total CN, Sulfide, Sulfate, Chloride, Acetic Acid, Formic Acid

Purging Start Time: 1121 (24 hour cycle) Sample Time: 1220 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 3.82

Tubing Intake (ft, ref. to measuring point): 24.1

Total Purge Volume (gallons): 3.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1245 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1126	4.89	1.07	—	NR	270	13.23	993	1.86	6.99	60.4	7.47	
1131	3.92	-0.97	0.1	NR	210	13.10	1176	1.38	7.13	-20.7	4.72	
1136	3.96	0.04	0.14	NR	240	13.25	1180	1.73	7.16	-40.9	6.52	
1141	3.96	0.00	0.14	NR	210	13.22	1185	0.91	7.19	-48.3	1.62	
1146	3.97	0.01	0.15	NR	210	13.27	1185	1.22	7.20	-50.9	3.11	
1151	3.98	0.01	0.16	NR	240	13.32	1187	1.23	7.20	-55.9	1.18	
1156	4.00	0.02	0.18	NR	240	13.36	1185	1.12	7.20	-53.9	1.51	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ (PB) Former Tannery

Date : 10-18-18 Well ID : TA-MW-304B

Weather Conditions : 53°F, Sunny, Clear

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 14.59

Screen Interval (ft, ref. to measuring point): 10.3 - 15.0

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrate/Nitrite/Ammonia, Phos., Total CN, Sulfide, Sulfate, Cl, Cr(VI), Acetic Acid, Formic Acid, Av.CN

Initial Water Level (ft, ref. to measuring point): ~~1.87~~ (PB) ~~2.38~~ 1

Tubing Intake (ft, ref. to measuring point): ~12.5

Total Purge Volume (gallons): 2.25

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : ~~1655~~ (PB) 1713 (24 hour cycle) Sample Time: 1745 (24 hour cycle) Time at Sample Completion: 1821 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
~~1700~~ 1718 (PB)	~2.4	0.52	0.52	NR	NR	NR	NR	NR	NR	NR	NR	Tried to troubleshoot sudden drop in water level
~~1705~~ 1726 (PB)	2.25	-0.15	0.37	NR	210	14.75	2990	0.19	7.13	77.4	4.54	
~~1710~~ 1731 (PB)	2.26	0.01	0.38	~80	210	14.67	3025	0.16	7.15	77.6	4.27	
1736	2.21	-0.05	0.33	~80	210	14.66	3065	0.17	7.15	78.1	1.45	

FPV (gallons) = 0.07 ~~0.05 gallons~~ Calculations: ~~(14.5 ft x 0.0012) + (0.33 ft x 0.16) = 0.0582 gallons~~ PBH (18.2 x 0.0012) + (0.33 x 0.16) = 0.07

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/18/18 Well ID: ~~10/18/18~~ KS TA-MW-310C

Initial Water Level (ft, ref. to measuring point): 10.29

Weather Conditions: 40°F, sunny

Tubing Intake (ft, ref. to measuring point): 49.2

Sampler's Name (Print): Kevin Schiavone

Total Purge Volume (gallons): 6.25

Purging Device & Serial # (pump type): Geopump 2 Unit B (~~missing serial~~ PBH) (No serial #)

PVC/Inner Well Casing ID (inches): 2

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Tubing ID (inches): 3/8

Well Depth (ft, ref. to measuring point): 53.15

Indicator Parameter Stabilization: (yes) OR no (circle one)

Screen Interval (ft, ref. to measuring point): 47.2-50.2

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Samples Collected: PFAS VOC, SVOC, Hexavalent Chromium, TAL Metals, Mercury, Hardness, Nitrate, Nitrite, Total Phosphorus, Available CN, Ammonia, Total CN, Sulfide, Sulfate, Chloride, Acetic Acid, Formic Acid

Purging Start Time: 1241 (24 hour cycle) Sample Time: 1420 (24 hour cycle) Time at Sample Completion: 1500 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1246	12.0	1.71	~~1.71~~ KS	NR	240	14.77	2302	7.83	6.96	86.9	7.53	FB-10-18-2018(1200)
1251	12.41	0.41 ~~2.12~~ KS	2.12 ~~3.83~~ KS	NR	240	14.91	2299	7.60	6.92	89.5	3.12	Field Blank
1256	12.61	0.20 ~~2.32~~ KS	2.32 ~~6.15~~ KS	NR	240	14.52	2349	7.43	6.86	90.6	2.86	
1301	12.41	-0.20 ~~2.12~~ KS	2.12 ~~8.27~~ KS	NR	180	14.90	2449	6.40	6.73	92.7	1.44	
1306	12.39	-0.02 ~~2.10~~ KS	2.10 ~~10.37~~ KS	NR	180	14.89	2553	4.08	6.61	88.6	2.58	
1311	12.39	0.00 ~~2.10~~ KS	2.10 ~~12.47~~ KS	NR	180	14.68	2622	4.40	6.62	52.8	1.12	
1316	12.39	0.00 ~~2.10~~ KS	2.10 ~~14.57~~ KS	NR	180	14.53	2667	4.11	6.73	5.3	0.57	
1321	12.39	0.00 ~~2.10~~ KS	2.10 ~~16.67~~ KS	NR	180	14.90	2662	3.74	6.76	-16.4	0.76	
1326	12.38	-0.01 ~~2.09~~ KS	2.09 ~~18.76~~ KS	NR	180	14.86	2664	3.62	6.77	-17.0	0.85	
1331	12.39	0.01 ~~2.10~~ KS	2.10 ~~20.86~~ KS	NR	180	14.57	2663	3.46	6.77	-21.1	3.75	
1336	12.41	0.02 ~~2.12~~ KS	2.12 ~~22.98~~ KS	NR	180	14.72	2676	3.16	6.77	-23.1	2.00	

FPV (gallons) = 0.40

Calculations: (51.2' x 0.0012 gallons/ft) + (2.12 ft x 0.16 gallons/ft) = 0.40 gallons

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date: 10/18/18 Well ID: TA-MW-310C

Weather Conditions: 40s°F, sunny

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit B (No serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 53.15

Screen Interval (ft, ref. to measuring point): 47.2 - 50.2

Samples Collected: PFAS, VOCs, SVOC, Hexavalent Chromium, TAL Metals, Mercury, Hardness, nitrate, nitrite, Total Phosphorus, Aqueous CN, Ammonia, Total CN, Sulfide

Purging Start Time: 1241 (24 hour cycle) Sample Time: 1420 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 10.29

Tubing Intake (ft, ref. to measuring point): 49.2

Total Purge Volume (gallons): 6.25

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1500 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1341	12.44	.03	2.15		180	14.56	2683	2.93	6.77	-25.1	1.28	
1346	12.56	.12	2.27	150	210	14.64	2689	2.73	6.75	-27.3	4.59	
1351	12.57	.01	2.28	150	180	14.51	~~266~~ 2653	2.58	6.75	-26.8	14.4	
1356	12.58	.01	2.29	150	180	14.63	2683	2.46	6.75	-27.4	0.80	
1401	12.58	.00	2.29	150	180	14.61	2690	2.29	6.75	-28.6	2.01	
1406	12.59	.01	2.30	150	180	14.62	2687	2.12	6.74	-29.4	2.32	

FPV (gallons) = 0.40

Calculations: (51.2 ft x 0.0012 gallon/ft) + (2.12 ft x 0.16 gallons/ft) = 0.40 gallons

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date: 10/22/18 Well ID: TA-MW-3078

Weather Conditions: 44°F, Sunny

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North side, top of PVC

Well Depth (ft, ref. to measuring point): 10.14

Screen Interval (ft, ref. to measuring point): 5.6-10.2

Initial Water Level (ft, ref. to measuring point): 4.54

Tubing Intake (ft, ref. to measuring point): 8

Total Purge Volume (gallons): 6

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, Nitrite/Nitrate/Ammonia, Phos., Total CN, Sulfide, Sulfate, Chloride, Cr(VI), Acetic Acid, Formic Acid, Av. CN

Purging Start Time: 1155 (24 hour cycle) Sample Time: 1300 (24 hour cycle) Time at Sample Completion: 1325 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1200	4.78	0.24	—	204	300	15.39	1353	2.20	6.52	116.4	1.84	
1205	4.78	0.0	0.24	204	300	15.48	1351	3.77	6.55	117.8	1.11	
1210	4.78	0.0	0.24	204	300	15.41	1382	2.24	6.48	122.2	1.14	
1215	4.78	0.0	0.24	204	300	15.56	1371	2.17	6.48	123.7	0.95	
1220	4.78	0.0	0.24	204	300	15.57	1384	1.96	6.47	125.9	0.99	
1225	4.78	0.0	0.24	204	300	15.54	1375	2.52	6.48	127.3	0.87	
1230	4.78	0.0	0.24	204	300	15.60	1375	2.71	6.46	129.2	0.87	
1235	4.78	0.0	0.24	204	300	15.58	1381	1.91	6.47	129.5	0.90	
1240	4.78	0.0	0.24	204	300	15.62	1375	1.71	6.45	131.0	0.86	
1245	4.78	0.0	0.24	204	300	15.57	1378	0.87	6.45	132.2	0.85	
1250	4.78	0.0	0.24	204	300	15.63	1367	0.74	6.42	133.9	0.87	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date : 10-22-18 Well ID : TA-MW-307B

Weather Conditions : 44°F, Sunny

Sampler's Name (Print) Flora Su

Purging Device & Serial # (pump type): Geotech bladder pump #3631

Reference Measuring Point (Top of PVC/Top of Casing): North of Top of PVC

Well Depth (ft, ref. to measuring point): 10.14

Screen Interval (ft, ref. to measuring point): 5.6-10.2

Samples Collected: Seep 1

Purging Start Time : 1155 (24 hour cycle) Sample Time: ~~1625~~ (PS) 1300 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.54

Tubing Intake (ft, ref. to measuring point): 8

Total Purge Volume (gallons): 6

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1325 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1255	4.78	0.0	0.24	204	300	15.57	13164	0.82	6.42	135.1	0.86	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

Site Name Tannery

Date : 10/22/18 Well ID : TA-TMW-108

Weather Conditions : 57°F, Sunny

Sampler's Name (Print) Andrew Beaton, Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #31631

Reference Measuring Point (Top of PVC/Top of Casing): North side, Top of PVC

Well Depth (ft, ref. to measuring point): 10.05

Screen Interval (ft, ref. to measuring point): 5.14-9.84

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Nitrite/Nitrate/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hex. Chromium, Acetic Acid, Formic Acid, Av. CN

Initial Water Level (ft, ref. to measuring point): 4.72

Tubing Intake (ft, ref. to measuring point): 7.5

Total Purge Volume (gallons): 5.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : 1420 (24 hour cycle) Sample Time: 1515 (24 hour cycle) Time at Sample Completion: 1537 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1425	4.95	0.23	0.23	290 ml/min	290	15.81	2,068	0.39	6.38	160.8	1.92	
1430	4.95	0	0.23	290 ml/min	290	15.84	2,132	0.29	6.37	156.5	1.56	
1435	4.95	0	0.23	290 ml/m	290	15.89	2,177	0.24	6.39	151.9	1.21	
1440	4.95	0	0.23	290	290	15.85	2,184	0.22	6.39	149.5	1.19	
1445	4.95	0	0.23	290	290	15.81	2,230	0.18	6.41	146.8	1.28	
1450	4.95	0	0.23	290	290	15.80	2,236	0.40	6.41	145.7	1.27	
1455	4.95	0	0.23	290	290	15.84	2,281	0.18	6.43	143.8	1.14	
1500	4.95	0	0.23	290	290	15.82	2,289	0.21	6.43	143.1	1.14	
1505	4.95	0	0.23	290	290	15.86	2,285	0.18	6.44	143.5	0.96	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton Flora Su

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date: 10/23/18 Well ID: TA-MW-3

Weather Conditions: 40s°F, Partly Cloudy

Sampler's Name (Print) Kevin Sibiquone, Andrew Baston

Purging Device & Serial # (pump type): Geopump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 7.35

Screen Interval (ft, ref. to measuring point): 2.11-6.81

Samples Collected: PFAS, VOC, SVOC, Hex. Chromium, Avail. CN, Tot. CN, Nitrate/Nitrite, Hardness, TAL Metals, TAL Metals-Hg, Ammonia, Chloride, Tot. Phos, Sulfate, Sulfide, Formic Acid, Acetic Acid

Purging Start Time: 1233 (24 hour cycle) Sample Time: 1330 (24 hour cycle) Time at Sample Completion: 1430 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 5.52

Tubing Intake (ft, ref. to measuring point): 6.32

Total Purge Volume (gallons): 2.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1238	5.49	-0.03	-	130	180	15	1070	1.1	7.0	-15	37.6	
1243	5.47	-0.02	-0.05	130	180	16	1089	0.6	7.0	-42	19	
1248	5.50	0.03	-0.02	140	210	16	1101	0.6	7.0	-54	9	
1253	5.50	0.00	-0.02	140	210	16	1115	0.6	7.0	-58	5.21	
1258	5.50	0.00	-0.02	140	210	16	1132	0.5	7.0	-58	<5	
1303	5.50	0.00	-0.02	140	210	16	1140	<0.5	7.0	-57	5	
1308	5.50	0.00	-0.02	140	210	16	1149	<0.5	7.0	-58	7	
1313	5.51	0.01	-0.01	140	210	16	1164	<0.5	7.0	-58	5	
1318	5.52	0.01	0.00	140	240	16	1173	<0.5	7.0	-55	<5	
1323	5.52	0.00	0.00	140	240	16	1185	<0.5	7.0	-53	<5	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Sibiquone

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date: 10/23/18 Well ID: TA-MW-306A

Weather Conditions: 50°F, Partly Cloudy

Sampler's Name (Print) Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit B (No. serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 11.30

Screen Interval (ft, ref. to measuring point): 5.44-11.04

Samples Collected: PFAS, VOC, SVOC, Hex. Chromium, TAL Metal, TAL Metal-Hg, Tot Phos., Ammonia, Nitrite/Nitrate, Chloride, Tot. CN, Sulfide, Sulfate, Acetic Acid, Formic Acid, Avail. CN, Hardness

Purging Start Time: 1457 (24 hour cycle) Sample Time: 1630 (24 hour cycle) Time at Sample Completion: 1720 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.41

Tubing Intake (ft, ref. to measuring point): 7.21

Total Purge Volume (gallons): 9.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached? yes OR (no) (circle one)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1502	4.70	0.29	-	175	300	14.	3820	5.6	7.2	-67	17.3	Brown, tint to flow
1507	4.70	0.00	0.29	170	300	15	3830	5.4	7.2	-74	<5	
1512	4.70	0.00	0.29 (KS)	170	300	14	3984	4.9	7.2	-63	<5	
1517	4.70	0.00	0.29 (KS)	170	300	14	4389	4.5	7.2	-61.	<5	
1522	4.70	0.00	0.29 (KS)	170	300	14	4450	4.1	7.2	-59.6	<5	
1527	4.70	0.00	0.29 (KS)	170	300	14	4440	3.9	7.2	-61	<5	
1532	4.70	0.00	0.29 (KS)	170	300	14	4398	3.6	7.2	-65	<5	
1537	4.70	0.00	0.29 (KS)	170	300	14	4378	2.9	7.2	-66	<5	
1542	4.70	0.00	0.29	170	300	14	4338	2.6	7.2	-68	<5	
1547	4.70	0.00	0.29	170	300	14	4317	2.5	7.2	-67	<5	
1552	4.70	0.00	0.29	170	300	14	4287	2.3	7.2	-67	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tennery

Date : 10/23/18 Well ID : TA-MW-306A

Weather Conditions : 50s°F Partly Cloudy

Sampler's Name (Print) Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC

Well Depth (ft, ref. to measuring point): 11.30

Screen Interval (ft, ref. to measuring point): 5.44 - 11.04

Samples Collected: PFAS, VOC, SOC, Hex. Chromium, TAL Metal, TAL Metals - Hg, Tot Phos, Ammonia, Nitrite/Nitrate, Chloride, tot CN, Sulfide, Sulfate, Acetic Acid, Formic Acid, Avail. CN Hardness

Initial Water Level (ft, ref. to measuring point): 4.41

Tubing Intake (ft, ref. to measuring point): 7.21

Total Purge Volume (gallons): 9.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time : 1457 (24 hour cycle) Sample Time: 1630 (24 hour cycle) Time at Sample Completion: 1720 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1557	5.70	0.00	0.29	170	300	14	4258	2.0	7.2	-72	<~~0~~ 5	
1602	5.70	0.00	0.29	170	300	14	4231	1.9	7.2	-72	<~~0~~ 5	
1607	5.70	0.00	0.29	170	300	14	4209	1.7	7.2	-71	<5	
1612	5.70	0.00	0.29	170	300	14	4159	1.6	7.2	-73	<5	
1617	5.70	0.00	0.29	170	300	14	4130	1.4	7.2	-73	<5	
1622	5.70	0.00	0.29	170	300	14	4129	1.4	7.2	-75	<5	
1627	5.70	0.00	0.29	170	300	14	4090	1.3	7.2	-76	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Tannery

Date: 10/23/18 Well ID: TA-TMW-102

Weather Conditions: 40°F Sunny

Sampler's Name (Print): Kevin Schiesone

Purging Device & Serial # (pump type): Geopump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): TOP of PVC, North

Well Depth (ft, ref. to measuring point): 10.13

Screen Interval (ft, ref. to measuring point): 5.02 - 9.82

Samples Collected: PFAS, VOCs, SVOCs, Hex. Chromium, TAL metals, TAL Metals - Hg, Nitrate/Nitrite, Sulfide, Sulfate, Ammonia, Avail. CN, Tot CN

Purging Start Time: 936 (24 hour cycle) Sample Time: 1030 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.46

Tubing Intake (ft, ref. to measuring point): 7.42

Total Purge Volume (gallons): 6.00

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): 3/8

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1131 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
941	4.49	0.03	—	175	360	14.83	2116	~~0~~ 1.0	6.5	-33	14.2	Sulfur like odor
946	4.49	0.00	0.03	175	300	15.06	2195	1.5	6.5	-44	6.8	Brown tint to flow
951	4.49	0.00	0.03	175	300	15.	2177	0.8	6.5	-49	6.2	
956	4.49	0.00	0.03	175	300	15	2160	0.7	6.5	-51	<5	
1001	4.49	0.00	0.03	175	300	15	2146	0.6	6.5	-53	<5	
1006	4.49	0.00	0.03	175	300	15	2145	0.5	6.5	-54	<5	
1011	4.50	0.01	0.04	175	300	15	2133	0.5	6.5	-52	<5	
~~1016~~												

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiesone

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/25/18 Well ID: TA-MW-309C

Weather Conditions: 40's, overcast

Sampler's Name (Print) Adrian Blaker, Kevin Schiavone

Purging Device & Serial # (pump type): Geo pump 2 Unit B (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 35

Screen Interval (ft, ref. to measuring point): 31.18 - 36.18

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3 Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 14:31 (24 hour cycle) Sample Time: 1530 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 7.39

Tubing Intake (ft, ref. to measuring point): 33.68

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1600 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1436	7.45	0.06	-	140	180	13	1070	1.1	7.3	-79	93.3	
1441	7.45	0.00	0.06	130	150	13	1045	~~0.6~~ 1.0	7.3	-82	67.9	
1446	7.45	0.00	0.06	130	150	13	1049	0.7	7.3	-85	22	
1451	7.45	0.00	0.06	130	150	13	1040	0.6	7.3	-85	11	
1456	7.45	0.00	0.06	130	150	13	1049	0.6	7.3	-87	9	
1501	7.46	0.01	0.07	130	150	13	1042	0.7	7.3	-87	<5	
1506	7.46	0.00	0.07	130	180	13	1036	<0.5	7.3	-87	<5	
1511	7.46	0.00	0.07	130	180	13	1041	<0.5	7.3	-89	<5	
1516	7.46	0.00	0.07	130	180	13	1038	<0.5	7.3	-90	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers.
When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L.
When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Sampler's Signature

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APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10-25-18 Well ID: TA-P-1

Weather Conditions: 39°F, Sunny/Partly Cloudy

Sampler's Name (Print): Flora Su

Purging Device & Serial # (pump type): Geotech Geopump #3631

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North side

Well Depth (ft, ref. to measuring point): ~8.62

Screen Interval (ft, ref. to measuring point): 3.62-8.32

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1059 (24 hour cycle) Sample Time: 1140 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 2.22

Tubing Intake (ft, ref. to measuring point): ~~2.22~~ 6

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~1/4~~ KS ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1213 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed (rpm)	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1104	2.82	0.60	—	220	360 ~~220~~	15.21	1907	0.93	7.32	-2.6	3.10	
1109	2.59	-0.23	0.37	175	220	15.31	2036	0.72	7.29	-4.5	NR	
1114	2.58	-0.01	0.36	175	220	15.34	1997	0.55	7.~~5~~ 31	-13.5	1.91	
1119	2.47	-0.11	0.25	150	180	15.09	2048	0.55	7.29	-14.1	1.59	
1124	2.46	-0.01	0.24	150	180	15.20	2026	0.66	7.29	-18.5	1.15	
1129	2.46	0	0.24	150	180	15.30	2043	0.67	7.28	-21.8	1.09	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Flora Su

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10/29/18 Well ID: TA-P-4

Weather Conditions: 40°F, Partly Cloudy

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit A (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 7.75

Screen Interval (ft, ref. to measuring point): 1.73 - 6.43

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1451 (24 hour cycle) Sample Time: 1535 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 2.20

Tubing Intake (ft, ref. to measuring point): ~~2.20~~ 4.3

Total Purge Volume (gallons): 2.8

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1605 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1456	2.28	0.08	—	160	240	14	960	<0.5	7.2	29	<5	
~~14~~ 1501	2.27	-0.01	0.07	150	210	14	942	<0.5	7.2	-8	<5	
1506	2.27	0.00	0.07	150	210	14	950	<0.5	7.2	-22	<5	
1511	2.27	0.00	0.07	150	210	14	943	<0.5	7.2	-32	<5	
1516	2.27	0.00	0.07	150	210	14	949	<0.5	7.2	-39	<5	
1521	2.27	0.00	0.07	150	210	14	947	<0.5	7.2	-45	<5	
1526	2.27	0.00	0.07	150	210	14	952	<0.5	7.2	-49	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Sampler's Signature

\\gzagr1\jobs\62000\62xx\62335.02 - WWW Tannery 2017_2018 Work\QAPP Docs - EPA and MDEQ\0-EPA & MDEQ REVISED DRAFT APPENDICES\Appendix A - SOPs\SOP A16 - 6App G - Peristaltic.xlsx

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

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Date: 10/29/18 Well ID: TA-TMW-105

Weather Conditions: 50s°F, Overcast

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 unit A (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 10.23

Screen Interval (ft, ref. to measuring point): 5.12 - 9.92

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1050 (24 hour cycle) Sample Time: 1215 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 5.62

Tubing Intake (ft, ref. to measuring point): 7.77

Total Purge Volume (gallons): 7.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1310 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1055	5.01	-0.61	—	225	~~15~~ 300	15	1218	2.6	7.3	-73	<5	Clear flow and
1100	5.02	~~-0.60~~ 0.01	-0.60	225	300	15	1224	1.9	7.3	-94	<5	ammonia like odor
1105	5.03	0.01	-0.59	225	300	15	1233	1.7	7.3	-103	<5	observed during
1110	5.08	0.05	-0.54	220	270	15	1253	1.2	7.3	-109	<5	purging
1115	5.01	-0.04	-0.58	220	270	15	1286	1.3	7.4	-114	<5	
1120	5.00	0.00	-0.58	220	270	15	1322	1.1	7.4	-116	<5	Duplicate sample taken
1125	5.02	0.02	-0.56	220	270	15	1349	1.0	7.4	-117	<5	at this location
1130	5.02	0.00	-0.56	220	270	15	1379	0.9	7.3	-120	<5	
1135	5.03	0.01	-0.55	220	270	15	1406	0.9	7.2	-121	<5	
1140	5.05	0.02	-0.53	220	270	15	1433	0.8	7.2	-121	<5	
1145	5.05	0.00	-0.53	220	270	15	1462	0.7	7.2	-122	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/29/18 Well ID: TA-TMW-105

Weather Conditions: 50s°F, Overcast

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit A (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 10.23

Screen Interval (ft, ref. to measuring point): 5.12 - 9.92

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): ~~7.10~~ 5.62

Tubing Intake (ft, ref. to measuring point): 7.77

Total Purge Volume (gallons): 7.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~7/8~~ KS 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1050 (24 hour cycle) Sample Time: 1215 (24 hour cycle) Time at Sample Completion: 1310 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1150	5.05	0.00	-0.53	220	270	15	1484	0.7	7.2	-123	<5	
1155	5.05	0.00	-0.53	220	270	15	1511	0.6	7.2	-123	<5	
1200	5.05	0.00	-0.53	220	270	15	1534	0.6	7.2	-123	<5	
1205	5.05	0.00	-0.53	220	270	15	1551	0.5	7.2	-124	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone
Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10-29-18 Well ID: TA-TMW-110

Weather Conditions: overcast, 40°

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Peristaltic Geopump unit c (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC (North side)

Well Depth (ft, ref. to measuring point): 10.10

Screen Interval (ft, ref. to measuring point): 5.23' - 9.99'

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 10:10 (24 hour cycle) Sample Time: 1117 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.79

Tubing Intake (ft, ref. to measuring point): 7.61

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ AB 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1201 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1015	4.89	0.10	—	120	~~120~~ AB 150	14	1165	3.9	7.6	38	10	Sulfur like odor, brown tea
1020	4.90	0.01	0.11	120	150	15	1133	3.6	7.6	20	9	like color
1025	4.90	0.00	0.11	120	AB 150	14	1133	3.1	7.6	17	9	
1030	4.90	0.00	0.11	120	150	15	1155	2.8	7.6	-32	10	
1035	4.91	0.01	0.12	120	150	15	1174	2.6	7.6	-32	10	
1040	4.91	0.00	0.12	120	180	15	1194	2.4	7.6	-25	10	
1045	4.92	0.01	0.13	120	180	15	1213	2.0	7.6	-32	10	
1050	4.92	0.00	0.13	120	180	15	1227	1.8	7.6	-31	10	
1055	4.92	0.00	0.13	120	180	15	1238	1.6	7.6	-31	10	
1100	4.92	0.00	0.13	120	210	15	1246	1.6	7.5	-31	10	
1105	4.92	0.00	0.13	120	180	15	1254	1.5	7.6	-31	10	

FPV (gallons) = N/A Calculations: N/A

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10/30/18 Well ID: TA-GW-06

Weather Conditions: 40s°F, Partly Cloudy

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit A (NO serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 10.38

Screen Interval (ft, ref. to measuring point): 4.57 - 9.57

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 505

Tubing Intake (ft, ref. to measuring point): 7.31

Total Purge Volume (gallons): 8

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~7/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 943 (24 hour cycle) Sample Time: 1020 (24 hour cycle) Time at Sample Completion: 1212 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
948	5.25	0.20	–	180	300	12	956	6.1	7.4	-84	<5	
953	5.26	0.01	0.21	170	270	13	956	4.4	7.7	-130	<5	
958	5.26	0.00	0.21	165	270	13	957	4.1	7.7	-144	<5	
1003	5.26	0.00	0.21	165	270	13	957	<0.5	7.7	-145	<5	
1008	5.26	0.00	0.21	165	270	13	957	<0.5	7.7	-152	<5	
1013	5.27	0.01	0.22	165	270	13	957	<0.5	7.7	-154	<5	

FPV (gallons) = N/A

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Sampler's Signature

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APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10/30/18 Well ID: TA-MW-301B

Weather Conditions: 50°F Overcast

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump 2 Unit A (No serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 10.94

Screen Interval (ft, ref. to measuring point): 8.83 - 10.83

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1421 (24 hour cycle) Sample Time: 1525 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 2.82

Tubing Intake (ft, ref. to measuring point): 9.83

Total Purge Volume (gallons): 2.75

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ KS 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1603 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1426	3.19	0.37	—	175	120	15	1365	4.6	7.3	75	16	
1431	3.10	-0.09	0.28	165	120	15	1359	3.3	7.3	72	8	
1436	3.15	0.05	0.33	165	150	15	1300	2.5	7.3	69	6	
1441	3.15	0.00	0.33	165	150	15	1254	1.9	7.3	67	<5	
1446	3.18	0.03	0.36	165	150	15	1186	1.5	7.2	68	<5	
1451	3.13	0.05	0.31	150	120	15	1155	1.4	7.0	72	<5	
1456	3.13	0.00	0.31	150	120	15	1135	1.4	7.2	60	<5	
1501	3.13	0.00	0.31	140	150	15	1125	1.2	7.3	48	<5	
1506	3.13	0.00	0.31	140	120	15	1115	1.1	7.3	44	<5	
1511	3.13	0.00	0.31	140	120	15	1115	1.2	7.3	38	<5	

FPV (gallons) = 0.0~~8~~6 KS

Calculations: FPV = (12.33 x 0.00~~26~~12 KS) + (0.31 x 0.16) = 0.0~~32058~~14796 KS + 0.0496 = ~~0.081658~~ KS 0.064396

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Kevin Schiavone

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

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APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10-30-18 Well ID: TA-MW-305B

Weather Conditions: Clear, 40°'s

Sampler's Name (Print): Andrew Benton

Purging Device & Serial # (pump type): Geopump unit c (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC North side

Well Depth (ft, ref. to measuring point): 16.23

Screen Interval (ft, ref. to measuring point): 11.74 - 16.44

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail.CN

Purging Start Time: 0947 (24 hour cycle) Sample Time: 1037 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.90

Tubing Intake (ft, ref. to measuring point): 14.09

Total Purge Volume (gallons): 3.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (KS) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1120 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
952	5.30	0.4	—	150	180	14	1990	1.0	6.9	147	1	Started initial Purge at
957	5.24	-0.06	0.34	150	180	14	1995	0.6	7.0	131	1	180 speed, turned down to 150 before 1st reading
1002	5.24	0.00	0.34	150	210	14	1997	0.4	7.0	125	0.7	
1007	5.25	0.01	0.35	150	210	14	1994	0.4	7.0	120	0.7	
1012	5.25	0.00	0.35	150	210	14	1994	0.3	7.0	117	0.7	
1017	5.25	0.00	0.35	150	210	14	1993	0.2	7.0	114	0.7	
1022	5.25	0.00	0.35	150	210	14	1991	0.2	7.0	113	0.6	
1027	5.25	0.00	0.35	150	210	14	1994	0.2	7.0	110	0.8	

FPV (gallons) = 0.09

Calculations: FPV = (14.34 x ~~0.0026~~ 0.0012 (KS)) + (0.35 x 0.16) = ~~0.037284~~ 0.017208 (KS) + 0.056 = ~~0.093284~~ (KS) 0.073208

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Benton

Sampler's Signature

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APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10-30-18 Well ID: TA-MW-305 C

Weather Conditions: (AB) ~~[illegible]~~, 40°'s, Cloudy

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump unit C (NO Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC North side

Well Depth (ft, ref. to measuring point): 23.62'

Screen Interval (ft, ref. to measuring point): 19.74'- 24.44'

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1150 (24 hour cycle) Sample Time: 1228 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.90'

Tubing Intake (ft, ref. to measuring point): 22.10

Total Purge Volume (gallons): 3

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1315 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1155	5.01	0.11	—	165	180	14	1778	0.7	7.1	154	2	
1200	5.01	0.00	0.11	165	180	14	1784	0.6	7.1	142	1	
1205	5.01	0.00	0.11	165	180	14	1788	0.4	7.1	136	1	
1210	5.01	0.00	0.11	165	180	14	1788	0.4	7.1	132	1	
1215	5.01	0.00	0.11	165	180	14	1789	0.3	7.1	129	1	
1220	5.01	0.00	0.11	165	180	14	1788	0.3	7.1	125	1	
1225	5.01	0.00	0.11	165	180	14	1787	0.3	7.1	122	2	
1230	5.01	0.00	0.11	165	180	14	1786	0.2	7.1	120	1	
1235	5.01	0.00	0.11	165	180	14	1785	0.2	7.1	117	1	

FPV (gallons) = N/A Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton
Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10-31-18 Well ID: TA-GW-04

Weather Conditions: Overcast, 50's

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump unit A (No serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top PVC North side

Well Depth (ft, ref. to measuring point): 12.2'

Screen Interval (ft, ref. to measuring point): 7.2'-12.2'

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3 Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): AB ~~7.65~~ 6.29'

Tubing Intake (ft, ref. to measuring point): 9.7

Total Purge Volume (gallons): 2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ KS 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1259 (24 hour cycle) Sample Time: 1357 (24 hour cycle) Time at Sample Completion: 1440 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1304	6.82	0.53	—	150	240	14	1412	4.2	7.2	74	<5	- Changed RPM to 100 after
1309	6.89	0.07	0.60	100	120	14	1412	4.2	7.2	70	<5	1st readings
1314	6.90	0.01	0.61	90	120	14	1415	3.8	7.2	66	<5	
1319	6.96	0.06	0.67	90	120	14	1416	3.1	7.2	65	<5	
1324	6.98	0.02	0.69	90	120	14	1421	1.3	7.2	63	<5	
1329	6.99	0.01	0.70	90	120	14	1420	1.1	7.2	62	<5	
1334	7.02	0.03	0.73	90	120	15	1424	1.0	7.2	61	<5	
1339	6.93	-0.09	0.64	90	120	14	1425	1.0	7.1	61	<5	
1344	7.01	0.08	0.72	90	120	14	1423	0.9	7.1	61	<5	
1349	6.96	-0.05	0.67	90	120	14	1425	0.8	7.1	60	<5	
1354	7.04	0.08	0.75	90	120	14	1423	0.9	7.1	61	<5	

FPV (gallons) = 0.153

Calculations: FPV = (12.20 * 0.0012 KS) + (0.75 * 0.16) = AB ~~12.2026 + 0.91 = 13.1126~~ AB 0.01464 KS + 0.12 = ~~0.15172~~ 0.13464 KS

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton

Sampler's Signature

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APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10-31-18 Well ID: TA-MW-4

Weather Conditions: Clear Sunny, 60°'s

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump unit A (No serial #)

Reference Measuring Point (Top of PVC/Top of Casing): TOP PVC North Side

Well Depth (ft, ref. to measuring point): 11.63'

Screen Interval (ft, ref. to measuring point): 3.50' - 8.50'

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Mercury, NO2/NO3, Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Amt CN

Purging Start Time: 1509 (24 hour cycle) Sample Time: 1636 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 5.50

Tubing Intake (ft, ref. to measuring point): 6.0'

Total Purge Volume (gallons): 7.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (NS) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1731 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1514	5.62	0.12	—	150	180	16	1769	~~0.4~~ <0.5 AB	7.2	-39	<5	
1519	5.64	0.02	0.14	150	180	16	1792	~~0.4~~ <0.5 AB	7.2	-58	<5	
1524	5.69	0.05	0.19	180	240	16	1784	~~0.3~~ <0.5 AB	7.2	-65	<5	
1529	5.71	0.02	0.21	180	240	16	1781	<0.5	7.1	-72	<5	
1534	5.71	0.00	0.21	180	240	16	1768	<0.5	7.1	-78	<5	
1539	5.72	0.01	0.22	180	240	15	1751	<0.5	7.1	-85	<5	
1544	5.73	0.01	0.23	180	240	15	1734	<0.5	7.2	-94	<5	
1549	5.73	0.00	0.23	180	240	16	1719	<0.5	7.2	-103	<5	
1554	5.74	0.01	0.24	180	240	16	1704	<0.5	7.2	-112	<5	
1559	5.74	0.00	0.24	180	240	16	1693	<0.5	7.2	-121	<5	
1604	5.74	0.00	0.24	180	240	16	1684	<0.5	7.2	-129	<5	

FPV (gallons) = N/A

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10-31-18 Well ID: TA-MW-4

Weather Conditions: Clear, Sunny, 60's

Sampler's Name (Print) Andrew Benton

Purging Device & Serial # (pump type): Geopump unit A (No serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top PVC North side

Well Depth (ft, ref. to measuring point): 11.63'

Screen Interval (ft, ref. to measuring point): 3.50-8.50

Samples Collected: PCBs, VOCs, SVOCs, Total Metals, Hg, Hardness, Nitrate, Nitrite, Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Amenable CN

Purging Start Time: 1509 (24 hour cycle) Sample Time: 1636 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 5.50

Tubing Intake (ft, ref. to measuring point): 6.0

Total Purge Volume (gallons): 7.5

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (NS) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1731 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1609	5.74	0.00	0.24	180	240	15	1673	<0.5	7.2	-137	<5	
1614	5.75	0.01	0.25	180	240	16	1665	<0.5	7.2	-144	<5	
1619	5.75	0.00	0.25	180	240	15	1662	<0.5	7.2	-151	<5	
1624	5.75	0.00	0.25	180	240	15	1653	<0.5	7.2	-157	<5	
1629	5.75	0.00	0.25	180	240	15	1648	<0.5	7.2	-162	<5	
1634	5.75	0.00	0.25	180	240	15	1645	<0.5	7.2	-167	<5	

FPV (gallons) = NA

Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

Andrew Benton

Sampler's Signature

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 10-31-18 Well ID: TA-MW-304A

Weather Conditions: Cloudy, wet, 40°s

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump unit A (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top PVC North side

Well Depth (ft, ref. to measuring point): 5.20'

Screen Interval (ft, ref. to measuring point): 2.26' - 5.06'

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 1.65

Tubing Intake (ft, ref. to measuring point): 3.66

Total Purge Volume (gallons): ~1.25

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (KS) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached? yes OR (no) (circle one)

Purging Start Time: 0959 (24 hour cycle) Sample Time: 1027 (24 hour cycle) Time at Sample Completion: 1135 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1004	2.00	0.35	—	100	120	13	1367	~~0.11~~ AB <0.5	6.5	-53	8	
1009	2.05	0.05	0.40	100	120	13	1362	<0.5	6.7	-84	9	• Had to turn RPMs up to
1014	2.16	0.11	0.51	110	120	12	1275	<0.5	6.8	-93	7	110 mid-readings, stopped flowing
1019	2.24	0.08	0.59	110	120	12	1276	<0.5	6.9	-100	7	• turned RPM down to 100
1024	2.21	-0.03	0.56	100	120	12	1278	<0.5	6.9	-103	7	to prevent drying up well

FPV (gallons) = ~~0.11~~ 0.10

Calculations: FPV = (6.16 x 0.00~~26~~12) (KS) + (0.56 x 0.16) = (0.~~016016~~07392 (KS) + 0.0896) = ~~0.105616~~ (KS) 0.096992

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton

Sampler's Signature

\\gsagr1\jobs\62000\62335\62335.02 - WWW Tannery 2017_2018 Work\QAPP Docs - EPA and MDEQ\D-EPA & MDEQ REVISED DRAFT APPENDICES\Appendix A - SOPs\SOP A16 - 6App G - Peristaltic.xlsx

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/31/18 Well ID: TA-MW-309D

Weather Conditions: 50°F, Overcast

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump Unit C (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 49.83

Screen Interval (ft, ref. to measuring point): 44.67 - 49.67

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3 Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1213 (24 hour cycle) Sample Time: 1345 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 7.38

Tubing Intake (ft, ref. to measuring point): 47.17

Total Purge Volume (gallons): 10

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1408 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1218	7.43	0.05	—	175	300	14	865	0.8	7.4	139	<5	Clear Flow,
1223	7.43	0.00	0.05	170	270	13	861	0.6	7.1	131	<5	No odor observed
1228	7.45	0.02	0.07	170	270	13	857	0.5	7.1	114	<5	
1233	7.45	0.00	0.07	170	270	13	857	0.5	7.2	96	<5	
1238	7.45	0.00	0.07	170	270	13	852	<0.5	7.2	78	<5	
1243	7.45	0.01	0.07	170	300	13	847	<0.5	7.3	62	<5	
1248	7.45	0.00	0.07	170	300	13	841	<0.5	7.3	49	<5	
1253	7.45	0.00	0.07	170	300	13	840	<0.5	7.3	40	<5	
1258	7.45	0.00	0.07	170	300	13	839	<0.5	7.4	28	<5	
1303	7.45	0.00	0.07	170	300	13	837	<0.5	7.4	19	<5	
1308	7.46	0.01	0.08	170	300	13	837	<0.5	7.4	14	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone
Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/31/18 Well ID: TA-MW-309D

Weather Conditions: 50°, Overcast

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump unit C (NO Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): 49.83

Screen Interval (ft, ref. to measuring point): 44.67 - 49.67

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 1213 (24 hour cycle) Sample Time: 1345 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 7.38

Tubing Intake (ft, ref. to measuring point): 47.17

Total Purge Volume (gallons): 10

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ KS 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached? yes OR no (circle one)

Time at Sample Completion: 1408 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1313	7.46	0.00	0.08	170	300	13	842	<0.5	7.5	7.2	<5	
1318	7.46	0.00	0.08	170	300	13	842	<0.5	7.5	-13	<5	
1323	7.46	0.00	0.08	170	300	13	842	<0.5	7.7	-2	<5	
1328	7.46	0.00	0.08	170	300	13	844	<0.5	7.7	-6	<5	
1333	7.46	0.00	0.08	170	300	13	842	<0.5	7.7	-10	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 10/31/18 Well ID: TA-TMW-101

Weather Conditions: 55°F, Sunny

Sampler's Name (Print): Kevin Schiavone

Purging Device & Serial # (pump type): Geopump Unit C (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top of PVC, North

Well Depth (ft, ref. to measuring point): ~~8.72~~ (KS)

Screen Interval (ft, ref. to measuring point): 5.33 - 10.13

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Initial Water Level (ft, ref. to measuring point): 2.09

Tubing Intake (ft, ref. to measuring point): 7.83

Total Purge Volume (gallons): 4

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (KS) 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Purging Start Time: 1455 (24 hour cycle) Sample Time: 1540 (24 hour cycle) Time at Sample Completion: 1605 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1500	2.42	0.33	-	175	330	14	656	1.3	7.5	53	39	
1505	2.39	~~0.30~~ 0.3 (KS)	0.30	165	300	14	656	1.0	7.0	64	39	
1510	2.38	0.01	0.29	165	270	14	658	0.8	6.9	62	6	
1515	2.38	0.00	0.29	165	270	14	658	0.8	6.9	60	<5	
1520	2.38	0.00	0.29	165	270	14	656	0.6	6.8	60	<5	
1525	2.38	0.00	0.29	165	270	14	657	0.6	6.8	61	<5	
1530	2.38	0.00	0.29	165	270	14	653	0.6	6.8	61	<5	
1535	2.38	0.00	0.29	165	270	14	653	0.6	6.8	61	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Kevin Schiavone

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Date: 11-1-18 Well ID: TA-GW-01

Weather Conditions: 40°s, overcast, damp

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump unit A (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top PVC North side

Well Depth (ft, ref. to measuring point): 10.29

Screen Interval (ft, ref. to measuring point): 4.75 - 9.75

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3, Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Iodide, Bromide, Formic Acid, Acetic Acid

Purging Start Time: 1430 (24 hour cycle) Sample Time: 1500 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 4.42

Tubing Intake (ft, ref. to measuring point): 7.25'

Total Purge Volume (gallons): 2

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (KS) 1/4

Indicator Parameter Stabilization: (yes) OR no (circle one)

Two Hour Time Limit Reached ? yes OR (no) (circle one)

Time at Sample Completion: 1539 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
1435	4.57	0.15	–	90	120	10	1098	1.6	6.6	-14	<5	
1440	4.61	0.04	0.19	90	120	10	1091	0.8	6.7	-28	<5	
1445	4.66	0.05	0.24	90	120	10	1109	0.6	6.6	-34	<5	
1450	4.68	0.02	0.26 (AB)	90	120	10	1108	0.6	6.7	-35	<5	
1455	4.69	0.01	0.27	80	120	10	1125	0.6	6.6	-36	<5	
1500	4.69	0.00	0.27	80	(AB) ~~[illegible]~~ 90	10	(AB) 1149	<5	6.6	-36	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton

Sampler's Signature

APPENDIX G - WELL SAMPLING WORKSHEET

For use with Peristaltic Pumps

~~Site Name~~ Former Tannery

Page 1 of 1

Date: 11-1-18 Well ID: TA-MW-301 C

Weather Conditions: Overcast 30°'s

Sampler's Name (Print): Andrew Beaton

Purging Device & Serial # (pump type): Geopump unit C (No Serial #)

Reference Measuring Point (Top of PVC/Top of Casing): Top PVC North Side

Well Depth (ft, ref. to measuring point): 24.97

Screen Interval (ft, ref. to measuring point): 22.33- 27.33

Samples Collected: PFAS, VOCs, SVOCs, TAL Metals, Hg, Hardness, NO2/NO3/Ammonia, Phosphorus, Total CN, Sulfide, Sulfate, Chloride, Hexavalent Chromium, Acetic Acid, Formic Acid, Avail. CN

Purging Start Time: 0949 (24 hour cycle) Sample Time: 1018 (24 hour cycle)

Initial Water Level (ft, ref. to measuring point): 5.92

Tubing Intake (ft, ref. to measuring point): 24.85

Total Purge Volume (gallons): 6

PVC/Inner Well Casing ID (inches): 2

Tubing ID (inches): ~~3/8~~ (1/2) 1/4

Indicator Parameter Stabilization: yes OR no (circle one)

Two Hour Time Limit Reached ? yes OR no (circle one)

Time at Sample Completion: 1215 (24 hour cycle)

Clock Time (24 HR)	Water Level (ft)	Drawdown (ft)	Cumulative Drawdown (ft)	Pump Speed	Purge Rate (ml/min)	Temp +/- 1 ºC (ºC)	Spec. Cond. +/- 3% (µS/cm)	DO +/- 10% if > 0.5 (mg/L)	pH +/- 0.1 units	ORP +/-10 (mV)	Turbidity +/- 10% if > 5 (NTU)	Comments/Adjustments
0954	5.97	0.05	—	175	180	13	820	0.5	6.0	110	<5	
0959	5.98	0.01	0.06	175	180	13	823	<0.5	6.5	78	<5	
1004	5.98	0.00	0.06	175	180	13	825	<0.5	6.6	71	<5	
1009	5.99	0.01	0.07	190	240	14	825	<0.5	6.6	68	<5	
1014	5.99	0.00	0.07	190	240	14	822	<0.5	6.6	64	<5	

FPV (gallons) = NA Calculations: NA

Notes: 1. All depths in feet below the referenced measuring point, unless specified. 2. "NR" indicates no reading taken. 3. ID = Inside Diameter

4. When recording pH and dissolved oxygen data, only use one decimal place. When recording specific conductance, temperature, turbidity, and ORP data, record only whole numbers. When DO data is less than 0.5 mg/L, data should be recorded as "<0.5" or "less than 0.5". DO values between 0.5 and 1.0 are typically considered stable within +/- 0.1 mg/L. When turbidity data is less than 5 NTU, data should be recorded as "< 5" or "less than 5". Turbidity values between 5 and 10 are typically considered stable within +/- 1 NTU.

5. Tubing Factors - Milliliters to purge standing water in tubing: 1/2" ID: height in ft. x 38.6 = ml needed 3/8" ID: height in ft. x 21.7 = ml needed 1/4" ID: height in ft. x 9.8 = ml needed 0.17" ID: height in ft. x 4.5 = ml needed

6. Final Purge Volume (FPV) in gallons = (Total Tubing Length x Tubing Capacity) + (Total Drawdown x Well Capacity) Record N/A in box if not applicable. Note: Include the length of tubing that is outside the well to the Total Tubing Length.

Andrew Beaton
Sampler's Signature

\\gorgr1\jobs\62000\62300\62335.02 - WWW Tannery 2017_2018 Work\QAPP Docs - EPA and MDEQ\0 EPA & MDEQ REVISED DRAFT APPENDICES\Appendix A - SOPs\SOP A16 - 6App G - Peristaltic.xlsx

Site name TA-SW-03
Date: 10/24/18

SURFACE WATER WORKSHEET

Field Personnel: Andrew Beaton / Kevin Hedinger

WEATHER CONDITIONS

Current Information		www.Underground.com							
Barometric Pressure (in mm/hg)	773.65	Gerald R. Ford Int., MI	Rainfall over the past 7 days (or not applicable) Dates:	10/17	10/18	10/19	10/20	10/21	10/22	10/23
Conditions at Sampling (sunny, cloudy, rain, showers)	Sunny		Estimated Rainfall (in)	0.00	0.00	0.09	0.23	0.00	0.00	0.00
USGS ave daily discharge at Rockford Dam	272 cfs		Storm Event Comments:	None						
Comments										

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.1235-9946	West	or	Easting 12804330.17	(MI State Plane South Zone, NAD83)
Longitude	-85.56174217	North		Northing 593949.26	
Location Description	Flat entrance to Rogue river via trail, Sample taken 1-2 ft from bank				
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):	
	Notes:				
Photographs Taken	Yes	No	Number Taken: 2	Upstream	Downstream
	If not, provide reason:				
Photograph #					

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-03 Initial	8.1	607	11.3	7.9	122	01.78	16:16	18 in.	
TA-SW-03 2 min	8.1	607	11.4	7.8	122	0.67	16:16	18 in.	
TA-SW-03 4 min	8.0	607	11.5	7.8	122	3.44	16:16	18 in.	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: N/A	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: N/A	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

Site name TA-SW-04
Date: 10-24-18

SURFACE WATER WORKSHEET

Field Personnel: Andy Beaton, Kevin Hedinger

WEATHER CONDITIONS

Current Information		Rainfall over the past 7 days (or not applicable)							
Barometric Pressure (in mm/hg)	(AB) ~~[illegible]~~ 773.65	Dates:	10/17	10/18	10/19	10/20	10/21	10/22	10/23
Conditions at Sampling (sunny, cloudy, rain, showers)	(AB) ~~[illegible]~~ sunny	Estimated Rainfall (in)	0.00	0.00	0.09	0.23	0.00	0.00	0.00
USGS ave daily discharge at Rockford Dam	(AB) ~~[illegible]~~ 272	Storm Event Comments:	N/A						
Comments									

www.underground.com
Gerald R. Ford Int'l, MI

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12364664	West or	Easting 12804450.20	(MI State Plane South Zone, NAD83)
Longitude	-85.56129343	North	Northing 593964.76	
Location Description	Where Rum Creek meets Rogue River. Samples taken while standing on bridge			
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):
	Notes:			
Photographs Taken	Yes	No	Number Taken:	Upstream / Downstream
	If not, provide reason:			
Photograph #				

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-04 Initial	(AB) ~~7.8~~ 7.6	(AB) ~~632~~ 646	12.08 (AB)	7.20 (AB) ~~9.3~~	107.3 (AB) ~~5.3~~	1.21	14:31	7 in.	
TA-SW-04 2 min	7.8	646	12.0	7.3	105	0.46	14:31	7 in.	
TA-SW-04 4 min	7.8	646	11.9	7.5	99	0.39	14:31	7 in.	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: N/A	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: N/A	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

Site name: WWW Tannery site TA-SW-06
Date: 10/24/2018

SURFACE WATER WORKSHEET

Field Personnel: Kevin Hedinger/Andy Beaton

WEATHER CONDITIONS

Current Information		Gerald R. Ford International Airport Rainfall over the past 7 days (or not applicable)							
Barometric Pressure (in mm/hg)	773.68	Dates:	10/17	10/18	10/19	10/20	10/21	10/22	10/23
Conditions at Sampling (sunny, cloudy, rain, showers)	Cloudy	Estimated Rainfall (in)	0.00	0.00	0.09	0.23	0.00	0.00	0.00
USGS ave daily discharge at Rockford Dam	272 cfs	Storm Event Comments:	None						
Comments	Sample collected @ 1235								

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12344569	West or	Easting	12804951.38	(MI State Plane South Zone, NAD83)
Longitude	-85.55941203	North	Northing	593884.40	
Location	Rum Creek on Wolverine Property (yard)				
Description	Upstream (East) of Bridge 10 feet, 3 feet from north stream bank				
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):	
	Notes:				
Photographs Taken	Yes	No	Number Taken: 2	Upstream	Downstream
	If not, provide reason:				
Photograph #					

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
Initial	7.0	622	<5	8.8	-24	3.99	12:26	8 in	Readings were erroneous due to Calibration error on YSI
2	7.0	620	<5	8.2	5.9	0.57	12:26		
4	7.0	618	<5	8.1	14.2	0.47	12:26		
Initial	8.3	605	11.2	8.2	101		17:16	8 in.	
2	8.3	604 605	11.2 11.3	8.1 8.1	105 107		17:16	8 in.	
4	8.3						17:16	8 in.	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE Applicable / Not Applicable

Stream depth 16 in.

Initial Synoptic Round (From Water Level Measurement Form):	Date: N/A	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: N/A	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

Site name TA-SW-01
Date: 10/25/18

SURFACE WATER WORKSHEET

Field Personnel: V. Larimore Kevin Hedinger

WEATHER CONDITIONS

Current Information		www.wunderground.com	Rainfall over the past 7 days (or not applicable)						
Barometric Pressure (in mm/hg)	768.86	Gerald R Ford Int'l, MI Dates:	10/18	10/19	10/20	10/21	10/22	10/23	10/24
Conditions at Sampling (sunny, cloudy, rain, showers)	Sunny/cold	Estimated Rainfall (in)	0.00	0.09	0.23	0.00	0.00	0.00	0.00
USGS ave daily discharge at Rockford Dam	265 cfs	Storm Event Comments:	NA						
Comments	Sample taken @ 0900								

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12545912	West or	Easting	(MI State Plane South Zone, NAD83)
Longitude	-85.56013702	North	Northing	
Location Description	In wooded area behind parking lot			
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):
	Notes:			
Photographs Taken	Yes	No	Number Taken: 2	Upstream Downstream
	If not, provide reason:			
Photograph #				

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-01 initial	3.85	549	11.62	4.82	69.2	3.70	1002	1.5	
TA-SW-01 2min	4.03	550	11.59	6.06	61.0	1.82	1004	1.5	
TA-SW-01 4min	4.05	550	11.59	6.43	52.0	2.78	1006	1.5	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE

Applicable Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

Site name TA-SW-02
Date: 10/26/18

SURFACE WATER WORKSHEET

Field Personnel: ~~Kevin Schiavone~~ Virginia Larimore, Andrew Beston

WEATHER CONDITIONS

Current Information		Rainfall over the past 7 days (or not applicable)							
Barometric Pressure (in mm/hg)	760.73	Dates:	10/19	10/20	10/21	10/22	10/23	10/24	10/25
Conditions at Sampling (sunny, cloudy, rain, showers)	49°F, Cloudy	Estimated Rainfall (in)	0.09	0.23	0.00	0.00	0.00	0.00	0.00
USGS ave daily discharge at Rockford Dam	261 cfs	Storm Event Comments:	N/A						
Comments	Sample Collected @ 1330								

STREAM / SAMPLING LOCATION INFORMATION

Latitude 43.12385759 West or Easting 12804447.23 (MI State Plane South Zone, NAD83)
Longitude -85.56130865 North Northing 594041.69
Location Entrance to left of North side of bridge (Facing North) through brush.
Description Samples Collected ~5 feet off bank
Collection Dipper **Peristaltic Pump** Lab-Cleaned Bottle Other (specify):
Equipment Notes:
Photographs **Yes** No Number Taken: 2 **Upstream** **Downstream**
Taken If not, provide reason:
Photograph # NA

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-02 Initial	7.84	653	19.72	7.83	171.5	~~1356~~	1356	11 in	1.36
TA-SW-02 2 Min	7.73	653	18.78	7.77	162.9	~~1358~~	1358		2.12
TA-SW-02 4 min	7.79	655	18.84	7.67	165.2	~~1400~~	1400		1.71
TA-SW-02 Initial	8.29	662	11.74	7.62	105.9		1425		Above readings are erroneous due to calibration error
TA-SW-02 2mi/4mi	7.87/7.92	666/672	11.4/11.08	7.40/6.66	122.3/156.4		1427	11 in.	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE Applicable / **Not Applicable** 1429

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

Site name TA-SW-05
Date: 10/26/18

SURFACE WATER WORKSHEET

Field Personnel: Kevin Schipmann, Andrew Beston

WEATHER CONDITIONS

Current Information		Rainfall over the past 7 days (or not applicable)							
Barometric Pressure (in mm/hg)	760.73	Dates:	10/19	10/20	10/21	10/22	10/23	10/24	10/25
Conditions at Sampling (sunny, cloudy, rain, showers)	45° F, overcast	Estimated Rainfall (in)	0.09	0.23	0.00	0.00	0.00	0.00	0.00
USGS ave daily discharge at Rockford Dam	261 CFS	Storm Event Comments:	N/A						
Comments									

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.1223720° N	West	or	Easting	12804427.84 (MI State Plane South Zone, NAD83)
Longitude	-85.5613474° W	North		Northing	593,503.47
Location Description	Through weeds at bend in trail, left side facing North. Samples taken approx. 12 feet from bank, using canoe.				
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):	
	Notes:				
Photographs Taken	Yes	No	Number Taken:	Upstream	Downstream
	If not, provide reason:				
Photograph #	NA				

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-05 Initial	7.3	678	20.2	7.4	149.2	4.58	1230	7 in	Probe down 3.5 in.
TA-SW-05 2 min	7.4	679	17.5	7.4	150	4.64	1232	7 in	in water column
TA-SW-05 4 min	7.5	676	17.4	7.4	149	4.61	1234	7 in	
TA-SW-05 Initial	9.9	726	11.9	8.2	75		1533	7 in	Above readings are erroneous due to calibration error
TA-SW-05 2min/4min	9.7/9.7	693/699	11.5/11.4	8.2/8.3	67.4/68.3		1535/1537	7 in	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

Site name TA-SW-07
Date: 10/26/18

SURFACE WATER WORKSHEET

Field Personnel: Kevin Schiavone, Adrian Bastian

WEATHER CONDITIONS

Current Information		Rainfall over the past 7 days (or not applicable)							
Barometric Pressure (in mm/hg)	760.73	Dates:	10/19	10/20	10/21	10/22	10/23	10/24	10/25
Conditions at Sampling (sunny, cloudy, rain, showers)	42°F Overcast	Estimated Rainfall (in)	0.09	0.23	0.00	0.00	0.00	0.00	0.00
USGS ave daily discharge at Rockford Dam	261 cfs	Storm Event Comments:	N/A						
Comments									

STREAM / SAMPLING LOCATION INFORMATION

Latitude	43.12142019 N	West	or	Easting 12804377.01	(MI State Plane South Zone, NAD83)
Longitude	-85.56132448 W	North		Northing 593154.27	
Location Description	5 feet east from boat landing				
Collection Equipment	Dipper	Peristaltic Pump	Lab-Cleaned Bottle	Other (specify):	
	Notes:				
Photographs Taken	Yes	No	Number Taken:	Upstream	Downstream
	If not, provide reason:				
Photograph #	NA				

IN SITU SURFACE WATER QUALITY

Minimum 2 minute parameter stabilization period met (Y/N)?

Sample Location ID	Temperature (ºC)	Specific Conductivity (µS/cm)	DO (mg/L)	pH units	ORP (mV)	Turbidity (NTU)	Sample Time	Water Depth (ft)	Comments
TA-SW-07 Initial 10:52	7	653	20.8	6.7	130	1.34	10:52	13 in.	Probe 4 inches down in
TA-SW-07 2min	7	651	18.8	7.0	141	1.54	10:54	13 in.	water column
TA-SW-07 4min	7	651	18.7	7.0	150	1.68	10:56	13 in.	
TA-SW-07 Initial	8.58	654	12.09	8.03	125.9		1507	13 in	Above readings are erroneous due to calibration issue
TA-SW-07 2min/4min	8.16/8.23	656/657	11.80/12.06	7.85/7.80	121.6/134.3		1509/1511	13 in	

DEPTH-TO-WATER INFORMATION FROM PERMANENT STAFF GAGE Applicable / Not Applicable

Initial Synoptic Round (From Water Level Measurement Form):	Date: NA	DTW (nearest 0.01 ft.):	Comments:
Pre-Sampling Round:	Date: NA	DTW (nearest 0.01 ft.):	Comments:

Notes: 1. Surface Water Quality Parameters are collected using an approved multi meter and turbidity meter. Both units are calibrated in accordance with the calibration SOP.

Appendix D – GW Well Installation and Water Level Details

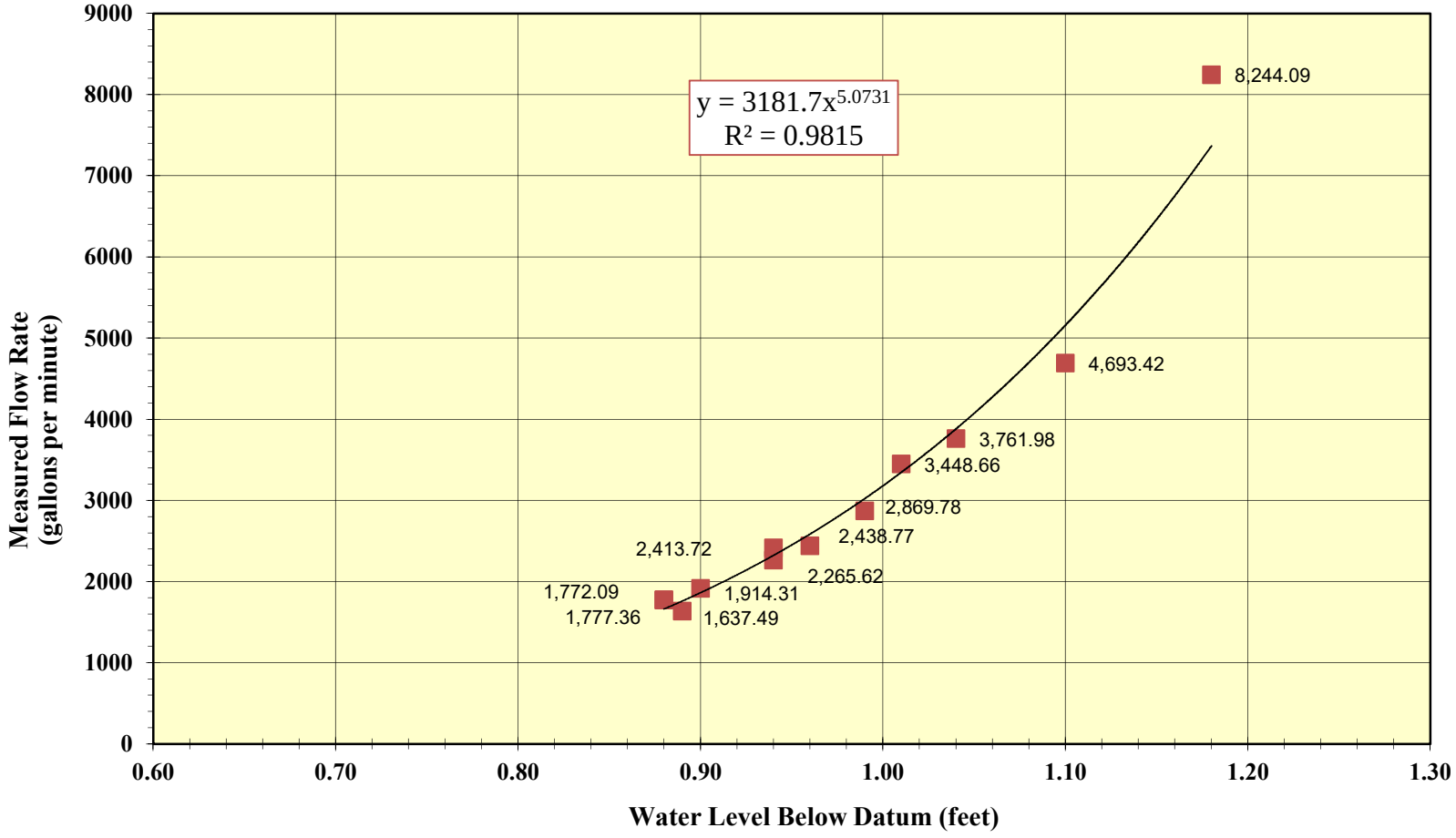
Appendix D
Groundwater Level Details

Well ID	Measuring Point Elevation	Date	Depth to Water (ft)	Static Water Elevation (ft)	Measured Well Depth (ft)	Date	Depth to Water (ft)	Static Water Elevation (ft)	Date	Depth to Water (ft)	Static Water Elevation (ft)
MW-1	694.34	8/3/2018	3.26	691.08	8.65	10/19/2018	1.87	692.47	12/17/2018	1.82	692.52
MW-2	694.36	8/3/2018	3.58	690.78	7.94	10/29/2018	2.68	691.68	12/17/2018	2.20	692.16
MW-3	697.08	8/3/2018	5.70	691.38	7.35	10/23/2018	5.52	691.56	12/17/2018	5.21	691.87
MW-4	697.30	8/3/2018	5.95	691.35	11.63	10/31/2018	5.50	691.80	12/17/2018	5.36	691.94
MW-5	696.52	8/3/2018	5.17	691.35	10.33	10/24/2018	4.74	691.78	12/17/2018	4.63	691.89
P-1	693.78	8/3/2018	2.84	690.94	8.62	10/25/2018	2.22	691.56	12/17/2018	2.61	691.17
P-2	693.43	8/3/2018	2.56	690.87	NM	10/25/2018	1.75	691.68	12/17/2018	1.72	691.71
P-3	693.93	8/3/2018	2.87	691.06	9.07	10/24/2018	2.27	691.66	12/17/2018	2.30	691.63
P-4	693.85	8/3/2018	3.03	690.82	7.75	10/29/2018	2.20	691.65	12/17/2018	1.88	691.97
P-5	699.82	8/3/2018	5.99	693.83	9.21	10/24/2018	4.21	695.61	12/17/2018	4.03	695.79
TMW-101	694.72	8/3/2018	3.38	691.34	8.72	10/31/2018	2.09	692.63	12/17/2018	2.27	692.45
TMW-102	696.14	8/3/2018	4.99	691.15	10.13	10/23/2018	4.46	691.68	12/17/2018	4.38	691.76
TMW-103	698.75	8/3/2018	5.57	693.18	13.57	10/22/2018	4.82	693.93	12/17/2018	4.71	694.04
TMW-104	699.99	8/3/2018	6.60	693.39	10.00	10/25/2018	4.18	695.81	12/17/2018	4.29	695.70
TMW-105	696.19	8/3/2018	5.05	691.14	10.23	10/29/2018	5.62	690.57	12/17/2018	4.43	691.76
TMW-108	696.44	8/3/2018	5.30	691.14	10.29	10/22/2018	4.72	691.72	12/17/2018	4.67	691.77
TMW-109	696.81	8/3/2018	5.36	691.45	10.26	10/22/2018	4.90	691.91	12/17/2018	4.84	691.97
TMW-110	696.63	8/3/2018	5.17	691.46	10.10	10/29/2018	4.79	691.84	12/17/2018	4.58	692.05
TMW-111	696.23	8/3/2018	5.04	691.19	7.69	10/22/2018	4.40	691.83	12/17/2018	4.37	691.86
MW-301B	694.66	8/3/2018	3.49	691.17	10.94	10/30/2018	2.82	691.84	12/17/2018	2.66	692.00
MW-301C	698.01	8/3/2018	6.90	691.11	24.97	11/1/2018	5.92	692.09	12/17/2018	6.01	692.00
MW-301D	697.99	8/3/2018	10.01	687.98	76.85	10/17/2018	9.31	688.68	12/17/2018	9.31	688.68
MW-302A	693.85	8/3/2018	3.26	690.59	5.75	10/23/2018	1.79	692.06	12/17/2018	1.69	692.16
MW-302B	693.87	8/3/2018	2.96	690.91	14.32	10/23/2018	2.26	691.61	12/17/2018	2.08	691.79
MW-303A	693.63	8/3/2018	3.29	690.34	7.80	10/29/2018	2.11	691.52	12/17/2018	1.63	692.00
MW-303B	693.67	8/3/2018	2.70	690.97	15.64	10/26/2018	2.02	691.65	12/17/2018	1.92	691.75
MW-303C	693.54	8/3/2018	2.57	690.97	21.79	10/26/2018	1.92	691.62	12/17/2018	1.82	691.72
MW-303D	696.09	8/3/2018	8.45	687.64	47.26	10/17/2018	7.77	688.32	12/17/2018	7.74	688.35
MW-303E	695.97	8/3/2018	8.37	687.60	53.98	10/17/2018	6.61	689.36	12/17/2018	7.59	688.38
MW-304A	693.66	8/3/2018	2.82	690.84	5.20	10/31/2018	1.65	692.01	12/17/2018	1.58	692.08
MW-304B	693.65	8/3/2018	2.50	691.15	14.80	10/18/2018	1.88	691.77	12/17/2018	1.72	691.93
MW-305B	696.60	8/3/2018	5.25	691.35	16.30	10/30/2018	4.90	691.70	12/17/2018	4.76	691.84
MW-305C	696.59	8/3/2018	5.23	691.36	23.62	10/30/2018	4.90	691.69	12/17/2018	4.75	691.84
MW-306A	696.24	8/3/2018	4.86	691.38	15.50	10/23/2018	4.41	691.83	12/17/2018	4.36	691.88
MW-306B	696.21	8/3/2018	4.78	691.43	11.30	10/24/2018	4.34	691.87	12/17/2018	4.01	692.20
MW-307A	696.08	8/3/2018	5.08	691.00	16.10	10/18/2018	4.47	691.61	12/17/2018	4.47	691.61
MW-307B	695.96	8/3/2018	5.08	690.88	10.27	10/22/2018	4.54	691.42	12/17/2018	4.56	691.40
MW-308A	696.15	8/3/2018	4.53	691.62	8.11	10/25/2018	4.11	692.04	12/17/2018	4.02	692.13
MW-308B	695.93	8/3/2018	4.46	691.47	21.02	10/16/2018	3.86	692.07	12/17/2018	3.94	691.99
MW-308C	695.85	8/3/2018	4.41	691.44	26.56	10/17/2018	3.82	692.03	12/17/2018	3.88	691.97
MW-309A	699.30	8/3/2018	8.00	691.30	11.50	10/24/2018	7.19	692.11	12/17/2018	7.10	692.20
MW-309B	699.13	8/3/2018	7.75	691.38	20.27	10/24/2018	7.00	692.13	12/17/2018	6.95	692.18
MW-309C	698.78	8/3/2018	8.02	690.76	33.72	10/25/2018	7.39	691.39	12/17/2018	7.35	691.43
MW-309D	698.87	8/3/2018	8.13	690.74	49.83	10/31/2018	7.38	691.49	12/17/2018	7.44	691.43
MW-310A	703.41	8/3/2018	11.25	692.16	12.64	10/19/2018	10.03	693.38	12/17/2018	10.32	693.09
MW-310B	703.39	8/3/2018	11.22	692.17	20.20	10/19/2018	10.03	693.36	12/17/2018	10.31	693.08
MW-310C	703.53	8/3/2018	11.61	691.92	53.02	10/18/2018	10.29	693.24	12/17/2018	10.59	692.94
GW-01	696.15	8/3/2018	5.86	690.29	10.27	11/1/2018	4.42	691.73	12/17/2018	4.52	691.63
GW-02	695.21	8/3/2018	4.29	690.92	9.45	10/19/2018	4.02	691.19	12/17/2018	4.29	690.92
GW-03	699.50	8/3/2018	8.68	690.82	11.70	10/25/2018	8.26	691.24	12/17/2018	8.16	691.34
GW-04	698.50	8/3/2018	7.50	691.00	12.20	10/31/2018	6.29	692.21	12/17/2018	6.15	692.35
GW-05	695.22	8/3/2018	4.47	690.75	6.58	10/22/2018	3.79	691.43	12/17/2018	3.75	691.47
GW-06	696.30	8/3/2018	5.80	690.50	10.38	10/30/2018	5.05	691.25	12/17/2018	4.76	691.54
GW-07	697.25	8/3/2018	6.45	690.80	10.29	10/18/2018	5.31	691.94	12/17/2018	5.35	691.90
GW-08	697.78	8/3/2018	6.79	690.99	10.29	10/23/2018	5.86	691.92	12/17/2018	5.79	691.99
GW-09	699.95	8/27/2018	9.33	690.62	12.21	10/24/2018	8.59	691.36	12/17/2018	8.45	691.50

Appendix E – Surface Water Gauging Summary

APPENDIX E1

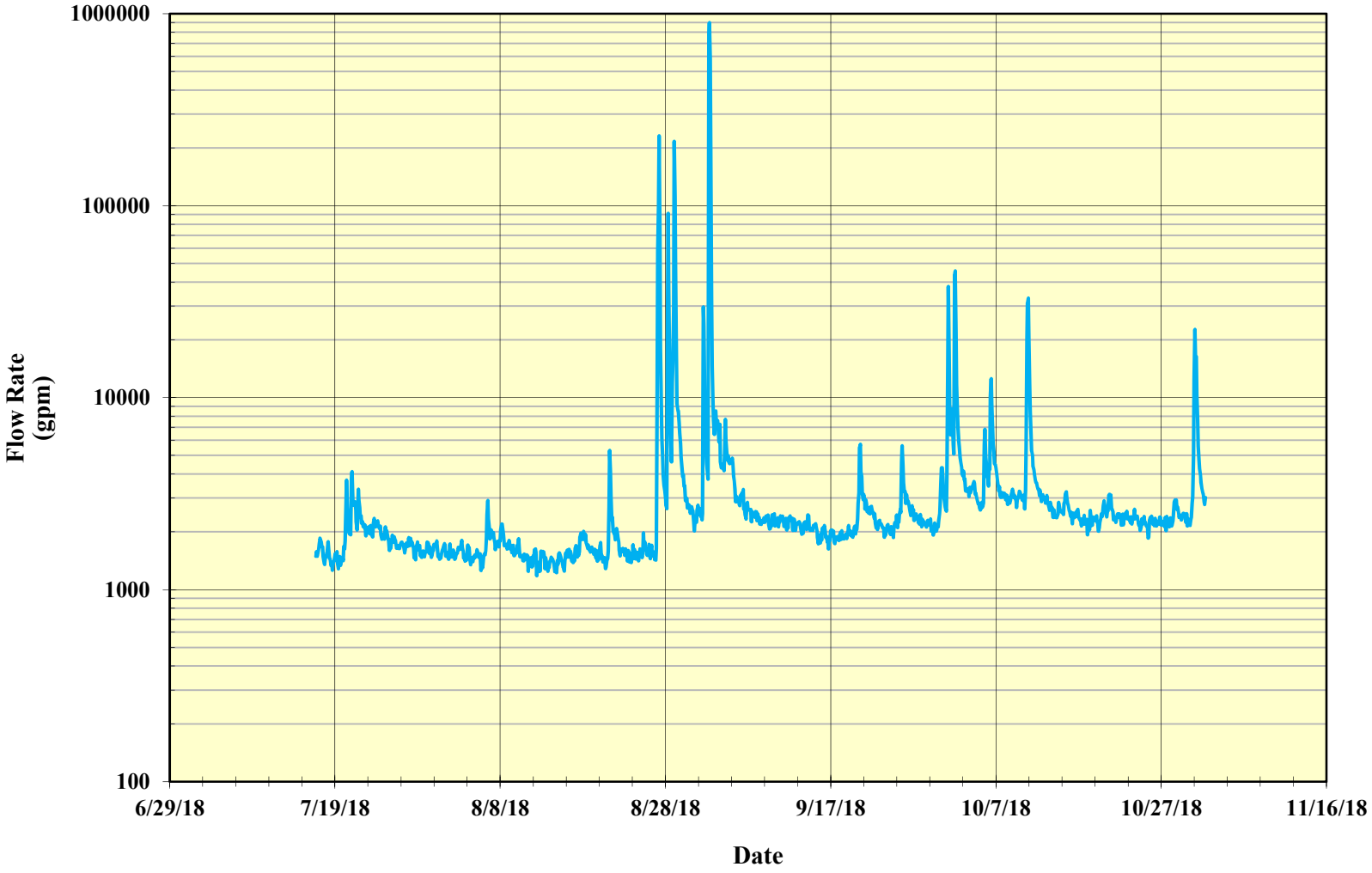
Rating Curve for Surface Water Station RC-1



Plot of Gaged Flow versus Water Level
Wolverine Tannery
Rockford, Michigan

APPENDIX E2

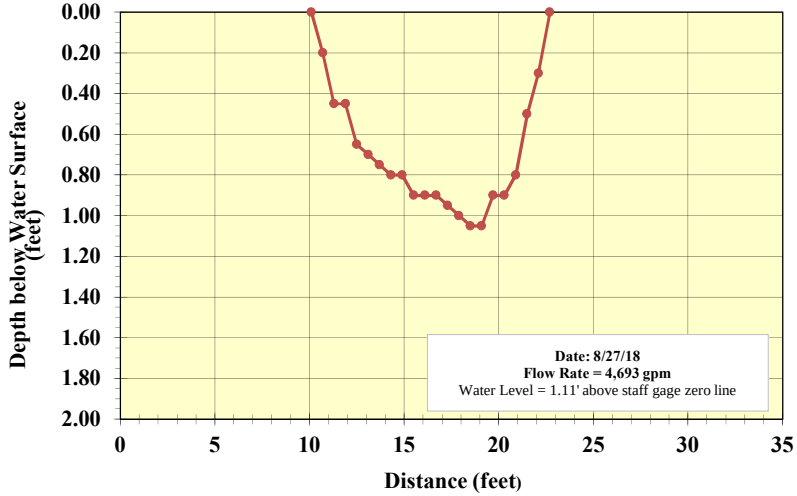
Tannery TA-RC1

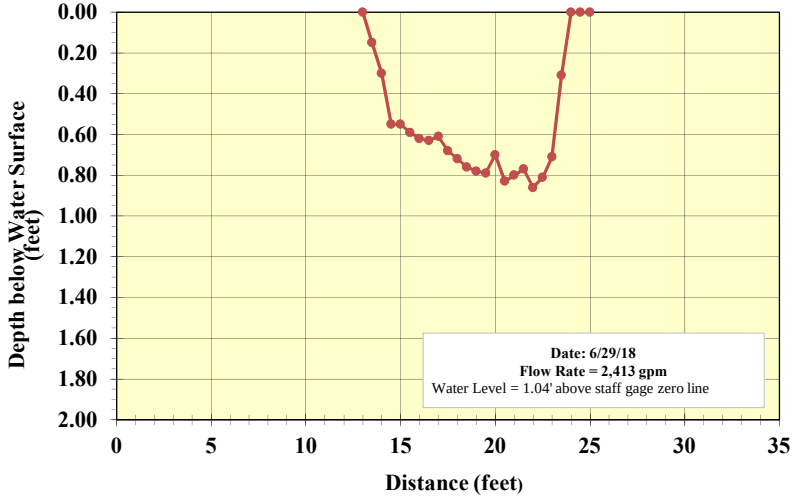


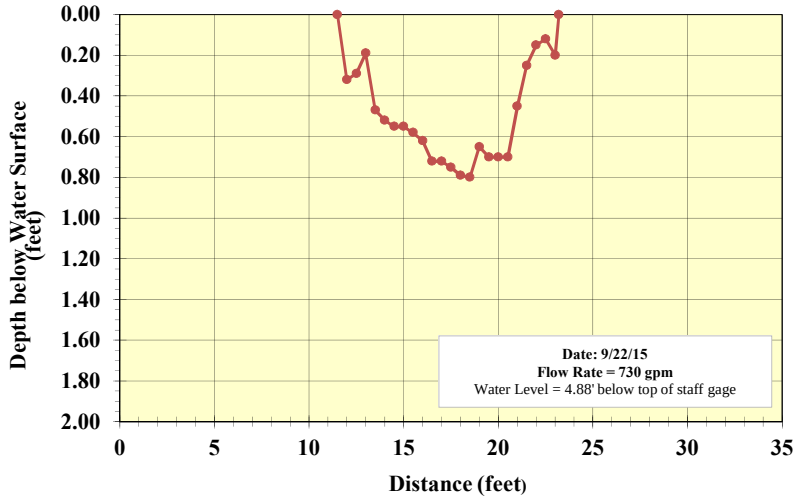
Semi-Log Plot of Streamflow versus Time
Wolverine Tannery
Rockford, Michigan

APPENDIX E3

Wetted Perimeter Morphology at Surface Water Station RC-1



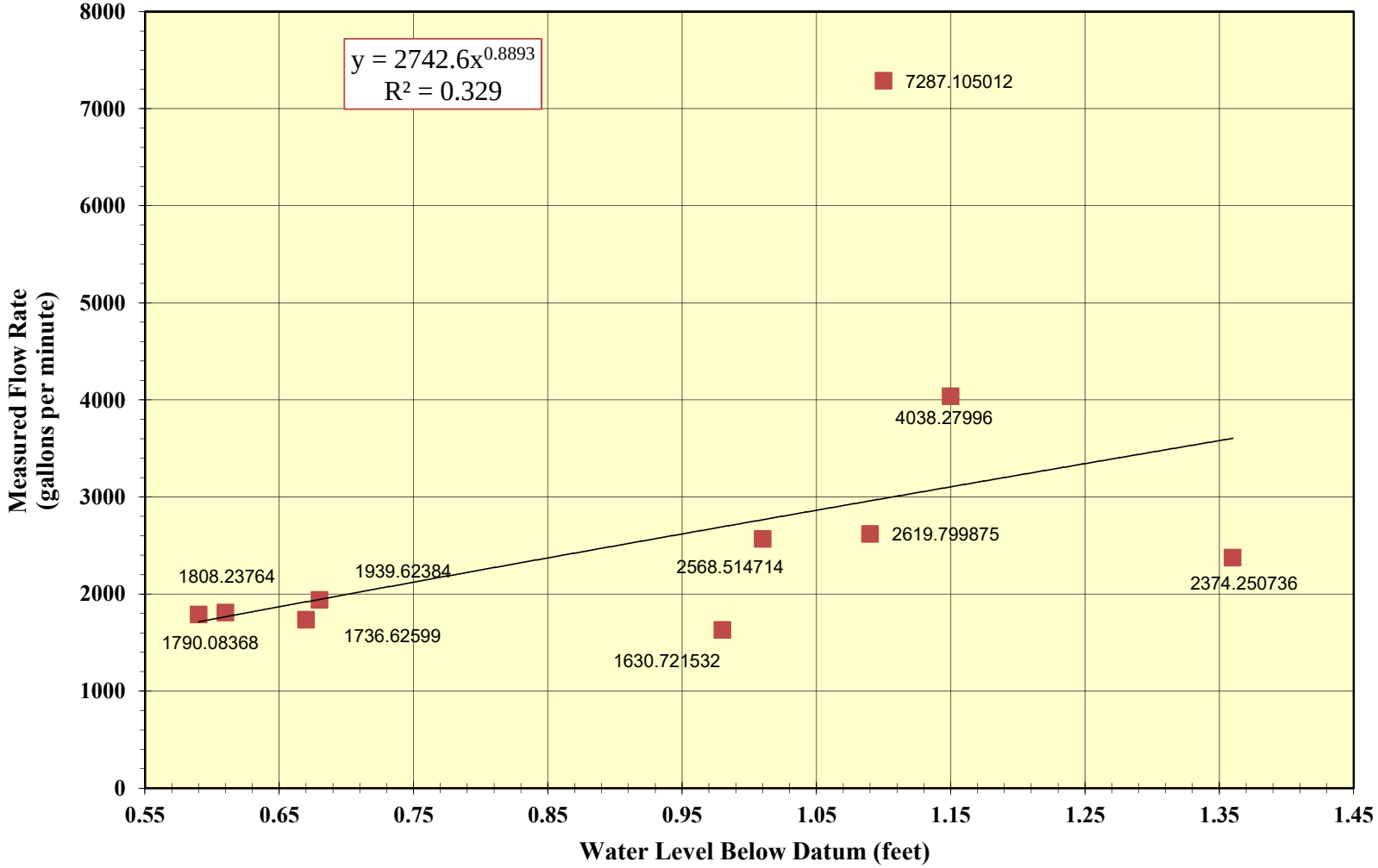




Plot of River Depth versus Adjusted Distance from Measuring Point
Wolverine Tannery
Rockford, Michigan

APPENDIX E4

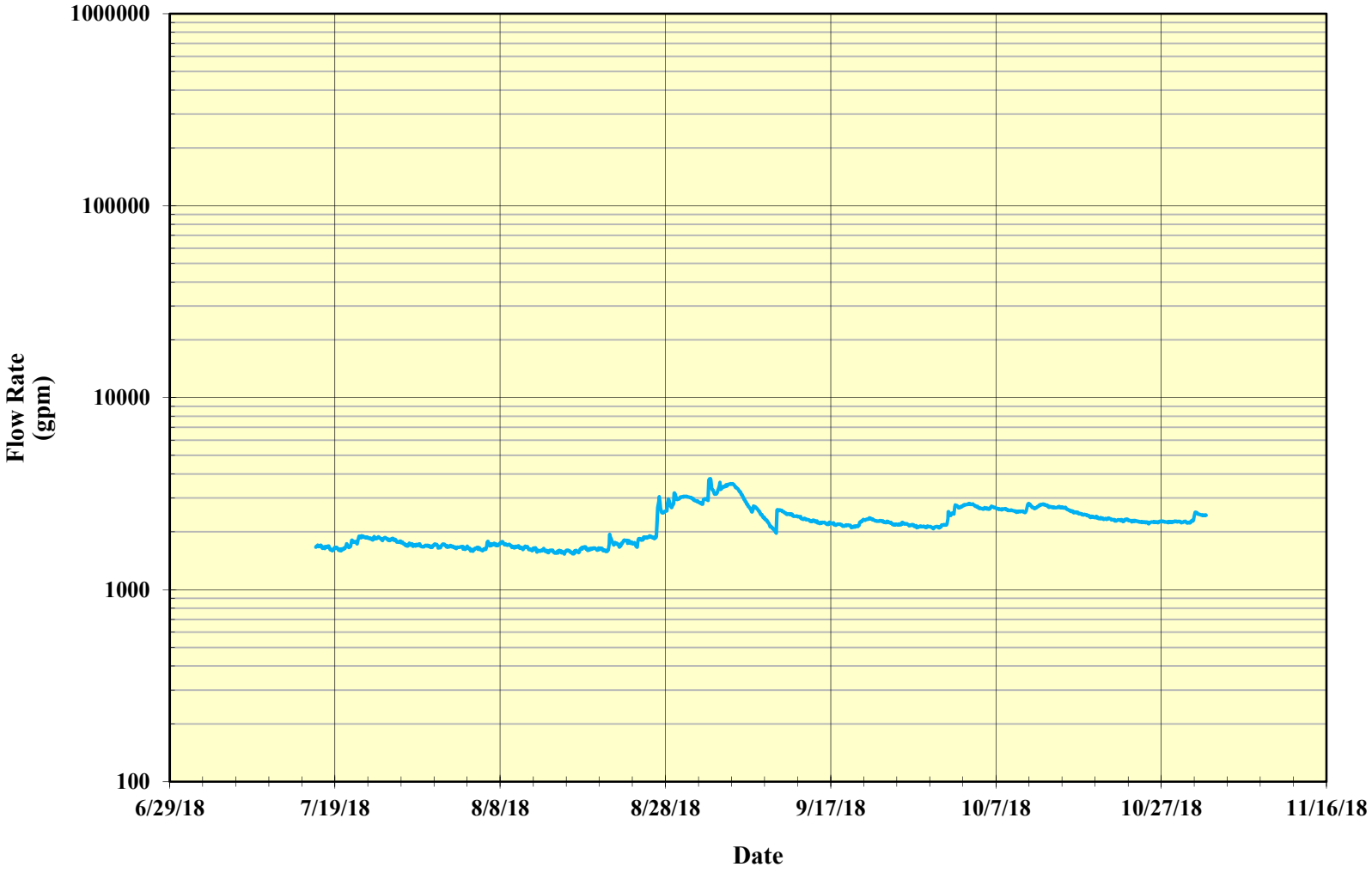
Rating Curve for Surface Water Station RC-2



Plot of Gaged Flow versus Water Level
Wolverine Tannery
Rockford, Michigan

APPENDIX E5

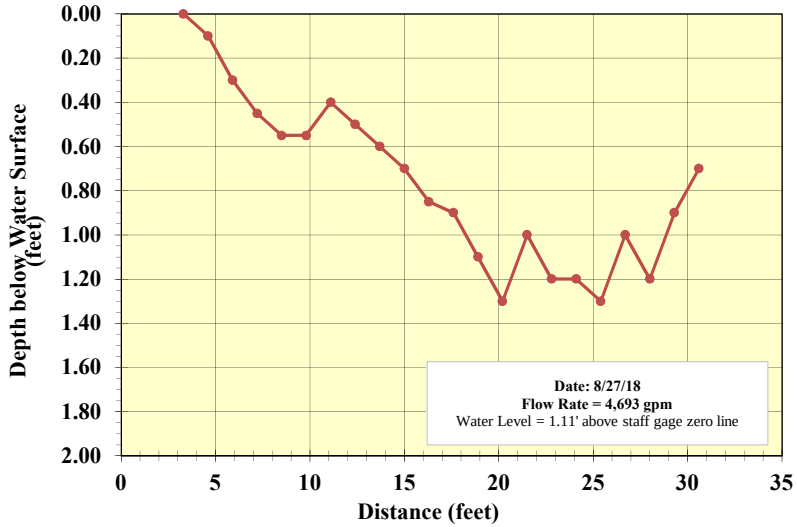
Tannery TA-RC2

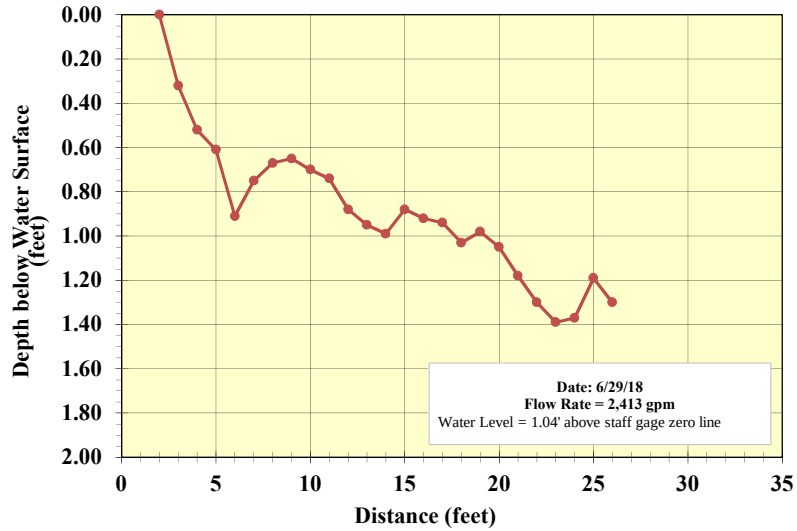


Semi-Log Plot of Streamflow versus Time
Wolverine Tannery
Rockford, Michigan

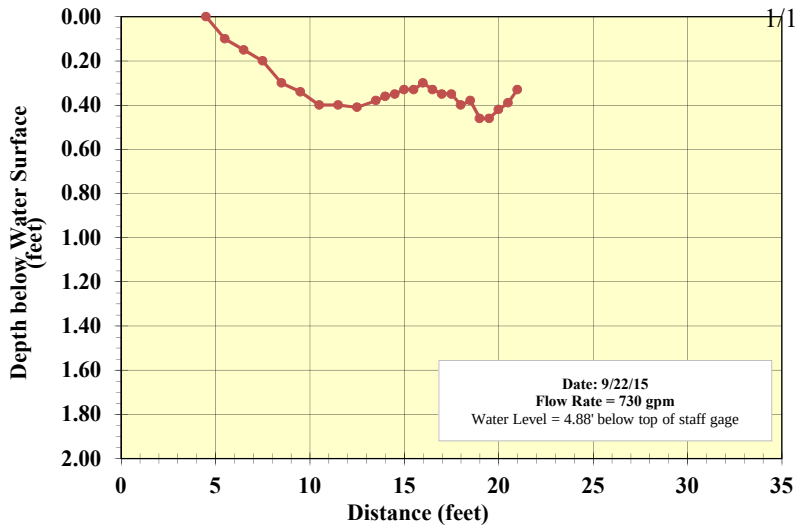
APPENDIX E6

Wetted Perimeter Morphology at Surface Water Station RC-2





1/11/2019



Plot of River Depth versus Adjusted Distance from Measuring Point

Wolverine Tannery

Rockford, Michigan

Appendix F – Analytical Data Reports

Appendix F.1

Data Validation

Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA) performed a data validation for the soil, soil gas, groundwater, surface water, and sediment samples collected under the Extent of Contamination Study Removal Work Plan (RWP) approved by the United States Environmental Protection Agency (EPA) on June 18, 2018 for the former Wolverine Tannery in Rockford, Michigan (the "Site"). Tables F.1-F.4 summarize the sample delivery groups containing analytical data collected under the RWP. The analyte list varied by media, but at least some samples were analyzed for semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), ammonia, chloride, available cyanide, total cyanide, hardness, hexavalent chromium, nitrate-nitrite, phosphorus, sulfate, sulfide, acetic acid, formic acid, metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, mercury, molybdenum, nickel, selenium, silver, sodium, titanium, thallium, vanadium and zinc.), Acid Volatile Sulfide /Simultaneously Extracted Metals (AVS/SEM) including cadmium, chromium, copper, lead, mercury, nickel, zinc), and Perfluorinated and Polyfluorinated Alkyl Substances (PFAS). The samples were analyzed by Alpha Analytical in Mansfield, MA, TestAmerica Laboratories, Inc., in Pittsburgh, PA, ALS Environmental in Holland, MI, and Shealy Environmental Services, Inc.(Shealy) in West Columbia, SC, per analytical methods specified in Revision 2 of the project Quality Assurance Project Plan (QAPP) and the updated version of Table B.3.2, which was submitted to EPA on October 31, 2018.

R&W/GZA performed a data validation in accordance with the performance requirements and the quality assurance/quality control (QA/QC) limits established in Table D.1.1 of Revision 2 of the QAPP submitted by R&W/GZA on August 29, 2018. In addition, R&W/GZA consulted the general guidance in the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Organic and Inorganic Superfund Data Review and relevant analytical methods in determining the usability of the data. PFAS data were validated by Environmental Standards, Inc., and discussed in separate memoranda. Data validation for toxicity characteristic leaching procedure (TCLP) metals analyses is pending and will be delivered with the second round of groundwater and surface water validation.

The detailed results are included in the Attachments I, II, III, and IV and the data validation results are summarized in this appendix.

DATA VALIDATION ELEMENTS

This data validation includes evaluations of the QA/QC results to assess precision, accuracy, completeness, field quality control, and data usability. The QA/QC results evaluated were:

- Surrogate recoveries
- Holding time
- Preservation
- Solids percentage (for soil and sediment samples only)
- Laboratory reporting limits (RLs)
- Internal standard area counts and retention times
- Initial calibration (ICAL) relative response factors (RRF), relative standard deviations (RSDs), and correlation coefficients (r) or coefficients of determination (r^2)
- Initial calibration verification (ICV) and continuing calibration verification (CCV) RRFs and percent differences (%D)
- Temperature blanks
- Trip blanks
- Field blanks
- Equipment blanks
- Field duplicate samples
- Laboratory method blanks
- Instrument blanks
- Laboratory duplicate analysis
- Interference check samples
- Inductively coupled plasma (ICP) serial dilution
- ICP linear ranges
- Contract required quantitation limit (CRQL) checks
- Laboratory Control Spike (LCS)/Laboratory Control Spike Duplicate (LCSD) samples
- Storage and transport of samples
- Nature of sample matrix
- Laboratory conditions and analysis
- Matrix Spike (MS)/Matrix Spike Duplicate (MSD) samples, which were collected/ prepared and analyzed to assess the potential effects of field sampling conditions

The QA/QC limits for the project are included in the QAPP and the guidance for validation actions (accepting, rejecting, or qualifying data) is included in the EPA NFG. While performing the data validation, R&W/GZA made revisions to certain QA/QC limits in the QAPP. A summary of these revisions is attached (revisions to QAPP Tables B.3.2 and D.1.1.). R&W/GZA qualified data with the QA/QC results that did not meet the limits established by the QAPP. R&W/GZA rejected data (summarized later in this memorandum) with deficiencies believed to affect the usability of the data. Analytical deficiencies and actions taken are summarized in the data validation tables included as attachments to this Appendix.

The attached data validation tables note multiple target analytes for which the relative intensities of the ions between the reference and sample spectra exceeded 20% in multiple project samples for the VOC and SVOC analyses. As a conservative approach, no action was taken.

DEVIATIONS FROM NATIONAL FUNCTIONAL GUIDELINE

In general, R&W/GZA consulted the EPA NFG for actions to add qualifiers to the data. In multiple cases, R&W/GZA incorporated deviations from the EPA NFG to be consistent with the data validation for the PFAS data. Deviations from the EPA NFG are summarized below:

1. For analytes with internal standard deficiencies, R&W/GZA qualified detects with “J” (as opposed to indicating high/low bias direction – J+ or J-).

2. For ICV and CCV %D outside, the project limits for VOC/SVOC analyses, R&W/GZA qualified detects with J+/J- (to replace J)
3. For ICV and CCV %D above, the project limits for VOC/SVOC analyses, R&W/GZA took no action for non-detected results (as opposed to UJ).

QUALIFIERS

Qualifiers assigned are adapted from the EPA NFG and are summarized below.

UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate.
UR	The analyte was analyzed for but was not detected. The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The analyte was analyzed for and detected below the laboratory reporting limit. As a result of associated blank contamination, the analyte was considered a non-detect result at the laboratory reporting limit.
J-	The result is an estimated quantity. The associated numerical value is possibly biased low.
J+	The result is an estimated quantity. The associated numerical value is possibly biased high.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

Note: Qualifiers not used as a result of the data validation are not listed in the above table.

When multiple analytical deficiencies were noted for a result, the qualifier was added based on the review of all the analytical deficiencies. As an example, the final qualification for a positive result that has been identified to have a combination of low bias ("J-"), high bias ("J+"), and/or bias of unknown direction ("J") was qualified with "J" (bias of unknown direction).

MATRIX SPIKE RECOVERY CALCULATION

In multiple cases (primarily for metals and inorganic analytes), the MS/MSD recoveries calculated and reported by Shealy differed from R&W/GZA's. Based on the oral communication with the laboratory, the calculation approach by the laboratory seemed to be consistent with R&W/GZA's approach. Shealy issued revisions to multiple laboratory reports to correct MS/MSD calculation discrepancies; however, there are still discrepancies between the laboratory reports and R&W/GZA's calculation for multiple cases. R&W/GZA assigned qualifiers to the relevant results based on GZA's calculations, which were consistent with the NFG. R&W/GZA calculated MS/MSD recoveries using the following equation:

$$\%\ Recovery = \frac{spiked\ sample\ result - original\ sample\ result}{spike\ added}\ x\ 100\%$$

MULTIPLE RUNS OF SAMPLE RESULTS

For certain samples, multiple runs were performed due to analytical deficiencies (e.g., surrogate recoveries and internal standard recoveries outside the project limits). For multiple cases, the laboratory selectively reported the sample results from certain runs while it did not report either the results or QC information for the other runs. R&W/GZA noted that the results from some of the other runs were included in the electronic database deliverables. When no QC information was provided by the laboratory for these additional runs, data validation was not completed for these other runs.

RESULTS REJECTED BY DATA VALIDATION

The following rejection criteria were used in this data validation. Only non-detected results were rejected based on the below criteria.

QA/QC	Rejection Criterion[1]	Analyses to Which Applied
Temperature	>20°C	VOCs and SVOCs
Holding Time	twice holding time limit	All
ICV and CCV	%D>90%	All
Surrogate recovery	<10%	VOCs and SVOCs
Internal Standard	<20% of opening CCV	All
LCS/LCSD and MS/MSD	recovery <20%	All
Percent Solids	<10%	All

Additionally, the results noted by the laboratory as falling outside of the calibration range were considered unusable; these results were not reported by the laboratory and not discussed below.

The following non-detect results were rejected:

Analyte(s)	Sample	Rationale
3,3'-dichlorobenzidine (SVOC)	TA-SB-71 (1-2) and TA-SB-MW-02 (1-2)	MS/MSD recovery below 20%
Nitrate-nitrite	TA-SB-15 (2-3), TA-SB-49 (3-4), and TA-SB-49 (7-8);	MS/MSD recovery below 20%
4,6-dinitro-2-methylphenol and hexachlorocyclopentadiene (SVOCs)	TA-SB-29 (2-3)	MS/MSD recovery below 20%
Benzidine and hexachlorocyclopentadiene (SVOCs)	TA-MW-05	MS/MSD recovery below 20%
Hexavalent chromium	TA-SB-19 (3-4), TA-SED-RC-1 (0-1), TA-SED-T9-1 (0-1), TA-SB-MW-07 (4-5)[2], and TA-SB-83 (1-2)	MS/MSD recovery below 20%

[1] If QA/QC performance exceeded rejection criterion, only non-detect results were rejected.
[2] CCV %D was greater than 90%

Analyte(s)	Sample	Rationale
Hexachlorocyclopentadiene (SVOC)	TA-SB-19 (3-4), TA-SW-06, TA-SED-T4-1 (0-1), and the second analysis of TA-MW-310A conducted on 8/26/2018	MS/MSD recovery below 20%
4,6-dinitro-2-methylphenol and hexachlorocyclopentadiene (SVOCs)	TA-SB-09 (2-3)	MS/MSD recovery below 20%
Benzidine and 3,3'-dichlorobenzidine (SVOCs)	TA-GW-09 and TA-MW-307B	MS/MSD recovery below 20%
Benzidine, 3,3'-dichlorobenzidine, and hexachlorocyclopentadiene (SVOCs)	TA-MW-309A	MS/MSD recovery below 20%
3,3'-dichlorobenzidine, 2,4-dinitrotoluene, hexachlorocyclopentadiene, hexachloroethane, 2-nitrophenol, and phenol (SVOCs)	TA-SED-T7-2 (0-1)	MS/MSD recovery below 20%
3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, and hexachlorocyclopentadiene (SVOCs)	TA-SED-T10-1 (0-1)	MS/MSD recovery below 20%
3,3'-dichlorobenzidine and hexachlorocyclopentadiene (SVOCs)	TA-SB-76 (1-2)	MS/MSD recovery below 20%
Available cyanide	TA-GW-06	MS/MSD recovery below 20%
Hexachlorocyclopentadiene (SVOC)	TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-P-4, the first analysis of TA-P-5 on 8/29/2018, TA-EQB-02 (SPOON SHOE), the second analysis of TA-P-5 on 8/31/2018, and TA-EQB-01(SPOON)	LCS recovery below 20%
Benzidine, 3,3'-dichlorobenzidine, and hexachlorocyclopentadiene (SVOCs)	second SVOC analysis (conducted on 8/26/2018-8/27/2018) of samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-TMW-104, TA-TMW-111, and TA-MW-3	LCS recovery below 20%
Hexavalent chromium	TA-SB-18 (6-7), TA-SED-T10-1 (1.5-2.5), TA-SED-T10-1DUP (1.5-2.5), TA-SED-T10-3 (1-2), TA-SED-T10-1 (0-1)[3], TA-SED-T10-3 (0-1), TA-SED-T9-3 (0-1), and TA-SED-T10-1 (3-4)	CCV %D greater than 90%
Phenol (SVOC)	TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-63 (7-8), and TA-SB-70 (0-1)	Surrogate recoveries less than 10%
Sulfide	all samples in SDG 1807094 collected on 7/2/2018	Holding time greater than twice the project limit
Methyl acetate (VOC)	first VOC analysis (8/13/2018) of sample TA-SB-AOC-B-02 (2-3)	The laboratory noted the result as outside of the calibration range

[3] MS/MSD recovery was below 20%.

DATA QUALITY SUMMARY

The field and laboratory quality control results indicate that the sampling and analyses performed were generally consistent with the analytical methods and the QAPP requirements. Analytical deficiencies relative to the QAPP requirements have been identified and noted during validation. The deficiencies were noted in detail in the attachment. Where appropriate, data were qualified based on R&W/GZA review.

The project data are acceptable and suitable for site characterization purposes and consequently can be used for decision-making purposes, except the rejected results as discussed above. The usable (valid) data for the project met the 90% project goal for data completeness. The limitations identified by the applied qualifiers should be considered when using the data.

REFERENCES

EPA, 2017, National Functional Guidelines for Inorganic Superfund Methods Data Review, January

EPA, 2017, National Functional Guidelines for Organic Superfund Methods Data Review, January

R&W/GZA, 2018, Extent of Contamination Study Removal Work Plan, Former Wolverine Tannery, Rockford, Michigan, June 18, 2018.

R&W/GZA, 2018, Quality Assurance Project Plan, Revision 2, Former Wolverine Tannery and House Street Disposal Area, Rockford, Michigan. Submitted August 29, 2018.

TABLE F.1
SUMMARY OF ANALYTICAL DATA FROM ALPHA ANALYTICAL
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
L1831028	TA-SG-03, TA-SG-02, TA-SG-01, TA-SG-06, TA-SG-10, TA-SG-05	6	8/7/2018	Soil Gas	Alpha	VOCs
L1831031	TA-SG-07, TA-SG-07-DUP, TA-SG-07-BLANK, TA-SG-08, TA-SG-09, TA-SG-04	6	8/7/2018	Soil Gas	Alpha	VOCs

Notes:
1. Sample Delivery Groups (SDGs) that have one or more samples that are included in the data set for Site characterization are listed in the table.
2. All samples in the SDG used for Site characterization are listed
3. Samples in the SDG had one or more listed analyses performed.

Abbreviations
AVS = Acid Volatile Sulfide; SEM = Simultaneously Extracted Metal

TABLE F.2
SUMMARY OF ANALYTICAL DATA FROM ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
18061486	TA-SED-T3-3(0-1), TA-SED-T3-3(2-3), TA-SED-T3-3(5-6), TA-SED-T3-2(0-1.2), TA-SED-T3-2(1.7-2.7), TA-SED-T3-2(4-5), TA-SED-T3-2(6.2-7.2)	7	6/21/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
18061582	TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5)	9	6/22/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
18061661	TA-SED-T2-2 (0-1), TA-SED-T2-2 DUP (0-1), TA-SED-T2-2 (2-3), TA-SED-T2-2 (4-5), TA-SED-T4-1 (0-1), TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1), TA-SED-T5-1 (1-2)	9	6/25/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
18061812	TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-3 (3.8-4.8)	13	6/26/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
18061866	TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T7-1 (4.2-5.2), TA-SED-T7-1 (6.4-7.4), TA-SED-T7-2 (0-1), TA-SED-T7-2 (1-2)	9	6/27/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
18061974	TA-SB-MW-01 (2-3), TA-SB-MW-01 (6-7), TA-SB-MW-07 (4-5), TA-SB-MW-07 (6-7)	4	6/28/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
1807095	TA-SED-8-2 (0-1), TA-SED-8-2 (1-2), TA-SED-8-2 (3-4.1), TA-SED-4-2 (0-1), TA-SED-4-2 (1-2), TA-SED-4-2 (2-3), TA-SED-9-1 (0-1), TA-SED-T9-1 (2-3), TA-SED-T9-1 (4-5), TA-SED-T10-1 (0-1)	10	6/28/2018, 6/29/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
18061975	TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1), TA-SED-T9-2 (2-3), TA-SED-T9-2 (4-5), TA-SED-T9-2 (5-6)	11	6/28/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide

TABLE F.2
SUMMARY OF ANALYTICAL DATA FROM ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
1807101	TA-SED-T10-1 (1.5-2.5), TA-SED-T10-1DUP (1.5-2.5), TA-SED-T10-1 (3-4), TA-SED-T9-3 (0-1), TA-SED-T10-3 (0-1), TA-SED-T10-3 (1-2)	6	6/29/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
1807111	TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5)	9	6/29/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
1807094	TA-SB-MW-05 (1-2), TA-SB-MW-05 (4-5)	2	7/2/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
1807108	TA-SED-T4-3 (0-1), TA-SED-T4-3 (1-1.7), TA-SED-RC-1 (0-1), TA-SED-RC-1 (1.2-2.2), TA-SED-RC-2 (0-1), TA-SED-RC-2 (1-2), TA-SED-RC-2 (2-3), TA-SED-BOAT RAMP (0-1), TA-SED-BOAT RAMP (1-1.9), TA-SED-RC ACCESS (0-1), TA-SED-RC ACCESS (1.5-2.5), TA-SED-RC-3 (0-0.4)	12	7/2/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
1807548	TA-SB-AOC-H-03 (2-2.5), TA-SB-AOC-H-03 (5-6), TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3), TA-SB-69 (4-5), TA-SED-T7-ISLAND (0-0.5)	11	7/9/2018, 7/10/2018	Soil and Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
1807816	TA-SED-T4-ISLAND (0-0.5), TA-SED-T4-ISLAND (4-5), TA-SED-T4-ISLAND (6-7), TA-SED-T7-ISLAND (1-2), TA-SED-T7-ISLAND (3-4), TA-SED-T7-ISLAND (6-7), TA-SED-T9-ISLAND (0-0.5), TA-SED-T9-ISLAND (1-2), TA-SED-T9-ISLAND (4-5), TA-SED-T9-ISLAND (6.5-7.5)	10	7/11/2018, 7/12/2018, 7/13/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
1807973	TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2)	8	7/16/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide

TABLE F.2
SUMMARY OF ANALYTICAL DATA FROM ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
18071065	TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (1-2), TA-SB-83 (4-5)	13	7/17/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
18071147	TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-75 (5-6), TA-SB-75 (5-6) DUP, TA-SB-54 (3-4), TA-SB-55 (1-2), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9), TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5)	14	7/18/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
18071275	TA-SB-53 (0-1), TA-SB-64 (0-1), TA-SB-53 (7-8), TA-SB-64 (4-5), TA-SB-53 (5-6), TA-SB-43 (1-2), TA-SB-43 (7-8), TA-SB-82 (0-1), TA-SB-82 (6-7)	9	7/19/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
18071364	TA-SB-71 (1-2), TA-SB-71 (3-4), TA-SB-72 (1-2), TA-SB-72 (1-2) DUP, TA-SB-72 (3-4), TA-SB-73 (1-2), TA-SB-73 (6-7), TA-SB-74 (1-2), TA-SB-74 (5-6)	9	7/20/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
18071457	TA-SB-67 (0-1), TA-SB-67 (5-6), TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6), TA-SED-EAST DAM (0-0.5), TA-SB-AOC-G-02 (1-2), TA-SB-AOC-G-02 (6-7), TA-SED-TTO-ISLAND (0-1), TA-SED-TTO-ISLAND (2-3), TA-SED-TTO-ISLAND (4-5)	10	7/23/2018	Soil and Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide
18071435	MW-15	1	7/23/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
18071494	TA-SW-03, TA-SW-04, TA-SW-02	3	7/24/2018	Surface Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
18071569	TA-SED-T1-1 (0-1), TA-SED-T1-1 (0-1) DUP, TA-SED-T1-3 (0-1), TA-SED-T1-3 (0-1) DUP	4	7/24/2018	Sediment	ALS	acetic acid, formic acid, sulfide, available cyanide

TABLE F.2
SUMMARY OF ANALYTICAL DATA FROM ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
18071606	TA-SW-06, TA-SW-01, TA-SW-01 (DUP), TA-SW-07	4	7/25/2018	Surface Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
18071742	TA-SW-05	1	7/26/2018	Surface Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
18071745	TA-SB-35 (2-3), TA-SB-35 (6-7), TA-SB-36 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (3-4), TA-SB-19 (7-8), TA-SB-18 (2-3), TA-SB-18 (6-7), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5) DUP, TA-SB-38 (6-7), TA-SB-39 (6-7), TA-SB-39 (1-2), TA-SB-17 (1-2), TA-SB-17 (7-8), TA-SB-20 (7-8)	18	7/26/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
18071909	TA-SB-37 (1-2), TA-SB-37 (6-7), TA-SB-20 (5-6), TA-SB-34 (6-7), TA-SB-34 (3-4), TA-SB-66 (0-1), TA-SB-66 (2-3), TA-SB-33 (1-2), TA-SB-33 (7-8), TA-SB-59 (2-3), TA-SB-59 (11-12), TA-SB-24 (0-1), TA-SB-24 (5-6), TA-SB-25 (1-2), TA-SB-25 (7-8), TA-SB-31 (2-3), TA-SB-31 (7-8), TA-SB-28 (2-3), TA-SB-28 (6-7), TA-SB-32 (2-3), TA-SB-32 (9-10), TA-SB-46 (8-9), TA-SB-46 (9-10), TA-SB-40 (2-3), TA-SB-40 (6-7), TA-SB-48 (10-11), TA-SB-48 (1-2), TA-SB-32 (2-3) DUP	28	7/27/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
18071952	TA-SB-51 (2-3), TA-SB-51 (6-7), TA-SB-41 (2-3), TA-SB-41 (5-6), TA-SB-57 (2-3), TA-SB-57 (6-7), TA-SB-42 (1-2), TA-SB-42 (6-7), TA-SB-49 (3-4), TA-SB-49 (7-8), TA-SB-44 (1-2), TA-SB-44 (7-8), TA-SB-52 (1-2), TA-SB-52 (6-7), TA-SB-47 (3-4), TA-SB-47 (5-6), TA-SB-29 (2-3), TA-SB-29 (9-10), TA-SB-30 (13-14), TA-SB-27 (1-2), TA-SB-27 (1-2) DUP	21	7/30/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide

TABLE F.2
SUMMARY OF ANALYTICAL DATA FROM ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
1808026	TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-26 (8-9), TA-SB-14 (5-6), TA-SB-14 (7-8), TA-SB-12 (1-2), TA-SB-12 (4-5), TA-SB-45 (6-7), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-11 (6-7), TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), TA-SB-21 (9-10)	25	7/30/2018, 7/31/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
1808208	TA-SB-56 (6-7), TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5), TA-SB-AOC-J-01 (2-3), TA-SB-AOC-J-01 (5-6), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12)	24	8/1/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
1808242	TA-SB-MA-03 (13-14), TA-SB-MA-03 (7-8), TA-SB-AOC-C-02 (2-3), TA-SB-AOC-C-02 (9-10), TA-SB-01 (2-3), TA-SB-01 (7-8), TA-SB-09 (2-3), TA-SB-09 (6-7), TA-SB-02 (2-3), TA-SB-02 (7-8), TA-SB-08 (3-4), TA-SB-08 (7-8), TA-SB-08 (7-8) DUP, TA-SB-03 (6-7), TA-SB-03 (12-13), TA-SB-04 (7-8), TA-SB-04 (12-13), TA-SB-06 (7-8), TA-SB-06 (2-3)	19	8/2/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
1808454	TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8)	7	8/3/2018, 8/7/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
1808446	TA-MW-303E, TA -MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D	5	8/7/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium

TABLE F.2
SUMMARY OF ANALYTICAL DATA FROM ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
1808448	TA-MW-308C, TA-MW-310C	2	8/7/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
1808539	TA-MW-310B, TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3	9	8/8/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
1808640	TA-SB-23(6-7), TA-SB-23(9-10), TA-SB-MW-04(8-9), TA-SB-MW-04(10-11)	4	8/8/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide
1808636	TA-MW-302B, TA-MW-302B DUP, TA-TMW-108, TA-MW-309A, TA-MW-306B, TA-MW-307B	6	8/9/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
1808638	TA-MW-307A, TA-MW-306A, TA-MW-309A	3	8/9/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
1808639	TA-MW-110, TA-MW-5	2	8/9/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
1808742	TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-05, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A	10	8/10/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
1808813	TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-MW-309C, TA-TMW-102, TA-MW-301C, TA-GW-02, TA-GW-07	10	8/13/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium

TABLE F.2
SUMMARY OF ANALYTICAL DATA FROM ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
1808899	TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3	9	8/14/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
1808986	TA-MW-304A, TA-P-4, TA-P-5, TA-EQB-01 (Spoon), TA-EQB-02 (Spoon Shoe), TA-EQB-03 (Cutter), TA-EQB-04 (WL Meter)	7	8/15/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
18081718	TA-GW-09	1	8/28/2018	Ground Water	ALS	acetic acid, formic acid, available cyanide, hexavalent chromium
18072004	TA-SB-T6-049(3-4), TA-SB-T6-049(6-7)	2	7/31/2018	Soil	ALS	acetic acid, formic acid, sulfide, available cyanide

Notes:
1. Sample Delivery Groups (SDGs) that have one or more samples that are included in the data set for Site characterization are listed in the table.
2. All samples in the SDG used for Site characterization are listed
3. Samples in the SDG had one or more listed analyses performed.

TABLE F.3
SUMMARY OF ANALYTICAL DATA FROM TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
180-79099-1	TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (4-5), TA-SED-T3-2 (6.2-7.2)	7	6/21/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-79190-1	TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), and TA-SED-T2-3 (4-5)	9	6/22/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-79246-1	TA-SED-T2-2 (0-1), TA-SED-T2-2DUP (0-1), TA-SED-T2-2 (2-3), TA-SED-T2-2 (4-5), TA-SED-T4-1 (0-1), TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1), and TA-SED-T5-1 (1-2)	9	6/25/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-79282-1	TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-3 (3.8-4.8)	13	6/26/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-79331-1	TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T7-1 (4.5-5.2), TA-SED-T7-1 (6.4-7.4), TA-SED-T7-2 (0-1), TA-SED-T7-2 (1-2)	9	6/27/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-79400-1	TA-SED-T8-3(0-1), TA-SED-T8-3(1.5-2.5), TA-SED-T8-3DUP(1.5-2.5), TA-SED-T8-3(3-4), TA-SED-T8-1(0-1), TA-SED-T8-1(1.5-2.5), TA-SED-T8-1(4-5), TA-SED-T9-2(0-1), TA-SED-T9-2(2-3), TA-SED-T9-2(4-5), and TA-SED-T9-2(5-6)	11	6/28/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-79476-1	TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-RC-1(0-1), TA-SED-RC-1(1.2-2.2), TA-SED-RC-2(0-1), TA-SED-RC-2(1-2), TA-SED-RC-2(2-3), TA-SED-BOAT RAMP(0-1), TA-SED-BOAT RAMP(1-1.9), TA-SED-RC ACCESS(0-1), TA-SED-RC ACCESS(1.5-2.5), TA-SED-RC-3(0-0.4)	12	7/2/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)

TABLE F.3
SUMMARY OF ANALYTICAL DATA FROM TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
180-79525-1	TA-SED-8-2(0-1), TA-SED-8-2(1-2), TA-SED-8-2(3-4.1), TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), TA-SED-9-1(0-1), TA-SED-T9-1(2-3), TA-SED-T9-1(4-5), TA-SED-T10-1(0-1), TA-SED-T10-1(1.5-2.5), TA-SED-T10-1DUP(1.5-2.5), TA-SED-T10-1(3-4), TA-SED-T9-3(0-1), TA-SED-T10-3(0-1), and TA-SED-T10-3(1-2)	16	6/28-6/29/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-79630-1	TA-SED-T7-ISLAND(0-0.5)	1	7/9/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-79795-1	TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T4-ISLAND(6-7), TA-SED-T7-ISLAND(1-2), TA-SED-T4-ISLAND(3-4), TA-SED-T4-ISLAND(6-7), TA-SED-T9-ISLAND(0-0.5), TA-SED-T4-ISLAND(1-2), TA-SED-T9-ISLAND(4-5), TA-SED-T9-ISLAND(6.5-7.5)	10	7/11/2018-7/13/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-80094-1	TA-SED-EAST DAM(0-0.5), TA-SED-T10-ISLAND(0-1), TA-SED-T10-ISLAND(2-3), TA-SED-T10-ISLAND(4-5),	4	7/23/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)
180-80120-1	TA-SED-T1-1(0-1), TA-SED-T1-1(0-1)DUP, TA-SED-T1-3(0-1), TA-SED-T1-3(0-1)DUP	4	7/24/2018	Sediment	TestAmerica Pittsburgh	AVS and SEM metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)

Notes:
1. Sample Delivery Groups (SDGs) that have one or more samples that are included in the data set for Site characterization are listed in the table.
2. All samples in the SDG used for Site characterization are listed
3. Samples in the SDG had one or more listed analyses performed.

Abbreviations
AVS = Acid Volatile Sulfide; SEM = Simultaneously Extracted Metal

TABLE F.4
SUMMARY OF ANALYTICAL DATA FROM SHEALY
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
TF22021	TA-SED-T3-3(0-1), TA-SED-T3-3(2-3), TA-SED-T3-3(5-6), TA-SED-T3-2(0-1.2), TA-SED-T3-2(1.7-2.7), TA-SED-T3-2(4-5), TA-SED-T3-2(6.2-7.2), TA-SED-T3-1A(0-1), TA-SED-T3-1A(2-3), TA-SED-T3-1A(5-6), TA-SED-T2-1(0-1), TA-SED-T2-1(2-3), TA-SED-T2-1(4-5), TA-SED-T2-3(0-1), TA-SED-T2-3(2-3), TA-SED-T2-3(4-5), TA-TB-01 (6/22/18), TA-SED-T4-1 (0-1), TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1)	21	6/21/2018-6/25/2018	TA-TB-01 (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP mercury
TF26016	TA-SED-T2-2(0-1), TA-SED-T2-2DUP(0-1), TA-SED-T2-2(2-3), TA-SED-T2-2(4-5), TA-SED-T5-1(1-2), TA-TB-01(6/25/2018), TA-SED-T5-3(0-1), TA-SED-T5-3(2-3), TA-SED-T5-3(4-5), TA-SED-T5-3(6-7), TA-SED-T5-2(0-1), TA-SED-T5-2(1.7-2.7), TA-SED-T5-3(3.7-4.7), TA-SED-T6-1(0-1), TA-SED-T6-1(2.5-3.5), TA-SED-T6-2(4.1-5.1), TA-SED-T6-3(0-1), TA-SED-T5-3(2-3), TA-SED-T5-3(3.8-4.8), TA-TB-01(6/26/2018), TA-SED-T7-2(0-1), TA-SED-T7-2(1-2)	22	6/25/2018-6/27/2018	TA-TB-01 (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP mercury
TF28027	TA-SED-T6-2(0-1), TA-SED-T6-2(2-3), TA-SED-T6-2(3.6-4.6), TA-SED-T7-1(0-1), TA-SED-T7-1(2-3), TA-SED-T7-1(4.2-5.2), TA-SED-T6-2(6.4-7.4), TA-TB-01 (6/27/18), TA-SED-T8-3(0-1), TA-SED-T8-3(1.5-2.5), TA-SED-T8-3DUP(1.5-2.5), TA-SED-T8-3(3-4), TA-SED-T8-1(0-1), TA-SED-T8-1(1.5-2.5), TA-SED-T8-1(4-5), TA-TB-02(6/28/2018), TA-SED-T9-2(0-1), TA-SED-T9-2(2-3), TA-SED-T9-2(4-5), TA-SED-T9-2(5-6), TA-TB-01(6/28/2018)	21	6/27/2018-6/28/2018	TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP mercury
TF29012	TA-SB-MW-01 (2-3), TA-SB-MW-01 (6-7), TA-SB-MW-07 (4-5), TA-SB-MW-07 (6-7), TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-TB-02 (07022018), TA-SB-MW-05 (1-2), TA-SB-MW-05 (4-5), TA-SB-MW-05 (1-2), TA-SB-MW-05 (4-5)	16	6/28/2018-7/2/2018	TA-TB-02 (07022018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium & lead
TF30001	TA-EQB-01-6/29, TA-EQB-02-6/29, TA-EQB-01-6/29, TA-EQB-02-6/29, TA-EQB-01 (07022018), TA-EQB-02 (07022018), TA-EQB-03 (07022018)	7	6/29/2018, 7/2/2018	Aqueous	Shealy	VOCs, SVOCs, metals, inorganics
TG03001	TA-SED-T4-3 (0-1), TA-SED-T4-3 (1-1.7), TA-SED-RC-1 (0-1), TA-SED-RC-1 (1.2-2.2), TA-SED-RC-2 (0-1), TA-SED-RC-2 (1-2), TA-SED-RC-2 (2-3), TA-SED-BOAT RAMP (0-1), TA-SED-BOAT RAMP (1-1.9), TA-SED-RC ACCESS (0-1), TA-SED-RC ACCESS (1.5-2.5), TA-SED-RC-3 (0-0.4), TA-SED-8-2 (0-1), TA-SED-8-2 (1-2), TA-SED-8-2 (3-4.1), TA-SED-4-2 (0-1), TA-SED-4-2 (1-2), TA-SED-4-2 (2-3), TA-SED-T9-1 (2-3), TA-TB-01 (6/29/2018), TA-SED-T9-1 (0-1), TA-SED-T9-1 (4-5), TA-SED-T4-3 (0-1), TA-SED-T4-3 (1-1.7), TA-SED-RC-1 (0-1), TA-SED-RC-1 (1.2-2.2), TA-SED-RC-2 (0-1), TA-SED-RC-2 (1-2), TA-SED-RC-2 (2-3), TA-SED-BOAT RAMP (0-1), TA-SED-BOAT RAMP (1-1.9), TA-SED-RC ACCESS (0-1), TA-SED-RC ACCESS (1.5-2.5), TA-SED-RC-3 (0-0.4)	34	6/29/2018, 7/2/2018	TA-TB-01 (6/29/2018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium and lead
TG03032	TA-SED-T10-1 (0-1), TA-SED-T10-1 (1.5-2.5), TA-SED-T10-1DUP (1.5-2.5), TA-SED-T10-1 (3-4), TA-SED-T9-3 (0-1), TA-SED-T10-3 (0-1), TA-SED-T10-3 (1-2)	7	6/29/2018	Soil	Shealy	VOCs, SVOCs, metals, inorganics

TABLE F.4
SUMMARY OF ANALYTICAL DATA FROM SHEALY
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
TG11005	TA-SB-AOC-H-03 (2-2.5), TA-SB-AOC-H-03 (5-6), TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3), TA-SB-69 (4-5), TA-TB-01 (071018)	11	7/10/2018	TA-TB-01 (071018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium & lead
TG11006	TA-SED-T7-ISLAND (0-0.5)	1	7/9/2018	Soil	Shealy	VOCs, SVOCs, metals, inorganics
TG14035	TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T4-ISLAND(6-7), TA-SED-T7-ISLAND(1-2), TA-SED-T7-ISLAND(3-4), TA-SED-T7-ISLAND(6-7), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5), TA-SED-T9-ISLAND(6.5-7.5), TA-TB-01(071318)	11	7/11/2018-7/13/2018	TA-TB-01(071318) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium & mercury
TG17025	TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-TB-01 (071618),), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (1-2), TA-SB-83 (4-5), TA-TB-01 (071718)	23	7/16/2018-7/17/2018	TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium & lead
TG19003	TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-75 (5-6), TA-SB-75 (5-6) DUP, TA-SB-54 (3-4), TA-SB-55 (1-2), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9), TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5), TA-TB-01 (07182018), TA-TB-02 (07182018), TA-SB-53 (0-1), TA-SB-64 (0-1), TA-SB-53(7-8), TA-SB-64 (4-5), TA-SB-53 (5-6), TA-SB-43 (1-2), TA-SB-43 (7-8), TA-SB-82 (0-1), TA-SB-82 (6-7), TA-TB-01 (07192018)	26	7/18/2018-7/19/2018	TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium & lead
TG21001	TA-SB-71(1-2), TA-SB-71(3-4), TA-SB-72(1-2), TA-SB-72(1-2) DUP, TA-SB-72(3-4)), TA-SB-73(1-2), TA-SB-73(6-7), TA-SB-74(1-2), TA-SB-74(5-6), TA-TB-01(07202018)	10	7/20/2018	TA-TB-01(07202018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium & lead
TG24016	TA-SED-EASTDAM(0-0.5), TA-SED-T10-ISLAND(0-1), TA-SED-T10-ISLAND(2-3), TA-SED-T10-ISLAND(4-5), TA-SED-T1-1 (0-1), TA-SED-T1-1 (0-1) DUP, TA-SED-T1-3 (0-1), TA-SED-T1-3 (0-1) DUP, TA-TB-01 (072418)	9	7/23/2018-7/24/2018	TA-TB-01 (072418) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics
TG24017	TA-SB-67 (0-1), TA-SB-67 (5-6), TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6), TA-SB-AOC-G-02 (1-2), TA-SB-AOC-G-02 (6-7), TA-TB-01(07232018), TA-SW-03, TA-SW-04, TA-SW-02	10	7/23/2018-7/24/2018	TA-TB-01 (07232018), TA-SW-03, TA-SW-04, and TA-SW-02 (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium
TG26015	TA-SW-06, TA-SW-01, TA-SW-01 (DUP), TA-SW-07, TA-FB-072518, TA-SW-05, TA-TB-01-07262018	7	7/25/2018-7/26/2018	Aqueous	Shealy	VOCs, SVOCs, metals, inorganics
TG27014	TA-SB-35 (2-3), TA-SB-35 (6-7), TA-SB-36 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (3-4), TA-SB-19 (7-8), TA-SB-18 (2-3), TA-SB-18 (6-7), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5) DUP, TA-SB-38 (6-7), TA-SB-39 (6-7), TA-SB-39 (1-2), TA-SB-17 (1-2), TA-SB-17 (7-8), TA-SB-20 (7-8), TA-TB-02-07262018	19	7/26/2018	TA-TB-02-07262018 (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium, lead, mercury

TABLE F.4
SUMMARY OF ANALYTICAL DATA FROM SHEALY
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
TG28004	TA-SB-25(7-8), TA-SB-31(2-3), TA-SB-31(7-8), TA-SB-28(2-3), TA-SB-28(6-7), TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-TB-01(07272018), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1), TA-SB-66(2-3), TA-SB-33(1-2), TA-SB-33(7-8), TA-SB-59(2-3), TA-SB-59(11-12), TA-SB-24(0-1), TA-SB-24(5-6), TA-SB-25(1-2), TA-TB-02(07272018)	30	7/27/2018	TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium and lead
TG31022	TA-SB-51 (2-3), TA-SB-51 (6-7), TA-SB-41 (2-3), TA-SB-41 (5-6), TA-SB-57 (2-3), TA-SB-57 (6-7), TA-SB-42 (1-2), TA-SB-42 (6-7), TA-SB-49 (3-4), TA-SB-49 (7-8), TA-SB-44 (1-2), TA-SB-44 (7-8), TA-SB-52 (1-2), TA-SB-52 (6-7), TA-TB-01 (07302018), TA-SB-47 (3-4), TA-SB-47 (5-6), TA-SB-29 (2-3), TA-SB-29 (9-10), TA-SB-30 (13-14), TA-SB-27 (1-2), TA-TB-02 (07302018), TA-SB-27 (1-2) DUP	23	7/30/2018	TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium, lead, mercury
TH01025	TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-26 (8-9), TA-SB-14 (5-6), TA-SB-14 (7-8), TA-SB-12 (1-2), TA-SB-12 (4-5), TA-SB-45 (6-7), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-11 (6-7), TA-SB-13 (1-2), TA-SB-13 (6-7), TA-TB-01 (07312018), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), TA-SB-21 (9-10), TA-TB-02(07312018)	27	7/30/2018-7/31/2018	TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium and lead
TH02019	TA-SB-56 (6-7), TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5), TA-SB-AOC-J-01 (2-3), TA-SB-AOC-J-01 (5-6), TA-TB-01 (08012018), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12), TA-TB-02 (08012018)	26	8/1/2018	TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium, lead, mercury
TH03007	TA-SB-MA-03(13-14), TA-SB-MA-03(7-8), TA-SB-AOC-C-02(2-3), TA-SB-AOC-C-02(9-10), TA-SB-01(2-3), TA-SB-01(7-8), TA-SB-09(2-3), TA-SB-09(6-7), TA-SB-02(2-3), TA-SB-02(7-8), TA-SB-08(3-4), TA-SB-08(7-8), TA-SB-08(7-8)DUP, TA-TB-01(08022018), TA-SB-03(6-7), TA-SB-03(12-13), TA-SB-04(7-8), TA-SB-04(12-13), TA-SB-06(7-8), TA-SB-06(2-3), TA-TB-02(08022018)	21	8/2/2018	TA-TB-01(08022018) and TA-TB-02(08022018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium and lead
TH08014	TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-FB-01 (08072018), TA-MW-310B, TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-TMW-104, TA-TMW-111, TA-MW-3, TA-TB-01(08082018), TA-TB-02(08082018), TA-TB-03(08082018), TA-TB-04(08082018)	21	8/7/2018-8/8/2018	Aqueous	Shealy	VOCs, SVOCs, metals, inorganics
TH08019	TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8), TA-TB-01 (08072018), TA-TB-02 (08072018)	9	8/7/2018-8/8/2018	TA-TB-01 (08072018) and TA-TB-02 (08072018) (aqueous), all other soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium

TABLE F.4
SUMMARY OF ANALYTICAL DATA FROM SHEALY
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

SDG[1]	Sample ID[2]	Number of Samples	Sample Collection Date	Sample Matrix	Laboratory	Analysis[3]
TH09090	TA-SB-23(6-7), TA-SB-23(9-10), TA-SB-MW-04(8-9), TA-SB-MW-04(10-11)	4	8/8/2018	Soil	Shealy	VOCs, SVOCs, metals, inorganics, TCLP chromium
TH10023	TA-MW-302B, TA-MW-302B DUP, TA-TMW-108, TA-MW-309A, TA-MW-306B, TA-MW-307B, TA-MW-307A, TA-MW-306A, TA-MW-309C, TA-MW-110, TA-MW-5, TA-TB-01(08092018), TA-TB-02(08092018), TA-TB-03(08092018), TA-TB-04(08092018)	15	8/9/2018	Aqueous	Shealy	VOCs, SVOCs, metals, inorganics
TH11003	TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A, TRIP BLANK, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-MW-309C, TA-TMW-102, TA-MW-301C, TA-GW-02, TA-GW-07, TA-FB-01(08132018), TA-TB-01(08132018)	23	8/10/2018-8/13/2018	Aqueous	Shealy	VOCs, SVOCs, metals, inorganics
TH15011	TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-TB-01 (08142018), TA-TB-02 (08142018), TA-FB-01(08142018), TA-MW-304A, TA-MW-304A, TA-P-4, TA-P-5, TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER), TA-TB-01 (08152018), TA-FB-01 (08152018)	22	8/14/2018-8/15/2018	Aqueous	Shealy	VOCs, SVOCs, metals, inorganics
TH29014	TA-GW-09, TA-TB-01 (08282018), TA-FB-01 (08282018)	3	8/28/2018	Aqueous	Shealy	VOCs, SVOCs, metals, inorganics

Notes:
1. Sample Delivery Groups (SDGs) that have one or more samples that are included in the data set for Site characterization are listed in the table.
2. All samples in the SDG used for Site characterization are listed
3. Samples in the SDG had one or more listed analyses performed.

Abbreviations
AVS = Acid Volatile Sulfide; SEM = Simultaneously Extracted Metal

Attachment I – Data Validation for Alpha Analytical

DATA VALIDATION CHECKLIST FOR ALPHA ANALYTICAL
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery Soil Gas from Alpha - Michigan Project
SDG: L1831028
Laboratory: Alpha
Media: Soil Gas
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes		All samples were analyzed within the holding time requirement specified in the QAPP (i.e., 30 days).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	1,2,4-trichlorobenzene and hexachlorobutadiene (impacted samples TA-SG-01, TA-SG-06, TA-SG-10, and TA-SG-05)	The LCS recoveries for Batch WG1148575-3 were within the limits specified in the QAPP (70-130%) for all VOC target analytes but 1,2,4-trichlorobenzene (134%) and hexachlorobutadiene (137%). The 1,2,4-trichlorobenzene or hexachlorobutadiene was not detected in any of the associated samples (i.e., TA-SG-01, TA-SG-06, TA-SG-10, and TA-SG-05). No action was taken based on the LCS results. The LCS recoveries for Batch WG1148966-3 were within the limits specified in the QAPP (70-130%) for all VOC target analytes. No action was taken on the associated samples (i.e., TA-SG-03 and TA-SG-02).	No
Matrix Spike/Matrix Spike Duplicates	NA		No MS/MSD analysis was performed for this SDG.	No
Method Blank	Yes		No TCLs were detected in the method blank; no action was taken based on the method blank results.	No
Reported Quantitation Limits	No	TA-SG-06, TA-SG-10, and TA-SG-05	The laboratory reporting limits for TA-SG-06, TA-SG-10, and TA-SG-05 were elevated relative to the reporting limits listed for the laboratory in the QAPP. The elevated reporting limits were resulted from the dilution required by the elevated concentrations of target compounds in sample TA-SG-06 and by the elevated non-target compounds in TA-SG-10 and TA-SG-05.	No
Initial Calibration	Yes		Initial calibration was conducted on 8/3/2018. The RRFs are greater than 0.01 and the %RSDs for all target analytes were below 30%; no action was taken based on the initial calibration results.	No
Continuing Calibration/Calibration Verification	No	dichlorodifluoromethane, 1,2,4-trichlorobenzene, and hexachlorobutadiene in 8/20/2018 CCV; hexachlorobutadiene in 8/21/2018 CCV.	An ICV was performed on 8/4/2018 and the %Ds for all target analytes were below 25%. RRFs were all greater than 0.01. A continuing calibration was performed on 8/20/2018 and the %Ds for dichlorodifluoromethane (25.8%), 1,2,4-trichlorobenzene (-34%), and hexachlorobutadiene (-37%) exceeded the project limit of 25%. All RRFs were greater than 0.10. The above referenced analytes were not detected in any of the affected samples (i.e., TA-SG-01, TA-SG-06, TA-SG-10, and TA-SG-05); the 1,2,4-trichlorobenzene and hexachlorobutadiene nondetects were qualified UJ. A continuing calibration was performed on 8/21/2018 and the %D for hexachlorobutadiene (-25.5%) exceeded the project limit of 25%. All RRFs were greater than 0.10. Hexachlorobutadiene was not detected in any of the affected samples (TA-SG-02 and TA-SG-03) and the results were qualified UJ.	Yes
Instrument Performance	Yes		The Continuing Calibration BFB tune analysis results met the method requirement.	No
Laboratory Duplicate Analysis	Yes		Laboratory duplicate analysis was performed for TA-SG-06, and %RPDs all below 30%. Laboratory duplicate analysis was also performed for a non-project within the same analytical batch and the %RPDs were all below 30%.	No
Target Compound Identification	Yes		In general, the RRTs of identified target analytes were within 0.06 RRT of the RRT. The mass spectrum of the identified target analytes generally do not match those of the calibration standard in accordance with the USEPA National Functional Guidance. The laboratory case narrative indicated that the presence of isopropyl alcohol could not be determined in TA-SG-06 due to a non-target compound interference and that isopropyl alcohol result for TA-SG-10 should be considered estimated due to co-elution with a non-target peak. Note isopropyl alcohol was not the TAL reported by the laboratory.	No
Internal Standard	Yes		Internal standard %recoveries were within the limit specified in the TO-15 method (i.e., 60-140%) for all samples.	No
Field Duplicate Analysis	NA		No field duplicate was collected for any samples in this SDG.	No
Flow Controller	No		%RPDs fr Flow out and Flow in less than 30% except for TA-SG-10 and TA-SG-05 flow controllers (184% and 200%, respectively). Both canisters passed the leak check and both received at negative pressure. No action was taken.	No
Canister	Yes		All canisters were certified by batch and with no TALs detected.	No
Canister Vacuum	Yes		Initial canister pressures were between -28 and -30 in Hg. The final pressures upon receipt were between -7.2 and -5.9 in Hg. The canister final pressure difference between the field measurements and laboratory measurements was within 2 in Hg for all canisters.	No

DATA VALIDATION CHECKLIST FOR ALPHA ANALYTICAL
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery Soil Gas from Alpha - Michigan Project
SDG: L1831031
Laboratory: Alpha
Media: Soil Gas
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes		All samples were analyzed within the holding time requirement specified in the QAPP (i.e., 30 days). On the original COC, TA-SG-04 was revised from TA-SG-01; no revision on the other copy of COC.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries were within the limits specified in the QAPP (70-130%) for all VOC target analytes. No action was taken based on the LCS results.	No
Matrix Spike/Matrix Spike Duplicates	NA		No MS/MSD analysis was performed for this SDG.	No
Method Blank	Yes		No TCLs were detected in the method blank; no action was taken based on the method blank results.	No
Reported Quantitation Limits	No	TA-SG-07, TA-SG-07-DUP, TA-SG-08, TA-SG-09, TA-SG-04	The laboratory reporting limits for TA-SG-07, TA-SG-07-DUP, TA-SG-08, TA-SG-09, TA-SG-04 were elevated relative to the reporting limits listed for the laboratory in the QAPP. As indicated by the laboratory case narrative, the elevated reporting limits were resulted from the dilution required by the elevated concentrations of non-target compounds in the samples.	No
Initial Calibration	No	benzyl chloride and 1,2,4-trichlorobenzene results for all samples in the SDG	Initial calibration was conducted on 7/31/2018. The RRFs are greater than 0.01 and the %RSDs for all target analytes were below 30% with the following exceptions: benzyl chloride (32%) and 1,2,4-trichlorobenzene (38%). Benzyl chloride or 1,2,4-trichlorobenzene was not detected in any of the project samples; and no action was taken for the non-detected results.	No
Continuing Calibration/Calibration Verification	No	isopropyl alcohol, 1,2-dichloroethane, 1,2-dichloropropane, and 2-hexanone results for all samples in this SDG.	An ICV was performed on 8/4/2018 and the %Ds for all target analytes were below 25%. RRFs were all greater than 0.01. A continuing calibration was performed on 8/21/2018 and the %Ds for isopropyl alcohol (29%), 1,2-dichloroethane (25.3%), 1,2-dichloropropane (27%), 2-hexanone (27%), exceeded the project limit of 25%. All RRFs were greater than 0.10. None of the above referenced analytes were detected in any of the samples in this SDG except that isopropyl alcohol was detected in TA-SG-07-BLANK. The isopropyl alcohol result in TA-SG-07-BLANK was qualified J+; no action was taken for the other analytes.	Yes
Instrument Performance	Yes		The Continuing Calibration BFB tune analysis was performed on August 21, 2018 and the results met the method requirement.	No
Laboratory Duplicate Analysis	Yes		Laboratory duplicate analysis was performed for a non-project sample and %RPDs were all below 30%.	No
Target Compound Identification	Yes		In general, the RRTs of identified target analytes were within 0.06 RRT of the RRT. The mass spectrum of multiple identified target analytes do not match those of the calibration standard in accordance with the USEPA National Functional Guidance.	No
Internal Standard	Yes		Internal standard %recoveries were within the limit specified in the TO-15 method (i.e., 60-140%) for all samples. RTs were within the laboratory established limits.	No
Field Duplicate Analysis	Yes		A field duplicate pair was collected for this SDG (TA-SG-07 and TA-SG-07-DUP). The RPDs for the two detected analytes (acetone and trichlorofluoromethane) were within 30%. No other VOCs were detected in either sample.	No
Flow Controller	Yes		%RPDs fr Flow out and Flow in less than 30% except for TA-SG-09 flow controller (36%). The canister passed the leak check and was received at negative pressure. No action was taken.	No
Canister	Yes		All canisters were certified by batch and with no TALs detected.	No
Canister Vacuum	Yes		Initial canister pressures were between -29 and -30 in Hg. The final pressures upon receipt were between -7.1 and -5.5 in Hg based on the laboratory measurements. The canister final pressure difference between the field measurements and laboratory measurements was within 2 in Hg for all canisters.	No
Field Blank	Yes		A sample named TA-SG-07-BLANK was collected for this SDG. No target analytes were detected in the field blank with the following exceptions: dichlorodifluoromethane (2.48 ug/m3; RL = 0.989 ug/m3), chloromethane (0.913 ug/m3; RL = 0.413 ug/m3), acetone (18.1 ug/m3; RL=2.38 ug/m3), trichlorofluoromethane (1.47 ug/m3; RL=1.12 ug/m3), iso-propyl alcohol (3.74 ug/m3; RL=1.23 ug/m3), methylene chloride (2.51 ug/m3; RL=1.74 ug/m3), ethylbenzene (0.969 ug/m3; RL=0.869 ug/m3), p/m-xylene (5.30 ug/m3; RL=1.74 ug/m3), and o-xylene (0.982 ug/m3; RL=0.869 ug/m3). Although named as XXBLANKXX, the sample was actually considered an ambient air sample. No action was taken based on the sample results.	No

Attachment II – Data Validation for ALS

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18081718
Lab: ALS
Media: Groundwater
Fraction: acetic acid, formic acid, available cyanide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The sample was collected on 8/28/201 and received on ice at 3.0^{o}C on the same day. The sample was processed and analyzed for acetic acid, formic acid, available cyanide, and hexavalent chromium within the holding time limits specified in the QAPP.	No
Reported Quantitation Limits	No	Acetic acid and formic acid for TA-GW-09	The laboratory reporting limits were compared to the MDEQ target detection limits listed in Table A.7.10 in the QAPP. The RLs for acetic acid and formic acid for the groundwater sample TA-GW-09 were 25,000 ug/L, above the MDEQ target detection limits of 100 ug/L and 50 ug/L, respectively. The RLs for available cyanide and hexavalent chromium met the MDEQ target detection limits.	No
Method Blank/Instrument Blank	Yes	--	No TCLs were detected in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or hexavalent chromium analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for acetic acid/formic acid, available cyanide, and hexavalent chromium were within the limits specified in the QAPP.	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	For acetic acid and formic acid, MS/MSD analyses were performed for TA-GW-09. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50%. For hexavalent chromium, MS/MSD analyses were performed for TA-GW-09 . The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD result met the QAPP limit of 50%. For available cyanide, MS/MSD analyses were performed for TA-GW-09. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD result met the QAPP limit of 50%.	No
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/25/2018 from 16:41 to 17:52. The %RSDs for acetic acid and formic acid were within the QAPP limit (12% and 16% vs. 20%). No action was taken based on the initial calibration results. For available cyanide, an initial calibration was performed on 8/29/2018, and the r2 value was greater than the QAPP limit (0.999988 vs. 0.995).	No
Continuing Calibration/Calibration Verification	Yes	--	CCVs were performed for acetic acid and formic acid on 8/25/2018 at 18:01 and 8/29/2018 at 16:39 and 17:50. %Ds were below 25%. CCVs were performed for available cyanide on 8/29/2018. %Ds were below 25%.	No
Solids Percentage	N/A	---	Percent solids does not apply to water samples.	No
Field Duplicate Analysis	N/A	---	No field duplicate pairs were collected for this SDG	No
TAL Identification	No	---	TALs were identified within the Retention Window with the following exceptions. Acetic acid for the 5 ug/ml acid standard analyzed during the initial calibration on 8/25/2018 had a response time more than half outside the Retention Window. No action was taken based on the TAL Identification results.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808639, 1808640, 1808742 (rev1 version)
Lab: ALS
Media: Groundwater (1808639 and 1808742), Soil (1808640)
Fraction: acetic acid, formic acid, available cyanide, sulfide (soil samples only), hexavalent chromium (groundwater samples only)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Acetic acid and formic acid for TA-SB-23(6-7), TA-SB-23(9-10), TA-SB-MW-04(8-9), TA-SB-MW-04(10-11), TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-05, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, and TA-MW-308A; available cyanide for TA-SB-23(6-7), TA-SB-23(9-10), TA-SB-MW-04(8-9), and TA-SB-MW-04(10-11)	The samples were collected on 8/8/2018, 8/9/2018, and 8/10/2018. The samples were received on ice at 2.0^{o}C or 2.2^{o}C on 8/10/2018. All samples were processed and analyzed for acetic, formic acid, available cyanide, sulfide, and/or hexavalent chromium within the holding time limits specified in the QAPP with the following exceptions. The samples in SDG 1808640 and SDG 1808742 were extracted for acetic acid/formic acid analysis after 7 days but analyzed within the QAPP limit of 14 days. Acetic acid and formic acid were not detected in the affected samples; UJ qualifiers were added. Samples from SDG 1808640 were analyzed for available cyanide on the 15th day after sample collection, outside the QAPP limit of 14 days. Available cyanide was detected in all of the affected samples; J- qualifiers were added.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid for TA-MW-110, TA-MW-5, TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-05, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, and TA-MW-308A; hexavalent chromium for TA-MW-110	The laboratory reporting limits were compared to the MDEQ target detection limits listed in Tables A.7.8 and A.7.10 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all groundwater samples were 25,000 ug/L, above the MDEQ target detection limits of 100 ug/L and 50 ug/L, respectively. The RLs for available cyanide and hexavalent chromium met the MDEQ target detection limits with the following exception. The RL for hexavalent chromium for groundwater sample TA-MW-110 was above the MDEQ target detection limit (0.025 mg/L vs. 0.1 mg/L).	No
Method Blank/Instrument Blank	Yes	--	No TCLs were detected in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or hexavalent chromium analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide for all samples in SDG 1808640	The LCS recoveries for acetic acid/formic acid, available cyanide, hexavalent chromium, and sulfide were within the limits specified in the QAPP. The LCS recovery for sulfide (63.6%) associated with SDG 1808640 was within the laboratory established limits (21-81%) but outside the project limits (80%-120%). Sulfide was detected in samples TA-SB-23(6-7) and TA-SB-MW-04(10-11), and the detected results were qualified with a J-. The remaining samples in this SDG were non-detect and qualified with UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Available cyanide for TA-MW-110 MS/MSD	For acetic acid and formic acid, MS/MSD analyses were performed for TA-SB-23(6-7) and TA-MW-309B In addition, MS/MSD analyses were performed for other project samples from SDG 1808636 (i.e. TA-MW-309A and TA-MW-307B) in the same analytical batch. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50%. For hexavalent chromium, MS/MSD analyses were performed for TA-MW-309B DUP. In addition, MS/MSD analyses were performed for other project samples from SDG 1808636 (i.e. TA-MW-309A and TA-MW-307B) and SDG 1808745 in the same analytical batch. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD result met the QAPP limit of 50%. For available cyanide, MS/MSD analyses were performed for TA-MW-110. In addition, MS/MSD analyses were performed for other samples from SDG 1808659 and SDG 1808745 in the same analytical batch. The MS/MSD results for TA-MW-110 were below the QAPP limits of 75%-125%, while the %RPD result met the QAPP limit of 50%. Cyanide nondetected result for TA-MW-110 was qualified UJ. The other MS/MSD results for available cyanide met the QAPP limits. For sulfide, MS/MSD analyses were performed for another sample from SDG 1808552 in the same analytical batch. The MS/MSD results were below the QAPP limits (52.5/54.7% vs. 75%-125%) while the %RPD results met the QAPP limit of 50%. No action was taken for the samples in this SDG.	Yes
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/13/2018 from 18:15 to 19:27. The %RSDs for acetic acid and formic acid were within the QAPP limit (13% and 15% vs. 20%). Another 6-point initial calibration was conducted for acetic acid and formic acid on 8/21/2018 from 14:20 to 15:32. The %RSDs for acetic acid and formic acid were within the QAPP limit (14% and 16% vs. 20%). No action was taken based on the initial calibration results. For available cyanide, initial calibrations were performed on 8/20/2018 and 8/23/2018, and the r2 values were greater than the QAPP limit (0.999998 and 0.999995 vs. 0.995).	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808639, 1808640, 1808742 (rev1 version)
Lab: ALS
Media: Groundwater (1808639 and 1808742), Soil (1808640)
Fraction: acetic acid, formic acid, available cyanide, sulfide (soil samples only), hexavalent chromium (groundwater samples only)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	Yes	--	CCVs were performed for acetic acid and formic acid on 8/13/2018 at 19:36, on 8/15/2018 at 09:33 and 10:54, on 8/21/2018 at 15:41, 17:41, 19:20, 20:58. and 22:37, and 8/22/2018 at 00:15, 00:51, and 16:51. %Ds were below 25%. CCVs were performed for available cyanide on 8/20/2018 and 8/23/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 64%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-MW-309B and TA-MW-309B DUP). Acetic acid, formic acid, available cyanide, and hexavalent chromium were not detected in either sample.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Former Wolverine House Street Disposal Area
SDG: 18061424, 18061425, 18061486
Lab: ALS
Media: Soil (18061424 and 18061425) and Sediment (18061486)
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Samples in SDGs 18061424 and 18061425 were received at a temperature slightly above that listed in the QAPP. All samples in SDG 18061424 were extracted for acids outside of the QAPP holding time.	The samples in SDG 18061424 were collected on 6/19/2018 and the samples in SDGs 18061425 and 18061486 were collected on 6/21/2018. The samples in SDGs 18061424 and 18061425 were received on ice at 4.8°C on 6/21/2018, slightly above the QAPP limit of 4°C, and the samples in SDG 18061486 were received on ice at 3.4°C on 6/22/2018. No action was taken due to the slight exceedance of the cooler temperature on 6/21/2018. According to the sample receipt, custody seals were not included on shipping containers for any of the three SDGs. All samples were processed and analyzed for acetic, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exception. All samples in SDG 18061424 were extracted for acetic acid and formic acid on the second day after sample collection, slightly outside of the QAPP limit of 2 days. All acids results in SDG 18061424 were non-detect and qualified UJ.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid for all soil samples except HS-SB-020(10-11)	The laboratory reporting limits were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples except HS-SB-020(10-11) ranged between 21 mg/kg and 52 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit (100 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS associated with all samples in all three SDGs	The LCS recoveries for acetic acid/formic acid, available cyanide, and sulfide analyses were within the limits specified in the QAPP with the following exception. The LCS recovery for sulfide (51.3%) associated with batch 121363, which is associated with all samples in SDGs 18061424, 18061425, and 18061486, was within the laboratory established limits (21-81%) but outside the project limits (80%-120%). Sulfide was not detected in any sample in these SDGs; all non-detect results were qualified with UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD performed on sample HS-SB-109(9-10)	For acetic acid and formic acid, MS/MSD analyses were performed for TA-SED-T3-2(0-1.2). In addition, MS/MSD analyses were performed for another sample in SDG 18061423 (i.e. HS-SB-112(11-12)) and another sample in SDG 18061781 in the same analytical batch. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50% for solids. For available cyanide, MS/MSD analyses were performed for HS-SB-121(6-7) and TA-SED-T3-2(0-1.2). In addition, MS/MSD analyses were performed for another sample in SDG 18061936 in the same analytical batch. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50% for solids. For sulfide, MS/MSD analyses were performed for HS-SB-109(9-10). The MS/MSD results were below the QAPP limits (51.3%/43.5% vs. 75%-125%) while the %RPD result met the QAPP limit of 50% for solids. Sulfide result for HS-SB-109(9-10) was qualified UJ.	Yes
Initial Calibration	No	Formic acid in the initial calibration associated with all samples in all three SDGs	A 6-point initial calibration was conducted for acetic acid and formic acid on 6/27/2018 from 9:57 to 12:05. The %RSD for acetic acid was within the QAPP limit (19.75% vs. 20%) while the %RSD for formic acid was outside the QAPP limit (21.12% vs. 20%). No formic acid was detected in any sample in this SDG; no action was taken based on the initial calibration results. For available cyanide, initial calibrations were performed on 7/3/2018. The r2 values were greater than the QAPP limit (0.999995 and 0.999985 vs. 0.99 for solids).	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 6/27/2018 at 12:21, 18:58, and 21:55 and on 6/28/2018 at 0:51, 3:47, 6:44, and 9:09. %Ds were below 25%. CCVs were performed for available cyanide on 7/3/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 38%.	No
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window with the following exception. Acetic acid for the 5 ug/ml acid standard analyzed during the initial calibration on 6/27/2018 had a response time more than half outside the Retention Window. It appears that this acid was then re-run and had a response time for acetic acid within the Retention Window. No action was taken based on the TAL Identification results.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1807094, 1807095, 18071494
Lab: ALS
Media: Soil (1807094), Sediment (1807095), and Water (18071494)
Fraction: acetic acid, formic acid, sulfide (soil and sediment only), available cyanide, hexavalent chromium (water only)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Samples in SDGs 1807094 and 1807095 were received at a temperature above that listed in the QAPP. All samples in SDG 1807094 were analyzed for sulfide and available cyanide outside of hold time. Samples TA-SED-4-2 (0-1), TA-SED-4-2 (1-2), TA-SED-4-2 (2-3), TA-SED-9-1 (0-1), TA-SED-T9-1 (2-3), TA-SED-T9-1 (4-5), and TA-SED-T10-1 (0-1) in SDG 1807095 were analyzed for available cyanide outside of hold time. All samples in SDG 18071494 were extracted for formic acid and acetic acid outside of hold time.	The samples were collected on 6/28/2018, 6/29/2018, 7/2/2018, and 7/24/2018. The samples analyzed in SDGs 1807094 and 1807095 were received on ice at 4.8°C, above the 4°C limit specified in Table B.3.2 of the QAPP, on 7/3/2018, and the samples analyzed in SDG 18071494 were received on ice at 3.4°C on 7/24/2018. No action was taken due to the slight exceedance of the cooler temperature on 7/3/2018. According to the sample receipt, custody seals were not included on shipping containers for SDGs 1807095 and 18071494. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, sulfide, and hexavalent chromium within the holding time limits specified in the QAPP with the following exceptions. **The soil samples collected on 7/2/2018 (SDG 1807094) were extracted and analyzed for sulfide on the 57th day after sample collection, outside of the QAPP limit of 28 days.** Sulfide was not detected in any of the affected samples; UR qualifiers were added. All samples in SDG 1807094 were analyzed for available cyanide on the 15th day after sample collection, and samples TA-SED-4-2 (0-1), TA-SED-4-2 (1-2), TA-SED-4-2 (2-3), TA-SED-9-1 (0-1), TA-SED-T9-1 (2-3), TA-SED-T9-1 (4-5), and TA-SED-T10-1 (0-1) in SDG 1807095 were analyzed for available cyanide on the 15th day after sample collection outside of the QAPP limit of 14 days. Available cyanide was detected above the laboratory reporting limit in all affected samples, except TA-SB-MW-05 (1-2). J- qualifiers were added to detected results, and a UJ qualifier was added to the non-detect result. Formic acid and acidic acid were extracted on the 5th day after sample collection in SDG 18071494, outside of the QAPP limit of 2 days. Acetic acid and formic acid were not detected above the laboratory reporting limit in SDG 18071494; UJ qualifiers were added. Extraction dates for formic acid and acetic acid were not reported in SDGs 1807094 and 1807095.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid for all samples in all three SDGs. Available cyanide in samples TA-SED-4-2 (0-1), TA-SED-4-2 (1-2), TA-SED-9-1 (0-1), and TA-SED-T10-1 (0-1).	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP, and the laboratory reporting limits for water samples were compared to the MDEQ target limits listed in table A.7.10 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 25 mg/kg and 110 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for acetic acid and formic acid for all water samples were 25 mg/L, above the MDEQ target detection limits of 0.1 mg/L and 0.05 mg/L, respectively. The RLs for available cyanide and hexavalent chromium met the MDEQ target detection limit with the following exceptions. Reporting limits for available cyanide were above the MDEQ target detection limit (100 ug/kg) in samples TA-SED-4-2 (0-1) (220 ug/kg), TA-SED-4-2 (1-2) (110 ug/kg), TA-SED-9-1 (0-1) (160 ug/kg), and TA-SED-T10-1 (0-1) (110 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, hexavalent chromium, or sulfide analyses; no action was taken based on the method blank or instrument blank results. Sulfide was noted detected at the PQL of 20 mg/kg in the method blank associated with SDG 1807095 in the report issued on 8/21/2018 (p.336); however was noted not detected in the original subcontract report (p.400-p.402). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in LCS samples associated with all samples in SDGs 1807094 and 1807095	The LCS recoveries for acetic acid, formic acid, available cyanide, and sulfide analyses were within the limits specified in the QAPP with the following exception. The LCS recoveries for sulfide (50.2%, 67.3%) associated with SDGs 1807094 and 1807095 were within the laboratory established limits (21-81%) but outside the project limits (80-120%). Sulfide was not detected in any sample in SDG 1807094 or in sample TA-SED-8-2 (3-4.1) in SDG 1807095; non-detect results were qualified with UJ. A J- qualifier was added to the detected results in SDG 1807095.	Yes

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1807094, 1807095, 18071494
Lab: ALS
Media: Soil (1807094), Sediment (1807095), and Water (18071494)
Fraction: acetic acid, formic acid, sulfide (soil and sediment only), available cyanide, hexavalent chromium (water only)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Matrix Spike/Matrix Spike Duplicates	No	Available cyanide in the MS/MSD performed on a sample in SDG 18071488 analyzed in the same batch as samples in SDG 18071494. Sulfide in the MS/MSD analyses performed on samples TA-SED-9-1 (0-1) and TA-SED-T10-1 (0-1), and another sample in SDG 1808242 (TA-SB-09 (2-3))	For acetic acid and formic acid, MS/MSD analyses were performed on another sample in SDG 1807111 (TA-SB-MW-02 (1-2)) in the same analytical batch as samples in SDGs 1807094 and 1807095, on samples TA-SED-9-1 (0-1) and TA-SED-T10-1 (0-1), and on another sample in SDG 18071606 (TA-SW-06) analyzed in the same batch as samples in SDG 18071494. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limits of 50% for solids and 30% for water. For available cyanide, MS/MSD analyses were performed on another sample in SDG 1807108 (TA-SED-RC-1 (0-1)) in the same analytical batch as samples analyzed in SDG 180704; on samples TA-SED-9-1 (0-1), TA-SED-T10-1 (0-1) in SDG1807095, and another sample in SDG 18061975 (TA-SED-T9-2 (0-1)) analyzed in the same analytical batch as samples in 1807095; and on another sample in SDG 18071488 analyzed in the same analytical batch as samples in SDG 18071494. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limits of 50% for solids and 30% for water with the following exception. The MS/MSD results associated with SDG 18071488 were below the QAPP limits (59.1%/60.3%). For sulfide, MS/MSD analyses were performed on another sample in SDG 1808242 (TA-SB-09 (2-3)) in the same analytical batch as samples analyzed in SDG 1807094, and on samples TA-SED-9-1 (0-1) and TA-SED-T10-1 (0-1) in SDG 1807095. The MS/MSD results were below the QAPP limits (44.7%/43.5%, 65.1%/60.8%, and 64.7% vs. 75%-125%) while the %RPD results met the QAPP limit of 50% for solids and 30% for water. The sulfide results for TA-SED-9-1 (0-1) and TA-SED-T10-1 (0-1)were qualified (detects were qualified J- while nondetects were qualified UJ). For hexavalent chromium, MS/MSD analyses were performed for another sample in SDG 18071492 analyzed in the same batch as samples in SDG 18071494. The MS/MSD results met the QAPP limits of 75-125%, and the %RPD results met the QAPP limit of 30% for water.	Yes
Initial Calibration	No	Acetic acid and formic acid in initial calibration performed on 7/31/2018 and associated with samples TA-SW-03, TA-SW-04, and TA-SW-02	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/2/2018 from 08:52 to 23:29 and on 7/31/2018 from 09:09 to 11:05. The %RSDs for formic acid and acetic acid were within the QAPP limit (11% and 9% vs.20%) for the initial calibration performed on 7/2/2018. The %RSDs were above the QAPP limit (24% and 46% vs. 20% for acetic acid and formic acid, respectively) for the initial calibration performed on 7/31/2018. No action was taken based on the initial calibration results for formic acid, but UJ qualifiers were added to the non-detect acetic acid results analyzed on 7/31/2018 as the %RSD was >40%, twice the QAPP limit. For available cyanide, initial calibrations were performed on 7/12/2018, 7/14/2018, 7/17/2018, and 7/26/2018 (twice). The r2 values were greater than the QAPP limit (0.999992, 0.99999, 0.999992, 0.99995, 0.999828 vs. 0.995 for water and 0.99 for soil). No action was taken based on the initial calibration results for available cyanide.	Yes
Continuing Calibration/Calibration Verification	No	acetic acid in the CCVs performed on 7/31/2018 at 18:08 and 20:30 associated with samples in SDG 18071494.	CCVs were performed for acetic acid and formic acid on 7/2/2018 at 11:27; on 7/9/2018 at 13:16, 16:07, 18:09, and 20:33; on 7/10/2018 at 07:56, 10:37, and 14:06; and on 7/31/2018 at 13:26, 15:47, 18:08, 20:30, 22:51, and 23:56. %Ds were below 25% for all CCVs with the following exception. The %D for acetic acid was above the QAPP limit (25%) in the CCVs performed on 7/31/2018 at 18:08 (25.5%) and 20:30 (26.7%) associated with samples in SDG 18071494. Acetic acid was not detected in any samples in SDG 18071494; no action was taken. CCVs were performed for available cyanide on 7/12/2018, 7/14/2018, 7/17/2018, and 7/26/2018 (twice). %Ds were below 25% with the exception of one CCV on 7/26/2018. All samples in this SDG had been analyzed before that CCV, and samples analyzed on 7/26/2018 were reanalyzed. %Ds were below 25% in the reanalysis.	Yes
Solids Percentage	Yes	TA-SED-4-2 (0-1) and TA-SED-9-1 (0-1).	All soil samples at solids percentage above 18%. Solids percentage was below 30% in samples TA-SED-4-2 (0-1) (18%) and TA-SED-9-1 (0-1) (26%). All results for TA-SED-4-2 (0-1) and TA-SED-9-1 (0-1) were qualified (detects were qualified J and non-detects were qualified UJ).	Yes
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18061812, 18061974
Lab: ALS
Media: Sediment (18061812) and Soil (18061974)
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Samples in SDG 18061812 were received at a temperature above that listed in the QAPP. All samples in both SDGs were analyzed for cyanide outside of the QAPP holding time. All samples in SDG 18061812 were extracted for acids outside of the QAPP holding time.	The samples in SDG 18061812 were collected on 6/26/2018, and the samples in SDG 18061974 were collected on 6/28/2018. The samples in SDG 18061812 were received on ice at 4.8°C, above the 4°C limit specified in Table B.3.2 of the QAPP, on 6/27/2018, and the samples analyzed in SDG 18061974 were received on ice at 3.0°C on 6/29/2018. No action was taken due to the slight exceedance of the cooler temperature on 6/27/2018. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples were extracted and analyzed for available cyanide on the 14th or 15th day after sample collection, slightly outside of the QAPP limit of 14 days. Available cyanide was detected in all samples, except TA-SB-MW-01 (2-3). J- qualifiers were added to all detected results, and a UJ qualifier was added to the non-detect result in sample TA-SB-MW-01 (2-3). All samples in SDG 18061812 were extracted for acids on the 2nd or 3rd day, slightly outside of the QAPP limit of 2 days. All acids results in SDG 18061812 were non-detect and qualified with a UJ.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in both SDGs	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 22 mg/kg and 37 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit.	No
Method Blank/Instrument Blank	No	available cyanide	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results. Available cyanide was detected at concentrations of 31.8 ug/kg and 29.2 ug/kg in the method blanks associated with SDG 18061812, below the PQL of 40 ug/kg. Available cyanide was detected in all samples in the two SDGs above 2 times of the blank levels; no action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS samples associated with all samples in SDG 18061812	The LCS recoveries for acetic acid, formic acid, and available cyanide were within the limits specified in the QAPP. The LCS recoveries for sulfide (73.7%, 70.7%, and 77.8%) associated with SDG 18061812 were within the laboratory established limits (10-120%) but outside the project limits (80-120%). Sulfide was detected in all samples, except TA-SED-T5-2 (1.7-2.7) and TA-SED-T5-3 (6-7). J- qualifiers were added to detected results, and UJ qualifiers were added to non-detects. The LCS recovery for sulfide associated with SDG 18061974 was within the limits specified in the QAPP.	Yes
Matrix Spike/Matrix Spike Duplicates	No	MS/MSD analysis not performed for sulfide in either SDG.	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SED-T5-3 (0-1) and another sample analyzed in SDG 18061930 and in the same batch as samples in SDGs 18061812 and 18061974. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50% for solids. For available cyanide, MS/MSD analysis was performed on samples TA-SED-T6-3 (3.8-4.8), TA-SB-MW-01 (2-3), and another sample in SDG 18061930 analyzed in the same batch as samples in SDG 18061812. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50% for solids. For sulfide, MS/MSD analysis was not performed in association with samples in SDG 18061812 or 18061974.	No
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/2/2018 from 08:52 to 11:11. The %RSDs for formic acid and acetic acid were within the QAPP limit (11% and 9% vs. 20%). No action was taken based on the initial calibration results. For available cyanide, initial calibrations were performed on 7/11/2018 and 7/12/2018. The r2 values were greater than the QAPP limit (0.99936 and 0.999992 vs. 0.99 for solids).	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/2/2018 at 11:27; on 7/3/2018 at 17:56, 20:20, and 22:44; and on 7/4/2018 at 00:54, 03:18, and 04:23. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/11/2018 and 7/12/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 53%.	No
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18061812, 18061974
Lab: ALS
Media: Sediment (18061812) and Soil (18061974)
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1807101, 1807108
Lab: ALS
Media: Sediment
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG 1807101 were received above the QAPP specified temperature. All samples in SDG 1807101 were extracted for acid analysis outside of the QAPP specified holding time. All samples in both SDGs were analyzed for available cyanide outside of the QAPP specified holding time.	The samples were collected on 6/29/2018 and 7/2/2018. The samples in SDG 1807101 were received on ice at 4.8°C above the 4°C limit specified in Table B.3.2 of the QAPP, on 7/3/2018, and the samples analyzed in SDG 1807108 were received on ice at 3.8°C on 7/3/2018. No action was taken due to the slight exceedance of the cooler temperature on 7/3/2018. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. The soil samples collected on 6/29/2018 (SDG 1807101) were extracted and analyzed for acetic acid and formic acid on the 3rd day after sample collection, outside of the QAPP limit of 2 days. Neither acetic acid nor formic acid was detected above the laboratory reporting limit in any samples. UJ qualifiers were added to these results. All soil samples were analyzed for available cyanide on the 14th through 17th day after sample collection, outside the QAPP limit of 14 days. Cyanide was detected above the laboratory reporting limit in all samples. J- qualifiers were added to detected cyanide results.	Yes
Reported Quantitation Limits	No	formic acid and acetic acid in all samples in SDGs 1807101 and 1807108, except TA-SED-T10-1 (1.5-2.5) available cyanide in samples TA-SED-T9-3 (0-1), TA-SED-T10-3 (0-1), TA-SED-T4-3 (0-1), TA-SED-T4-3 (1-1.7), and TA-SED-BOAT RAMP (0-1)	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples, except TA-SED-T10-1 (1.5-2.5), ranged between 21 mg/kg and 99 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit with the following exceptions. The RLs for available cyanide were above the MDEQ target detection limit (100 ug/kg) in samples TA-SED-T9-3 (0-1) (210 ug/kg), TA-SED-T10-3 (0-1) (130 ug/kg), TA-SED-T4-3 (0-1) (170 ug/kg), TA-SED-T4-3 (1-1.7) (170 ug/kg), and TA-SED-BOAT RAMP (0-1) (110 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	sulfide in LCS samples associated with all samples in SDGs 1807101 and 1807108	The LCS recoveries for acetic acid/formic acid and available cyanide were within the limits specified in the QAPP. The LCS recoveries for sulfide (32.4%, 56.9%, and 55.8%) associated with SDGs 1807101 and 1807108 were within the laboratory established limits (21-81%) but outside the project limits (80-120%). Non-detect sulfide results were qualified with a UJ, and the detected sulfide results in samples TA-SED-T4-3 (1-1.7) and TA-SED-RC-2 (1-2) were qualified with a J-.	Yes

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1807101, 1807108
Lab: ALS
Media: Sediment
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analyses performed on samples in SDGs 18061936, 18061866 (TA-SED-T7-2 (0-1)), and 1807111 (TA-SB-MW-02 (1-2)) analyzed in the same batches as samples in SDGs 1807101 and 1807108.	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SED-RC-1 (0-1) and samples analyzed in SDGs 1807073 and 1807102 and in the same batch as samples in SDGs 1807101 and 1807108. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50% for solids. For available cyanide, MS/MSD analysis was performed on samples analyzed in SDGs 1807111 (TA-SB-MW-02 (1-2)) and 1807073 analyzed in the same analytical batch as samples in SDG 1807101 and on samples TA-SED-RC-1 (0-1) and TA-SED-RC ACCESS (1.5-2.5). The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50% for solids. For sulfide, MS/MSD analysis was performed on samples analyzed in SDGs 18061936 and 18061866 (TA-SED-T7-2 (0-1)) and analyzed in the same analytical batch as samples in SDG 1807101 and on samples analyzed in SDG 1807111 (TA-SB-MW-02 (1-2)) and analyzed in the same analytical batch as samples in SDG 1807108. The MS/MSD results were below the QAPP limits (34.6%/38%, 31.3%/24.6%, and 43.5%/49.1%) while the %RPD results met the QAPP limit of 50%. Sulfide results in this SDG were not qualified based on the above MS/MSD results.	No
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/10/2018 from 17:53 to 19:36. The %RSDs for formic acid and acetic acid were within the QAPP limit (16% and 16% vs.20%) for the initial calibration performed on 7/10/2018. No action was taken based on the initial calibration results for acids. For available cyanide, initial calibrations were performed on 7/16/2018 and 7/17/2018. The r2 values were greater than the QAPP limit (0.99993 and 0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/10/2018 at 19:49, 22:11 and on 7/11/2018 at 00:32, 02:41, 04:24. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/16/2018 and 7/17/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 19%. Solids percentage was below 30% in samples TA-SED-T9-3 (0-1) (19%), TA-SED-T4-3 (0-1) (24%), and TA-SED-T4-3 (1-1.7) (23%). Detected analytes in these samples were qualified J, and non-detects were qualified UJ.	Yes
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SED-T10-1 (1.5-2.5) and TA-SED-T10-1DUP (1.5-2.5)). Acetic acid, formic acid, and sulfide were not detected in either sample. Available cyanide was detected in both samples, and the %RPD was within the QAPP limit (40% vs. 50% for solids)	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1807111
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in the SDG were analyzed for available cyanide outside of the hold time specified in the QAPP	The samples were collected on 6/29/2018 and received on ice at 3.8°C on 7/3/2018. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All soil samples were analyzed for available cyanide on the 15th through 17th day after sample collection, outside the QAPP limit of 14 days. Cyanide was detected above the laboratory reporting limit in all samples, except TA-SB-MW-06 (2-3), TA-SB-MW-08 (2-3), and TA-SB-MW-02 (1-2). J- qualifiers were added to detected cyanide results, and UJ qualifiers were added to non-detect results. Extraction dates for formic acid and acetic acid were not reported.	Yes
Reported Quantitation Limits	No	formic acid and acetic acid in all samples in SDG other than TA-SB-MW-04 (1-2) and TA-SB-MW-08 (2-3)	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples, except TA-SB-MW-04 (1-2) and TA-SB-MW-08 (2-3), ranged between 21 mg/kg and 27 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit (100 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	sulfide in the LCS samples associated with all samples in SDG	The LCS recoveries for acetic acid/formic acid and available cyanide were within the limits specified in the QAPP. The LCS recoveries for sulfide (56.9% and 55.8%) were within the laboratory established limits (21-81%) but outside the project limits (80-120%). Non-detect sulfide results were qualified with a UJ, and the detected sulfide result in sample TA-SB-MW-06 (4-5) was qualified with a J-.	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analyses performed on samples TA-SB-MW-02 (1-02) and a sample analyzed in SDG 18061866 (TA-SED-T7-2 (0-1)) analyzed in the same batch as samples in SDG 1807111.	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SB-MW-02 (1-2). The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50% for solids. For available cyanide, MS/MSD analysis was performed on sample TA-SB-MW-02 (1-2) and samples analyzed in SDGs 1807095 (TA-SED-9-1 (0-1) and TA-SED-T10-1 (0-1)) and 1807073 analyzed in the same analytical batch as samples in SDG 1807111. The MS/MSD results met the QAPP limits of 75%-125%, and the %RPD results met the QAPP limit of 50% for solids. For sulfide, MS/MSD analysis was performed on sample TA-SB-MW-02 (1-2) and on a sample analyzed in SDG 18061866 (TA-SED-T7-2 (0-1)) and analyzed in the same analytical batch as samples in SDG 1807111. The MS/MSD results (31.3%/24.6% and 43.5%/49.1%) were below the QAPP limits (75-125%) while the %RPD results met the QAPP limit of 50%. Sulfide was not detected in TA-SB-MW-02 (1-2) and the result was qualified UJ.	Yes
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/2/2018 from 08:52 to 11:11. The %RSDs for formic acid and acetic acid were within the QAPP limit (11% and 9% vs.20%) for the initial calibration performed on 7/2/2018. No action was taken based on the initial calibration results for acids. For available cyanide, initial calibrations were performed on 7/14/2018 and 7/16/2018. The r2 values were greater than the QAPP limit (0.99999 and 0.99993 vs. 0.99 for solids). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/2/2018 at 11:27 and on 7/10/2018 at 07:56, 10:37, and 14:06. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/14/2018 and 7/16/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 71%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SB-MW-04(1-2) and TA-SB-MW-04DUP (1-2)). Acetic acid, formic acid, and sulfide were not detected in either sample. Available cyanide was detected in both samples, and the %RPD was within the QAPP limit (6.1% vs. 50% for solids)	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1807548, 18071275
Lab: ALS
Media: Soil, Sediment (sample TA-SED-T7-ISLAND (0-0.5), only)
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in both SDGs were extracted for acetic acid and formic acid outside of the hold time specified in the QAPP.	The samples in SDG 1807548 were collected on 7/9/2018 and 7/10/2018 and received on ice at 3.2^{o}C on 7/11/2018. The samples in SDG 18071275 were collected on 7/19/2018 and received on ice at 3.0^{o}C on 7/20/2018. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. The soil samples collected on 7/9/2018, 7/10/2018, and 7/19/2018 were extracted for acetic acid and formic acid on the 8th, 7th, and 4th days after sample collection, respectively, outside of the QAPP limit of 2 days. All acetic acid and formic acid results were non-detect; UJ qualifiers were added.	Yes
Reported Quantitation Limits	No	formic acid and acetic acid in all samples in SDG other than TA-SB-53 (0-1)	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples, except TA-SB-53 (0-1), ranged between 21 mg/kg and 41 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit (100 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	sulfide in the LCS samples associated with all samples in both SDGs	LCS results within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were 63.6%, 58%, and 61.4% which were within the laboratory established limits of 21-81% but outside the project limits (80-120%). All sulfide results were non-detect, except TA-SB-64 (4-5). UJ qualifiers were added to non-detect results, and J- qualifiers were added to the detected result in sample TA-SB-64 (4-5).	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analyses performed on sample TA-SB-68 (3-4) and samples in SDGs 1807445 and 18071364 (TA-SB-71 (1-2)) analyzed in the same batches as samples in SDGs 1807548 and 18071275.	For acetic acid and formic acid, MS/MSD performed on samples in SDGs 1807785 and 1807788 analyzed in the same batch as samples in SDG 1807548 and on samples in SDGs 18071251 and 18071255 analyzed in the same batch as samples in SDG 18071275. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD performed on samples in SDGs 1807445 and 1807785 analyzed in the same batch as samples in SDG 1807548 and on sample TA-SB-82 (6-7) and on a sample in SDG 18071255 analyzed in the same batch as samples in SDG 18071275. All MS/MSD results within QAPP limits. For sulfide, MS/MSD analysis performed on sample TA-SB-68 (3-4) and a sample in SDG 1807445 associated with samples in SDG 1807548 and on a sample in SDG 18071364 (TA-SB-71 (1-2)) analyzed in the same batch as samples in SDG 18071275. MS/MSD recoveries (52.5%/38%, 26.8%/26.8%, and 34.6%/43.5%) were within lab limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50% for solids. Sulfide nondetect result for TA-SB-68 (3-4) was qualified UJ.	Yes
Initial Calibration	No	Acetic acid in initial calibration performed on 7/19/2018 and associated with samples TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-03 (2-2.5), and TA-SB-AOC-H-03 (5-6)	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/19/2018 from 11:01 to 12:31 and on 7/26/2018 from 16:28 to 18:26. The %RSD for formic acid (12.28%) was within the QAPP limit (20%), but the %RSD for acetic acid (26.65%) was above it for the initial calibration performed on 7/19/2018. The %RSDs for formic acid and acetic acid were within the QAPP limit (12% and 9% vs. 20%) in the initial calibration performed on 7/26/2018. No action was taken based on the initial calibration results for acid acid as no acetic was detected in any of the samples in these two SDGs. For available cyanide, initial calibrations were performed on 7/20/2018 and 8/1/2018. The r2 values were greater than the QAPP limit (0.99998 and 0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/19/2018 at 12:44, 15:05, and 17:35; on 7/20/2018 at 07:45 and 10:07; on 7/26/2018 at 18:39, 21:00, and 23:22; and on 7/27/2018 at 01:43, 08:51, and 09:42. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/20/2018 and 8/1/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 49%.	No
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1807816, 1807973
Lab: ALS
Media: Soil (1807973) and Sediment (1807816)
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG 1807816 were received above the QAPP specified temperature. Acetic acid and formic acid in all samples in SDG 1807816 and sample TA-SB-76 (1-2). Cyanide in samples TA-SED-T4-ISLAND (4-5) and TA-SED-T4-ISLAND (6-7).	The samples were collected on 7/11/2018, 7/12/2018, 7/13/2018, and 7/16/2018. The samples in SDG 1807816 were received on ice at 4.2^{o}C, slightly above the 4°C limit specified in Table B.3.2 of the QAPP, on 7/14/2018, and the samples in SDG 1807973 were received on ice at 3.4^{o}C on 7/17/2018. No action was taken due to the slight exceedance of the cooler temperature on 7/14/2018. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. The sediment samples collected on 7/11/2018, 7/12/2018, and 7/13/2018 were extracted for acetic acid and formic acid between 4 and 7 days after sample collection, respectively, outside of the QAPP limit of 2 days. Sample TA-SB-76 (1-2) was extracted for acetic acid and formic acid on the 7th day after sample collection, outside of the QAPP limit of 2 days. Acetic acid and formic acid were nondetect in all samples in SDG 1807816 and in sample TA-SB-76 (1-2). UJ qualifiers were added to these results. Samples TA-SED-T4-ISLAND (4-5) and TA-SED-T4-ISLAND (6-7) were analyzed for available cyanide on the 14th day, slightly outside of the QAPP limit of 14 days. Cyanide was detected in both of these samples; J- qualifiers were added.	Yes
Reported Quantitation Limits	No	acetic acid and formic acid in all samples available sulfide in samples TA-SED-T4-ISLAND (0-0.5), TA-SED-T4-ISLAND (4-5), TA-SED-T9-ISLAND (0-0.5), and TA-SED-T9-ISLAND (1-2)	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 24 mg/kg and 93 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit of 100 ug/kg, except for TA-SED-T4-ISLAND (0-0.5) (190 ug/kg), TA-SED-T4-ISLAND (4-5) (110 ug/kg), TA-SED-T9-ISLAND (0-0.5) (130 ug/kg), and TA-SED-T9-ISLAND (1-2) (110 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	sulfide in the LCS samples associated with all samples in both SDGs	LCS results within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were (58%, 49.1%, 50.2%, and 51.3%), which were within the laboratory established limits of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples, except TA-SED-T7-ISLAND (6-7). UJ qualifiers were added to nondetect results, and a J- qualifier was added to the detected sulfide result in sample TA-SED-T7-ISLAND (6-7).	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analyses performed on sample TA-SB-76 (1-2) and on samples analyzed in SDGs 1807788, 18071036, and 18071147 (TA-SB-55 (1-2)) analyzed in batches with samples in SDGs 1807816 and 1807973.	For acetic acid and formic acid, MS/MSD performed on sample TA-SB-76 (1-2), and samples in SDGs 1807788, 18071036, 18071065 (TA-SB-83 (4-5)), and 18071147 (TA-SB-55 (1-2)) analyzed in the same batch as samples in SDG 1807816 and/or SDG 1807973. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD performed on sample TA-SB-76 (1-2) and samples in SDGs 1807788, 18071214, and 18071036 analyzed in the same batch as samples in SDG 1807816. All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis performed on sample TA-SB-76 (1-2) and on samples analyzed in SDGs 1807788, 18071036, and 18071147 (TA-SB-55 (1-2)) and analyzed in batches with samples in SDGs 1807816 and 1807973. MS/MSD recoveries (48%/48%, 54.7%/54.7%, 41.3%/26.8%, and 33.5%/35.7%) were within the lab limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. Sulfide nondetected result for TA-SB-76(1-2) was qualified UJ.	Yes

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1807816, 1807973
Lab: ALS
Media: Soil (1807973) and Sediment (1807816)
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	No	acetic acid in initial calibration on 7/19/2018	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/19/2018 from 10:48 to 12:31 and on 7/24/2018 from 14:42 to 17:21. The %RSD for formic acid (12.28%) was within the QAPP limit (20%) while the %RSD for acetic acid (26.65%) in the initial calibration performed on 7/19/2018. No samples in these two SDGs had acetic acid detected; no action was taken. The %RSDs for formic acid and acetic acid were within the QAPP limit (12% and 14% vs. 20%) in the initial calibration performed on 7/24/2018. For available cyanide, initial calibrations were performed on 7/24/2018, 7/26/2018, and 7/29/2018. The r2 values were greater than the QAPP limit (0.99999, 0.99995, and 0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/19/2018 at 12:44; on 7/21/2018 at 00:14, 11:12, and 13:34; on 7/23/2018 at 16:06, 18:29, and 18:55; on 7/24/2018 at 17:34; on 7/25/2018 at 07:46. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/24/2018, 7/26/2018, and 7/29/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 19%. Percent solids was below 30% in sample TA-SED-T4-ISLAND (0-0.5) (19%). All results for TA-SED-T4-ISLAND (0-0.5) were qualified (detects were qualified J and nondetects were qualified UJ).	Yes
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808026
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Samples TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), TA-SB-21 (9-10) were extracted for acetic acid and formic acid outside of the QAPP holding time.	The samples were collected on 7/30/2018 and 7/31/2018. The samples were received on ice at 3.2^{o}C on 8/1/2018. According to the sample receipt, custody seals were not included on the shipping container for this SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. Samples TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), TA-SB-21 (9-10) were extracted for acetic acid and formic acid on the third day after sample collection outside of the QAPP limit of 2 days. Acetic acid and formic acid were not detected in any samples. UJ qualifiers were added to these nondetect results.	Yes
Reported Quantitation Limits	No	acetic acid and formic acid in all samples except TA-SB-10 (4-5), TA-SB-15 (2-3), TA-SB-21 (6-7), and TA-SB-50 (7-8)	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples, except TA-SB-10 (4-5), TA-SB-15 (2-3), TA-SB-21 (6-7), and TA-SB-50 (7-8) ranged between 21 mg/kg and 25 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit (100 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	sulfide in the LCS samples associated with all samples in the SDG	LCS results within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were (62.5%, 39.1%, and 46.9%), which were within the lab limit of 21-81% outside the project limits (80-120%). Sulfide was not detected in any of the affected samples. UJ qualifiers were added to all non-detect results.	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analyses performed on sample TA-SB-45 (2-3) and on samples analyzed in SDGs 18072003 and 1808208 (TA-SB-AOC-D-01 (2-3)) analyzed in the same batches as samples in SDG 1808026.	For acetic acid and formic acid, MS/MSD performed on sample TA-SB-15 (2-3), and samples in SDGs 18071952 (TA-SB-29 (2-3)) and 18072003 analyzed in the same batch as samples in 1808026. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-SB-14 (5-6), TA-SB-45 (2-3), and TA-SB-50 (2-3). All MS/MSD results within QAPP limits. For sulfide, MS/MSD analysis was performed on sample TA-SB-45 (2-3) and on samples analyzed in SDGs 18072003 and 1808208 (TA-SB-AOC-D-01 (2-3)) and analyzed in batches with samples in SDG 1808026. MS/MSD recoveries (54.7%/54.7%, 27.9%/31.3%, and 32.4%/33.5%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. Sulfide nondetect result for TA-SB-45(2-3) was qualified UJ.	Yes
Initial Calibration	No	Acetic acid in initial calibration performed on 8/1/2018 and associated with all samples in SDG.	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/1/2018 from 12:54 to 14:37. The %RSD for formic acid (8.9%) was within the QAPP limit (20%), but the %RSD for acetic acid was not (27.77%) in the initial calibration performed on 8/1/2018. No action was taken based on the initial calibration results as acetic acid was not detected in any samples in this SDG. For available cyanide, initial calibrations was performed on 8/15/2018. The r2 value was greater than the QAPP limit (0.99997 vs. 0.99 for solids). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/1/2018 at 14:50 and 18:38; on 8/2/2018 at 20:59 and 23:20; on 8/3/2018 at 01:42; and on 8/6/2018 at 08:34; 10:56; 13:36; 15:45 and 18:07. %Ds were below 25% for all CCVs. A CCV was performed for available cyanide on 8/15/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 77%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SB-45 (6-7) and TA-SB-45 (6-7) DUP). Acetic acid, formic acid, available cyanide, and sulfide were not detected in either sample.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808208
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Acetic acid and formic acid in all samples in SDG. Available cyanide in samples TA-SB-56 (6-7), TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (7-8). TA-SB-MA-02 (11-12).	The samples were collected on 8/1/2018. The samples were received on ice at 2.0°C on 8/2/2018. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples in the SDG were extracted for acetic acid and formic acid on the 8th day after sample collection outside of the QAPP limit of 2 days. Neither acetic acid nor formic acid was detected above the laboratory reporting limit in any samples. UJ qualifiers were added to these results. Samples TA-SB-56 (6-7), TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), and TA-SB-AOC-D-02 (2-3) were analyzed for available cyanide on the 14th day after sample collection, slightly outside of the QAPP limit of 14 days. Samples TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (7-8), and TA-SB-MA-02 (11-12) were analyzed on the 19th day after sample collection. J- qualifiers were added to all detected results, and UJ qualifiers were added to the non-detect results in samples TA-SB-AOC-D-01 (8-9), TA-SB-AOC-E-02 (5-6), TA-SB-C-01 (11-12), and TA-SB-56 (6-7).	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in SDG, except TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), TA-SB-C-01 (11-12), and TA-SB-56 (6-7)	The laboratory reporting limits for soil samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples, except TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), TA-SB-C-01 (11-12), and TA-SB-56 (6-7) ranged between 21 mg/kg and 32 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit (100 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	sulfide in the LCS samples associated with all samples in the SDG	LCS results within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were (46.9% and 49.1%), which were within the laboratory limit of 21-81% but outside the project limits (80-120%). J- qualifiers were added to the detected sulfide results in samples TA-SB-MA-01 (7-8) and TA-SB-MA-02 (7-8), and UJ qualifiers were added to all other sulfide results, which were non-detect.	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analyses performed on sample TA-SB-AOC-D01 (2-3) and on a sample analyzed in SDG 1808214 and analyzed in the same batch as samples in SDG 1808208	For acetic acid and formic acid, MS/MSD performed on sample TA-SB-AOC-D-01 (2-3), and a sample in SDG 1808214 analyzed in the same batch as samples in 1808208. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-SB-AOC-D-01 (2-3) and TA-SB-AOC-J-02 (13-14) and on samples in SDGs 1808026 (TA-SB-50 (2-3)) and 1808214 analyzed in the same batches as samples in 1808208. All MS/MSD results within QAPP limits. For sulfide, MS/MSD analysis was performed on sample TA-SB-AOC-D-01 (2-3) and on a sample analyzed in SDG 1808214 and analyzed in a batch with samples in SDG 1808208. MS/MSD recoveries (32.4%/33.5% and 43.5%/41.3%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. Sulfide nondetect result for TA-SB-AOC-D-01 (2-3) was qualified UJ.	Yes
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/13/2018 from 18:15 to 19:27. The %RSDs for formic acid and acetic acid were within the QAPP limit (15.09% and 12.88% vs.20%) for the initial calibration performed on 8/13/2018. No action was taken based on the initial calibration results for acids. For available cyanide, initial calibrations were performed on 8/15/2018 and 8/21/2018. The r2 values were greater than the QAPP limit (0.99997 and 0.99997 vs. 0.99 for solids). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/13/2018 at 19:36; on 8/14/2018 at 07:54, 09:33, 17:10, 18:49, 20:27, 22:06. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/15/2018 and 8/21/2018. %Ds were below 25%.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 60%.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808208
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP). Acetic acid, formic acid, and sulfide were not detected in either sample. Available cyanide was detected in both samples, and the %RPD was within the QAPP limit (14.29% vs. 50% for solids)	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808242
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples were extracted for acids outside of holding time. All samples were analyzed for available cyanide outside of holding time.	The samples were collected on 8/2/2018. The samples were received on ice at 3.0°C on 8/3/2018. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples in the SDG were extracted for acetic acid and formic acid on the 7th or 8th day after sample collection outside of the QAPP limit of 2 days. Neither acetic acid nor formic acid was detected above the laboratory reporting limit in any samples, except formic acid in TA-SB-01 (2-3) and acetic acid in TA-SB-03 (12-13). UJ qualifiers were added to non detect results, and J- qualifiers were added to the detected results in samples TA-SB-01 (2-3) and TA-SB-03 (12-13). All samples were analyzed for available cyanide between 19 and 21 days after sample collection, outside of the QAPP limit of 14 days. J- qualifiers were added to detected results in samples TA-SB-01 (7-8), TA-SB-02 (7-8), TA-SB-03 (12-13), TA-SB-08 (7-8), TA-SB-08 (7-8) DUP, TA-SB-AOC-C02 (2-3), TA-SB-MA-03 (13-14), and TA-SB-MA-03 (7-8), and UJ qualifiers were added to the non-detect results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples except TA-SB-01 (2-3).	The laboratory reporting limits for soil samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples, except TA-SB-01 (2-3) ranged between 21 mg/kg and 29 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit (100 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	sulfide in the LCS samples associated with all samples in the SDG	LCS results within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were (50.2% and 36.8%,), which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples, except samples TA-SB-01 (7-8), TA-SB-03 (12-13), TA-SB-08 (7-8), TA-SB-08 (7-8) DUP, and TA-SB-MA-03 (13-14). UJ qualifiers were added to all non-detect results, and J- qualifiers were added to detected results.	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analyses performed on samples TA-SB-09 (2-3) and TA-SB-08 (3-4)	For acetic acid and formic acid, MS/MSD analysis was performed on samples TA-SB-09 (2-3) and TA-SB-08 (3-4). All MS/MSD results within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-SB-09 (2-3) and TA-SB-08 (3-4) and on a sample in SDG 1808216 analyzed in the same batch as samples in 1808242. All MS/MSD results within QAPP limits.For sulfide, MS/MSD analysis was performed on samples TA-SB-09 (2-3) and TA-SB-08 (3-4). MS/MSD recoveries (44.7%/43.5% and 31.3%/33.5%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. Sulfide nondetected results in TA-SB-09 (2-3) and TA-SB-08 (3-4) were qualified UJ.	Yes
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/13/2018 from 18:15 to 19:27. The %RSDs for formic acid and acetic acid were within the QAPP limit (15.09% and 12.88% vs.20%) for the initial calibration performed on 8/13/2018. No action was taken based on the initial calibration results for acids. For available cyanide, initial calibrations were performed on 8/21/2018, 8/22/2018, and 8/23/2018. The r2 values were greater than the QAPP limit (0.99997, 0.99999, and 0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/13/2018 at 19:36 and on 8/14/2018 07:54, 09:33, 12:35, 14:14, and 15:53. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/21/2018, 8/22/2018, and 8/23/2018. %Ds were below 25% with the exception of one CCV on 8/22/2018. Affected samples were reanalyzed. %Ds were below 25% in the reanalysis. .	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 59.58%.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808242
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SB-08 (7-8) and TA-SB-08 (7-8) DUP). Acetic acid and formic acid were not detected in either sample. Available cyanide and sulfide were detected in both samples, and the %RPDs were within the QAPP limit (0% and 8.42% vs. 50% for solids)	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808446 and 1808539
Lab: ALS
Media: Groundwater
Fraction: acetic acid, formic acid, available cyanide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples were extracted for acids outside of holding time.	The samples were collected on 8/7/2018 and 8/8/2018. The samples were received on ice at 3.8°C and 2.4°C on 8/7/2018 and 8/8/2018. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and hexavalent chromium within the holding time limits specified in the QAPP with the following exceptions. All samples in SDG 1808446 were extracted for acetic acid and formic acid on the 6th day after sample collection, and all samples in SDG 1808539 were extracted for acetic acid and formic acid on the 5th day after sample collection outside of the QAPP limit of 2 days. Neither acetic acid nor formic acid was detected above the laboratory reporting limit in any samples. UJ qualifiers were added to non detect results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples.	The laboratory reporting limits for groundwater samples were compared to the MDEQ target detection limits listed in Table A.7.10 in the QAPP. The RLs for acetic acid and formic acid for all groundwater samples were 25 mg/L, above the MDEQ target detection limits of 0.1 mg/L and 0.05 mg/L, respectively. The RLs for available cyanide met the MDEQ target detection limit of 5 ug/L, and the RLs for hexavalent chromium met the MDEQ target detection limit of 0.01 mg/L.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or hexavalent chromium analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	LCS results within QAPP limits for acetic acid, formic acid, available cyanide, and hexavalent chromium.	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-MW-310A and samples analyzed in SDG 1808636 (TA-MW-309A and TA-MW-307B) and analyzed in the same batches as samples in SDG 1808446 and 1808539. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-MW-303E and TA-MW-310A. All MS/MSD results within QAPP limits. For hexavalent chromium, MS/MSD analysis was performed on sample TA-MW-310A, a sample analyzed in SDG 1808543 and analyzed in the same batch as samples in SDG 1808539, and a sample analyzed in SDG 1808445 and in the same batch as samples in SDG 1808446. All MS/MSD results were within QAPP limits.	No
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/13/2018 from 18:15 to 19:27. The %RSDs for formic acid and acetic acid were within the QAPP limit (15.09% and 12.88% vs. 20%) for the initial calibration performed on 8/13/2018. No action was taken based on the initial calibration results for acids. For available cyanide, initial calibrations were performed on 8/9/2018 and 8/16/2018. The r2 values were greater than the QAPP limit (0.99998 and 0.99971 vs. 0.995 for water). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/13/2018 at 19:36; 8/14/2018 at 23:44; and 8/15/2018 at 01:23, 03:02, and 04:41. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/9/2018 and 8/16/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	NA	---	Percent solids does not apply to water samples.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-MW-303E and TA-MW-303E DUP). Acetic acid, formic acid, available cyanide, and hexavalent chromium were not detected in either sample.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808448, 1808454, 1808636, and 1808638
Lab: ALS
Media: Groundwater (1808448, 1808636, and 1808638), Soil (1808454)
Fraction: acetic acid, formic acid, available cyanide, sulfide (soil samples only), hexavalent chromium (groundwater samples only)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples were extracted for acids outside of holding time.	The samples were collected on 8/3/2018, 8/7/2018, and 8/9/2018. The samples were received on ice at 3.2^{o}C, 3.2^{o}C, 3.0^{o}C, and 3.0^{o}C on 8/8/2018 and 8/9/2018. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, sulfide, and hexavalent chromium within the holding time limits specified in the QAPP with the following exceptions. All samples in SDG 1808448 were extracted for acetic acid and formic acid on the 6th day after sample collection; all samples in SDG 1808636 were extracted for acetic acid and formic acid between the 4th and 11th day after sample collection; all samples in SDG 1808638 were extracted for acetic acid and formic acid on the 4th day after sample collection; and all samples in SDG 1808454 were extracted between the 8th and 12th day after sample collection outside of the QAPP limit of 2 days. Neither acetic acid nor formic acid was detected above the laboratory reporting limit in any samples except for acetic acid in sample TA-SB-07 (3-4). UJ qualifiers were added to non detect results, and a J- qualifier was added to the acetic acid detected in sample TA-SB-07 (3-4).	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all groundwater samples.	The laboratory reporting limits for soil and groundwater samples were compared to the MDEQ target detection limits listed in Tables A.7.8 and A.7.10, respectively, in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all groundwater samples were 25 mg/L, above the MDEQ target detection limits of 0.1 mg/L and 0.05 mg/L, respectively. The RLs for acetic acid and formic acid for all soil samples were below the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide for all groundwater and soil samples met the MDEQ target detection limits of 5 ug/L and 100 ug/kg, respectively, and the RLs for hexavalent chromium for all groundwater samples met the MDEQ target detection limit of 0.01 mg/L.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, sulfide, or hexavalent chromium analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide (Batch 123742 and 123807, all samples in these SDGs)	LCS results within QAPP limits for acetic acid, formic acid, available cyanide, and hexavalent chromium. LCSD results were within QAPP limits for the LCSD performed in SDG 1808454. Sulfide LCS results were (58% and 58%), which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any samples in the four SDGs except sample TA-SB-07 (3-4). Non-detect sulfide results for all samples in the four SDGs were qualified with a UJ, and the detected result in sample TA-SB-07 (3-4) was qualified with a J-.	Yes

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808448, 1808454, 1808636, and 1808638
Lab: ALS
Media: Groundwater (1808448, 1808636, and 1808638), Soil (1808454)
Fraction: acetic acid, formic acid, available cyanide, sulfide (soil samples only), hexavalent chromium (groundwater samples only)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Matrix Spike/Matrix Spike Duplicates	No	MS/MSD analysis not performed for acids in SDG 1808454. Sulfide in the MS/MSD analysis performed on samples analyzed in SDG 1808450.	For acetic acid and formic acid, MS/MSD analysis was performed on samples TA-MW-309A and TA-MW-307B; on a sample analyzed in SDG 1808539 (TA-MW-310A) analyzed in the same batch as samples in SDG 1808448, 1808636, and 1808638; and on a sample analyzed in SDG 1808742 (TA-MW-309B) and analyzed in the same batch as samples in SDG 1808636. All MS/MSD results within QAPP limits. An MS/MSD was not included for acids analysis in SDG 1808454. For available cyanide, MS/MSD analysis was performed on samples analyzed in SDGs 1808446 (TA-MW-303E) and 1808431 and analyzed in the same batch as samples in SDG 1808448; sample TA-SB-58 (7-8) in SDG 1808454; and samples TA-MW-309A, which was analyzed in the same batch as samples in SDG 1808638, and TA-MW-307B in SDG 1808636. All MS/MSD results within QAPP limits. For hexavalent chromium, MS/MSD analysis was performed on sample TA-MW-308C in SDG 1808448 and on samples TA-MW-309A and TA-MW-307B in SDG 1808636 and analyzed in the same batch as samples in SDG 1808638. All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on samples analyzed in SDG 1808450 and analyzed in the same batch as samples analyzed in SDG 1808454. MS/MSD recoveries (52.5%/49.1% and 52.5%/50.2%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. Sulfide results were qualified based on the LCS.	No
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 1/23/2018 from 18:25 to 00:33 on 1/24/2018, on 8/13/2018 from 18:15 to 19:27, and on 8/21/2018 from 14:20 to 15:32. The %RSDs for formic acid and acetic acid were within the QAPP limit (3.6% and 2.7% vs. 20%) for the initial calibration performed on 1/23/2018, (15.09% and 12.88%) for the initial calibration performed on 8/13/2018, and (15.98% and 13.85%) for the initial calibration performed on 8/21/2018. No action was taken based on the initial calibration results for acids. For available cyanide, initial calibrations were performed on 8/9/2018, 8/16/2018, 8/19/2018, and 8/23/2018. The r2 values were greater than the QAPP limit (0.99998, 0.99971, and 0.99999 vs. 0.995 for water and 0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration results for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/13/2018 at 19:36; on 8/15/2018 at 03:02, 04:41, 09:33, and 10:54; on 8/16/2018 at 15:15 and 21:43; on 8/17/2018 at 04:07, 05:52, and 09:57; on 8/21/2018 at 15:41 and 17:41; and on 8/22/2018 at 16:51. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/9/2018, 8/16/2018, 8/19/2018, and 8/23/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 57%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-MW-302B and TA-MW-302B DUP). Acetic acid, formic acid, available cyanide, and hexavalent chromium were not detected in either sample.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808813 and 1808899
Lab: ALS
Media: Groundwater
Fraction: acetic acid, formic acid, available cyanide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples were extracted for acids outside of holding time.	The samples were collected on 8/13/2018 and 8/14/2018. The samples were received on ice at 3.2°C and 3.0°C on 8/13/2018 and 8/14/2018. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and hexavalent chromium within the holding time limits specified in the QAPP with the following exceptions. All samples in SDG 1808813 were extracted for acetic acid and formic acid on the 7th day after sample collection, and all samples in SDG 1808899 were extracted for acetic acid and formic acid on the 6th day after sample collection outside of the QAPP limit of 2 days. Acetic acid and formic acid were non-detect in all samples in the two SDG. UJ qualifiers were added to all non-detect acid results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all groundwater samples. Hexavalent chromium in samples TA-GW-06, TA-TMW-102, and TA-P-2.	The laboratory reporting limits for groundwater samples were compared to the MDEQ target detection limits listed in Table A.7.10, respectively, in the QAPP. The RLs for acetic acid and formic acid for all groundwater samples were 25 mg/L, above the MDEQ target detection limits of 0.1 mg/L and 0.05 mg/L, respectively. The RLs for available cyanide for all groundwater samples met the MDEQ target detection limit of 5 ug/L. The RLs for hexavalent chromium for all groundwater samples met the MDEQ target detection limit of 0.01 mg/L, except for samples TA-GW-06 (0.025 mg/L), TA-TMW-102 (0.025 mg/L), and TA-P-2 (0.025 mg/L).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or hexavalent chromium analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	LCS results within QAPP limits for acetic acid, formic acid, available cyanide, and hexavalent chromium.	No
Matrix Spike/Matrix Spike Duplicates	No	Available cyanide in sample TA-GW-06.	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-MW-303A in SDG 1808813 and analyzed in the same batch as samples in SDG 1808899. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD analysis was performed on sample TA-MW-302A, a sample in SDG 1808745 analyzed in the same batch as samples in SDG 1808813, and sample TA-GW-06. All MS/MSD results within QAPP limits, except the MS/MSD performed on sample TA-GW-06 for which recoveries were 1.32% and 1.32%, below the QAPP limit of 75-125%. The %RPD results met the QAPP limit of 30%. An UR qualifier was added to the non-detect available cyanide result in sample TA-GW-06. For hexavalent chromium, MS/MSD analysis was performed on a sample in SDG 1808812 analyzed in the same batch as samples in SDG 1808813 and on sample TA-GW-08 in SDG 1808899. All MS/MSD results were within QAPP limits.	Yes
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/21/2018 from 14:20 to 15:32. The %RSDs for formic acid and acetic acid were within the QAPP limit (15.98% and 13.85% vs. 20%) for the initial calibration performed on 8/21/2018. No action was taken based on the initial calibration results for acids. For available cyanide, an initial calibration was performed on 8/20/2018. The r2 value was greater than the QAPP limit (0.99999 vs. 0.995 for water). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/21/2018 at 15:41, 19:20, 20:58, and 22:37 and on 8/22/2018 at 00:15 and 00:51. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/20/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	NA	---	Percent solids does not apply to water samples.	No
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 1808986
Lab: ALS
Media: Groundwater
Fraction: acetic acid, formic acid, available cyanide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples were extracted for acids outside of holding time.	The samples were collected on 8/15/2018. The samples were received on ice at 2.4°C on 8/15/2018. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and hexavalent chromium within the holding time limits specified in the QAPP with the following exceptions. All samples in the SDG were extracted for acetic acid and formic acid on the 9th day after sample collection, outside of the QAPP limit of 2 days. Acetic acid and formic acid were non-detect for all samples in this SDG. UJ qualifiers were added to all non-detect acid results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all groundwater samples. Hexavalent chromium in samples TA-MW-304A and TA-P-4.	The laboratory reporting limits for groundwater samples were compared to the MDEQ target detection limits listed in Table A.7.10, respectively, in the QAPP. The RLs for acetic acid and formic acid for all groundwater samples were 25 mg/L, above the MDEQ target detection limits of 0.1 mg/L and 0.05 mg/L, respectively. The RLs for available cyanide for all groundwater samples met the MDEQ target detection limit of 5 ug/L. The RLs for hexavalent chromium for all groundwater samples met the MDEQ target detection limit of 0.01 mg/L, except for samples TA-MW-304A (0.025 mg/L) and TA-P-4 (0.025 mg/L).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or hexavalent chromium analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	LCS results within QAPP limits for acetic acid, formic acid, available cyanide, and hexavalent chromium.	No
Matrix Spike/Matrix Spike Duplicates	No	hexavalent chromium in a sample in SDG 1808984.	For acetic acid and formic acid, MS/MSD analysis was performed on a sample in SDG 1808984 analyzed in the same batch as samples in SDG 1808986. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD analysis was performed on sample TA-P-4. All MS/MSD results were within QAPP limits. For hexavalent chromium, MS/MSD analysis was performed on a sample in SDG 1808984 analyzed in the same batch as samples in SDG 1808986. MS/MSD results (0.2%/0.2%) were below the QAPP limit of 75-125% while the %RPD results met the QAPP limit of 30%. No action was taken for any sample results in this SDG.	No
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/25/2018 from 16:41 to 17:52. The %RSDs for formic acid and acetic acid were within the QAPP limit (16.44% and 11.63% vs. 20%) for the initial calibration performed on 8/25/2018. No action was taken based on the initial calibration results for acids. For available cyanide, an initial calibration was performed on 8/20/2018. The r2 value was greater than the QAPP limit (0.99999 vs. 0.995 for water). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/25/2018 at 18:01, 19:38, and 21:15. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/20/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	NA	---	Percent solids does not apply to water samples.	No
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18061866, 18061975
Lab: ALS
Media: Sediment
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG 18061866 were extracted for acids outside of holding time. All samples in SDG 18061866 and samples TA-SED_T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), and TA-SED-T8-1 (4-5) in SDG 18061975 were analyzed for available cyanide outside of hold time. All samples in SDG 18061866 were received at a temperature above that specified in the QAPP.	The samples were collected on 6/27 and 6/28/2018. The samples were received on ice at 5.4°C on 6/28/2018 and at 3.0 °C on 6/29/2018. No action was taken due to the slight exceedance of the cooler temperature on 6/28/2018. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples in SDG 18061866 were extracted for acetic acid and formic acid on the 2nd day after sample collection, slightly outside of the QAPP limit of 2 days. Acetic acid and formic acid were non-detect for all samples in SDG 18061866. UJ qualifiers were added to all non-detect acid results. All samples in SDG 18061866 and samples TA-SED_T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), and TA-SED-T8-1 (4-5) in SDG 18061975 were analyzed for available cyanide on the 14th day after sample collection, slightly outside of the QAPP limit of 14 days. J- qualifiers were added to all detected cyanide results, and UJ qualifiers were added to the non-detect results in samples TA-SED-T6-2 (2-3) and TA-SED-T7-1 (0-1).	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in both SDGs. Available cyanide in samples TA-SED-T7-2 (0-1), TA-SED-T8-1 (0-1), TA-SED-T8-3 (1.5-2.5), and TA-SED-T8-3DUP (1.5-2.5).	The laboratory reporting limits for soil samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 21 mg/kg and 66 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit of 100 ug/kg, except for samples TA-SED-T7-2 (0-1) (130 ug/kg), TA-SED-T8-1 (0-1) (140 ug/kg), TA-SED-T8-3 (1.5-2.5) (120 ug/kg), and TA-SED-T8-3DUP (1.5-2.5) (120 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS associated with samples in SDG 18061866.	LCS results within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were (42.4% and 56.9%) in SDG 18061866, which were within the lab limit of 21-81% but outside the project limits (80-120%). The sulfide LCS result in SDG 18061975 was within the QAPP limits. Sulfide was not detected in any of the affected samples, except sample TA-SED-T7-2 (0-1). UJ qualifiers were added to all non-detect results, and J- qualifiers were added to the detected result in sample TA-SED-T7-2 (0-1).	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analyses performed on samples TA-SED-T6-2 (0-1), TA-SED-T7-2 (0-1), and TA-SED-T9-2 (0-1).	For acetic acid and formic acid, MS/MSD analysis was performed on samples TA-SED-T7-2 (0-1) and a TA-SED-T9-2 (0-1) analyzed in the same batch as samples in SDG 18061866. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD analysis was performed on sample TA-SED-T7-2 (0-1), sample TA-SED-T9-2 (0-1), a sample in SDG 18061926 analyzed in the same batch as samples in SDG 18061866, a sample in SDG 18061974 (TA-SB-MW-01 (2-3)) analyzed in the same batch as samples in SDG 18061975. All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on samples TA-SED-T6-2 (0-1), TA-SED-T7-2 (0-1), and TA-SED-T9-2 (0-1). MS/MSD recoveries (34.6%/43.5%, 31.3%/24.6%, and 63.3%) were within the lab limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. Sulfide results in TA-SED-T6-2 (0-1), TA-SED-T7-2 (0-1), and TA-SED-T9-2 (0-1) were qualified (detects were qualified J- and nondetects were qualified UJ).	Yes

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18061866, 18061975
Lab: ALS
Media: Sediment
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/2/2018 from 08:52 to 11:11. The %RSDs for formic acid and acetic acid were within the QAPP limit (10.75% and 9.34% vs. 20%) for the initial calibration performed on 7/2/2018. No action was taken based on the initial calibration results for acids. For available cyanide, an initial calibration was performed on 7/12/2018 (twice). The r2 value was greater than the QAPP limit (0.99999 and 0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/2/2018 at 11:27 and 18:46 and on 7/7/2018 at 13:26, 17:25, and 19:49. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/12/2018 (twice). %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 29%. Percent solids was below 30% in sample TA-SED-T8-1 (0-1) (29%). All results for TA-SED-T8-1 (0-1) were qualified (detects were qualified J and nondetects were qualified UJ).	Yes
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SED-T8-3 (1.5-2.5) and TA-SED-T8-3DUP(1.5-2.5)). Acetic acid and formic acid were not detected in either sample. Available cyanide and sulfide were detected in both samples, and the %RPD was within the QAPP limit (10.53% and 4.40%, respectively, vs. 50% for solids)	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071065
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG 18071065 were extracted for acids outside of holding time. Samples TA-SB-81 (4-5) and TA-SB-61 (5-6) were analyzed for available cyanide outside of hold time. All samples in SDG 18071065 were received at a temperature above that specified in the QAPP.	The samples were collected on 7/17/2018. The samples were received on ice at 4.2^{o}C on 7/18/2018. No action was taken due to the slight exceedance of the cooler temperature. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples in SDG 18071065 were extracted for acetic acid and formic acid on the 6th day after sample collection, outside of the QAPP limit of 2 days. Acetic acid and formic acid were not detected in any samples in this SDG. UJ qualifiers were added to all non-detect acid results. Samples TA-SB-81 (4-5) and TA-SB-61 (5-6) were analyzed for available cyanide on the 14th day after sample collection, slightly outside of the QAPP limit of 14 days. Available cyanide was detected in both samples, and J- qualifiers were added to these detected results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in SDG.	The laboratory reporting limits for soil samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 21 mg/kg and 42 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit of 100 ug/kg.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses. Available cyanide was detected at a concentration of 27.8 ug/kg, below the PQL of 40 ug/kg, in the method blank associated with samples TA-SB-77 (2-3), TA-SB-83 (1-2), and TA-SB-83 (4-5). Available cyanide was not detected in TA-SB-83(4-5) while available cyanide was detected in TA-SB-77 (2-3) and TA-SB-83 (1-2) at concentrations greater than the RLs and at least 2 times of the blank levels. No action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS samples associated with all samples in the SDG.	LCS results within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were 50.2% and 51.3%, which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples (i.e., all samples in this SDG). UJ qualifiers were added to all non-detect sulfide results.	Yes
Matrix Spike/Matrix Spike Duplicates	No	sulfide in the MS/MSD analysis performed on samples analyzed in SDGs 1807973 (TA-SB-76 (1-2)) and 18071147 (TA-SB-55 (1-2))	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SB-83 (4-5) and samples analyzed in SDGs 1807973 (TA-SB-76 (1-2)) and 18071147 (TA-SB-55 (1-2)) and analyzed in the same batch as samples in SDG 18071065. All MS/MSD results within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-SB-77 (5-6) and TA-SB-83 (1-2). All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on samples analyzed in SDGs 1807973 (TA-SB-76 (1-2)) and 18071147 (TA-SB-55 (1-2)) and analyzed in the same batch as samples in SDG 18071065. MS/MSD recoveries (41.3%/26.8% and 33.5%/35.7%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. No action was taken for the samples in this SDG.	No
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/24/2018 from 14:42 to 17:21. The %RSDs for formic acid and acetic acid were within the QAPP limit (12.01% and 13.56%, respectively, vs. 20%) for the initial calibration performed on 7/24/2018. No action was taken based on the initial calibration results for acids. For available cyanide, an initial calibration was performed on 7/31/2018. The r2 value was greater than the QAPP limit (0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/24/2018 at 17:34 and on 7/25/2018 at 07:46, 10:08, and 12:36. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/31/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 44.61%.	No
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071065
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071147
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG 18071147 were extracted for acids outside of holding time.	The samples were collected on 718/2018. The samples were received on ice at 3.0°C on 7/19/2018. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples in the SDG were extracted for acetic acid and formic acid on the 5th day after sample collection, outside of the QAPP limit of 2 days. Acetic acid and formic acid were not detected in any samples in this SDG. UJ qualifiers were added to all non-detect acid results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in SDG, except sample TA-SB-54 (3-4).	The laboratory reporting limits for soil samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples, except TA-SB-54 (3-4), ranged between 21 mg/kg and 44 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit of 100 ug/kg.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS samples associated with all samples in the SDG.	LCS results were within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were 33.5% and 51.3%, which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples (i.e., all samples in this SDG), except sample TA-SB-76 (7-8). UJ qualifiers were added to all non-detect sulfide results, and a J- qualifier was added to the detected sulfide result in sample TA-SB-76 (7-8).	Yes
Matrix Spike/Matrix Spike Duplicates	No	Sulfide in the MS/MSD analysis performed on samples TA-SB-55 (5-6) and TA-SB-55 (1-2)	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SB-55 (1-2) and samples analyzed in SDGs 1807973 (TA-SB-76 (1-2)) and 18071065 (TA-SB-83 (4-5)) and analyzed in the same batch as samples in SDG 18071147. All MS/MSD results were within QAPP limits. For available cyanide, MS/MSD analysis was performed on sample TA-SB-55 (1-2) and on a sample analyzed in SDG 18071501 and analyzed in the same batch as samples in SDG 18071147. All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on samples TA-SB-55 (5-6) and TA-SB-55 (1-2). MS/MSD recoveries (40.2%/42.4% and 33.5%/35.7%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. Sulfide nondetected results for TA-SB-55 (5-6) and TA-SB-55 (1-2) were qualified UJ.	Yes
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/24/2018 from 14:42 to 17:21. The %RSDs for formic acid and acetic acid were within the QAPP limit (12.01% and 13.56%, respectively, vs. 20%) for the initial calibration performed on 7/24/2018. No action was taken based on the initial calibration results for acids. For available cyanide, an initial calibration was performed on 7/31/2018. The r2 value was greater than the QAPP limit (0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/24/2018 at 17:34 and on 7/25/2018 at 10:08, 12:36, 14:57, and 17:19. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/31/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 43.92%.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071147
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	Yes	---	Two field duplicate pairs were collected for this SDG (TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP and TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP). Acetic acid, formic acid, nor sulfide was detected in either sample in field duplicate pair TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP. Available cyanide was detected in both samples, and the RPD was within the QAPP limit (15.69% vs. 50% for solids). Acetic acid, formic acid, nor sulfide was detected in either sample in field duplicate pair TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP. Available cyanide was detected in both samples, and the RPD was within the QAPP limit (2.82% vs. 50% for solids).	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071364, 18071457
Lab: ALS
Media: Soil and Sediment
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG 18071364 and samples TA-SB-67 (0-1), TA-SB-67 (5-6), TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6), TA-SED-EAST DAM (0-0.5), TA-SB-AOC-G-02 (1-2), and TA-SB-AOC-G-02 (6-7) in SDG 18071457 were extracted for acids outside of holding time. All samples in both SDGs were received at a temperature above that specified in the QAPP.	The samples in SDG 18071364 were collected on 7/20/2018 and received on ice at 5.4°C on 7/21/2018, and the samples in SDG 18071457 were collected on 7/23/2018 and received on ice at 4.2°C on 7/24/2018. No action was taken due to the slight exceedance of the cooler temperatures. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples in SDG 18071364 were extracted for acetic acid and formic acid on the 5th day after sample collection, and samples TA-SB-67 (0-1), TA-SB-67 (5-6), TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6), TA-SED-EAST DAM (0-0.5), TA-SB-AOC-G-02 (1-2), and TA-SB-AOC-G-02 (6-7) were extracted on the 2nd day after sample collection, outside of the QAPP limit of 2 days. Acetic acid and formic acid were not detected in any samples in either SDG with the exception of formic acid in sample TA-SB-67 (0-1). UJ qualifiers were added to all non-detect acid results, and a J- qualifier was added to the detected formic acid result in sample TA-SB-67 (0-1).	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in both SDGs, except sample TA-SB-71 (1-2).	The laboratory reporting limits for soil samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples, except TA-SB-71 (1-2), ranged between 21 mg/kg and 34 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit of 100 ug/kg.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide analyses; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS samples associated with all samples in the SDGs.	LCS results within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were 61.4%, 60.3%, 60.3% and 51.3%, which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples. UJ qualifiers were added to all non-detect sulfide results in the two SDGs.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Sulfide in the MS/MSD analysis performed on sample TA-SB-71 (1-2) and samples analyzed in SDGs 1808272 and 18071497.	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SB-71 (1-2). All MS/MSD results were within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-SB-71 (1-2) and TA-SB-AOC-G02 (1-2). All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on sample TA-SB-71 (1-2) and samples analyzed in SDGs 1808272 and 18071497 and analyzed in the same batches as samples in SDGs 18071364 and 18071457. MS/MSD recoveries (34.6%/43.5%, 33.5%/33.5%, and 39.1%/44.7%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50%. Sulfide nondetected result for TA-SB-71 (1-2) was qualified UJ.	Yes
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/28/2018 from 19:21 to 21:04. The %RSDs for formic acid and acetic acid were within the QAPP limit (18.10% and 14.68%, respectively, vs. 20%) for the initial calibration performed on 7/28/2018. No action was taken based on the initial calibration results for acids. For available cyanide, an initial calibration was performed on 8/2/2018. The r2 value was greater than the QAPP limit (0.99997 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/28/2018 at 21:17 and 23:38 and on 7/29/2018 at 01:59, 04:21, 06:42, and 07:34. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/2/2018. %Ds were below 25% for all CCVs.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071364, 18071457
Lab: ALS
Media: Soil and Sediment
Fraction: acetic acid, formic acid, sulfide, available cyanide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Solids Percentage	Yes	---	All soil samples at solids percentage above 57.48%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SB-72 (1-2) and TA-SB-72 (1-2) DUP). Acetic acid, formic acid, and sulfide were not detected in either sample. Available cyanide was detected in both samples, and the %RPD was within the QAPP limit (17.39% vs. 50% for solids)	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071435
Lab: ALS
Media: Groundwater
Fraction: acetic acid, formic acid, available cyanide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	The only sample in this SDG was extracted for acids outside of holding time.	The sample was collected on 7/23/2018 and received on ice at 2.4°C on 7/24/2018. According to the sample receipt, custody seals were not included on the shipping container for this SDG. Sample MW-15 was analyzed for available cyanide, hexavalent chromium, acetic acid, and formic acid within the holding time limits specified in the QAPP; however, the sample was extracted for acetic acid and formic acid on the 6th day after sample collection, outside of the QAPP limit of 2 days. Acetic acid and formic acid were not detected in this sample. UJ qualifiers were added to these non-detect acid results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in the only sample in this SDG.	The laboratory reporting limits for this groundwater sample were compared to the MDEQ target detection limits listed in Table A.7.10 in the QAPP. The RLs for acetic acid and formic acid for this groundwater sample were 25 mg/L, above the MDEQ target detection limits of 0.1 mg/L and 0.05 mg/L, respectively. The RLs for available cyanide for all groundwater samples met the MDEQ target detection limit of 5 ug/L. The RLs for hexavalent chromium for all groundwater samples met the MDEQ target detection limit of 0.01 mg/L.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or hexavalent chromium analysis; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	LCS results within QAPP limits for acetic acid, formic acid, available cyanide, and hexavalent chromium.	No
Matrix Spike/Matrix Spike Duplicates	No	Available cyanide in the MS/MSD analysis performed on a sample analyzed in SDG 18071488.	For acetic acid and formic acid, MS/MSD analysis was performed on a sample analyzed in SDG 18071606 (TA-SW-06) and analyzed in the same batch as the sample in SDG 18071435. All MS/MSD results were within QAPP limits. For available cyanide, MS/MSD analysis was performed on a sample analyzed in SDG 18071488 but analyzed in the same batch as the sample in SDG 18071435. MS/MSD recoveries (59.1%/60.3%) were below the QAPP limit of 75-125% while the %RPD results met the QAPP limit of 30%. A UJ qualifier was added to the non-detect available cyanide result in sample MW-15. For hexavalent chromium, MS/MSD analysis was performed on a sample in SDG 18071416 and analyzed in the same batch as the sample in SDG 18071435. All MS/MSD results were within QAPP limits.	Yes
Initial Calibration	No	Acetic acid and formic acid in the sample analyzed on 7/31/2018.	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/31/2018 from 09:09 to 10:52. The %RSDs for formic acid and acetic acid were above the QAPP limit (24.03% and 46.23%, respectively, vs. 20%) for the initial calibration performed on 7/31/2018 10:52. No action was taken based on the initial calibration results for formic acid. Acetic acid was qualified based on the hold time exceedance. For available cyanide, an initial calibration was performed on 7/26/2018. The r2 value was greater than the QAPP limit (0.99995 vs. 0.995 for water). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/31/2018 at 11:05, 13:26, and 15:47. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/26/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	NA	---	Percent solids does not apply to water samples.	No
Field Duplicate Analysis	NA	---	No field duplicate pairs were collected for this SDG.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071569, 18071606
Lab: ALS
Media: Sediment (18071569) and Surface water (18071606)
Fraction: acetic acid, formic acid, available cyanide, sulfide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in both SDGs were extracted for acids outside of holding time.	The samples in SDG 18071569 were collected on 7/24/2018 and received on ice at 3.4°C on 7/25/2018, and the samples in SDG 18071606 were collected on 7/25/2018 and received on ice at 3.0°C on 7/25/2018. According to the sample receipt, custody seals were not included on the shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples in SDG 18071569 were extracted for acetic acid and formic acid on the 2nd day after sample collection, slightly outside of the QAPP limit of 2 days, and all samples in SDG 18071606 were extracted for acetic acid and formic acid on the 4th day. Acetic acid and formic acid were not detected in any samples in either SDG. UJ qualifiers were added to all non-detect acid results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in both SDGs.	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP, and the laboratory reporting limits for water samples were compared to the MDEQ target limits listed in table A.7.10 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all sediment samples ranged between 24 mg/kg and 25 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for acetic acid and formic acid for all water samples ranged between 5 mg/l and 25 mg/L, above the MDEQ target detection limits of 0.1 mg/L and 0.05 mg/L, respectively. The RLs for available cyanide and hexavalent chromium met the MDEQ target detection limits.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, sulfide, or hexavalent chromium analysis; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS samples associated with all samples in SDG 18071569.	LCS results were within QAPP limits for acetic acid, formic acid, available cyanide, and hexavalent chromium. Sulfide LCS results were 27.9% and 50.2%, which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples (i.e., all samples in SDG 18071569). UJ qualifiers were added to all non-detect sulfide results.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Available cyanide in the MS/MSD performed on sample TA-SW-06. Sulfide in the MS/MSD analysis performed on samples analyzed in SDGs 18071745 (TA-SB-19 (3-4)) and 18071750.	For acetic acid and formic acid, MS/MSD analysis was performed on samples TA-SED-T1-1 (0-1) and TA-SW-06. All MS/MSD results were within QAPP limits. For available cyanide, MS/MSD analysis was performed on a sample include in SDG 18071497 but analyzed in the same batch samples in SDG 18071569, a sample in SDG 18071646 but analyzed in the same batch as samples in SDG 18071606, and on sample TA-SW-06. MS/MSD recoveries associated with the samples analyzed in SDGs 18071569 and 18071646 were within QAPP limits. MS/MSD recoveries (53.4%/63%) in sample TA-SW-06 were below the QAPP limit of 75-125% while the %RPD results met the QAPP limit of 30% for water. A UJ qualifier was added to the non-detect available cyanide result in sample TA-SW-06. For hexavalent chromium, MS/MSD analysis was performed on sample TA-SW-06. All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on samples in SDGs 18071745 (TA-SB-19 (3-4)) and 18071750 and analyzed in the same batch as samples in SDG 18071569. MS/MSD recoveries (32.4%/31.3% and 40.2%/45.8%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50% for soil. No action was taken on the samples in this SDG.	Yes

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071569, 18071606
Lab: ALS
Media: Sediment (18071569) and Surface water (18071606)
Fraction: acetic acid, formic acid, available cyanide, sulfide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	No	Acetic acid and formic acid in samples analyzed on 7/31/2018.	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/31/2018 from 09:09 to 10:52. The %RSDs for formic acid and acetic acid were above the QAPP limit (24.03% and 46.23%, respectively, vs. 20%) for the initial calibration performed on 7/31/2018. Acetic acid or formic acid was not detected in any samples in the two SDGs; no action was taken based on the initial calibration results for formic acid or acetic acid. For available cyanide, initial calibrations were performed on 7/30/2018 for SDG 18071606 and on 8/6/2018 for SDG 18071569. The r2 values were greater than the QAPP limit (0.99999 vs. 0.995 for water and 0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	No	Acetic acid in samples analyzed on 7/31/2018.	CCVs were performed for acetic acid and formic acid on 7/31/2018 at 11:05, 13:26, 15:47, 18:08, 20:30, 22:51, and 23:56. %Ds were below 25% for all CCVs with the following exceptions. The %Ds for acetic acid associated with the CCVs performed on 7/31/2018 at 18:08 and 20:30 were 25.5% and 26.7%, respectively. Acetic acid was not detected in any samples in this SDG; no action was taken based on the elevated CCV resutls. CCVs were performed for available cyanide in SDG 18071606 on 7/30/2018 and in SDG 18071569 on 8/6/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All sediment samples at solids percentage above 77.39%.	No
Field Duplicate Analysis	Yes	---	Three field duplicate pairs were collected for this SDG (TA-SED-T1-1 (0-1) and TA-SED-T1-1 (0-1) DUP; TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP; and TA-SW-01 and TA-SW-01 (DUP)). Acetic acid, formic acid, nor sulfide was detected in either sample in field duplicate pair TA-SED-T1-1 (0-1) and TA-SED-T1-1 (0-1) DUP. Available cyanide was detected in both samples, and the RPD was within the QAPP limit (6.45% vs. 50% for solids). Acetic acid, formic acid, nor sulfide was detected in either sample in field duplicate pair TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP. Available cyanide was detected in both samples, and the RPD was within the QAPP limit (15.38% vs. 50% for solids). Acetic acid, formic acid, available cyanide, nor hexavalent chromium was detected in either sample in field duplicate pair TA-SW-01 and TA-SW-01 (DUP).	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071742, 18071745
Lab: ALS
Media: Surface water (18071742) and soil (18071745)
Fraction: acetic acid, formic acid, available cyanide, sulfide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	The only sample in SDG 18071742 was extracted for acids outside of holding time and analyzed for hexavalent chromium slightly outside of hold time.	The sample in SDG 18071742 was collected on 7/26/2018 and received on ice at 2.4°C on 7/26/2018, and the samples in SDG 18071745 were collected on 7/26/2018 and received on ice at 3.2°C on 7/26/2018. According to the sample receipt, custody seals were not included on the shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. The only sample in SDG 18071742 was extracted for acetic acid and formic acid on the 3rd day after sample collection, outside of the QAPP limit of 2 days. The only sample in SDG 18071742 was analyzed for hexavalent chromium during the 24th hour after sample collection, slightly outside of the 24 hour hold time. Acetic acid, formic acid, and hexavalent chromium were not detected in sample TA-SW-05. UJ qualifiers were added to these non-detect results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in both SDGs.	The laboratory reporting limits for soil and sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP, and the laboratory reporting limits for water samples were compared to the MDEQ target limits listed in table A.7.10 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 21 mg/kg and 46 mg/kg, except for sample TA-SB-18 (2-3), above the MDEQ target detection limit of 20 mg/kg. The RLs for acetic acid and formic acid for the water sample in SDG 18071742 was 25 mg/L, above the MDEQ target detection limits of 0.1 mg/L and 0.05 mg/L, respectively. The RLs for available cyanide and hexavalent chromium met the MDEQ target detection limits.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, sulfide, or hexavalent chromium analysis; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS samples associated with all samples in SDG 18071745.	LCS results were within QAPP limits for acetic acid, formic acid, available cyanide, and hexavalent chromium. Sulfide LCS results were 27.9%, 50.2%, and 67%, which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples (i.e., all samples in SDG 18071745), except sample TA-SB-36 (5-6). UJ qualifiers were added to all non-detect sulfide results, and a J- qualifier was added to the detected sulfide result in sample TA-SB-36 (5-6).	Yes
Matrix Spike/Matrix Spike Duplicates	No	Sulfide in the MS/MSD analysis performed on samples TA-SB-19 (3-4), TA-SB-38 (0.5-1.5) DUP, and a sample in SDG 18071750.	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SB-19 (3-4) in SDG 18071745 and a sample in SDG 18071606 (TA-SW-06) analyzed in the same batch as the sample in SDG 18071742. All MS/MSD results were within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-SB-19 (3-4) and TA-SB-38 (0.5-1.5) in SDG 18071745 and on a sample in SDG 18071646 analyzed in the same batch as the sample in SDG 18071742. All MS/MSD results were within QAPP limits. For hexavalent chromium, MS/MSD analysis was performed on a sample in SDG 18071743 analyzed in the same batch as the sample in SDG 18071742. All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on samples TA-SB-19 (3-4) and TA-SB-38 (0.5-1.5) DUP in SDG 18071745 and on a sample in SDG 18071750 analyzed in the same batch as samples in SDG 18071745. MS/MSD recoveries (32.4%/31.3%, 40.2%/45.8%, and 42.4%/38%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50% for soil. Sulfide nondetected results for TA-SB-19 (3-4) and TA-SB-38 (0.5-1.5) DUP were qualified UJ.	Yes

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071742, 18071745
Lab: ALS
Media: Surface water (18071742) and soil (18071745)
Fraction: acetic acid, formic acid, available cyanide, sulfide, hexavalent chromium

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	No	Acetic acid and formic acid in samples analyzed on 7/31/2018.	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/31/2018 from 09:09 to 10:52. The %RSDs for formic acid and acetic acid were above the QAPP limit (24.03% and 46.23%, respectively, vs. 20%) for the initial calibration performed on 7/31/2018. Formic acid or acetic acid was not detected in any samples in these two SDGs. No action was taken based on the initial calibration results for formic acid and acetic acid. For available cyanide, initial calibrations were performed on 7/30/2018 for SDG 18071742 and on 8/6/2018 for SDG 18071745. The r2 values were greater than the QAPP limit (0.99999 vs. 0.995 for water and 0.99999 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	No	Acetic acid in samples analyzed on 7/31/2018.	CCVs were performed for acetic acid and formic acid on 7/31/2018 at 11:05, 13:26, 15:47, 18:08, 20:30, 22:51, and 23:56. %Ds were below 25% for all CCVs with the following exceptions. The %Ds for acetic acid associated with the CCVs performed on 7/31/2018 at 18:08 and 20:30 were 25.5% and 26.7%, respectively. Acetic acid was not detected in any samples in these two SDGs; no action was taken based on the CCV results. CCVs were performed for available cyanide on 7/30/2018 for SDG 18071742 and on 8/6/2018 for SDG 18071745. %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 42.34%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SB-38 (0.5-1.5) and TA-SB-38 (0.5-1.5) DUP). Acetic acid, formic acid, and sulfide were not detected in either sample. Available cyanide was detected in both samples, and the %RPD was within the QAPP limit (4.88% vs. 50% for solids).	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071909
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, available cyanide, and sulfide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG 18071909 were extracted for acids outside of holding time.	The samples in SDG 18071909 were collected on 7/27/2018 and received on ice at 3.8°C on 7/28/2018. According to the sample receipt, custody seals were not included on the shipping containers for this SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. Samples were extracted for acetic acid and formic acid on the 4th day after sample collection, outside of the QAPP limit of 2 days. Acetic acid and formic acid were not detected above the laboratory reporting limit in any samples. UJ qualifiers were added to these non-detect results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in SDG, except for samples TA-SB-24 (0-1), TA-SB-32 (9-10), TA-SB-40 (2-3), TA-SB-46 (9-10), TA-SB-48 (10-11), and TA-SB-48 (1-2). Available cyanide in sample TA-SB-25 (7-8).	The laboratory reporting limits for soil samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 21 mg/kg and 73 mg/kg, except for samples TA-SB-24 (0-1), TA-SB-32 (9-10), TA-SB-40 (2-3), TA-SB-46 (9-10), TA-SB-48 (10-11), and TA-SB-48 (1-2) above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit of 100 ug/kg, except for TA-SB-25 (7-8) (110 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS samples associated with all samples in SDG.	LCS results were within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were 67%, 67%, and 58%, which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples (i.e., all samples in this SDG), except samples TA-SB-37 (6-7), TA-SB-34 (6-7), TA-SB-31 (7-8), and TA-SB-40 (6-7). UJ qualifiers were added to all non-detect sulfide results, and a J- qualifier was added to the detected sulfide results.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Sulfide in the MS/MSD analysis performed on samples TA-SB-25 (1-2) and samples analyzed in SDGs 18071745 (TA-SB-38 (0.5-1.5) DUP) and 18071952 (TA-SB-29 (2-3)).	For acetic acid and formic acid, MS/MSD analysis was performed on samples TA-SB-25 (1-2) and TA-SB-48 (10-11). All MS/MSD results were within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-SB-34 (6-7), TA-SB-25 (1-2), and TA-SB-48 (10-11). All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on sample TA-SB-25 (1-2) and samples include in SDGs 18071745 (TA-SB-38 (0.5-1.5) DUP) and 18071952 (TA-SB-29 (2-3)) and analyzed in the same batch as samples in SDG 18071909. MS/MSD recoveries (42.4%/38%, 31.3%/26.8%, and 45.8%/45.8%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50% for soil. Sulfide nondetected result for TA-SB-25 (1-2) was qualified UJ.	Yes
Initial Calibration	No	Acetic acid in samples analyzed on 8/1/2018.	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/1/2018 from 12:54 to 14:37. The %RSD for formic acid (8.9%) was within the QAPP limit (20%), but the %RSD for acetic acid (27.77%) was above the limit in the initial calibration performed on 8/1/2018. Acetic acid was not detected in any samples in this SDG; no action was taken based on the initial calibration results for acetic acid. For available cyanide, initial calibrations were performed on 8/8/2018. The r2 values were greater than the QAPP limit (0.99998 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071909
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, available cyanide, and sulfide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/1/2018 at 14:50; on 8/2/2018 at 08:12, 10:33, 12:55, 15:52, 17:48, 18:38, 20:59, and 23:20; on 8/3/2018 at 01:42; and on 8/4/108 at 15:04, 17:28, and 19:44. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/8/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 37.05%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SB-32 (2-3) and TA-SB-32 (2-3) DUP). Acetic acid, formic acid, available cyanide, and sulfide were not detected in either sample.	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071952
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, available cyanide, and sulfide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in the SDG, except samples TA-SB-51 (2-3), TA-SB-29 (2-3), TA-SB-29 (9-10), TA-SB-30 (13-14), TA-SB-27 (1-2), and TA-SB-27 (1-2) DUP, were analyzed for available cyanide slightly outside of hold time.	The samples in SDG 18071952 were collected on 7/30/2018 and received on ice at 4.2°C on 7/31/2018. No action was taken due to the slight exceedance of the cooler temperature. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. All samples in the SDG, except samples TA-SB-51 (2-3), TA-SB-29 (2-3), TA-SB-29 (9-10), TA-SB-30 (13-14), TA-SB-27 (1-2), and TA-SB-27 (1-2) DUP, were analyzed for available cyanide on the 14th day after collection, slightly outside the QAPP limit of 14 days. Available cyanide was not detected above the laboratory reporting limit in any of the affected samples, except samples TA-SB-41 (2-3), TA-SB-44 (1-2), TA-SB-47 (3-4), and TA-SB-47 (5-6). UJ qualifiers were added to non-detect results, and J- qualifiers were added to detected results.	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in SDG, except for samples TA-SB-42 (1-2), TA-SB-42 (6-7), TA-SB-44 (1-2), TA-SB-49 (3-4), TA-SB-49 (7-8), TA-SB-51 (6-7), TA-SB-57 (2-3), and TA-SB-57 (6-7)	The laboratory reporting limits for soil samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 21 mg/kg and 23 mg/kg, except for samples TA-SB-42 (1-2), TA-SB-42 (6-7), TA-SB-44 (1-2), TA-SB-49 (3-4), TA-SB-49 (7-8), TA-SB-51 (6-7), TA-SB-57 (2-3), and TA-SB-57 (6-7), above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit of 100 ug/kg.	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Available cyanide in the LCS associated with batch 122518 (TA-SB-44 (7-8), TA-SB-52 (1-2), TA-SB-52 (6-7), TA-SB-29 (9-10), and TA-SB-30 (13-14), TA-SB-47 (3-4), TA-SB-47 (5-6), TA-SB-29 (2-3), TA-SB-27 (1-2), and TA-SB-27 (1-2) DUP). Sulfide in the LCS samples associated with all samples in SDG.	LCS results were within QAPP limits for acetic acid and formic acid. LCS results were within QAPP limits for available cyanide, except in the LCS associated with batch 122518 for which recovery was 123%, which was within the laboratory limit of 82-132% but outside the project limits (80-120%). J+ qualifiers were added to the detected available cyanide results in samples TA-SB-47 (3-4), TA-SB-47 (5-6), TA-SB-29 (2-3), TA-SB-27 (1-2), and TA-SB-27 (1-2) DUP. No action for the nondetects in the associated samples. Sulfide LCS results were 58% and 62.5%, which were within the laboratory limit of 21-81% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples (i.e., all samples in this SDG). UJ qualifiers were added to all non-detect sulfide results.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Sulfide in the MS/MSD analysis performed on sample TA-SB-29 (2-3) and a sample analyzed in SDG 18072003.	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SB-29 (2-3) and a sample in SDG 18071909 (TA-SB-48 (10-11)) analyzed in the same batch as samples in SDG 18071952 . All MS/MSD results were within QAPP limits. For available cyanide, MS/MSD analysis was performed on samples TA-SB-49 (3-4) and TA-SB-29 (2-3) and on a sample analyzed in SDG 18071909 (TA-SB-48 (10-11)) and analyzed in the same batch as samples in SDG 18071952. All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on sample TA-SB-29 (2-3) and a sample included in SDG 18072003 and analyzed in the same batch as samples in SDG 18071952. MS/MSD recoveries (45.8%/45.8% and 54.7%/54.7%) were within the laboratory limit of 21-81% but below QAPP limit of 75-125% while the %RPD results met the QAPP limit of 50% for soil. Sulfide nondetected result for TA-SB-29 (2-3) was qualified UJ.	Yes

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18071952
Lab: ALS
Media: Soil
Fraction: acetic acid, formic acid, available cyanide, and sulfide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	No	Acetic acid in samples analyzed on 8/1/2018.	A 6-point initial calibration was conducted for acetic acid and formic acid on 8/1/2018 from 12:54 to 14:37. The %RSD for formic acid (8.9%) was within the QAPP limit (20%), but the %RSD for acetic acid (27.77%) was above the limit in the initial calibration performed on 8/1/2018. No acetic acid was detected in any samples in this SDG. No action was taken based on the initial calibration results for acetic acid. For available cyanide, initial calibrations were performed on 8/8/2018 and 8/13/2018. The r2 values were greater than the QAPP limit (0.99998 and 0.99997 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 8/1/2018 at 14:50; on 8/2/2018 at 18:38, 20:59, and 23:20; on 8/3/2018 at 01:42; and on 8/4/108 at 15:04, 17:28, and 19:44. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 8/8/2018 and 8/13/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All soil samples at solids percentage above 83.4%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for this SDG (TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP). Acetic acid, formic acid, and sulfide were not detected in either sample. Available cyanide was detected in both samples, and the %RPD was within the QAPP limit (7.32% vs. 50% for solids)	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18061582 and 18061661
Lab: ALS
Media: Sediment
Fraction: acetic acid, formic acid, available cyanide, and sulfide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Samples in SDG 18061661 were received at a temperature above that specified in the QAPP. **Samples TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3), and TA-SED-T3-1A (5-6) were extracted for acetic acid and formic acid outside of hold time.**	The samples in SDG 18061582 were collected on 6/22/2018 and received on ice at 2.4°C on 6/23/2018, and the samples in SDG 18061661 were collected on 6/25/2018 and received on ice at 4.8°C, above the 4°C limit specified in Table B.3.2 of the QAPP, on 6/26/2018. No action was taken due to the slight exceedance of the cooler temperature on 6/26/2018. According to the sample receipt, custody seals were not included on shipping containers for either SDG. All samples were processed and analyzed for acetic acid, formic acid, available cyanide, and sulfide within the holding time limits specified in the QAPP with the following exceptions. Three amples in SDG 18061582 (TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3), and TA-SED-T3-1A (5-6)) were extracted for acetic acid and formic acid on the 4th day after sample collection, outside of the QAPP limit of 2 days. Acetic acid and formic acid were not detected above the laboratory reporting limit in any affected samples. UJ qualifiers were added to these non-detect results. No extraction information was reported for the other samples in SDG 18061582. The sample name for sample TA-SED-T2-2 DUP (0-1) is written on the chain of custody as TA-SED-T2-2DUP (0-1).	Yes
Reported Quantitation Limits	No	Acetic acid and formic acid in all samples in both SDGs. Available cyanide in samples TA-SED-T3-1A (0-1) and TA-SED-T7-2 (0-1).	The laboratory reporting limits for sediment samples were compared to the MDEQ target detection limits listed in Table A.7.8 in the QAPP. Sulfide does not have an established MDEQ target detection limit. The RLs for acetic acid and formic acid for all soil samples ranged between 21 mg/kg and 74 mg/kg, above the MDEQ target detection limit of 20 mg/kg. The RLs for available cyanide met the MDEQ target detection limit of 100 ug/kg, except for samples TA-SED-T3-1A (0-1) (150 ug/kg) and TA-SED-T7-2 (0-1) (130 ug/kg).	No
Method Blank/Instrument Blank	Yes	---	No TCLs were detected above the laboratory practical quantitation limit (PQL) in any method blank or calibration blank for acetic acid, formic acid, available cyanide, or sulfide; no action was taken based on the method blank or instrument blank results.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Sulfide in the LCS samples associated with all samples in both SDGs.	LCS results were within QAPP limits for acetic acid, formic acid, and available cyanide. Sulfide LCS results were 46.9% and 49.1% in SDG 18061582, which were within the laboratory limit of 21-81% but outside the project limits (80-120%) , and 78.3% in SDG 18061661, which was within the lab limit of 10-120%% but outside the project limits (80-120%). Sulfide was not detected in any of the affected samples (i.e., all samples in the two SDGs), except TA-SED-T4-1 (3.5-4.5). UJ qualifiers were added to all non-detect sulfide results, and a J- qualifier was added to the detected sulfide result in sample TA-SED-T4-1 (3.5-4.5).	Yes
Matrix Spike/Matrix Spike Duplicates	No	Sulfide in the MS/MSD analysis performed on samples TA-SED-T2-3 (0-1), TA-SED-T4-1 (0-1), and a sample in SDG 18061932.	For acetic acid and formic acid, MS/MSD analysis was performed on sample TA-SED-T4-1 (0-1) and a sample in SDG 18061932 analyzed in the same batch as samples in SDG 18061582. All MS/MSD results were within QAPP limits. For available cyanide, MS/MSD analysis was performed on sample TA-SED-T2-3 (4-5), sample TA-SED-T4-1 (0-1), a sample in SDG 18061932 analyzed in the same batch as samples in SDG 18061582, and a sample in SDG 18061936 analyzed in the same batch as samples in SDG 18061661. All MS/MSD results were within QAPP limits. For sulfide, MS/MSD analysis was performed on sample TA-SED-T2-3 (0-1), sample TA-SED-T4-1 (0-1), and a sample in SDG 18061932 analyzed in the same batch as samples in SDG 18061582. MS/MSD recoveries (51.3%/56.9% and 34.6%/38%) in SDG 18061582 were within the laboratory limit of 21-81% but below QAPP limit of 75-125%. MS/MSD recoveries (47.6%/49.2%) in SDG 18061661 were within the lab limit of 10-120% but below the QAPP limit of 75-125%. The %RPD results met the QAPP limit of 50% for soil. Sulfide nondetected results for TA-SED-T2-3 (0-1) and sample TA-SED-T4-1 (0-1) were qualified UJ.	Yes

DATA VALIDATION CHECKLIST FOR ALS
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. Tannery from ALS - Michigan Project
SDG: 18061582 and 18061661
Lab: ALS
Media: Sediment
Fraction: acetic acid, formic acid, available cyanide, and sulfide

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	A 6-point initial calibration was conducted for acetic acid and formic acid on 7/2/2018 from 08:36 to 11:11. The %RSDs for formic acid and acetic acid were within the QAPP limit (10.75% and 9.34%, respectively, vs. 20%) for the initial calibration performed on 7/2/2018. No action was taken based on the initial calibration results for acids. For available cyanide, initial calibrations were performed on 7/3/2018 and 7/9/2018. The r2 values were greater than the QAPP limit (0.99998 and 0.99998 vs. 0.99 for solids). No action was taken based on the initial calibration result for available cyanide.	No
Continuing Calibration/Calibration Verification	Yes	---	CCVs were performed for acetic acid and formic acid on 7/2/2018 at 11:27,14:24, and 17:21 and on 7/3/2018 at 10:27 and 12:50. %Ds were below 25% for all CCVs. CCVs were performed for available cyanide on 7/3/2018 and 7/9/2018. %Ds were below 25% for all CCVs.	No
Solids Percentage	Yes	---	All sediment samples at solids percentage above 27%. Percent solids was below 30% in sample TA-SED-T3-1A (0-1) (27%). The results for TA-SED-T3-1A (0-1) were qualified (nondetects were qualified UJ and detects were qualified J).	Yes
Field Duplicate Analysis	Yes	---	A field duplicate pair was collected for SDG 18061661 (TA-SED-T2-2 (0-1) and TA-SED-T2-2 DUP (0-1)). Acetic acid, formic acid, and sulfide were not detected in either sample. Available cyanide was detected in both samples, and the %RPD was within the QAPP limit (0% vs. 50% for solids)	No
TAL Identification	Yes	---	TALs were identified within the Retention Window.	No

Attachment III – Data Validation for Test America

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-79190-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes		The samples were received at 2.3^{o}C. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for AVS within 7 days from extraction and SEM metals within 14 days from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	copper and zinc for TA-SED-T3-1A (0-1)	The MS/MSD analysis was performed for TA-SED-T3-1A (0-1). The MS/MSD recoveries were within the QAPP limits of 75-125% for all metals but copper (-10%/10%) and zinc (37%/31%). . No other samples in the SDG were considered had similar matrix as TA-SED-T3-1A (0-1). As an example, the solid percentage for TA-SED-T3-1A (0-1) was 27.8% but all the other samples has solid percentage >42%. The post digestion spike recoveries for all metals but mercury were within the limits of 75%-125%. Post digestion spike analysis was not performed for mercury. The RPDs of MS/MSD were within the project limit of 30% for all metals but copper (50%). Both copper and zinc were detected in TA-SED-T3-1A (0-1); and the results were qualified as J.	Yes
Blanks (Method Blanks and Instrument Blanks)	NO	Chromium in CCB7	No TCLs were detected in the method blank, ICB, or CCB samples or except that chromium was detected below the RL (0.820 ug/L vs. 5.0 ug/L) in CCB7 180-249406/83 7/2/2018 16:02, within 2 hours of analysis of all the project samples. Chromium was detected above RLs for all project samples, no action was taken based on the CCB results.	No
Reported Quanititation Limits	No	multiple metals in multiple samples	The laboratory reporting limits for multiple metals for multiple samples were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration results were within the QAPP limits with R2>0.995 for mercury. Initial calibration results for the other metals were not provided by the laboratory report.	No
Continuing Calibration/Calibration Verification	Yes		All ICV, CCV, and CRQL Check Standard recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information was provided for the laboratory duplicate analysis.	No
ICP Serial Dilution	Yes		A serial dilution was performed for sample TA-SED-T3-1A (0-1). The %D serial dilution results for chromium, lead, and zinc were within the QAPP limit of 10%. The cadmium, copper, and nickel results in the diluted sample were not above the RLs.	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All sample results were within the ICP linear range.	No
Field Duplicate	NA		No field duplicate samples were collected for any samples in this SDG.	No
Solids Percentage	No	TA-SED-T3-1A(0-1)	All samples at solids percentage above 30% except that the solids percentage for TA-SED-T3-1A(0-1) was 27.8%. All results for TA-SED-T3-1A(0-1) were qualified (detects were qualified J and nondetects were qualified UJ).	Yes

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-79099-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes		The samples were received at 1.0^{o}C. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for AVS within 7 days from extraction and SEM metals within 14 days from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA		MS/MSD analysis was not performed for any samples in this SDG.	No
Blanks (Method Blanks and Instrument Blanks)	Yes		No TCLs were detected in the method blank, ICB, or CCB samples.	No
Reported Quanititation Limits	No	multiple metals in multiple samples	The laboratory reporting limits for multiple metals for multiple samples were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration results were within the QAPP limits with R2>0.995 for mercury. Initial calibration results for the other metals were not provided by the laboratory report.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. The CRQL Check Standard recoveries were within 70% - 130%.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information was provided for the laboratory duplicate analysis.	No
ICP Serial Dilution	NA		Serial dilution was not perfomed for any samples in this SDG.	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	No	chromium result for TA-SED-T3-2 (1.7-2.7) on 7/3/17:55	All sample results were within the ICP linear range except that chromium result for TA-SED-T3-2 (1.7-2.7) on 7/3/17:55 was outside the linear range. The sample was reanalyzed on 7/6/2018 and the result from 7/6/2018 was within the ICP linear range and was reported for the sample. No action was takne.	No
Field Duplicate	NA		No field duplicate samples were collected for any samples in this SDG.	No
Solids Percentage	Yes		All samples at solids percentage above 30%.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-79246-1
Laboratory: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Temperature	The samples were received at 4.4°C, above the QAPP limit of 4°C. The samples were received by the laboratory within 24 hours from sample collection; no action was taken based on the slight exceedance of cooler temperature. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within 17 days from extraction and for AVS within 7 days from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%). The laboratory case narrative indicated that "The laboratory control sample and duplicate (LCS/LCSD) for the mercury analysis of these SEM samples in preparation batch 180-250385 would not calculate and/or link properly due to a naming issue from the original AVS/SEM preparation batch and the mercury preparation batch. Looking at the raw data, the LCS calculated out to be 89% and the LCSD calculates out to be 90% with an RPD of 1.12".	No
Matrix Spike/Matrix Spike Duplicates	No	chromium for TA-SED-T4-1 (0-1)	The MS/MSD analysis was performed for TA-SED-T4-1 (0-1). The MS/MSD recoveries were within the QAPP limits of 75-125% for all metals except that the MSD recovery (316%) for chromium was above the QAPP limit. The RPDs of MS/MSD were within the project limit of 50% for all metals but chromium (101%). The post digestion spike recoveries were within the 75%-125% limits for all metals (post digestion spike analysis not performed for mercury). The chromium result for TA-SED-T4-1 (0-1) was qualified J.	Yes
Method Blank	Yes		No TCLs were detected in the method blank; no action was taken based on the method blank results.	No
Instrument Blank	Yes		No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Lead, cadmium, and zinc for all samples in the SDG nickel for TA-SED-T2-2 (4-5) and TA-SED-T4-1 (2.5-3.5)	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: lead for all samples (RLs ranged between 0.26 and 0.36 mg/kg vs. 0.25 mg/kg). Note that the MDLs were below 0.25 mg/kg for all samples. nickel for TA-SED-T2-2 (4-5) and TA-SED-T4-1 (2.5-3.5) (1.3 and 1.4 mg/kg vs. 1.25 mg/kg); the MDL was below 1.25 mg/kg. cadmium for all samples (RLs ranged between 0.14 and 0.18 mg/kg vs. 0.13 mg/kg). Note the MDLs were below 0.13 mg/kg for all samples. zinc for all samples (RLs ranged between 2.7 mg/kg and 3.6 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for the other metals met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Check Standard recoveries were within the 70%-130% limits.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	Yes
ICP Serial Dilution	Yes		A serial dilution was performed for sample TA-SED-T4-1 (0-1). The %D serial dilution result for chromium was within the QAPP limit of 10%. The cadmium, copper, lead, nickel, and zinc results in the sample were not above 50 times of the MDLs (adjusted by percentage of solids).	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All sample results were within the ICP linear range.	No
Solids Percentage	Yes		All samples at solids percentage above 69.48%.	No

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-79246-1
Laboratory: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	Yes		A field duplicate pair was collected for this SDG (TA-SED-T2-2 (0-1) and TA-SED-T2-2DUP (0-1). The RPDs for all metals within 50%. Cadmium was not detected in the original sample and was detected below RL in the duplicate sample. Mercury was not detected in either sample.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-79282-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes		The samples were received at 3.6°C. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within 14 days from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA		No MS/MSD analysis was performed for this SDG.	No
Method Blank	No	chromium and zinc detected in method blank associated with TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), and TA-SED-T6-3 (3.8-4.8)	No TCLs were detected in the method blank associated with Prep Batch 248901. Chromium and zinc were detected at levels below the RLs in the method blank associated with Prep Batch 249025 (0.0343 mg/kg and 0.381 mg/kg). The samples in this Prep Batch included TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), and TA-SED-T6-3 (3.8-4.8). Chromium and zinc were detected above RLs in all the referenced samples; no action was taken based on the method blank results.	No
Instrument Blank	No	chromium (TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7)) and cadmium (TA-SED-T6-3 (3.8-4.8)	No TCLs were detected in any instrument blank except that (1) chromium was detected in CCB 7 180-249406/83 at 0.820 ug/L, lower thant the RL of 5.0 ug/L. Chromium was detected in the associated samples (TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7)) above the RLs. The results were not qualified based on the CCB results. (2) cadmium was detected in CCB8 180-249841/87 at 0.290 ug/L, below the RL of 5.0 ug/L. Cadmium was detected in the associated sample (TA-SED-T6-3 (3.8-4.8) at 0.095 mg/kg, below the RL of 0.21 mg/kg. Cadmium result in TA-SED-T6-3 (3.8-4.8) was qualified as a non-detect at the RL (i.e., 0.21 mg/kg UB).	Yes
Reported Quanititation Limits	No	cadmium, lead, nickel, zinc	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: cadmium for all samples (RLs ranged between 0.14 and 0.23 mg/kg vs. 0.13 mg/kg), MDLs were below 0.13 mg/kg. lead for all samples (RLs ranged between 0.29 and 0.46 mg/kg vs. 0.25 mg/kg). Note that the MDLs were below 0.25 mg/kg for all samples. nickel for TA-SED-T5-3 (0-1), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-3 (3.8-4.8) (RLs ranged between 1.4 and 1.8 mg/kg vs. 1.25 mg/kg), MDLs were below 1.25 mg/kg. zinc for all samples (RLs ranged between 2.9 mg/kg and 4.6 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for the other metals met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration was conducted for mercury on 7/11/2018 and r2 is greater than the QAPP limit (0.99998 vs. 0.995). Information for initial calibration for the other metals were not provided in the laboratory report.	No
Continuing Calibration/Calibration Verification	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes		A serial dilution was performed for sample TA-SED-T4-1 (0-1). The %D serial dilution result for chromium was within the QAPP limit of 10%. The cadmium, copper, lead, nickel, and zinc results in the sample were not above 50 times of the MDLs (adjusted by percentage of solids).	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-79282-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All sample results were within the ICP linear range.	No
Solids Percentage	Yes		All samples at solids percentage above 54.7%.	No
Field Duplicate Analysis	NA		No field duplicate pair was collected for this SDG.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-79331-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Temperature	The samples were received at 4.9ºC, above the QAPP proposed <4ºC. The samples were received by the laboratory within 24 hours from sample collection. The laboratory noted that the samples were properly preserved and on ice. No action was taken based on the sample temperature. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within 14 days from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	Yes
Matrix Spike/Matrix Spike Duplicates	No	copper for TA-SED-T7-2 (0-1)	The MS/MSD analysis was performed for TA-SED-T7-2 (0-1). The MS/MSD recoveries were within the QAPP limits of 75-125% for all metals except that the MS/MSD recoveries (-2%/22%) for copper were outside the QAPP limit. The RPDs of MS/MSD were within the project limit of 50% for all metals but copper (52%). The post digestion spike recoveries were within the 75%-125% limits for all metals (post digestion spike analysis not performed for mercury). The copper result for TA-SED-T7-2 (0-1) was qualified J.	Yes
Method Blank	No	chromium and zinc detected in method blank associated with TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T7-2 (0-1), TA-SED-T7-2 (1-2), TA-SED-T7-2 MS (0-1), and TA-SED-T7-2 MSD (0-1).	No TCLs were detected in the method blank associated with prep batch 249144. For prep batch 249025, chromium and zinc were detected at 0.0343 mg/kg and 0.381 mg/kg, respectively, below the RLs in the method blank. The prep batch 249025 included TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T7-2 (0-1), TA-SED-T7-2 (1-2), TA-SED-T7-2 MS (0-1), and TA-SED-T7-2 MSD (0-1). Chromium and zinc were detected above RLs in all the samples; no action was taken based on the method blank results.	No
Instrument Blank	No	cadmium detected in CCB8 associated with TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T7-2 (0-1), and TA-SED-T7-2 (1-2).	No TCLs were detected in any instrument blank except that cadmium was detected in CCB8 180-249841/87 at 0.290 ug/L, below the RL of 5.0 ug/L. Cadmium was detected in the associated samples (TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T7-2 (0-1), and TA-SED-T7-2 (1-2)) at concentrations below the RLs (0.014 mg/kg vs. 0.15 mg/kg, 0.0092 mg/kg vs. 0.14 mg/kg, 0.27 mg/kg vs. 0.41 mg/kg, and 0.12 mg/kg vs. 0.23 mg/kg). The cadmium results in the above referenced samples were qualified as non-detects at the corresponding RLs.	Yes
Reported Quanititation Limits	No	cadmium, copper, lead, nickel, zinc	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: cadmium for all samples (RLs ranged between 0.14 and 0.41 mg/kg vs. 0.13 mg/kg), MDLs were below 0.13 mg/kg. lead for all samples (RLs ranged between 0.28 and 0.83 mg/kg vs. 0.25 mg/kg). Note that the MDLs were below or equal to 0.25 mg/kg for all samples. nickel for TA-SED-T6-2 (3.6-4.6), TA-SET-T7-1 (2-3), TA-SED-T7-1 (4.2-5.2), TA-SED-T7-1 (6.4-7.4), TA-SED-T7-2 (0-1), and TA-SED-T7-2 (1-2) (RLs ranged between 1.5 and 3.3 mg/kg vs. 1.25 mg/kg), MDLs were below 1.25 mg/kg. copper for TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (2-3), and TA-SED-T7-2 (0-1) (RLs ranged between 1.5 mg/kg and 2.1 mg/kg, above the 1.25 mg/kg limit). The MDLs were below 1.25 mg/kg. zinc for all samples (RLs ranged between 2.8 mg/kg and 8.3 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for the other metals met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Standard check recoveries are within the project limits (70%-130%, specified in Table D.1.1) of the QAPP.	Yes
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	Yes
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-79331-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
ICP Serial Dilution	Yes		A serial dilution was performed for sample TA-SED-T6-2 (0-1). The %D serial dilution results for chromium and zinc were within the QAPP limit of 10%. The cadmium, copper, lead, and nickel results in the sample were not above 50 times of the MDLs (adjusted by percentage of solids).	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All sample results were within the ICP linear range.	No
Solids Percentage	Yes		All samples at solids percentage above 30.0%.	No
Field Duplicate Analysis	NA		No field duplicate pair was collected for this SDG.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 18079400-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes		The samples were received at 2.8°C, met the QAPP proposed requirement of <4°C. The laboratory noted that the samples were properly preserved and on ice. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within a month from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	copper in TA-SED-T9-2MS/MSD	MS/MSD analysis was performed for TA-SED-T9-2(0-1). The MS/MSD recoveries were within the QAPP specified limits of 75-125% except that the copper recovery in the MS/MSD were below the limits at 19%/14%. The copper concentration in the original sample was not greater than 4 times of the spiked concentration. The post digestion spike recoveries were within 75%-125%. The RPDs of the MS/MSD results were within the QAPP specified limit of 50%. The copper detect in TA-SED-T9-2(0-1) was qualified J.	Yes
Method Blank	No	chromium was detected in the method blank associated with analysis batch 250704 (i.e., TA-SED-T8-3(0-1), TA-SED-T9-2(4-5), TA-SED-T9-2(5-6))	No TCLs were detected in the associated method blank except the following. Chromium was detected in the method blank associated with analysis batch 250704 at a concentration below the RL (0.0218 mg/kg vs. 0.13 mg/kg). The samples included in this batch included TA-SED-T8-3(0-1), TA-SED-T9-2(4-5), and TA-SED-T9-2(5-6). Chromium was detected in the associated samples at concentrations at least 10 times of the RLs and the level detected in the method blank. No action was taken based on the method blank results.	No
Instrument Blank	Yes		No TCLs were detected in any instrument blank (i.e., calibration blanks).	No
Reported Quanititation Limits	No	cadmium, copper, lead, nickel, and zinc in identified samples	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: cadmium for all samples (RLs ranged between 0.16 and 0.48 mg/kg vs. 0.13 mg/kg), MDLs were below 0.13 mg/kg. copper for TA-SED-T8-3(1.5-2.5), TA-SED-T8-3DUP(1.5-2.5), TA-SED-T8-1(0-1), TA-SED-T8-1(1.5-2.5), TA-SED-T9-2(2-3) (RLs ranged between 1.4 mg/kg and 2.4 mg/kg vs. 1.25 mg/kg); the MDLs were below the limit of 1.25 mg/kg. lead for all samples (RLs ranged between 0.33 and 0.97 mg/kg vs. 0.25 mg/kg). The MDL for TA-SED-T8-1(0-1) was above the MDEQ target limit (0.30 mg/kg vs. 0.25 mg/kg). The MDLs for the other samples were below or equal to 0.25 mg/kg for all samples. Lead was detected above RL in TA-SED-T8-1(0-1). nickel for all samples (RLs ranged between 1.3 and 3.9 mg/kg vs. 1.25 mg/kg), MDLs were below 1.25 mg/kg. zinc for all samples (RLs ranged between 3.3 mg/kg and 9.7 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for chromium met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Standard check recoveries are within the project limits (70%-130%, specified in Table D.1.1) of the QAPP.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes		A serial dilution was performed for sample TA-SED-T9-2(0-1). The %D serial dilution results for chromium, lead, and zinc were within the QAPP limit of 10%. The cadmium, copper, and nickel results in the sample were not above 50 times of the MDLs (adjusted by percentage of solids).	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All project results were within the ICP linear range.	No
Solids Percentage	No	TA-SED-T8-1(0-1)	All samples had solids percentage above 30% with the exception of TA-SED-T8-1(0-1). All results for TA-SED-T8-1(0-1) were qualified (detects were qualified J while nondetects were qualified UJ).	Yes

Project Name/No. AVS/SEM - Michigan Project
SDG: 18079400-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	No	copper in TA-SED-T8-3 (1.5-2.5) & TA-SED-T8-3DUP(1.5-2.5)	RPD of copper concentrations in TA-SED-T8-3 (1.5-2.5) & TA-SED-T8-3DUP(1.5-2.5) is greater than the QAPP limit (110% vs. 50%). The absolute difference between the concentrations is greater than the 2RL. Copper results for TA-SED-T8-3 (1.5-2.5) & TA-SED-T8-3DUP(1.5-2.5) were qualified J.	Yes

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 18079476-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes		The samples were received at 2.3°C, met the QAPP proposed requirement of <4°C. The laboratory noted that the samples were properly preserved and on ice. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within a month from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes		MS/MSD analysis was performed for TA-SED-RC-3(0-0.4). The MS/MSD recoveries were within the QAPP specified limits of 75-125%. The RPDs of the MS/MSD results were within the QAPP specified limit of 50%.	No
Method Blank	Yes		No TCLs were detected in the associated method blank. No action was taken based on the method blank results.	No
Instrument Blank	No	chromium detected in CCB4 180-250413/38	No TCLs were detected in any instrument blank (i.e., calibration blanks) except that chromium was detected in CCB4 180-250413/38 at a concentration below the RL (0.640 ug/L vs. 5 ug/L). Chromium was detected in the associated project samples (i.e., TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-RC-1(0-1), TA-SED-RC-1(1.2-2.2), TA-SED-RC-2(0-1), TA-SED-RC-2(1-2), and TA-SED-RC-2(2-3)) at concentrations at least 10 times above the respective RLs. No action was taken based on the CCB results.	No
Reported Quanititation Limits	No	cadmium, copper, lead, nickel, and zinc in identified samples	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: cadmium for all samples (RLs ranged between 0.15 and 0.34 mg/kg vs. 0.13 mg/kg), MDLs were below 0.13 mg/kg. copper for TA-SED-BOAT RAMP(0-1), TA-SED-BOAT RAMP(1-1.9), and TA-SED-RC ACCESS(0-1) (RLs ranged between 1.4 mg/kg and 1.7 mg/kg vs. 1.25 mg/kg); the MDLs were below the limit of 1.25 mg/kg. lead for all samples (RLs ranged between 0.30 and 0.67 mg/kg vs. 0.25 mg/kg). The MDLs were below 0.25 mg/kg for all samples. nickel for all samples but TA-SED-RC-3(0-0.4) (RLs ranged between 1.4 and 2.7 mg/kg vs. 1.25 mg/kg), MDLs were below 1.25 mg/kg. zinc for all samples (RLs ranged between 3.0 mg/kg and 6.7 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for chromium met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Standard check recoveries are within the project limits (70%-130%, specified in Table D.1.1) of the QAPP.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes		A serial dilution was performed for sample TA-SED-RC-3(0-0.4). The %D serial dilution result for chromium was within the QAPP limit of 10%. The cadmium, copper, lead, nickel, and zinc results in the sample were not above 50 times of the MDLs (adjusted by percentage of solids).	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All project results were within the ICP linear range. TA-SED-RC ACCESS(0-1) was diluted and re-analyzed to bring the chromium concentration within the linear range.	No
Solids Percentage	No	TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7)	All samples had solids percentage above 30% with the exception of TA-SED-T4-3(0-1) (18.2%) and TA-SED-T4-3(1-1.7) (23.8%). All results for TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7) were qualified (detects were qualified J while nondetects were qualified UJ).	Yes
Field Duplicate Analysis	NA		No field duplicate pair was collected for this SDG.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 18079525-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

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CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Temperature at 4.7°C upon receipt by the laboratory	The samples were received at 4.7°C, above the QAPP proposed requirement of <4°C. The laboratory noted that the samples were properly preserved and on ice. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within a month from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Copper in TA-SED-9-1(0-1)MS/MSD and TA-SED-T10-1(0-1)MS/MSD	MS/MSD analysis was performed for TA-SED-9-1(0-1) and TA-SED-T10-1(0-1). The MS/MSD recoveries were within the QAPP specified limits of 75-125% except that the MS/MSD recoveries for copper were blow the limits (2%/46% and 8%/14%). The RPDs of the MS/MSD results were within the QAPP specified limit of 50% except that the RPD for copper was at 62% for TA-SED-9-1(0-1)MS/MSD. The post-digestion spike results were within the QAPP limits. The copper results for TA-SED-9-1(0-1) and TA-SED-T10-1(0-1) were qualified "J". No action was taken for the other samples in the SDG as there is no evidence that the other samples have similar matrix as TA-SED-9-1(0-1) or TA-SED-T10-1(0-1).	Yes
Method Blank	No	Copper and zinc detected in method blank for Batch 249940 chromium detected in method blank for Batch 250055	Copper and zinc were detected in the method blank associated with prep batch 249940 at concentrations below the RLs (0.0905 mg/kg and 1.10 mg/kg vs. 0.63 mg/kg and 2.5 mg/kg). Copper and zinc were detected in the associated samples (i.e., TA-SED-8-2(0-1), TA-SED-8-2(1-2), TA-SED-8-2(3-4.1), TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), and TA-SED-9-1(0-1)) at concentrations at least 10 times higher than the levels detected in the method blank. No action was taken based on the method blank results. Chromium was detected in the method blank associated with prep batch 250055 at concentration below the RL (0.0918 mg/kg vs. 0.13 mg/kg). Chromium was detected in the associated samples (i.e., TA-SED-T9-1(2-3), TA-SED-T9-1(4-5), TA-SED-T10-1(0-1), TA-SED-T10-1(1.5-2.5), TA-SED-T10-1DUP(1.5-2.5), TA-SED-T10-1(3-4), TA-SED-T9-3(0-1), TA-SED-T10-3(0-1), and TA-SED-T10-3(1-2)) at concentrations at least 10 times higher than the levels detected in the method blank. No action was taken based on the method blank results. No other TCLs were detected in the associated method blanks.	No
Instrument Blank	No	cadmium and chromium detected in CCB9 180-250969/106, CCB10 180-250969/118, CCB11 180-250969/130, and CCB12 180-250969/133	No TCLs were detected in any instrument blank (i.e., calibration blanks) except that cadmium and chromium were detected in CCB9 180-250969/106, CCB10 180-250969/118, CCB11 180-250969/130, and CCB12 180-250969/133 at concentrations below the RLs (0.28/0.30/0.32/0.33 ug/L vs. 5 ug/L for cadmium and 0.72/0.94/1.12/1.02 ug/L vs. 5 ug/L). The cadmium and chromium results for the samples in this SDG were not impacted by the referenced CCBs (only zinc analysis was performed following or proceeding the referenced CCBs). No action was taken based on the CCB results.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 18079525-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

up to p.11

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Reported Quanititation Limits	No	cadmium, copper, lead, nickel, and zinc in identified samples	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: cadmium RLs for all samples but TA-SED-T10-3(1-2) (RLs ranged between 0.15 and 0.70 mg/kg vs. 0.13 mg/kg), MDLs were below 0.13 mg/kg. copper RLs for TA-SED-8-2(3-4.1), TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-9-1(0-1), TA-SED-T10-1(0-1), TA-SED-T10-1(3-4), TA-SED-T9-3(0-1), TA-SED-T10-3(0-1) (RLs ranged between 1.5 mg/kg and 3.5 mg/kg vs. 1.25 mg/kg); the MDLs were below the limit of 1.25 mg/kg. lead RLs for all samples (RLs ranged between 0.36 and 1.4 mg/kg vs. 0.25 mg/kg). The MDLs for TA-SED-4-2(0-1) and TA-SED-T9-3(0-1) were above 0.25 mg/kg; lead was detected at 50 mg/kg and 57 mg/kg in the referenced samples. The MDLs were below or at 0.25 mg/kg for all the other samples. nickel RLs for all samples but (RLs ranged between 1.4 and 5.6 mg/kg vs. 1.25 mg/kg), MDLs were below 1.25 mg/kg. zinc RLs for all samples (RLs ranged between 3.5 mg/kg and 14 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for chromium met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Standard check recoveries are within the project limits (70%-130%, specified in Table D.1.1) of the QAPP.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes		A serial dilution was performed for sample TA-SED-9-1(0-1) and TA-SED-T10-1(0-1). The %D serial dilution results for chromium, lead, and zinc were within the QAPP limit of 10%. The cadmium, copper, and nickel results in the sample were not above 50 times of the MDLs (adjusted by percentage of solids).	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All project results were within the ICP linear range.	No
Solids Percentage	No	TA-SED-4-2(0-1) and TA-SED-T9-3(0-1)	All samples had solids percentage above 30% with the exception of TA-SED-4-2(0-1) (17.9%) and TA-SED-T9-3(0-1) (17.8%). All results for TA-SED-4-2(0-1) and TA-SED-T9-3(0-1) were qualified (detects were qualified J while nondetects were qualified UJ).	Yes
Field Duplicate Analysis	Yes		RPDs of all metal concentrations in TA-SED-T10-1(1.5-2.5) & TA-SED-T10-1DUP(1.5-2.5) are within the QAPP limit (50%).	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 18079630-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes		The sample was received at 2.4^{o}C, within the QAPP proposed requirement of <4°C. The laboratory noted that the sample was properly preserved and on ice. The sample was processed for AVS and SEM extracts within 14 days from sample collection. The sample was analyzed for SEM metals within a month from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA		No MS/MSD analysis was performed for this SDG.	No
Method Blank	Yes		No TCLs were detected in the associated method blanks.	No
Instrument Blank	Yes		No TCLs were detected in any instrument blank (i.e., calibration blanks). No action was taken based on the CCB results.	No
Reported Quanititation Limits	No	cadmium, lead, nickel, and zinc in the sample in this SDG	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: The RLs for cadmium (0.20 mg/kg vs. 0.13 mg/kg), lead (0.40 mg/kg vs. 0.25 mg/kg), nickel (1.6 mg/kg vs. 1.25 mg/kg), and zinc (14 mg/kg vs. 2.5 mg/kg) were above the MDEQ target detection limits. Note that the MDLs for the referenced samples were all below the MDEQ target detection limits. The laboratory reporting limits for chromium and copper met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Standard check recoveries are within the project limits (70%-130%, specified in Table D.1.1) of the QAPP.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA		No serial dilution analysis was performed for this SDG. No action was taken based on the serial dilution analysis results performed for the othe SDGs for the project samples.	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All project results were within the ICP linear range.	No
Solids Percentage	Yes		The solids percentage for the sample is 63.5%.	No
Field Duplicate Analysis	NA		No field duplicate pair was collected for this SDG.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 18079795-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Temperature at 4.6°C upon receipt by the laboratory	The samples were received at 4.6°C, above the QAPP proposed requirement of <4°C. The laboratory noted that the samples were properly preserved and on ice. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within a month from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Chromium in TA-SED-T4-ISLAND(6-7)MS/MSD and zinc in TA-SED-T4-ISLAND(6-7)MSD	MS/MSD analysis was performed for TA-SED-T4-ISLAND(6-7). The MS/MSD recoveries were within the QAPP specified limits of 75-125% except that the MS/MSD recoveries for chromium were above the limits (355%/461%) and that the zinc recovery in the MSD was slightly above the limit at 128%. The RPDs of the MS/MSD results were within the QAPP specified limit of 50%. The post-digestion spike results were within the QAPP limits. The chromium and zinc results for TA-SED-T4-ISLAND(6-7) were qualified "J". No action was taken for the other samples in the SDG as there is no evidence that the other samples have similar matrix as TA-SED-T4-ISLAND(6-7).	Yes
Method Blank	No	Lead and zinc detected in method blank for Batch 251003	Lead was detected in the method blank associated with prep batch 251003 at concentration above the RL (0.365 mg/kg vs. 0.25 mg/kg). Lead was detected in the impacted samples (i.e., TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T7-ISLAND(3-4), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5), TA-SED-T9-ISLAND(6.5-7.5)) at concentrations above 10 time of the concentration detected in the method blank. No action was taken based on the lead method blank result. The other samples in the SDG were re-digested and no lead was detected in the associated method blank. Zinc was detected in the method blank associated with prep batch 251003 at concentration below the RL (0.862 mg/kg vs. 2.5 mg/kg). Zinc was detected in the associated samples (i.e., all samples in this SDG) at concentrations at least 10 times higher than the levels detected in the method blank except that zinc was detected in TA-SED-T4-ISLAND(6-7) at more than five times of the concentration detected in the method blank. No action was taken based on the method blank results. Chromium was detected in the method blank associated with prep batch 250055 at concentration below the RL (0.0918 mg/kg vs. 0.13 mg/kg). Chromium was detected in the associated samples (i.e., TA-SED-T9-1(2-3), TA-SED-T9-1(4-5), TA-SED-T10-1(0-1), TA-SED-T10-1(1.5-2.5), TA-SED-T10-1DUP(1.5-2.5), TA-SED-T10-1(3-4), TA-SED-T9-3(0-1), TA-SED-T10-3(0-1), and TA-SED-T10-3(1-2)) at concentrations at least 10 times higher than the levels detected in the method blank. No action was taken based on the method blank results. No other TCLs were detected in the associated method blanks.	No
Instrument Blank	No	chromium detected in CCB7 180-251393/78, CCB3 180-251676/34	No TCLs were detected in any instrument blank (i.e., calibration blanks) except that chromium was detected in CCB7 180-251393/78 and CCB3 180-251676/34 at concentrations below the RLs (0.800 ug/L and 0.770 vs. 5 ug/L). The chromium results for the samples in this SDG were not impacted by the referenced CCB3 (only lead analysis was performed following or proceeding the referenced CCB3). All the chromium results in this SDG were impacted by CCB7. Chromium was detected above RLs in all samples; no action was taken based on the CCB results.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 18079795-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Reported Quanititation Limits	No	cadmium, copper, lead, nickel, and zinc in identified samples	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: cadmium RLs for all samples (RLs ranged between 0.15 and 0.61 mg/kg vs. 0.13 mg/kg), MDLs were below 0.13 mg/kg. copper RLs for TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T7-ISLAND(3-4), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5) (RLs ranged between 1.3 mg/kg and 3.0 mg/kg vs. 1.25 mg/kg); the MDLs were below the limit of 1.25 mg/kg. lead RLs for all samples (RLs ranged between 0.31 and 1.2 mg/kg vs. 0.25 mg/kg). The MDL for TA-SED-T4-ISLAND(0-0.5) was above 0.25 mg/kg; lead was detected at 32 mg/kg in the referenced samples. The MDLs were below or at 0.25 mg/kg for all the other samples. nickel RLs for all samples (RLs ranged between 1.2 and 4.9 mg/kg vs. 1.25 mg/kg), MDLs were below 1.25 mg/kg. zinc RLs for all samples (RLs ranged between 3.1 mg/kg and 12 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for chromium met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Standard check recoveries are within the project limits (70%-130%, specified in Table D.1.1) of the QAPP.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes		A serial dilution was performed for sample TA-SED-T4-ISLAND(6-7). The %D serial dilution results for chromium was within the QAPP limit of 10%. The cadmium, copper, lead, nickel, and zinc results in the sample were not above 50 times of the MDLs (adjusted by percentage of solids).	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	No	lead in method blank	All project results were within the ICP linear range. The lead results for the method blanks analyzed on 7/23/2018 13:12 and 14:47 were outside the linear range. The latter was not used as QC results for this SDG. Lead was detected in the former method blank above RL; the impacted samples had lead detected at least 10 times above the level detected in the method blank and no action was taken based on the method blank results.	No
Solids Percentage	No	TA-SED-T4-ISLAND(0-0.5)	All samples had solids percentage above 30% with the exception of TA-SED-T4-ISLAND(0-0.5) (20.7%). All results for TA-SED-T4-ISLAND(0-0.5) were qualified (detects were qualified J while nondetects were qualified UJ).	Yes
Field Duplicate Analysis	NA		No field duplicate pair was collected for this SDG.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 180-80094-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes		The samples were received at 2.9°C, met the QAPP proposed requirement of <4°C. The laboratory noted that the samples were properly preserved and on ice. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within 14 days from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA		No MS/MSD analysis was performed for the samples in this SDG.	No
Method Blank	Yes		No TCLs were detected in the associated method blank.	No
Instrument Blank	Yes		No TCLs were detected in any instrument blank.	No
Reported Quanititation Limits	No	cadmium, lead, nickel, and zinc in all samples	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: cadmium for all samples (RLs ranged between 0.14 and 0.22 mg/kg vs. 0.13 mg/kg), MDLs were below 0.13 mg/kg. lead for all samples (RLs ranged between 0.33 and 1.4 mg/kg vs. 0.25 mg/kg). The MDL for TA-SED-EAST DAM(0-0.5) was above the MDEQ target limit (0.43 mg/kg vs. 0.25 mg/kg). The MDLs for the other samples were below or equal to 0.25 mg/kg for all samples. Lead was detected above RL in TA-SED-EAST DAM(0-0.5). nickel for all samples (RLs ranged between 1.3 and 5.6 mg/kg vs. 1.25 mg/kg), MDLs were below 1.25 mg/kg. zinc for all samples (RLs ranged between 2.8 mg/kg and 4.4 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for the other metals met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Standard check recoveries are within the project limits (70%-130%, specified in Table D.1.1) of the QAPP.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA		A serial dilution was performed for sample TA-SED-T6-2 (0-1). The %D serial dilution results for chromium and zinc were within the QAPP limit of 10%. The cadmium, copper, lead, and nickel results in the sample were not above 50 times of the MDLs (adjusted by percentage of solids).	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes		All project results were within the ICP linear range.	No
Solids Percentage	Yes		All samples at solids percentage above 56.5%.	No
Field Duplicate Analysis	NA		No field duplicate pair was collected for this SDG.	No

DATA VALIDATION CHECKLIST FOR TEST AMERICA
Former Tannery
Wolverine World Wide, Inc.
Rockford, Kent County, Michigan

Project Name/No. AVS/SEM - Michigan Project
SDG: 18080120-1
Lab: TestAmerica
MEDIA: Sediment
Fraction: Metals

CRITERIA	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes		The samples were received at 3.8°C, met the QAPP proposed requirement of <4°C. The laboratory noted that the samples were properly preserved and on ice. All samples were processed for AVS and SEM extracts within 14 days from sample collection. All samples were analyzed for SEM metals within a month from extraction. The analysis of AVS was performed within the day from extraction, within the holding limits specified in the QAPP.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes		The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes		MS/MSD analysis was performed for mercury for TA-SED-T1-3(0-1)DUP. The MS/MSD recoveries were within the QAPP specified limits of 75-125%. The RPD of the MS/MSD results was within the QAPP specified limit of 50%. The post-digestion spike results were within the QAPP limits.	No
Method Blank	Yes		No TCLs were detected in the associated method blanks.	No
Instrument Blank	Yes		No TCLs were detected in any instrument blank (i.e., calibration blanks); no action was taken based on the CCB results.	No
Reported Quanititation Limits	No	cadmium, lead, nickel, and zinc in identified samples	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for the following analytes: cadmium RLs for all samples (RLs ranged between 0.16 and 0.16 mg/kg vs. 0.13 mg/kg), MDLs were below 0.13 mg/kg. lead RLs for all samples (RLs ranged between 0.32 and 0.62 mg/kg vs. 0.25 mg/kg). The MDLs were below or at 0.25 mg/kg for all the other samples. nickel RLs for all samples (RLs ranged between 1.3 and 2.5 mg/kg vs. 1.25 mg/kg), MDLs were below 1.25 mg/kg. zinc RLs for all samples (RLs ranged between 3.1 mg/kg and 3.2 mg/kg vs. 2.5 mg/kg). Note the MDLs were below 2.5 mg/kg for all samples. The laboratory reporting limits for chromium and copper met the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Initial Calibration	Yes		Initial calibration conducted for mercury met the project limits of r2 greater than 0.995. Initial calibration information was not provided for the other metals.	No
Continuing Calibration/Calibration Verification	Yes		All ICV and CCV recoveries are within the project limits (90%-110%, specified in Table D.1.1) of the QAPP. All CRQL Standard check recoveries are within the project limits (70%-130%, specified in Table D.1.1) of the QAPP.	No
Interference Check Sample	Yes		The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA		No serial dilution was performed for any sample in this SDG.	No
Internal Standard	Yes		%RI within 60-125% of the response in the calibration blank. As indicated by the laboratory case narrative, "Due to sample matrix effect on the internal standard (ISTD), a dilution was required for TA-SED-T1-3(0-1)(180-80120-3). All analytes referencing the indium internal standard required dilution due to the indium counts being low and outside the 70%-130% control limits."	No
ICP Linear Range	No	all metals in LCS	All project results were within the ICP linear range. All metal results for the LCS analyzed on 8/2/2018 8:52 were outside the linear range. The LCS results met the project limits; no action was taken based on the ICP linear range exceedances.	No
Solids Percentage	Yes		All samples at solids percentage above 75.6%.	No
Field Duplicate Analysis	Yes		Two field duplicate pairs were collected for this SDG. The RPDs between TA-SED-T1-3(0-1) and its field duplicate TA-SED-T1-3(0-1)DUP met the project limit of 50% for all analyzed metals. The RPDs between TA-SED-T1-1(0-1) and its field duplicate TA-SED-T1-1(0-1)DUP met the project limit of 50% for all analyzed metals but zinc. Zinc was detected in TA-SED-T1-1(0-1) and TA-SED-T1-1(0-1)DUP within 5 times of the RL; the absolute difference between the field duplicates was below 2RL. No action was taken based on the field duplicate results.	No

Attachment IV – Data Validation for Shealy

Project Name/No. Michigan Project
SDG: TH29014
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance.	The samples were received at 5.4°C. Although the samples were received above the 4°C control limit, the cooler was received within 24 hours from sample collection. All samples were processed and analyzed within the holding time limit specified in the QAPP (14 days from sample collection to extraction, 40 days from extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	2-Chlorophenol and hexachlorocyclopentadiene in the LCS associated with Batch 82280 (TA-GW-09).	The LCS recoveries were within the laboratory established limits, except for the following cases: For the LCS associated with Batch 82280, the recoveries for 2-chlorophenol (37%), hexachlorocyclopentadiene (16%) were below the laboratory established limit. None of the above referenced analytes were detected in the associated sample, TA-GW-09. The non-detect 2-chlorophenol and hexachlorocyclopentadiene results for the associated sample TA-GW-09 were qualified UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	No	MS and/or MSD recoveries for benzidine, 3,3'-dichlorobenzidine, hexachlorocyclopentadiene, in the MS/MSD performed on TA-GW-09.	MS/MSD analysis was performed for TA-GW-09, and the MS/MSD recoveries were within the laboratory established limits with the following exceptions: MS and /or MSD recoveries for benzidine (0.0%/0.0%), 3,3'-dichlorobenzidine (0.0%/0.0%), hexachlorocyclopentadiene (23%/25%) were below the laboratory established limits. The RPD between MS/MSD met the project limit of 30%. Benzidine, 3,3'-dichlorobenzidine, and hexachlorocyclopentadiene were not detected in TA-GW-09. The benzidine and 3,3'-dichlorobenzidine results were qualified UR, and the hexachlorocyclopentadiene result was qualified UJ.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate pair was collected for this SDG	No
Initial Calibration	No	Benzo(b)fluoranthene in initial calibration 8/23/2018 14:50:30 (msd11) (TA-GW-09).	Initial calibration was conducted on 8/23/2018 14:50:30 (msd11). The initial calibration results %RSDs for all target analytes were below 20% except for benzo(b)fluoranthene (27.8%), and the R^2 values were all above 0.99. Benzo(b)fluoranthene was not detected in the associated sample, TA-GW-09. No action was taken.	No
Continuing Calibration/Calibration Verification (CCV)	No	Bis(2-chloroethyl)ether, 2-chlorophenol in ICV 8/23/2018 18:34:30 (msd11) (TA-GW-09).	An ICV was performed on 8/23/2018 18:34:30 (msd11), and %Ds were within 25% except for bis(2-chloroethyl)ether (28.9%), 2-chlorophenol (25.5%). Bis(2-chloroethyl)ether and 2-chlorophenol were not detected in the associated sample (TA-GW-09). No action was taken.	No
	Yes	---	An ICV was performed on 8/24/2018 00:18:30 (msd11), and %Ds were within 25%.	No
	No	Bis(2-chloroethyl)ether in CCV 8/31/2018 10:30:30 (msd11) (TA-GW-09).	A CCV was performed on 8/31/2018 10:30:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes except for bis(2-chloroethyl)ether (26.3%), and RRFs were all above 0.01. Bis(2-chloroethyl)ether was not detected in the associated sample, TA-GW-09. No action was taken.	No
Target Analyte Identification	Yes	---	The difference between the sample spectrum and the reference spectrum is generally within 20%.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	NA	---	The only sample in this SDG was an aqueous sample.	No

Project Name/No. Michigan Project
SDG: TH29014
Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance.	The samples were received at 5.4°C. The cooler with temperature of 5.4°C was received within 24 hours from sample collection. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	The surrogate recoveries were within the project limits of 70-130% for all samples.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	All LCS recoveries were wthin the project limits of 70-130%.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD was not performed in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Acetone in TA-TB-01 (08282018).	One trip blank (TA-TB-01 (08282018)) was collected for this SDG. Acetone was detected in TA-TB-01 (08282018) at 3.4 ug/L, below the RL of 20 ug/L. No other VOCs were detected in TA-TB-01 (08282018). Acetone was detected below RL in the only sample in this SDG (TA-GW-09). The acetone result in TA-GW-09 was raised to the RL and qualified UB.	Yes
Quantitation Limits	No	Multiple VOCs.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate pair was collected for this SDG	No
Initial Calibration	Yes	---	An initial calibration was performed on 8/28/2018 11:46:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 8/28/2018 15:15:30 (msd15), and the %D values were within 25%.	No
	Yes	---	CCV was performed on 8/31/2018 21:37:30 (msd15). The %D values for all target analytes were below 25%. The RRFs for all target analytes were greater than 0.01.	No
Target Analyte Identification	Yes	---	The difference between the sample spectrum and the reference spectrum is generally within 20%.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	NA	---	The only sample in this SDG was an aqueous sample.	No

Project Name/No. Michigan Project
SDG: TH29014
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Slight temperature exceedance.	The samples were received at 5.4°C. The cooler with temperature of 5.4°C was received within 24 hours from sample collection. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Boron in TA-GW-09	For mercury, MS/MSD analysis was not performed for this SDG. MS analysis was performed for TA-GW-09 for all the other metals. The MS recoveries were within the project limit (75-125%) with the following exceptions. MS recoveries for boron (70% vs. laboratory reported 67%), magnesium (0% vs. laboratory reported 9%), and sodium (-5000% vs. laboratory reported -4540%) were below the project limits. No post digest spike information was provided. The original concentrations of magnesium and sodium in TA-GW-09 were above 4 times of the spike concentrations; no action was taken for magnesium or sodium. The boron result for TA-GW-09 was qualified J-.	Yes
Method Blank	Yes	---	No metal target analytes were detected in the method blank.	No
Instrument Blank	No	Boron, iron in the instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in CCB3, CCB4, CCB5 (Run #MS2090518B on 9/6/2018) at 14.850 ug/L, 14.230 ug/L, 17.220 ug/L, below the RL of 50 ug/L. Iron was detected at concentration much higher than 5 times the blank level detected in the associated blanks (i.e., CCB4 and CCB5) in the associated sample TA-GW-09; no action was taken. Boron was detected in CCB2 (Run #MS2092018A on 9/20/2018) at 8.638 ug/L, below the RL of 50 ug/L. No boron results in this SDG were associated with this CCB; no action was taken.	No
Reported Quantitation Limits	No	Multiple metals in the only sample in this SDG.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.10 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for mercury were noted by the QAPP. Elevated reporting limits were also noted for other metals due to dilution.	No
Initial Calibration	Yes	---	Initial calibration correlation coefficients for all target analytes were greater than 0.995.	No
Continuing Calibration/Calibration Verification	No	Aluminum, arsenic, chromium, cobalt, copper, nickel, selenium, silver, vanadium, and zinc.	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP) with the following exception, and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%). CCV5 for Run MS2090518B on 9/6/2018 had recovery for copper below the limit (89% vs. 90%). The copper detect for the only sample in this SDG TA-GW-09 was qualified J-. CCV1 for Run MS2092018A on 9/20/2018 had recoveries for lead, thallium below the limit (85% and 86% vs. 90%). No project samples were associated with this CCV. CCV2 for Run MS2092018A on 9/20/2018 had recoveries for copper, nickel, sodium below the limit (87%, 87%, and 86% vs. 90%). Only sodium result for TA-GW-09 was associated with this CCV. The sodium detect was qualified J-.	Yes
Interference Check Sample	NA	---	No interference check information was provided for this SDG.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA	---	Serial dilution was not performed for any samples in this SDG.	No
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	NA	---	The only sample in this SDG was an aqueous sample.	No
Field Duplicate Analysis	NA	---	No field duplicate analysis was performed for this SDG.	No

Project Name/No. Michigan Project
SDG: TH29014
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Slight temperature exceedance.	The samples were received at 5.4°C. The cooler with temperature of 5.4°C was received within 24 hours from sample collection; therefore no action was taken. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide and 28 days for the other analytes for aqueous samples). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	MS/MSD analysis was performed for phosphorus and cyanide for TA-GW-09 and the recoveries were within the project limits of 70-130%. The RPDs were within 50%. MS/MSD analysis was not performed for the other analytes.	No
Method Blank	No	Nitrate-nitrite, total cyanide, and ammonia detected in method blanks.	Nitrate-nitrite was detected in the method blank associated with Batch 82341 at 0.0097 mg/L, below the RL of 0.020 mg/L. Nitrate-nitrite was detected in the associated sample TA-GW-09 above the RL and above five times of the level detected in the method blank. No action was taken. Ammonia was detected in the method blank associated with Batch 82797 at 0.032 mg/L, below the RL of 0.10 mg/L. Ammonia was detected in the associated sample TA-GW-09 above the RL and above five times of the level detected in the method blank. No action was taken. Hardness was detected in the method blank associated with Batch 83325 at 2.0 mg/L, below the RL of 10 mg/L. Hardness was detected in the associated sample TA-GW-09 above the RL and above five times of the level detected in the method blank. No action was taken. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	No
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple inorganic analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.10 in the QAPP. The laboratory detection limit for total cyanide exceeded the MDEQ target limit. For other target analytes, the laboratory reporting limits generally met the MDEQ target detection limits, except when dilution was necessary.	No
Initial Calibration	No	---	Initial calibration performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.995.	No
Continuing Calibration/Calibration Verification	No	CRQL check for ammonia.	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP) with the following exceptions: The CRQL check recovery for ammonia on 9/5/2018 was above the project limit (142% vs. 130%). Ammonia was detected in the associated sample TA-GW-09 at a concentration higher than at least 5 times the RL; no action was taken.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	NA	---	The only sample in this SDG was an aqueous sample.	No
Field Duplicate Analysis	NA		No field duplicate analysis was conducted for any samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TH15011
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	TA-P-5 and TA-EQB-01 (SPOON) were extracted for reanalysis on 8/29/2018, the 14th day after sample collection (8/15/2018), exceeding the QAPP requirement by 6 hours.	The samples were received at 3.7ºC, 3.1ºC, 3.5ºC, which are below 4ºC temperature limit. All samples were processed and analyzed within the holding time limit specified in the QAPP (14 days from sample collection to extraction, 40 days from extraction to analysis) with the following exceptions: TA-P-5 and TA-EQB-01 (SPOON) were extracted for reanalysis on 8/29/2018, the 14th day after sample collection (8/15/2018), exceeding the QAPP requirement by 6 hours. No action was taken based on the slight exceedance of the holding time.	No
Surrogate Recovery	No	DMC1 (2-fluorobiphenyl) for 1st analysis (8/29/2018) of TA-P-5.	All SVOC surrogate recoveries met the laboratory established limits with the following exception: DMC1 (2-fluorobiphenyl) recovery for the 1st analysis on 8/29/2018 of TA-P-5 was below the laboratory established limit of 37% at 32%. All base-neutral SVOC results in the 1st analysis of TA-P-5 were qualified (detects were qualified as J-, and non-detects were qualified UJ).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Batch 81060, Hexachlorocyclopentadiene (TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-P-4, 1st analysis (8/29/2018) of TA-P-5, TA-EQB-02 (SPOON SHOE)). Batch 81338, Hexachlorocyclopentadiene (TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)). Batch 82280, 2-Chlorophenol, Hexachlorocyclopentadiene (2nd analysis (8/31/2018) of TA-P-5, TA-EQB-01 (SPOON)).	The LCS recoveries were within the laboratory established limits, except for the following cases: For the LCS associated with Batch 81060, the recovery for hexachlorocyclopentadiene (10%) was below the control limits (22-122%). Hexachlorocyclopentadiene was not detected in any of the associated samples (i.e., TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-P-4, 1st analysis (8/29/2018) of TA-P-5, TA-EQB-02 (SPOON SHOE), analyzed between 8/28/2018-8/30/2018). The hexachlorocyclopentadiene results for the associated samples were qualified UR. For the LCS associated with Batch 81338, the recovery for hexachlorocyclopentadiene (21%) was below the control limits (22-122%). Hexachlorocyclopentadiene was not detected in any of the associated samples (TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)). The hexachlorocyclopentadiene results for the associated samples were qualified UJ. For the LCS associated with Batch 82280, the recoveries for 2-chlorophenol (37%) and hexachlorocyclopentadiene (16%) were below the control limits (39-115% and 22-122%, respectively). Neither of the above referenced analytes were detected in any of the associated sample results (TA-P-5 , TA-EQB-01 (SPOON), analyzed on 8/31/2018). The 2-chlorophenol results for the associated samples were qualified UJ. The hexachlorocyclopentadiene results for the associated samples were qualified UR.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Benzidine and hexachlorocyclopentadiene in the MS/MSD performed on TA-GW-05.	MS/MSD analysis was performed for TA-GW-05, and the MS/MSD recoveries were within the laboratory established limits with the following exceptions: MS and /or MSD recoveries for benzidine (9.9%/15% vs. 10-115%), hexachlorocyclopentadiene (21%/19% vs. 30-130%) were below the laboratory established limits, in the MS/MSD performed on TA-GW-05. The RPD between the MS/MSD results met the project limit of 30%, with the exception of benzidine (41%). Benzidine and hexachlorocyclopentadiene were not detected in TA-MW-05; the non-detect results were qualified UR.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate pair was collected for this SDG.	No
Initial Calibration	No	Benzo(b)fluoranthene in the initial calibration performed on 8/23/2018 14:50:30 (msd11) (TA-P-3, TA-P-5, TA-EQB-01 (SPOON)).	An initial calibration was conducted on 8/7/2018 19:02:30 (instrument msd10), and the initial calibration %RSDs for all target analytes were below 20% or R^2 was above 0.99. An initial calibration was conducted on 8/7/2018 14:56:30 (instrument msd10), and the initial calibration %RSDs for all target analytes were below 20% or R^2 was above 0.99. An initial calibration was conducted on 8/23/2018 14:50:30 (instrument msd11). The initial calibration %RSDs for all target analytes were below 20% except for benzo(b)fluoranthene (27.8%), and the R^2 values were all above 0.99. Benzo(b)fluoranthene was not detected in the associated samples (i.e., TA-P-3, TA-P-5, TA-EQB-01 (SPOON)). No action was taken.	No

Project Name/No. Michigan Project
SDG: TH15011
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 8/13/2018 14:02:30 (msd10), and %D values for all target analytes were within 25%.	No
	Yes	---	An ICV was performed on 8/7/2018 22:19:30 (msd10), and %D values for all target analytes were within 25%.	No
	No	Bis(2-chloroethyl)ether and 2-chlorophenol in ICV 8/23/2018 18:34:30 (msd11) (TA-P-3, TA-P-5, TA-EQB-01 (SPOON)).	An ICV was performed on 8/23/2018 18:34:30 (msd11), and %D values for all target analytes were within 25% except for bis(2-chloroethyl)ether (28.9%) and 2-chlorophenol (25.5%). Bis(2-chloroethyl)ether and 2-chlorophenol were not detected in any of the associated samples (i.e., TA-P-3, TA-P-5, TA-EQB-01 (SPOON)). No action was taken.	No
	Yes	---	An ICV was performed on 8/24/2018 00:18:30 (msd11), and %D values for all target analytes were within 25%.	No
	Yes	---	A CCV was performed on 8/24/2018 09:14:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/28/2018 10:17:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/29/2018 09:30:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/30/2018 11:17:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/29/2018 09:13:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	No	Bis(2-chloroethyl)ether in CCV 8/31/2018 10:30:30 (msd11) (i.e., 2nd analysis (8/31/2018) of TA-P-5, TA-EQB-01 (SPOON)).	A CCV was performed on 8/31/2018 10:30:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes except for bis(2-chloroethyl)ether (26.3%), and RRFs were all above 0.01. Bis(2-chloroethyl)ether was not detected in any of the associated samples (i.e., 2nd analysis (8/31/2018) of TA-P-5, TA-EQB-01 (SPOON)). No action was taken.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: bis(2-Ethylhexyl)phthalate in TA-GW-08, TA-MW-05, TA-GW-06, TA-GW-03, TA-P-1, TA-MW-304A, TA-P-4, 1st analysis of TA-P-5, TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER). Naphthalene in TA-GW-03, TA-MW-304A, TA-P-4 1st and 2nd analysis of TA-P-5. Acenaphthene in TA-GW-03, TA-P-1, TA-P-2, 1st analysis of TA-P-5. Phenanthrene in TA-GW-03, TA-P-2, 2nd analysis of TA-P-5. Pyrene in TA-GW-03. 2-Methylnaphthalene in TA-P-2. Fluoranthene in TA-MW-304A, 2nd analysis of TA-P-5. Fluorene in 1st and 2nd analysis of TA-P-5. Anthracene in 1st and 2nd analysis of TA-P-5. Caprolactam in 2nd analysis of TA-P-5.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	No	Multiple internal standards for TA-GW-04 and TA-P-1.	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard) with the following exceptions: For the samples analyzed on 8/29/2018 09:30:30, IS-1 (1,4-dichlorobenzene-d4), IS-2 (naphthalene-d8), IS-3 (acenaphthene-d10), IS-4 (phenanthrene-d10), IS-5 (chrysene-d12), and IS-6 (perylene-d12) recoveries for TA-GW-04 and TA-P-1 were below the project limit (i.e., 50% of standard) but above 25% of standards. The analytical results for TA-GW-04 from 8/29/2018 were not included in the database; therefore no actiion was taken. The analytical results for TA-P-1 from 8/29/2018 were qualified (detects were qualified J and non-detects were qualified UJ).	Yes
Solids Percentage	NA	---	All samples were aqueous.	No

Project Name/No. Michigan Project
SDG: TH15011
Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 3.7°C, 3.1°C, 3.5°C, which are below 4°C temperature limit. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	The surrogate recoveries were within the project limits of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	1,2-Dibromo-3-chloropropane, 2-hexanone, acetone in the LCS/LCSD associated with Batch 82015 (TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)).	All LCS/LCSD recoveries were wthin the project limits of 70-130%, except for the following cases: For the LCS and/or LCSD associated with Batch 82015, the recoveries for 1,2-dibromo-3-chloropropane (133%/134%), 2-hexanone (124%/133%), acetone (127%/133%) were above the control limits (70-130%). The associated samples are TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER). The results of the above referenced analytes in the associated samples were qualified (detects were qualified J+, non-detects were not qualified).	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD was not performed in this SDG.	No
Method Blank	No	Acetone in Method Blank TQ81888-001 (associated with TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-TB-01 (08142018), TA-TB-02 (08142018)) and Method Blank TQ82015-001 (associated with TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)).	The method blank results show no detections of target VOC analytes, except for acetone, which was detected in the method blanks for Batch 81888 at 3.3 ug/L, below the RL of 20 ug/L, and Batch 82015 at 3.8 ug/L, below the RL of 20 ug/L. The samples associated with Batch 81888 include TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-TB-01 (08142018), TA-TB-02 (08142018). The samples associated with Batch 82015 include TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER). Acetone was either not detected or detected below the RLs in the impacted samples (TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-TB-01 (08142018), TA-TB-02 (08142018), TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)). The detects were raised to the RLs and qualified UB, while no action was taken for non-detects.	Yes
Field/Trip Blank	No	Acetone was detected in TA-TB-01 (08142018).	Two trip blanks (TA-TB-01 (08142018), TA-TB-02 (08142018)) were collected for this SDG. Acetone was detected in TA-TB-01 (08142018) at 5.6 ug/L, below the RL of 20 ug/L. No other VOCs were detected in TA-TB-01 (08142018). No VOCs were detected in the trip blank TA-TB-02 (08142018). Acetone result for TA-TB-01 (08142018) was qualified as non-detect based on the method blank results; no action was taken based on the trip blank results.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate pair was collected for this SDG	No
Initial Calibration	Yes	---	An initial calibration was performed on 8/25/2018 20:28:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. An initial calibration was performed on 8/16/2018 01:08:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No

Project Name/No. Michigan Project
SDG: TH15011
Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	No	Dichlorodifluoromethane in ICV performed on 8/25/2018 23:44:30 (msd5) (TA-MW-304A, TA-P-4, TA-P-5).	ICV was performed on 8/25/2018 23:44:30 (msd5). The %D values for all target analytes were all below 25%, except the %Ds for dichlorodifluoromethane (26.8%). Dichlorodifluoromethane were not detected in the associated samples (i.e., TA-MW-304A, TA-P-4, TA-P-5). No action was taken.	No
	Yes	---	ICV was performed on 8/16/2018 04:09:30 (msd15). The %D values for all target analytes were all below 25%.	No
	Yes	---	CCV was performed on 8/27/2018 20:18:30 (msd5). The %D values for all target analytes were below 25%. The RRFs for all target analytes were greater than 0.01.	No
	No	Acetone in CCV performed on 8/25/2018 19:29:30 (msd15) (TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-TB-01 (08142018), TA-TB-02 (08142018)).	CCV was performed on 8/25/2018 19:29:30 (msd15). The %D values for all target analytes were below 25% with the exception of acetone (25.5%). The RRFs for all target analytes were greater than 0.01. Acetone was either not detected or has been qualified as non-detected based on the method blank results for the associated samples (i.e., TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-TB-01 (08142018), TA-TB-02 (08142018)); no further action was taken.	No
	No	1,2-Dibromo-3-chloropropane in CCV performed on 8/27/2018 12:30:30 (msd15) (TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)).	CCV was performed on 8/27/2018 12:30:30 (msd15). The %D values for all target analytes were below 25% with the exception of 1,2-dibromo-3-chloropropane (32.5%). The RRFs for all target analytes were greater than 0.01. The 1,2-dibromo-3-chloropropane was not detected in all the associated samples (i.e., TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)). No action was taken.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: 1,1-Dichloroethane in TA-MW-05. 1,1,1-Trichloroethane in TA-MW-05. Vinyl chloride in TA-GW-04. Acetone in TA-P-2, TA-MW-304A, TA-P-4, TA-P-5.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	NA	---	All samples were aqueous.	No

Project Name/No. Michigan Project
SDG: TH15011
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 3.7°C, 3.1°C, 3.5°C, below the project limit of 4°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	An MS/MSD analysis was performed for TA-GW-05 for ICP-MS metals. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals, except magnesium (laboratory reported 69%/80% vs. GZA calculated 0%/0%) and sodium (-72%/-21% vs. 0%/0%). The RPDs between the MS and MSD results were within the QAPP limit of 30% for aqueous samples. Note that the laboratory reported MS recovery for boron (74%) outside of the control limits; however, GZA recalculated the boron recovery as 80%, which is within the control limits. Furthermore, the original sample concentrations of magnesium and sodium were above 4 times the spike concentration. No action was taken.	No
	No	Aluminum and boron in TA-P-5.	An MS analysis was performed for TA-P-5 for ICP-MS metals. For all metals, the MS recoveries were within the QAPP limits (75-125%) or the original sample concentration was above 4 times the spike concentration, except for aluminum (152%) and boron (70%). No post-digest spike was performed for TA-P-5. The detection for aluminum in TA-P-5 was qualified J+, while the detection for boron was qualified J-.	Yes
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No
Instrument Blank	No	Antimony in CCB1 of Run #MS2082918E (no samples in this SDG). Iron in CCB2, CCB3, CCB4 of Run #MS2082918E (TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-MW-304A, TA-P-4, TA-P-5, TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Antimony was detected in CCB1 (Run #MS2082918E on 8/30/2018) at 0.511 ug/L, below the RL (2.0 ug/L). Iron was detected in CCB2, CCB3, CCB4 (Run #MS2082918E on 8/30/2018) at 13.5 ug/L, 12.99 ug/L, 13.25 ug/L, below the RL (50 ug/L). The samples in this SDG were analyzed after CCV2/CCB2 of Run #MS2082918E, and thus the detection of antimony in CCB1 does not affect any samples in this SDG. The detections of iron affect all sample results for iron. Iron was detected above the RLs and 5 times the levels detected in the blank in all samples in this SDG but TA-EQB-03(CUTTER) and TA-EQB-04(WL METER). Iron was detected below the RLs in TA-EQB-03(CUTTER) and TA-EQB-04(WL METER). The TA-EQB-03(CUTTER) and TA-EQB-04(WL METER) detects were raised to the RLs with qualifer UB. No action was required for the other iron results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.10 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for mercury were noted by the QAPP. Elevated reporting limits were also noted for other metals due to dilution.	No
Initial Calibration	Yes	---	Initial calibration was conducted for all ICP-MS metals on 8/29/2018 and 8/31/2018, and the correlation coefficients were above 0.995. For mercury, a 5-point calibration was performed on 7/18/2018 and 8/15/2018, and the correlation coefficients were above 0.995.	No
Continuing Calibration/Calibration Verification	No	Iron in Run #MS2082918E (TA-GW-08, TA-GW-05, TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-P-4, TA-P-5, TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)).	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP), except for iron in CCV3 (111%), CCV5 (111%) of Run #MS2082918E on 8/30/2018. The CRQL Check Standard recoveries for mercury were within the project limits (70-130%). Detections for iron were qualified J+, while non-detect results required no qualifiers.	Yes
Interference Check Sample	NA	---	No interference check was performed in this SDG.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Sodium in TA-GW-05.	A serial dilution was performed for TA-GW-05 (note laboratory reported as TA-MW-05) for ICP-MS metals. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits), except for sodium (16.7%). The sodium result for TA-GW-05 was qualified J.	Yes
Internal Standard	No	Bismuth in TA-GW-08, TA-MW-05, TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER).	The %RI was within 60-125% of the response in the calibration blank for all internal standards, except for bismuth in samples TA-GW-08 (128%), TA-MW-05 (129%), TA-EQB-01 (SPOON) (131%), TA-EQB-02 (SPOON SHOE) (131%), TA-EQB-03 (CUTTER) (134%), TA-EQB-04 (WL METER) (132%). Bismuth was not associated with any target analytes. No action was required.	No

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SDG: TH15011
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	NA	---	All samples in this SDG were aqueous.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Equipment Blank	No	Boron detected in TA-EQB-01 (SPOON). Iron detected in TA-EQB-03 (CUTTER) and TA-EQB-04 (WL METER). Aluminum, chromium, and magnesium detected in TA-EQB-04 (WL METER).	Boron was detected in TA-EQB-01 (SPOON) at 7.9 mg/L, below the RL (50 ug/L). Boron was detected above the RL and 5 times of the level detected in TA-EQB-01 (SPOON) in all project samples (excluding equipment blanks). No action was taken. Iron was detected in TA-EQB-03 (CUTTER) at 20 ug/L and in TA-EQB-04 (WL METER) at 14 ug/L, below the RL (50 ug/L). Iron was detected above the RL and 5 times of the levels detected in TA-EQB-03 (CUTTER) and TA-EQB-04 (WL METER) in all project samples (excluding equipment blanks). No action was taken. Aluminum, chromium, and magnesium were detected in TA-EQB-04 (WL METER) at 12 ug/L, 3.0 ug/L, and 62 ug/L, below their respective RLs (12 ug/L, 5.0 ug/L, and 400 ug/L). Magnesium was detected above the RL and 5 times of the levels detected in TA-EQB-04 (WL METER) in all project samples (excluding equipment blanks). No action was taken. Aluminum and chromium were detected in multiple samples below 5 times the levels detected in the equipment blank. It is difficult to evaluate direct impact to the sample results by the equipment contamination. No action was taken as a conservative approach.	No

Project Name/No. Michigan Project
SDG: TH15011
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 3.7°C, 3.1°C, 3.5°C, below the project limit of 4°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 30% limit.	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	An MS/MSD analysis was performed for TA-GW-06 and TA-GW-04 for total cyanide analysis. The MS/MSD recoveries were within the QAPP limits (75-125%), and the RPDs between the MS and MSD results were within the QAPP limit of 30%.	No
	No	Nitrate-nitrite in TA-GW-08 and TA-GW-05.	An MS/MSD analysis was performed for TA-GW-08 and TA-GW-05 for nitrate-nitrite analysis. The MS/MSD recoveries for TA-GW-08 (69%/65%) and TA-GW-05 (62%/56%) were below the QAPP limits (75-125%), while the RPDs between the MS and MSD results were within the QAPP limit of 30%. The nitrate-nitrite results for TA-GW-08 and TA-GW-05 were qualified J-.	Yes
	Yes	---	An MS/MSD analysis was performed for TA-GW-08 and TA-GW-05 for phosphorus analysis. The MS/MSD recoveries were within the QAPP limits (75-125%), and the RPDs between the MS and MSD results were within the QAPP limit of 30%.	No
	Yes	---	An MS/MSD analysis was performed for TA-P-5 for chloride analysis. The MS/MSD recoveries were within the QAPP limits (75-125%), and the RPDs between the MS and MSD results were within the QAPP limit of 30%.	No
	No	Sulfate in TA-P-5.	An MS/MSD analysis was performed for TA-P-5 for sulfate analysis. The MS/MSD recoveries (laboratory reported 70%/70% vs. GZA calculated 50%/50%) were outside the QAPP limits (75-125%). The RPDs between the MS and MSD results were within the QAPP limit of 30%. The sulfate detection in TA-P-5 was qualified J-.	Yes
Method Blank	No	Ammonia in Batch 81857 (TA-GW-08, TA-GW-05) and Batch 82043 (TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-P-4, TA-P-5, TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)). Nitrate-nitrite in Batch 81865 (all nitrate-nitrite results for this SDG). Hardness in Batch 82564 (run 1 on 9/1/2018 for: TA-GW-08, TA-GW-05, TA-GW-01), Batch 82565 (run 1 on 9/1/2018 for: TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-P-4, TA-P-5, TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)), Batch 83069 (run 2 on 9/4/2018 for: TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)), and Batch 83155 (run 2 on 9/7/2018 for: TA-GW-01, TA-GW-06, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A).	Ammonia was detected in the method blank (MB) associated with Batch 81857 (TA-GW-08, TA-GW-05) at 0.045 mg/L, at 0.030 mg/L in the MB for Batch 82043 (TA-GW-01, TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-P-4, TA-P-5, TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)), below the RL (0.10 mg/L). Ammonia was detected in all affected samples. Detections for ammonia below the RL were reported at the RL and qualified UB. Detections for ammonia above the RLs were all above 5 times the MB levels; so no action was taken. Nitrate-nitrite was detected in the MB associated with Batch 81865 (associated with all nitrate-nitrite results) at 0.0085 mg/L, below the RL (0.020 mg/L). Nitrate-nitrite was detected in all affected samples. Detections for nitrate-nitrite below the RLs were reported at the RLs and qualified UB. Nitrate-nitrite was detected above the RLs but below 5 times the MB leve in TA-GW-08, TA-GW-05, and TA-EQB-01(SPOON); the results were qualified UB with detected leves as the RLs. Nitrate-nitrite was detected above RL and 5 times the MB level in the rest of the samples; no action was taken. Hardness was detected in the MB associated with Batch 82564 (run 1 on 9/1/2018 for: TA-GW-08, TA-GW-05, TA-GW-01) at 2.2 mg/L, in the MB for Batch 82565 (run 1 on 9/1/2018 for: TA-GW-06, TA-GW-04, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A, TA-P-4, TA-P-5, plus equipment blanks TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER), TA-EQB-04 (WL METER)) at 5.4 mg/L, in the MB for Batch 83069 (run 2 for all equipment blanks) at 6.3 mg/L, in the MB for Batch 83155 (run 2 on 9/7/2018 for: TA-GW-01, TA-GW-06, TA-GW-03, TA-P-1, TA-P-2, TA-P-3, TA-MW-304A) at 2.0 mg/L, below the RL (10 mg/L). Hardness was measured below the RLs in run 2 (9/4/2018) of the equipment blanks (TA-EQB-01 (SPOON), TA-EQB-02 (SPOON SHOE), TA-EQB-03 (CUTTER)); the results were raised to RLs with qualifier UB. All the other hardness results were above the RLs and five times MB levels; no action was taken. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple inorganic analytes in multiple samples in this SDG.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.10 in the QAPP. The laboratory detection limit for total cyanide exceeded the MDEQ target limit. For other target analytes, the laboratory reporting limits generally met the MDEQ target detection limits, except when dilution was necessary.	No

Project Name/No. Michigan Project
SDG: TH15011
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	A 5-point initial calibration was conducted for ammonia on 8/24/2018, 8/27/2018. The correlation coefficients were greater than the QAPP limit of 0.995. An 8-point initial calibration was conducted for cyanide on 8/24/2018, 8/27/2018, and the correlation coefficient was above 0.995. An initial calibration was conducted for hardness on 8/31/2018, 9/3/2018, and the correlation coefficients were greater than 0.995. A 7-point initial calibration was conducted for nitrate/nitrite on 8/24/2018, and the correlation coefficients were greater than 0.995. A 7-point initial calibration was conducted for phosphorus, and the correlation coefficients were greater than 0.995. An initial calibration was conducted for chloride and sulfate on 5/29/2018, and the correlation coefficients for all target analytes were above the QAPP limit of 0.995.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP).	No
Laboratory Duplicate Analysis	Yes	---	A laboratory duplicate was analyzed for TA-P-3 (TH15011-009DU) and TA-EQB-01 (SPOON) (TH15011-017DU) for sulfide analysis. In both cases, sulfide was non-detect in both the original sample and in the laboratory duplicate. No action was required.	No
Solids Percentage	NA	---	All samples in this SDG were aqueous.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Equipment Blank	No	Ammonia, hardness, nitrate-nitrite detected in multiple equipment blanks.	Ammonia was detected in TA-EQB-01 (SPOON) at 0.12 mg/L, in TA-EQB-02 (SPOON SHOE) at 0.10 mg/L, at or above the RL (0.10 mg/L). Ammonia was also detected in TA-EQB-03 (CUTTER) at 0.065 mg/L, in TA-EQB-04 (WL METER) at 0.069 mg/L, below the RL (0.10 mg/L). The ammonia results detected below RLs were qualified as non-detects based on method blank results. The ammonia results detected above RLs were higher than 5 times the levels detected in the equipment blanks; no action was taken. Hardness was detected in TA-EQB-01 (SPOON) at 8.2 mg/L, in TA-EQB-02 (SPOON SHOE) at 8.3 mg/L, in TA-EQB-03 (CUTTER) at 7.2 mg/L, in TA-EQB-04 (WL METER) at 7.7 mg/L, below the RL (10 mg/L). The hardness results detected below RLs were qualified as non-detects based on method blank results. The hardness results detected above RLs were higher than 5 times the levels detected in the equipment blanks; no action was taken. Nitrate-nitrite was detected in TA-EQB-01 (SPOON) at 0.023 mg/L, above the RL (0.02 mg/L). Nitrate-nitrite was also detected in TA-EQB-02 (SPOON SHOE) at 0.014 mg/L, in TA-EQB-03 (CUTTER) at 0.016 mg/L, in TA-EQB-04 (WL METER) at 0.015 mg/L, below the RL (0.02 mg/L). The nitrate-nitrite results for multiple samples were qualified as non-detects based on the method blank results. The rest of the nitrate-nitrite results were higher than 5 times the levels detected in the equipment blanks; no action was taken.	No

Project Name/No. Michigan Project
SDG: TH11003
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	The 2nd run (analyzed on 8/30/2018 with instrument msd16) of samples TA-MW-309B DUP, TA-MW-301B, and TA-GW-07.	The samples were received at 2.2°C and 3.0°C, below the project limit of 4°C. All samples were extracted within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from extraction to analysis) with the following exceptions: The 2nd runs of TA-MW-309B DUP and TA-MW-301B were extracted on 8/27/2018, 17 days after collection on 8/10/2018. The 2nd run of TA-GW-07 was extracted on 8/28/2018, 15 days after collection on 8/13/2018. All SVOC results from the 2nd run (analyzed on 8/30/2018 with instrument msd16) of samples TA-MW-309B DUP, TA-MW-301B, and TA-GW-07 were qualified (J- for detections, UJ for non-detects). **NOTE:** (1) Data sample TA-MW-301B (sample number 005) was wrongly notated as TA-MW-310B in several places in this SDG. (2) According to the analytical run logs presented in Misc. Data, the following samples were analyzed three times: TA-MW-309B DUP (8/24/2018 with msd11, 8/26/2018 with msd11, 8/30/2018 with msd16), TA-MW-301B (8/24/2018 with msd11, 8/26/2018 with msd11, 8/30/2018 with msd16), and TA-GW-07 (8/27/2018 with msd11, 8/28/2018 with msd10, 8/30/2018 with msd16). Only the results from the last two analytical runs for each sample were reported in the raw sample data. 3) According to the run logs presented in Misc. Data, the following samples were analyzed twice: TA-MW-305B (8/24/2018 with msd11 and 8/26/2018 with msd11) and TA-TMW-101 (8/27/2018 with msd11, 8/28/2018 with msd10). Only the results from the second run were reported in the raw sample data.	Yes
Surrogate Recovery	No	2-Fluorophenol (DMC2) in 1st run (on 8/26/2018, msd11) of samples TA-MW-309B DUP and TA-MW-301B. 2-Fluorobiphenyl (DMC1) in 1st run of TA-GW-07 (on 8/28/2018, msd11).	All SVOC surrogate recoveries met the laboratory established limits with the following exceptions: 2-Fluorophenol (DMC2) recovery for the 1st run (on 8/26/2018, msd11) of samples TA-MW-309B DUP (23%), TA-MW-301B (23%) were below the laboratory established limit (24-127%). 2-Fluorobiphenyl (DMC1) recovery for the 1st run (on 8/28/2018, msd11) of TA-GW-07 (34%) was below the laboartory established limit (37-129%). All results for phenol compounds in the 1st run of samples TA-MW-309B DUP (8/26/2018, msd11) and TA-MW-301B (8/26/2018, msd11) were qualified (detections were qualified J-, and non-detects were qualified UJ). The base-neutral analyte results for TA-GW-07 (8/28/2018, msd11) were qualified (detections were qualified J-, and non-detects were qualified UJ).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	2-Chlorophenol, di-n-octylphthalate, and hexachlorocyclopentadiene in the LCS associated with Batch 80716 (TA-MW-309B, 1st run of TA-MW-309B DUP (performed on 8/26/2018 with instrument msd11), TA-MW-2, TA-TMW-105, 1st run of TA-MW-301B (on 8/26/2018, msd11), TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A). Hexachlorocyclopentadiene in the LCS samples associated with Batch 82144 (TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102, TA-MW-301C, TA-GW-02), Batch 80975 (1st run of TA-GW-07 (8/28/2018, msd11) and 2nd run of TA-GW-07 (8/30/2018, msd16)). Benzidine, 3,3'-dichlorobenzidine, hexachlorocyclopentadiene, n-nitrosodiphenylamine (diphenylamine) in the LCS associated with Batch 81974 (2nd run (8/30/2018, msd16) of samples TA-MW-309B DUP and TA-MW-301B).	The LCS recoveries were within the laboratory established limits with the following exceptions: For LCS associated with Batch 80716, recoveries for 2-chlorophenol (38% vs 39-115%), di-n-octylphthalate (53% vs 55-143%), and hexachlorocyclopentadiene (18% vs 22-122%) were below the control limits. For LCS associated with Batch 80975, hexachlorocyclopentadiene recovery (21% vs 22-122%) was below the control limit. For LCS associated with Batch 81974, benzidine (0% vs 10-115%), 3,3'-dichlorobenzidine (0% vs 10-126%), hexachlorocyclopentadiene (17% vs 22-122%), n-nitrosodiphenylamine (diphenylamine) (25% vs 30-123%) were below the control limits. For LCS associated with Batch 82144, hexachlorocyclopentadiene (20% vs 22-122%) was below the control limit. 2-Chlorophenol, di-n-octylphthalate, and hexachlorocyclopentadiene results were qualified (detections qualified as J-, non-detects qualified as UJ) for samples associated with Batch 80716 (TA-MW-309B, 1st run of TA-MW-309B DUP (performed on 8/26/2018 with instrument msd11), TA-MW-2, TA-TMW-105, 1st run of TA-MW-301B (on 8/26/2018, msd11), TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A). Hexachlorocyclopentadiene results were qualified (detections qualified as J-, non-detects qualified as UJ) for samples associated with Batch 82144 (TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102, TA-MW-301C, TA-GW-02), Batch 80975 (1st run of TA-GW-07 (8/28/2018, msd11) and 2nd run of TA-GW-07 (8/30/2018, msd16)). Benzidine, 3,3'-dichlorobenzidine, hexachlorocyclopentadiene, n-nitrosodiphenylamine (diphenylamine) results were qualified (detections qualified as J-, non-detects qualified as UJ) for samples associated with Batch 81974 (2nd run (8/30/2018, msd16) of samples TA-MW-309B DUP and TA-MW-301B).	Yes

Project Name/No. Michigan Project
SDG: TH11003
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for SVOCs in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	Yes	---	Field duplicate results for TA-MW-309B, and the 1st and 2nd runs of TA-MW-309B DUP were included in this SDG. No SVOCs were detected in either sample. No action was required.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 8/7/2018 19:02:30 (msd10). The initial calibration results %RSDs for all target analytes were below 20% or R^2 was above 0.99.	No
	Yes	---	Initial calibration was conducted on 8/7/2018 14:56:30 (msd10). The initial calibration %RSDs for all target analytes were below 20% or R^2 was above 0.99.	No
	No	Benzo(b)fluoranthene in TA-MW-309B, the 1st run (8/26/2018, msd11) of TA-MW-309B DUP, TA-MW-2, TA-TMW-105, 1st run (8/26/2018, msd11) of TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-102, TA-MW-301C, TA-GW-02.	Initial calibration was conducted on 8/23/2018 14:50:30 (msd 11). The initial calibration results %RSDs for all target analytes were below 20%, with exception of benzo(b)fluoranthene(28%), or the R^2 values were above 0.99. Benzo(b)fluoranthene was not detected in any project samples in this SDG; no action was taken.	No
	Yes	---	Initial calibration was conducted on 8/29/2018 10:35:30 (msd16). The initial calibration results %RSDs for all target analytes were below 20% or the R^2 values were above 0.99.	No

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SDG: TH11003
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Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 8/13/2018 14:02:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	An ICV was performed on 8/7/2018 22:19:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	No	Bis(2-chloroethyl)ether, 2-chlorophenol for TA-MW-309B, the 1st run of TA-MW-309B DUP (on 8/26/2018 with msd11), TA-MW-2, TA-TMW-105, 1st run of TA-MW-301B (on 8/26/2018 with msd11), TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-102, TA-MW-301C, TA-GW-02.	An ICV was performed on 8/23/2018 18:34:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for target analytes with the exception of bis(2-chloroethyl)ether (29%), 2-chlorophenol (26%). Bis(2-chloroethyl)ether and 2-chlorophenol were not detected in any project samples in this SDG; no action was taken.	No
	Yes	---	An ICV was performed on 8/24/2018 00:18:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	No	Bis(2-chloroethyl)ether for 2nd run (on 8/30/2018 with instrument msd16) of TA-MW-309B DUP, TA-MW-301B and TA-GW-07.	An ICV was performed on 8/29/2018 14:13:30 on instrument msd16. The ICV %D did not exceed the project limit of 25% for any target analytes with the exception of bis(2-chloroethyl)ether (26%). Bis(2-chloroethyl)ether was not detected in any project samples in this SDG; no action was taken.	No
	Yes	---	An ICV was performed on 8/29/2018 17:58:30 on instrument msd16. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	A CCV was performed on 8/28/2018 10:17:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/24/2018 8:57:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/26/2018 10:09:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	No	Pentachlorophenol for samples TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101 (analyzed on 8/27/2018 with msd11; not reported), TA-TMW-102, TA-MW-301C, TA-GW-02, 1st run (8/28/2018 with msd11) of TA-GW-07.	A CCV was performed on 8/27/2018 09:07:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes, with the exception of pentachlorophenol (-28%), and RRFs were all above 0.01. Pentachlorophenol results were qualified (detects were qualified as J-, non-detects were qualified UJ) for samples TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101 (analyzed on 8/27 with msd11; not reported), TA-TMW-102, TA-MW-301C, TA-GW-02, 1st run (8/28/2018 with msd11) of TA-GW-07. NOTE: According to the logs presented in Misc. Data, TA-TMW-101 appeared to be first tested on 8/27/2018 with msd11, but the results from this analyses were not reported. The raw sample data included the result for TA-TMW-101 analyzed on 8/28/2018 with msd10.	Yes
	Yes	---	A CCV was performed on 8/30/2018 15:33:30 (msd16). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Caprolactam in TA-MW-309B, 1st run (8/26/2018, msd11) of TA-MW-309B DUP; Phenol, Naphthalene, Fluorene, Phenanthrene, Anthracene, Pyrene in TA-MW-2; Caprolactam in TA-MW-309D; 2-Methylnaphthalene, Anthracene in TA-MW-303A; bis(2-Ethylhexyl)phthalate in TA-TMW-101; Acetophenone in TA-TMW-102; bis(2-Ethylhexyl)phthalate in 1st run (8/28/2018, msd11) of TA-GW-7; Caprolactam in 2nd run (8/30/2018, msd16) of TA-GW-7.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	No	Internal standard area for internal standards 1 to 5 for TA-MW-305B (analyzed 8/24/2018 on msd11; results not reported).	The internal standard (ISTD) responses for internal standards in this SDG were within the project limit (i.e., 50-200% of standard) with the following exceptions: The internal standard area for internal standards 1 to 5 for TA-MW-305B (analyzed 8/24/2018 on instrument msd11) were below the control limits but above 20% of the lower limit. Internal standard areas and responses for TA-MW-305B (analyzed 8/26/2018 on msd11) were within the project limit. Since the result for TA-MW-305B from 8/24/2018 on msd1) were not reported in the raw sample data or database, no actions were taken.	No
Solids Percentage	NA	---	All samples were aqueous.	No

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Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 2.2°C and 3.0°C, below the project limit of 4°C. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP. No actions were taken. The laboratory noted on the sample receipt checklist that 6 additional trip blank vials were received with the samples collected on 8/10/2018, which were not listed on the COC, and one of the vials was received broken. **NOTE: Data sample TA-MW-301B (sample number 005) was wrongly notated as TA-MW-310B in several places in this SDG.**	No
Surrogate Recovery	No	Surrogate recoveries for dichloroethane-d4, toluene-d8, and bromofluorobenzene in 1st run of TA-MW-302A (performed on 8/24/2018 with instrument msd7).	All VOC surrogate recoveries met the required criteria of 70-130%, except for 1,2-dichloroethane-d4 (51%), bromofluorobenzene (57%), and toluene-d8 (66%) in the 1st run of TA-MW-302A (performed on 8/24/2018 with instrument msd7). Detections in the 1st run of TA-MW-302A were qualified J-, and the non-detect results were qualified UJ. Note: TA-MW-302A was analyzed on 8/24/2018 with instrument msd7 and on 8/27/2018 with msd5. The reanalysis confirmed the initial analysis results. Only the first run was reported in sample raw data.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Dichlorodifluoromethane, 2-hexanone, methyl acetate, and 4-methyl-2-pentanone recoveries in LCS samples associated with Batch 81589 (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D).	All LCS recoveries were within the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 81589, the recovery for dichlorodifluoromethane (136%) was above the upper control limit (130%), while the recovery for 2-hexanone (67%), methyl acetate (69%), and 4-methyl-2-pentanone (69%) were below the lower control limit (70%). Samples TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D were associated with Batch 81589. Dichlorodifluoromethane was not detected in the associated samples; no action was taken. 2-Hexanone, methyl acetate, and 4-methyl-2-pentanone results in the above associated samples were qualified (detects were qualfiied as J-, non-detects were qualified as UJ).	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for VOCs in this SDG.	No
Method Blank	Yes	---	The method blank (MB) results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Acetone detected in TRIP BLANK associated with Batch 81587 (TA-MW-305B, TA-MW-303C, TA-MW-308A).	Two trip blanks were included in this SDG: TRIP BLANK (Batch 81587) and TA-TB-01(08132018) (Batch 81756). Acetone was detected in the TRIP BLANK at 3.6 ug/L, below the RL of 20 ug/L. TRIP BLANK was not recorded in the chain-of-custody; there is no information about the TRIP BLANK. No action was taken as a conservative approach.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One pair of field duplicates (TA-MW-309B, TA-MW-309B) DUP were included in this SDG. Trichloroethene was detected in both original (0.74 ug/L) and duplicate (0.56 ug/L) samples below the RL (1.0 ug/L), and the RPD was below the project limit of 30% for aqueous samples. No action was taken.	No
Initial Calibration	Yes	---	Initial calibration was performed on 8/21/2018 13:19:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No
	Yes	---	Initial calibration was performed on 8/25/2018 20:28:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No
	Yes	---	Initial calibration was performed on 8/23/2018 13:50:30 (instrument msd7), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No
	Yes	---	Initial calibration was performed on 8/16/2018 01:08:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No

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Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration Verification	No	Dichlorodifluoromethane in ICV on 8/21/2018 16:22:30 (msd5) on TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-MW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TRIP BLANK, TA-GW-02, TA-GW-07, TA-TB-01(08132018).	ICV was performed on 8/21/2018 16:22:30 (msd5). The ICV %D did not exceed the project limit of 25% for any target analytes with exception of dichlorodifluoromethane (46%). Dichlorodifluoromethane was not detected in the associated samples (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-MW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TRIP BLANK, TA-GW-02, TA-GW-07, TA-TB-01(08132018)). No action was taken.	No
	No	Dichlorodifluoromethane in ICV on 8/25/2018 23:44:30 (msd5) (associated with the 2nd runs of samples TA-MW-303A, TA-MW-305C, TA-MW-4, TA-TMW-101, TA-TMW-102, TA-MW-301C).	ICV was performed on 8/25/2018 23:44:30 (msd5). The ICV %D did not exceed the project limit of 25% for any target analytes with exception of dichlorodifluoromethane (26%). Dichlorodifluoromethane was qualified for the 2nd runs of samples TA-MW-303A, TA-MW-305C, TA-MW-4, TA-TMW-101, TA-TMW-102, TA-MW-301C)(detects were qualified as J+, non-detects were not qualified).	Yes
	Yes	---	ICV was performed on 8/23/2018 18:18:30 (msd7). The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	ICV was performed on 8/16/2018 04:09:30 (msd15). The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	CCV was performed on 8/22/2018 20:31:30 (msd5). The %D values for all target analytes were below 25%.	No
	No	Dichlorodifluoromethane in CCV 8/23/2018 21:31:30 (msd5) on TA-TB-01(08132018), TA-GW-02, TA-GW-07.	CCV was performed on 8/23/2018 21:31:30 (msd5). The %D values for all target analytes were below 25%, except for dichlorodifluoromethane (39.3%). Dichlorodifluoromethane was not detected in the samples TA-TB-01(08132018), TA-GW-02, TA-GW-07 analyzed on 8/23/2018; no action was taken.	No
	Yes	---	CCV was performed on 8/27/2018 08:45:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/24/2018 11:59:30 (msd7). The %D values for all target analytes were below 25%.	No
	No	Dichlorodifluoromethane in CCV 8/22/2018 21:48:30 (msd15) on TA-MW-305B, TA-MW-303C, and TA-MW-308A.	CCV was performed on 8/22/2018 21:48:30 (msd15). The %D values for all target analytes were below 25%, except for Dichlorodifluoromethane (26%). Dichlorodifluoromethane was not detected in the associated samples (TA-MW-305B, TA-MW-303C, and TA-MW-308A); no action was taken.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Acetone in TA-MW-2, TA-MW-105, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-TMW-102, TA-GW-02; Chlorobenzene in TA-MW-105; 1,1-Dichloroethane in TA-MW-305B, TA-308A, TA-MW-305C, TA-MW-4, TA-TMW-102; Dichlorodifluoromethane in TA-TMW-102.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	NA	---	All samples were aqueous.	No

Project Name/No. Michigan Project
SDG: TH11003
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples collected on 8/10/2018 were received at 2.2°C, 2.9°C, and 3.1°C, and the samples collected on 8/13/2018 were received at 3.0°C, 3.3°C, and 3.8°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	An MS/MSD was performed on TA-MW-2 for ICP-MS metals, and the MS/MSD recoveries were within the project control limits (75-125%), except for magnesium (laboratory reported 119%/160% vs. GZA calculated 100%/200%) and sodium (160%/550% vs. 1000%/1000%). The RPD values between the MS and MSD results was below the project limit of 30% except for magnesium (laboratory reported 3.3% vs. GZA calculated 67%). The original sample concentrations of magnesium and sodium were above 4 times the MS/MSD spike concentrations. No action was required.	No
	Yes	---	An MS was performed on TA-MW-301C for ICP-MS metals, and the MS recoveries were within the project control limits (75-125%). The laboratory reported recovery exceedances for magnesium (170%) and sodium (510%). However, the original sample concentrations of magnesium and sodium were above 4 times the MS/MSD spike concentrations. No action was required.	No
	Yes	---	An MS/MSD was performed on TA-MW-309B for mercury, and the MS/MSD recoveries were within the project control limits (75-125%). The RPD values between the MS and MSD results was below the project limit of 50%.	No
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No
Instrument Blank	No	Iron in multiple CCBs for Run #MS2082218 (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102, TA-MW-301C, TA-GW-02, TA-GW-07). Antimony and boron in multiple CCBs for Run #MS2082918B (no samples in this SDG).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in CCB2, CCB3, CCB4, CCB5, CCB6, CCB7, CCB8, CCB9, CCB10, CCB11 (Run #MS2082218B on 8/22/2018) at 21 ug/L, 17.19 ug/L, 18.39 ug/L, 28.82 ug/L, 26.12 ug/L, 36.18 ug/L, 22 ug/L, 24.04 ug/L, 24.4 ug/L, 24.08 ug/L, below the RL (50 ug/L). Antimony was detected in CCB1, CCB2 (Run #MS2082918B on 8/29/2018) at 0.504 ug/L, 0.524 ug/L, below the RL (2.0 ug/L). Boron was detected in CCB2 (Run #MS2082918B on 8/29/2018) at 14.71 ug/L, below the RL (50 ug/L). Iron was detected over the RL in all samples associated with Run #MS2082218B (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102, TA-MW-301C, TA-GW-02, TA-GW-07). Detections for Iron were above the RLs and five times the respective method blank levels for all all samples but TA-MW-301C. The iron result for TA-MW-301C was qualified as U with the detected level set as RL. No action was taken for the other iron results. Samples from this SDG were analyzed only for sodium in Run #MS2082918B; thus, the detections for antimony and boron in the blanks did not impact the sample results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.10 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, antimony, arsenic, beryllium, cadmium, chromium, lead, thallium, and titanium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as barium, boron, cobalt, copper, iron, magnesium, molybdenum, nickel, selenium, silver, sodium, vanadium, and zinc due to the relatively low percentage of solids of the samples.	No
Initial Calibration	Yes	---	Initial calibration was conducted for ICP-MS metals on 8/22/2018 and 8/29/2018, and r2 > 0.995. For mercury, a 5-point calibration was performed on 8/21/2018, and r2 > 0.995.	No

Project Name/No. Michigan Project
SDG: TH11003
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	No	Beryllium, boron, cobalt, magnesium, molybdenum, and sodium in multiple CCVs for Run #MS2082218B on 8/22/2018 (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102, TA-MW-301C, TA-GW-02, TA-GW-07). Aluminum, arsenic, barium, cobalt, copper, nickel, selenium, silver, and zinc in CCV3 for Run #MS2082918B on 8/29/2018 (no samples in this SDG).	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1) of the QAPP, and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%), except for the following cases: For Run #MS2082218B on 8/22/2018, recoveries for beryllium in CCV2 (112%), CCV3 (112%), CCV4 (112%), CCV6 (112%), CCV7 (111%), CCV8 (111%), boron in CCV4 (111%), CCV6 (112%), CCV7 (112%), CCV8 (111%), cobalt in CCV2 (89%), magnesium in CCV9 (112%), molybdenum in CCV10 (112%), sodium in CCV9 (112%) were outside the control limits. For Run #MS2082918B on 8/29/2018, the CCV3 recoveries for aluminum (89%), arsenic (88%), barium (86%), cobalt (88%), copper (80%), nickel (83%), selenium (87%), silver (86%), and zinc (87%) were below the lower control limit (90%). The exceedances for beryllium and boron affect all sample results for these analytes. Beryllium was not detected in any project samples in this SDG; no action was taken. Detections of boron for all samples in this SDG were qualified J+, while the non-detect results required no qualifier. The exceedance for cobalt in CCV2 did not affect any sample results, since all samples were analyzed after CCV3. The exceedance for magnesium in CCV9 and molybdenum in CCV10 did not impact the results for magnesium or molybdenum in this SDG, since all samples were analyzed for magnesium and molybdenum between CCV3 and CCV6. The exceedance for sodium in CCV9 was associated with TA-MW-305B, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-TMW-102. Sodium was detected in all associated samples; the sodium results for these samples was qualified J+. The exceedances in Run #MS2082918B did not impact the samples in this SDG, for which only TA-MW-303C and TA-GW-02 were analyzed for sodium during this run. No action was taken.	Yes
Interference Check Sample	No	Titanium in ICSA for Run #MS2082918B (no samples in this SDG).	The interference check recoveries were within the limits specified in the QAPP (80-120%), except for titanium (122%) in ICSA (Run #MS2082918B on 8/29/2018). The associated samples in this SDG were analyzed only for sodium during Run #MS2082918B. No action was taken.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Barium, boron, iron, and magnesium in the serial dilution performed on TA-MW-2.	A serial dilution was performed on TA-MW-2. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits), except for barium (13.1%), boron (10.9%), iron (17.2%), and magnesium (15.3%). Barium, boron, iron, and magnesium results for TA-MW-2 were qualified J.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	NA	---	All samples in this SDG were aqueous.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-MW-309B and TA-MW-309B DUP) was included in this SDG. The RPDs between all analytes was below the project limit of 30%.	No

Project Name/No. Michigan Project
SDG: TH11003
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples collected on 8/10/2018 were received at 2.2°C, 2.9°C, and 3.1°C, and the samples collected on 8/13/2018 were received at 3.0°C, 3.3°C, and 3.8°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 6 months for hardness, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	An MS/MSD analysis was performed on TA-MW-309B, TA-MW-309B DUP, TA-GW-07 for nitrate-nitrite analysis, and the MS/MSD recoveries were within the project control limits (75-125%). The RPD values between the MS and MSD results were below the project limit (30%).	No
	No	Ammonia MS/MSD recovery for TA-MW-309D.	An MS/MSD analysis was performed on TA-MW-309D for ammonia analysis, and the MS/MSD recoveries (laboratory reported 815%/810%, vs GZA calculated 819%/809%) were outside the project control limits (75-125%). The RPD values between the MS and MSD results were below the project limit (30%). The detection for ammonia in TA-MW-309D was qualified J+.	Yes
	No	Ammonia MS/MSD recovery for TA-MW-305B.	An MS/MSD analysis was performed on TA-MW-305B for ammonia analysis, and the MS/MSD recoveries (laboratory reported 27%/26% vs. GZA calculated 30%/30%) were below the project control limits (75-125%). The RPD values between the MS and MSD results were below the project limit (30%). The detection for ammonia in TA-MW-305B was qualified J-.	Yes
	Yes	---	An MS/MSD analysis was performed on TA-MW-2, TA-TMW-101, TA-TMW-102 for phosphorus analysis, and the MS/MSD recoveries were within the project control limits (75-125%). The RPD values between the MS and MSD results were below the project limit (30%).	No
	Yes	---	An MS/MSD analysis was performed on TA-MW-309D for total cyanide, chloride, and sulfate analysis, and the MS/MSD recoveries were within the project control limits (75-125%). The RPD values between the MS and MSD results were below the project limit (30%).	No
Method Blank	No	Nitrate-nitrite in Batch 81425 (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102) and in Batch 81552 (TA-MW-301C, TA-GW-02, TA-GW-07). Ammonia in Batch 81512 (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B), in the MB for Batch 81537 (TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102, TA-MW-301C, TA-GW-02, TA-GW-07), in Batch 81537 (TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102, TA-MW-301C, TA-GW-02, TA-GW-07), and in Batch 81813 (run 2 (8/24/2018 analysis) of samples TA-MW-303B, TA-MW-305B, TA-MW-303C, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-TMW-102).	Nitrate-nitrite was detected at 0.0031 mg/L in the method blank (MB) associated with Batch 81425 (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B, TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102), and at 0.011 ug/L in the MB for Batch 81552 (TA-MW-301C, TA-GW-02, TA-GW-07), below the RL of 0.02 mg/L. Nitrate-nitrite was detected above five times the corresponding blank levels in all associated samples but TA-GW-07. The TA-GW-07 nitrate-nitrite result was qualified as UB with the detected level as the RL. No action was taken for the other nitrate-nitrite results. Ammonia was detected at 0.039 mg/L in the MB associated with Batch 81512 (TA-MW-309B, TA-MW-309B DUP, TA-MW-2, TA-TMW-105, TA-MW-301B, TA-MW-303B, TA-MW-309D, TA-MW-305B), at 0.06 mg/L in the MB for Batch 81537 (TA-MW-303C, TA-MW-308A, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-MW-302A, TA-TMW-101, TA-TMW-102, TA-MW-301C, TA-GW-02, TA-GW-07), and at 0.044 mg/L in the MB for Batch 81813 (run 2 (8/24/2018 analysis) of samples TA-MW-303B, TA-MW-305B, TA-MW-303C, TA-MW-303A, TA-MW-305C, TA-MW-4, TA-TMW-102), below the RL of 0.10 mg/L. Ammonia was detected above 5 times the corresponding blank levels in all associated samples but TA-TMW-101, TA-MW-301C, and TA-GW-02. Ammonia was detected above the RLs in TA-MW-301C and TA-GW-02; the ammonia result were qualified as UB with the detected levels as the RLs. Ammonia was detected below the RL in TA-TMW-101; the result was raised to the RL and qualified UB. No action was taken for the other ammonia results. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No

Project Name/No. Michigan Project
SDG: TH11003
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Reported Quantitation Limits	No	Multiple inorganic analytes for multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.10 in the QAPP. The laboratory detection limit for total cyanide exceeded the MDEQ target limit. For other target analytes, the laboratory reporting limits generally met the MDEQ target detection limits, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.995.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP).	No
Laboratory Duplicate Analysis	Yes	---	A laboratory duplicate analysis was conducted on TA-MW-302A (TH11003-015DU) for sulfide analysis. Sulfide was not detected in either the original sample or the laboratory duplicate sample. No action was taken.	No
Solids Percentage	NA	---	All samples in this SDG were aqueous.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-MW-309B and TA-MW-309B DUP) was included in this SDG. The RPDs between all analytes was below the project limit of 30%.	No

Project Name/No. Michigan Project
SDG: TH10023
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	All the samples were received at 3.8°C, below the limit of 4.0°C, and were processed and analyzed within the holding time limit specified in the QAPP (7 days from sample collection to extraction, 14 days from extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries for the collected samples met the laboratory established limits. The recovery of 2-fluorophenol (DMC2) for the laboratory control sample SLCS16 (21%) associated with Batch 80716 was below the limit of 24-127%. No action was required.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	2-Chlorophenol, di-n-octylphthalate, and hexachlorocyclopentadiene for TA-MW-307B (associated with Batch 80716).	All LCS recoveries were within the laboraotry established limits, except for the following cases: For LCS associated with Batch 80716, 2-chlorophenol (38% vs. control limits of 39-115%), di-n-octylphthalate (53% vs. 55-143%), and hexachlorocyclopentadiene(18% vs. 22-122%) were below the control limits. 2-Chlorophenol, di-n-octylphthalate, and hexachlorocyclopentadiene results were qualified for the sample associated with Batch 80716 (TA-MW-307B) (detects qualified as J-, non-detects quaflied as UJ).	Yes
Matrix Spike/Matrix Spike Duplicates	No	Benzidine, 3,3'-dichlorobenzidine, hexachlorocyclopentadiene for TA-MW-309A. Benzidine, benzo(k)fluoranthene, dibenzo(a,h)anthracene, bis(2-ethylhexyl)phthalate, 3,3'-dichlorobenzidine, and indeno(1,2,3-c,d)pyrene for TA-MW-307B.	MS/MSD analyses were performed for SVOCs on the TA-MW-309A and TA-MW-307B. MS/MSD recoveries for all target analytes were generally within the laboratory established limits with the following exceptions: For TA-MW-309A, the MS/MSD recoveries of benzidine (3.7%/3.7% vs. 10-115%), 3,3'-dichlorobenzidine (9%/8.8% vs. 10-126%), hexachlorocyclopentadiene (19%/18% vs. 30-130%) were below the control limits. The MS/MSD RPDs were within the project limit of 30% for aqueous samples. For TA-MW-307B, the MS/MSD recoveries of benzidine (0%/0% vs. limit of 10-115%), benzo(k)fluoranthene (22%/55% vs. 30-130%), dibenzo(a,h)anthracene (24%/24% vs. 30-130%), bis(2-ethylhexyl)phthalate (27%/30% vs. 30-130%), 3,3'-dichlorobenzidine (0%/7.6% vs. 10-126%), and indeno(1,2,3-c,d)pyrene (25%/25% vs. limit of 30-130%) were below the control limits. The MS/MSD RPDs were within the project limit of 30% for aqueous samples, except for benzidine (0%) and 3,3'-dichlorobenzidine (200%). Benzidine, 3,3'-dichlorobenzidine, and hexachlorocyclopentadiene were not detected in TA-MW-309A; the non-detect results were qualified UR due to low MS/MSD recoveries. Benzo(k)fluoranthene, dibenzo(a,h)anthracene, bis(2-ethylhexyl)phthalate, and indeno(1,2,3-c,d)pyrene were not detected in TA-MW-307B; the non-detect results were qualified UJ. Benzidine and 3,3'-dichlorobenzidine were not detected in TA-MW-307B; the non-detect results were qualified UR due to low MS/MSD recoveries.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field/trip Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-MW-302B and TA-MW-302B DUP) was included in this SDG. No analytes were detected in either sample. No action was required.	No

Project Name/No. Michigan Project
SDG: TH10023
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	Initial calibration was conducted on 8/7/2018 19:02:30 (msd 10). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No
	Yes	---	Initial calibration was conducted on 8/7/2018 14:56:30 (msd 10). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No
	No	Benzo(b)fluoranthene for TA-MW-306B, TA-MW-307B, TA-MW-110.	Initial calibration was conducted on 8/23/2018 14:50:30 (msd 11). The initial calibration %RSDs for all target analytes were below 20%, with exception of benzo(b)fluoranthene(28%), or R^2 was greater than 0.99. Benzo(b)fluoranthene was not detected in the associated samples TA-MW-306B, TA-MW-307B, TA-MW-110; no action was taken.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 8/13/2018 14:02:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	An ICV was performed on 8/7/2018 22:19:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	No	Bis(2-chloroethyl)ether, 2-chlorophenol for TA-MW-306B, TA-MW-307B, TA-MW-110.	An ICV was performed on 8/23/2018 18:34:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for target analytes with the exception of bis(2-chloroethyl)ether (29%) and 2-chlorophenol (26%). Bis(2-chloroethyl)ether and 2-chlorophenol were not detected in the associated samples TA-MW-306B, TA-MW-307B, TA-MW-110; no action was taken.	No
	Yes	---	An ICV was performed on 8/24/2018 00:18:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	A CCV was performed on 8/23/2018 09:21:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/24/2018 08:57:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Acenaphthene, bis(2-Ethylhexyl)phthalate in TA-MW-302B and TA-MW-302B DUP; bis(2-Ethylhexyl)phthalate in TA-TMW-108; bis(2-Ethylhexyl)phthalate in TA-MW-309A; Caprolactam, and 4-Chloro-3-methylphenol in TA-MW-306B; Caprolactam, Fluoranthene, Pyrene, and Benzo(a)Anthracene in TA-MW-307B; n-Nitroso-di-n-propylamine, bis(2-Ethylhexyl)phthalate in TA-MW-307A; Caprolactam, and bis(2-Ethylhexyl)phthalate in TA-MW-306A; Caprolactam in TA-MW-309C; n-Nitrosodiphenylamine, Anthracene, Fluoranthene, and Pyrene in TA-MW-110; bis(2-Ethylhexyl)phthalate in TA-MW-5.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	No	All target analytes in TA-TMW-108; phenol, bis(2-chloroethyl)ether, 2-chlorophenol, acetophenone, hexachloroethane in TA-MW-309A.	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard) with the following exceptions: The internal standard area for all 6 internal standards in TA-TMW-108 were below the lower limit and below 20% of the standard. The internal standard area (IS-1: 16. 1,4-Dichlorobenzene-d4) in TA-MW-309A was below the lower limit but above 20% of standard. TA-TMW-108 and MW-309A were reanalyzed and the internal standard recoveries for the reanalysis were within the limits; no further action was taken based on the internal standard results.	No
Solids Percentage	NA	---	All samples were aqueous.	No

Project Name/No. Michigan Project
SDG: TH10023
Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 3.8°C, below the limit of 4.0°C. All the samples were processed and analyzed within the 14-day holding time limit specified in the QAPP. No action was required.	No
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Dichlorodifluoromethane for the following samples analyzed on 8/22/2018 (TA-MW-302B, TA-MW-302B DUP, TA-MW-309A, TA-TMW-108, and TA-MW-306B)	All LCS recoveries were within the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 81434, the recoveries for dichlorodifluoromethane (164%) was above the upper control limit (130%). Dichlorodifluoromethane results in the associated samples (the following samples analyzed on 8/22/2018: TA-MW-302B, TA-MW-302B DUP, TA-MW-309A, TA-TMW-108, and TA-MW-306B) were qualified (detects were qualified J+, and no action was taken for non-detects).	Yes
Matrix Spike/Matrix Spike Duplicates	No	Dichlorodifluoromethane, trichlorofluoromethane, vinyl chloride, and methyl acetate in MS/MSD on TA-MW-309A.	MS/MSD analyses were performed for VOCs on TA-MW-309A and TA-MW-307B. The MS/MSD recoveries for all target analytes were generally within the project limit of 70-130% with the following exceptions: for TA-MW-309A, the MS/MSD recoveries of dichlorodifluoromethane (163%/161%), trichlorofluoromethane (134%/133%), and vinyl chloride (136%/137%) were above the project limit, while methyl acetate recovery (71%/68%) was below the project limit. The RPD values between the MS and MSD recoveries for TA-MW-309A and TA-MW-307B were within the project limit of 30% for aqueous samples. For TA-MW-309A, dichlorodifluoromethane, trichlorofluoromethane, and vinyl chloride were not detected; no action was taken. Methyl acetate was not detected in TA-MW-309A and the non-detect result was qualified UJ.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Acetone in TA-MW-307B, TA-MW-307A, TA-MW-306A, TA-MW-309C, TA-MW-110,TA-MW-5.	Four trip blanks (TA-TB-01(08092018), TA-TB-02(08092018), TA-TB-03(08092018) and TA-TB-04(08092018)) were collected and analyzed with Batch 81516 for this SDG. Acetone was detected in all four trip blanks at 2.8 ug/L, 2.9 ug/L, 3.5 ug/L, and 4.1 ug/L, respectively, below the RL of 20 ug/L. All samples in this SDG were shipped together with the four trip blanks. Acetone was either not detected or detected below RLs in all samples in this SDG. The acetone detections were reported at the respective RLs and qualified UB. No action was taken for the acetone non-detect results.	Yes
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-MW-303E and TA-MW-303E DUP) was included in this SDG. Acetone (3.6%/3.3% vs. RL 20%) was detected in both the original and duplicate samples; the RPD value (9%) was within 30%. No action was required.	No
Initial Calibration	Yes	---	Initial calibration was performed on 8/21/2018 13:19:30 (instrument msd5), 8/16/2018 1:08:30 (msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No

Project Name/No. Michigan Project
SDG: TH10023
Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration Verification	No	Dichlorodifluoromethane for the following samples analyzed on 8/22/2018: TA-MW-302B, TA-MW-302B DUP, TA-MW-309A, TA-TMW-108, and TA-MW-306B.	ICV was performed on 8/21/2018 16:22:30 (msd5) and the %D values for all target analytes were within 25% with the exception of Dichlorodifluoromethane (46%). Dichlorodifluoromethane were qualified for the following samples analyzed on 8/22/2018 (TA-MW-302B, TA-MW-302B DUP, TA-MW-309A, TA-TMW-108, and TA-MW-306B) (Detects were qualified as J+, Non-detects were not qualified).	Yes
	Yes	---	ICV was performed on 8/16/2018 04:09:30 (msd15) and the %D values for all target analytes were within 25%.	No
	Yes	---	CCV was performed on 8/21/2018 19:33:30 (msd5). The %D values for all target analytes were within 25%.	No
	Yes	---	CCV was performed on 8/22/2018 09:58:30 (msd15). The %D values for all target analytes were within 25%.	No
	No	Dichlorodifluoromethane in 2nd run of TA-TMW-108, 2nd run of TA-MW-306B, analyzed on 8/22/2018.	CCV was performed on 8/22/2018 21:48:30 (msd15). The %D values for all target analytes were within 25%, with exception of dichlorodifluoromethane (-26%). Dichlorodifluoromethane results were qualified for the 2nd run of TA-TMW-108, 2nd run of TA-MW-306B (detects were qualifed as J-, non-detects were qualified as UJ).	Yes
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Acetone in TA-MW-302B, TA-MW-302B DUP; Acetone and Dichlorodifluoromethane in 1st run of TA-TMW-108; Dichlorodifluoromethane in 2nd run of TA-TMW-108; Acetone in TA-MW-306B; 1,1-Dichloroethane in 1st and 2nd run of TA-MW-306B; Dichlorodifluoromethane in TA-MW-307B; Tetrachloroethene in TA-Mw-307B; Dichlorodifluoromethane in TA-MW-306A; 1,1-Dichloroethane in TA-MW-5;	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	NA	---	All samples were aqueous.	No

Project Name/No. Michigan Project
SDG: TH10023
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	All the samples were received at 3.8°C, below the limit of 4.0°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Aluminum in MS/MSD performed on sample TA-MW-307B.	MS/MSD analyses were performed on samples TA-MW-309A and TA-MW-307B for all target metals, including mercury. The MS/MSD recoveries in samples TA-MW-309A and TA-MW-307B were within the project limits of 75-125%, or the spike was masked by an original sample concentration greater than 4 times the spike concentration with the following exception. The MS/MSD recoveries of aluminum (132%/132%) in sample TA-MW-307B were above the limits. Post digest spike information was not provided. The aluminum result in TA-MW-307B was qualified J+. The RPDs were below the project limit of 30% for water.	Yes
Method Blank	No	Zinc in the method blank associated with Batch 81161 (associated with all samples in the SDG).	No metal target analytes were detected in the method blanks with the following exception. Zinc was detected in the method blank associated with Batch 81161 at 2.6 ug/L, below the reporting limit of 10 ug/L. All samples in this SDG were impacted by the detection. Zinc detections below the RLs were reported at the RLs and qualified UB. No action was taken for non-detect results and detections above the RLs.	Yes
Instrument Blank	No	Iron and antimony in blanks associated with Run #MS2082018F on 8/21/2018. Iron in blanks associated with Run #MS20182218B on 8/22/2018.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in CCB2, CCB3, CCB4, CCB5, CCB6, and CCB7 (Run #MS2082018F on 8/21/2018) at 14.70 ug/L, 35.620 ug/L, 35.970 ug/L, 37.00 ug/L, 33.320 ug/L, and 35.780 ug/L, respectively, below the RL of 50 ug/L. Antimony was detected in CCB6 and CCB7 (Run #MS2082018F on 8/21/2018) at 0.510 ug/L and 0.513 ug/L, respectively, below the RL of 2 ug/L. Iron was detected in CCB2 and CCB3 (Run #MS2082218B on 8/22/2018) at 21.060 ug/L and 21.000 ug/L, respectively, below the RL of 50 ug/L. All samples in the SDG were impacted by the iron detections. Iron was detected above the RLs and above 5 times blank levels in all samples in this SDG; no action was taken. None of the impacted antimony results were reported.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.10 in the QAPP. The laboratory detection limit for total cyanide exceeded the MDEQ target limit. For other target analytes, the laboratory reporting limits generally met the MDEQ target detection limits, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for ICP-MS metals on 8/20/2018 and 8/22/2018, and the correlation coefficient was above the project limit of 0.995. For mercury, a 5-point calibration was performed on 8/15/2018 and 8/20/2018, and the correlation coefficient was above 0.995.	No
Continuing Calibration/Calibration Verification	No	Beryllium in CCV3 (Run #MS2082218B on 8/22/2018). Cobalt in CCV2 and CCV3 (Run #MS2082218B on 8/22/2018).	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP), except for recoveries of cobalt (89%) in CCV2 (Run #MS2082218B on 8/22/2018), and beryllium (112%) and cobalt (89%) in CCV3 (Run #MS2082218B on 8/22/2018). None of the results reported for project samples in this SDG were associated with the above CCVs with deficiencies. The CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	NA	---	No information is available for interference check results.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Iron, magnesium, sodium, and zinc in the serial dilution performed on TA-MW-307B. Iron, magnesium, and sodium in the serial dilution performed on TA-MW-309A.	A serial dilution was performed for TA-MW-307B and TA-MW-309A for ICP-MS metals. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits) except for iron (20.4%), magnesium (31.6%), sodium (81.1%), and zinc (12.1%) in TA-MW-307B and iron (14.5%), magnesium (28.5%), and sodium (17%) in TA-MW-309A. J qualifiers were added to the impacted results.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range with the exception of several CCVs and CCBs noted in the laboratory report. All project sample results were within the ICP linear range; no action was taken.	No

Project Name/No. Michigan Project
SDG: TH10023
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Solids Percentage	NA	---	All samples were aqueous.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected for this SDG (TA-MW-302B and TA-MW-302B DUP). All metals met one of three criteria: (1) the target metal was non-detect in both samples, (2) the target metal was detected at a concentration less than twice the RL in one sample and not detected in the other, or (3) the target metal was detected in both samples and the RPD was <30%.	No

Project Name/No. Michigan Project
SDG: TH10023
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hardness, nitrate/nitrite, phosphorus, sulfate, sulfide)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	All the samples were received at 3.8°C, below the limit of 4.0°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 7 days for sufide, 6 months for hardness, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Sulfide in the MS and/or MSD performed on samples TA-MW-309A and TA-MW-307B. Chloride and sulfate in the MSD performed on sample TA-MW-307B.	MS/MSD analysis was performed on samples TA-MW-309A and TA-MW-307B for sulfide analysis. The MS recovery in sample TA-MW-309A was within the project limits of 75-125%, but the MSD recovery (64%) was below the project limits. The MS/MSD recoveries (69%/68%) in sample TA-MW-307B were below the limits. The non-detect sulfide results in samples TA-MW-309A and TA-MW-307B were qualified UJ. The RPDs were within the project limit of 30% for water. MS/MSD analysis was performed on samples TA-MW-309A and TA-MW-307B for nitrate-nitrite analysis. MS/MSD recoveries were within the project limits of 75-125%, and the RPDs were within the project limit of 30% for water. MS/MSD analysis was performed on samples TA-MW-309A and TA-MW-309C for total cyanide analysis. MS/MSD recoveries were within the project limits of 75-125%, and the RPDs were within the project limit of 30% for water. MS/MSD analysis was performed on samples TA-MW-309A and TA-MW-307B for phosphorus analysis. MS/MSD recoveries were within the project limits of 75-125%, and the RPDs were within the project limit of 30% for water. MS/MSD analysis was performed on samples TA-MW-309A and TA-MW-307B for hardness analysis. MS/MSD recoveries for sample TA-MW-309A were within the project limits of 75-125%. MS/MSD recoveries (50%/50%) were below the project limits in sample TA-MW-307B, but the original concentration in the sample was greater than 4 times the spike concentration; therefore, no action was taken. The RPDs were within the project limit of 30% for water. MS/MSD analysis was performed on samples TA-MW-309A and TA-MW-307B for chloride analysis. MS/MSD recoveries for sample TA-MW-309A were within the project limits of 75-125%. For sample TA-MW-307B, the MS recovery was within the project limits while the MSD recovery (GZA calculated 50% vs. laboratory reported 15%) was below the limits. The detected chloride result in sample TA-MW-307B was qualified J-. The RPDs were within the project limit of 30% for water. MS/MSD analysis was performed on samples TA-MW-309A, TA-MW-307B, and TA-MW-5 for sulfate analysis. MS/MSD recoveries for samples TA-MW-309A and TA-MW-5 were within the project limits of 75-125%. For sample TA-MW-307B, the MS recovery was within the project limits, while the MSD recovery (73%) was below the limits. The detected sulfate result in sample TA-MW-307B was qualified J-. The RPDs were within the project limit of 30% for water.	Yes
Method Blank	No	Ammonia in Batch 81494 (associated with all samples in SDG). Nitrate-nitrite in Batches 81274 and 81425 (associated with all samples in SDG).	Ammonia was detected in the method blank associated with Batch 81494 at a concentration of 0.039 mg/L, below the RL of 0.10 mg/L. Ammonia results for all samples in the SDG were impacted. Ammonia was detected at concentrations above 5 times the method blank level in all samples in this SDG; no action was taken. Nitrate-nitrite was detected in the method blanks associated with Batches 81274 and 81425 at concentrations of 0.0016 mg/L and 0.0031 mg/L, respectively, below the RL of 0.020 mg/L. Nitrate-nitrite results for all samples in the SDG were impacted. Nitrate-nitrite detects below the RLs were reported at the RLs and qualified UB. No action was taken for non-detects and detections above the RLs. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple inorganic analytes in multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.10 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.995. Initial calibration information for hardness was not reported.	No

Project Name/No. Michigan Project
SDG: TH10023
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hardness, nitrate/nitrite, phosphorus, sulfate, sulfide)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	No	---	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP), with the following exceptions. Sulfate was above the limit in the CCVs performed on 8/28/2018 at 13:56:30 and 15:14:30 (%Ds of 27.5% and 15.8%, respectively). Sulfate analysis of samples TA-MW-110 and TA-MW-5 was bracketed by these CCVs. These samples were reanalyzed for sulfate, and the reanalysis was reported. The laboratory reported noted "QC Fail" for Ammonia ICV performed on 8/22/2018 1:13:24 pm, but the ICV recovery was 90%; no action was taken.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	NA	---	All samples were aqueous.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected for this SDG (TA-MW-302B and TA-MW-302B DUP). Total cyanide, nitrate-nitrite, sulfate, and sulfide were not detected in either sample. The RPDs were less than 30% for all other target analytes.	No

Project Name/No. Michigan Project
SDG: TH09090
Lab: SHEALY
Media Soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance. Holding time exceedance for run 2 of TA-SB-MW-04(10-11).	The samples were received at 5.0°C. Although the samples were received slightly above the project limit of 4°C, the samples were received within 24 hours of sample collection. No further action was required. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP, except for run 2 of TA-SB-MW-04(10-11) which took place on 8/29/2018, the 21st day after sample collection (8/8/2018). The laboratory case narrative notes that reanalysis was required due to surrogate failures in the initial analysis. Both sets of data were reported. VOC results for run 2 of TA-SB-MW-04(10-11) were qualified (J- for detections, UJ for non-detects).	Yes
Surrogate Recovery	No	Surrogate recoveries for dichloroethane-d4, toluene-d8, and bromofluorobenzene in run 1 (8/21/2018) of TA-SB-MW-04(10-11)	All VOC surrogate recoveries met the required criteria of 70-130%, except for 1,2-dichloroethane-d4 (141%), toluene-d8 (144%), and bromofluorobenzene (131%) in run 1 (8/21/2018) of TA-SB-MW-04(10-11). The laboratory case narrative states that the sample was reanalyzed on 8/29/2018. Detections in run 1 of TA-SB-MW-04(10-11) were qualified J+, and the non-detect results do not require qualifiers.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Acetone and dichlorodifluoromethane recoveries in LCS samples associated with Batch 81170 (TA-SB-23(6-7), TA-SB-23(9-10), TA-SB-MW-04(8-9), run 1 (8/21/2018) of TA-SB-MW-04(10-11)) and Batch 81916 (run 2 (8/29/2018) of TA-SB-MW-04(10-11)).	All LCS recoveries were within the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 81170, the recovery for acetone (157%) was above the upper control limit (130%), while the recovery for dichlorodifluoromethane (67%) was below the lower control limit (70%). For the LCS associated with Batch 81916, the recovery for acetone (202%) was above the upper control limit (130%), while the recovery for dichlorodifluoromethane (66%) was below the lower control limit (70%). For Batch 81170, acetone was non-detect in TA-SB-23(6-7); the non-detect result required no further action. The detected results for acetone in TA-SB-23(9-10), TA-SB-MW-04(8-9), and run 1 (8/21/2018) of TA-SB-MW-04(10-11)) were qualified J+. Dichlorodifluoromethane was non-detect in all affected samples; the results were qualified UJ. Acetone and dichlorodifluoromethane were not detected in the sample associated with Batch 81916 (run 2 (8/29/2018) of TA-SB-MW-04(10-11). No qualifier was needed for the acetone result, while the non-detect result for dichlorodifluoromethane was qualified UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for VOCs in this SDG.	No
Method Blank	No	Acetone and chloromethane detected below the RL in the MB for Batch 81916.	The method blank (MB) results show no detections of target VOC analytes, except for acetone and chloromethane, which were detected in the MB associated with Batch 81916 at 110 ug/kg and 23 ug/kg respectively, below the RL (500 ug/kg, 50 ug/kg). Acetone and chloromethane were not detected in the associated sample (run 2 of TA-SB-MW-04(10-11)); no further action was taken.	No
Field/Trip Blank	NA	---	No field or trip blanks were included in this SDG.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Initial Calibration	Yes	---	Initial calibration was performed on 8/16/2018 16:36:30 (instrument msd15) and 8/29/2018 08:30:30 (msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration Verification	Yes	---	ICV was performed on 8/16/2018 19:14:30 (msd15). The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	ICV was performed on 8/29/2018 11:20:30 (msd15). The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	No	Acetone in CCV 8/19/2018 09:23:30 (associated with TA-SB-23(6-7), TA-SB-23(9-10)).	CCV was performed on 8/19/2018 09:23:30 (msd15). The %D values for all target analytes were below 25%, except for acetone (57.6%). Acetone was non-detect in TA-SB-23(6-7); the non-detect result does not require qualification. The detection for acetone in TA-SB-23(9-10) was qualified J+.	Yes
	No	Acetone in CCV 8/21/2018 09:04:30 (associated with TA-SB-MW-04(8-9), run 1 (8/21/2018) of TA-SB-MW-04(10-11)).	CCV was performed on 8/21/2018 09:04:30 (msd15). The %D values for all target analytes were below 25%, except for acetone (63.7%). Acetone was detected in both samples associated with this CCV (TA-SB-MW-04(8-9) and run 1 (8/21/2018) of TA-SB-MW-04(10-11)); the acetone results were qualified J+.	Yes
	No	Acetone in CCV 8/26/2018 11:37:30 (not associated with any samples in this SDG).	CCV was performed on 8/26/2018 11:37:30 (msd15). The %D values for all target analytes were below 25%, except for acetone (47.3%). This CCV was not associated with any samples in this SDG; no further action was taken.	No

Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions:
			acetone in TA-SB-MW-04(8-9), TA-SB-MW-04(10-11);
			methylcyclohexane in TA-SB-MW-04(10-11);
			cyclohexane in TA-SB-MW-04(10-11).
				No

Project Name/No. Michigan Project
SDG: TH09090
Lab: SHEALY
Media Soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TH09090
Lab: SHEALY
Media Soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance.	The samples were received at 5.0°C. Although the samples were received slightly above the project limit of 4°C, the samples were received close to 24 hours of sample collection. No further action was required. All samples were extracted within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for SVOCs in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field or trip blanks were included in this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 8/14/2018 12:48:30 (msd16). The initial calibration results %RSDs for all target analytes were below 20% or R^2 above 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	No	2,4-Dimethylphenol, naphthalene in the ICV on 8/14/2018 16:28:30 (all samples in this SDG).	An ICV was performed on 8/14/2018 16:28:30 (msd16). The ICV %D did not exceed the project limit of 25% for any target analytes, except for 2,4-dimethylphenol (25.8%), naphthalene (28.3%), 2-methylnaphthalene (26.4%), hexachlorocyclopentadiene (29.7%), phenanthrene (25.3%), anthracene (27.4%), carbazole (28.2%), di-n-butyl phthalate (25.4%), and fluoranthene (29.3%). All samples in this SDG were associated with this ICV. The ICV was performed in an initial calibration standard check run, and does not directly affect sample results. All 2,4-dimethylphenol, naphthalene, 2-methylnaphthalene, hexachlorocyclopentadiene, phenanthrene, anthracene, carbazole, di-n-butyl phthalate, and fluoranthene results in this SDG were qualified (detects were qualified J+, while no action was taken for non-detects).	Yes
	Yes	---	An ICV was performed on 8/14/2018 20:09:30 (msd16). The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	A CCV was performed on 8/17/2018 09:58:30 on instrument msd16. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/20/2018 16:06:30 on instrument msd16. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No

Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions:
			naphthalene in TA-SB-23(6-7), TA-SB-23(9-10), TA-SB-MW-04(8-9), TA-SB-MW-04(10-11);
			carbazole in TA-SB-23(6-7);
			benzo(b)fluoranthene in TA-SB-23(6-7), TA-SB-23(9-10), TA-SB-MW-04(8-9);
			indeno(1,2,3-c,d)pyrene in TA-SB-23(6-7), TA-SB-MW-04(8-9), TA-SB-MW-04(10-11);
			benzo(g,h,i)perylene in TA-SB-23(6-7), TA-SB-MW-04(8-9), TA-SB-MW-04(10-11);
			phenanthrene in TA-SB-23(9-10), TA-SB-MW-04(8-9);
			fluoranthene in TA-SB-23(9-10);
			benzo(a)anthracene in TA-SB-23(9-10), TA-SB-MW-04(8-9);
			acenaphthene in TA-SB-MW-04(10-11).
			
			The spectra for the following samples exhibited slightly irregular baselines: TA-SB-23(6-7), TA-SB-MW-04(8-9)
				No

Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TH09090
Lab: SHEALY
Media Soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Slight temperature exceedance.	The samples were received at 5.0°C. Although the samples were received slightly above the project limit of 4°C, the samples were received close to 24 hours of sample collection. No further action was required. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for metals in this SDG.	No
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No
Instrument Blank	No	Boron detected in CCB1, CCB2, CCB3 in Run #MS2082018E (no samples in this SDG), CCB1 in Run #MS2082218B (no samples in this SDG), CCB1 in Run #MS2082318A (no samples in this SDG), and CCB1, CCB2, CCB3 in Run #MS2082918B (no samples in this SDG). Iron detected in blanks for Run #MS2082218B (all samples in this SDG) and Run #MS2082318A (no samples in this SDG).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Boron was detected in CCB1, CCB2, CCB3 (Run #MS2082018E on 8/20/2018) at 0.993 ug/L, 1.372 ug/L, 1.320 ug/L, in CCB1 (Run #MS2082218B on 8/22/2018) at 1.426 ug/L, in CCB1 (Run #MS2082318A on 8/23/2018) at 0.964 ug/L, and in CCB1, CCB2, CCB3 (Run #MS2082918B on 8/29/2018) at 1.245 ug/L, 14.71 ug/L, 1.834 ug/L, below the RL (25 ug/L). Iron was detected in CCB1 and CCB2 (Run #MS2082218B on 8/22/2018) at 10.64 ug/L and 21.06 ug/L, in CCB2 (Run #MS2082318A on 8/23/2018) at 12.44 ug/L, below the RL (25 ug/L). The detections for boron in Run #MS2082018E only affected the method blanks. All samples in this SDG were analyzed for boron after CCV2/CCB2 in Run #MS2082218B, and thus none of the detections impact the sample results. The detection for iron in CCB2 of Run #MS2082218B affected iron results for all samples in this SDG. Iron was detected over 100 times the RL in each of the affected samples. No qualifier was required for the iron results. The samples in this SDG were not analyzed for iron in Run #MS2082318A, and thus the iron detection in CCB2 does not impact the sample results.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	Initial calibration was conducted for ICP-MS metals on 8/20/2018, 8/22/2018, 8/23/2018, 8/29/2018, and the correlation coefficient was greater than the QAPP limit of 0.99. For mercury, a 5-point calibration was performed on 8/14/2018, and the correlation coefficient was greater than 0.99.	No
Continuing Calibration/Calibration Verification	No	Cobalt in CCV2 and CCV3 for Run #MS2082218B on 8/22/2018. Aluminum, arsenic, barium, cobalt, copper, nickel, selenium, silver, and zinc in CCV3 for Run #MS2082918B on 8/29/2018.	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%), except for the following cases: For Run #MS2082218B on 8/22/2018, recoveries for cobalt in CCV2 (89%) and CCV3 (89%) were below the lower control limit (90%). For Run #MS2082918B on 8/29/2018, the CCV3 recoveries for aluminum (89%), arsenic (88%), barium (86%), cobalt (88%), copper (80%), nickel (83%), selenium (87%), silver (86%), and zinc (87%) were below the lower control limit (90%). The exceedances for cobalt percent recovery in Run #MS2082218B affected the results from the initial analysis (on 8/22/2018) for all samples in this SDG. Only the run 2 (analyzed on 8/23/2018) results for cobalt are reported. No further action was taken. The exceedances in Run #MS2082918B affected the run 3 (8/29/2018) results for all samples in this SDG. However, only the run 3 results for chromium and/or vanadium were reported. No further action was taken.	No
Interference Check Sample	No	Titanium in ICSA for Run #MS2082918B.	The interference check recoveries were within the limits specified in the QAPP (80-120%), except for titanium (122%) in ICSA (Run #MS2082918B on 8/29/2018). The affected samples in this SDG were analyzed only for chromium and/or vanadium during Run #MS2082918B. No action was taken.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA	---	No serial dilution was performed for metals ICP-MS or mercury in this SDG.	No
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	NA	---	No field or trip blanks were included in this SDG.	No

Project Name/No. Michigan Project
SDG: TH09090
Laboratory: SHEALY
Media Soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Slight temperature exceedance.	The samples were received at 5.0°C. Although the samples were received slightly above the project limit of 4°C, the samples were received close to 24 hours of sample collection. No further action was required. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	An MS/MSD analysis was performed on TA-SB-AOC-D-01 (2-3), TA-SB-MA-01 (11-12), and TA-SB-C-01 (2-3) for phosphorus analysis, and the MS recovery was within the project control limits (75-125%). The laboratory reported the MSD recovery as 767%; however, GZA calculated the MSD recovery as 81%, which meets the criteria. Furthermore, the original sample concentrations exceeded 4 times the spike concentrations. No action was required.	No
Method Blank	No	Cyanide in Batch 81041 (all samples in this SDG). Ammonia in Batch 81830 (all samples in this SDG). Chloride in Batch 81924 (all samples in this SDG).	Total cyanide was detected at 0.014 mg/kg, below the RL of 0.12 mg/kg, in the method blank (MB) associated with Batch 81041 (all samples in this SDG). For TA-SB-23(9-10), TA-SB-MW-04(8-9), TA-SB-MW-04(10-11), detections for total cyanide below the RLs were reported at the RL and qualified UB. Ammonia was detected a 0.45 mg/kg, below the RL of 1.0 mg/kg, in the MB associated with Batch 81830 (all samples in this SDG). Ammonia was detected above 5 times the RL in all affected samples. No action was taken for the ammonia results. Chloride was detected at 2.0 mg/kg, below the RL of 10 mg/kg, in the MB associated with Batch 81924 (all samples in this SDG). Chloride was detected above the RL and above 5 times the MB level in all associated samples; no action was taken. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	No	Chloride in CCB 8/24/2018 20:23:30 PM (no samples in this SDG).	No TCLs were detected in any instrument blank, except for chloride in the CCB on 8/24/2018 20:23:30. This CCB did not affect any sample results in this SDG. No action was taken.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration performed for all target analytes had calibration coefficients above the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	NA	---	No field duplicate analysis was included in this SDG.	No

Project Name/No. Michigan Project
SDG: TH08019
Lab: SHEALY
Media TA-TB-01 (08072018) and TA-TB-02 (08072018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 3.3°C, below the 4°C temperature limit. All samples were extracted within the holding time limits specified in the QAPP (14 days from sample collection to extraction). All samples were analyzed within the holding time limits specified in the QAPP (40 days from extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD was not performed in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	---	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate pair was collected for this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 8/14/2018 12:48:30. For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	No	2,4-Dimethylphenol, naphthalene, 2-methylnaphthalene, hexachlorocyclopentadiene, phenanthrene, anthracene, carbazole, di-n-butylphthalate, fluoranthene, di-n-octylphthalate in ICV performed on 8/14/2018 16:28:30 (msd16) (TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8)).	An ICV was performed on 8/14/2018 16:28:30 (msd16), and %D values for all target analytes were within 25%, except for 2,4-dimethylphenol (25.8%), naphthalene (28.3%), 2-methylnaphthalene (26.4%), hexachlorocyclopentadiene (29.7%), phenanthrene (25.3%), anthracene (27.4%), carbazole (28.2%), di-n-butylphthalate (25.4%), fluoranthene (29.3%), di-n-octylphthalate (25.2%). The results of the target analytes referenced above in the associated samples (i.e., TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8)) were qualified (detects were qualified J+, non-detects were not qualified).	Yes
	Yes	---	An ICV was performed on 8/14/2018 20:09:30 and 16:41:30 (msd16), and %D values for all target analytes were within 25%.	No
	Yes	---	A CCV was performed on 8/17/2018 09:58:30 on instrument msd16. The %D values for all target analytes were below 25%. The RRFs were greater than 0.01.	No
	Yes	---	A CCV was performed on 8/20/2018 16:06:30 on instrument msd16. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Benzo(a)Anthracene in TA-SB-27 (8-9), TA-SB-07 (9-10), TA-SB-05 (7-8). Chrysene in TA-SB-27 (8-9). Indeno(1,2,3-c,d)pyrene in TA-SB-27 (8-9), TA-SB-07 (3-4), TA-SB-05 (2-3), TA-SB-07 (9-10), TA-SB-05 (7-8). Phenol in TA-SB-07 (3-4). Naphthalene in TA-SB-07 (3-4). Fluorene in TA-SB-07 (3-4), TA-SB-07 (9-10). Carbazole in TA-SB-07 (3-4). Fluoranthene in TA-SB-07 (9-10), TA-SB-05 (7-8). Benzo(b)fluoranthene in TA-SB-07 (9-10), TA-SB-05 (7-8). Benzo(g,h,i)perylene in TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8), TA-SB-07 (3-4), TA-SB-27 (8-9). Acenaphthene in TA-SB-05 (2-3), TA-SB-05 (7-8). Anthracene in TA-SB-05 (7-8).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TH08019
Lab: SHEALY
Media TA-TB-01 (08072018) and TA-TB-02 (08072018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	The 1st analysis of TA-SB-05 (2-3) and TA-SB-05 (7-8) were performed on 8/19/2018, the 16th day from sample collection (8/3/2018). The 2nd analysis of TA-SB-07 (9-10) was analyzed on 8/21/2018, the 14th day from collection (8/7/2018), with about 0.5 hour exceedance. The 2nd analysis of TA-SB-05 (2-3) was analyzed on 8/21/2018, the 18th day from sample collection (8/3/2018).	The samples were received at 3.3^{o}C, which is below the 4oC temperature limit. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP except the following: The 1st analysis of TA-SB-05 (2-3) and TA-SB-05 (7-8) were performed on 8/19/2018, the 16th day from sample collection (8/3/2018). The 2nd analysis of TA-SB-07 (9-10) was analyzed on 8/21/2018, the 14th day from collection (8/7/2018), with about 0.5 hour exceedance. The 2nd analysis of TA-SB-05 (2-3) was analyzed on 8/21/2018, the 18th day from sample collection (8/3/2018). The results for both analyses of TA-SB-05 (2-3) and TA-SB-05 (7-8) were qualified (detects were qualified J- and non-detects were qualified UJ).	Yes
Surrogate Recovery	No	All three surrogate recoveries for the 1st analysis of TA-SB-05 (2-3) on 8/19/2018.	The surrogate recoveries were within the project limits of 70-130% with the following exceptions: All three surrogate recoveries for the 1st analysis of TA-SB-05 (2-3) on 8/19/2018 were above the project limit of 70% at 143%/149%/137%. All the VOC results for the above referenced sample were qualified (detects were qualified J+ and non-detects were not qualified).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Batch 81153, acetone (TA-TB-01 (08072018) and TA-TB-02 (08072018)). Batch 81170, acetone, dichlorodifluoromethane (TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-05 (2-3), TA-SB-05 (7-8)). Batch 81403, acetone, 2-butanone (2nd analysis (8/21/2018) of TA-SB-07 (9-10)).	All LCS recoveries were wthin the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 81153, the recovery for acetone (62%) was below the control limits (70-130%). Associated samples include TA-TB-01 (08072018) and TA-TB-02 (08072018). Acetone was not detected in any of the associated samples. The acetone results for TA-TB-01 (08072018) and TA-TB-02 (08072018) were qualified UJ. For the LCS associated with Batch 81170, the recoveries for acetone (157%), dichlorodifluoromethane (67%) were outside the control limits (70-130%). Associated samples include TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), 1st analysis (8/19/2018) TA-SB-05 (2-3), TA-SB-05 (7-8). Dichlorodifluoromethane was not detected in any of the associated samples. The dichlorodifluoromethane results for all the referenced samples above were qualified UJ. The acetone results for all the referenced samples above were qualified (detects were qualified J+, non-detects were not qualified). For the LCS associated with Batch 81403, the recoveries for acetone (62%), 2-Butanone (132%) were outside the control limits (70-130%). Associated samples include the 2nd analysis (8/21/2018) of TA-SB-07 (9-10). None of the above referenced analytes were detected in TA-SB-07 (9-10). The acetone result for TA-SB-07 (9-10) on 8/21/2018 was qualified UJ. The 2-butanone result for TA-SB-07 (9-10) was not qualified.	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD was not performed in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	Two trip blanks (TA-TB-01 (08072018), TA-TB-02 (08072018)) were collected for this SDG. No VOCs were detected in the trip blank TA-TB-01 (08072018) or TA-TB-02 (08072018).	No
Quantitation Limits	No	---	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate pair was collected for this SDG.	No
Initial Calibration	Yes	---	An initial calibration was performed on 8/13/2018 13:55:30 (instrument msd7), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995. An initial calibration was performed on 8/16/2018 16:36:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No

Project Name/No. Michigan Project
SDG: TH08019
Lab: SHEALY
Media TA-TB-01 (08072018) and TA-TB-02 (08072018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 8/13/2018 18:13:30 (msd7), and the %D values for all target analytes were within 25%.	No
	Yes	---	ICV was performed on 8/16/2018 19:14:30 (msd15), and the %D values for all target analytes were within 25%.	No
	No	Dichlorodifluoromethane in CCV performed on 8/19/2018 09:13:30 (msd7) (TA-TB-01 (08072018), TA-TB-02 (08072018)).	CCV was performed on 8/19/2018 09:13:30 (msd7). The %D values for all target analytes were below 25% with the exception of dichlorodifluoromethane (-34.2%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in the associated sample (i.e., TA-TB-01 (08072018), TA-TB-02 (08072018)); the results were qualified UJ.	Yes
	No	Acetone in CCV performed on 8/19/2018 09:23:30 (msd15) (TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8)).	CCV was performed on 8/19/2018 09:23:30 (msd15). The %D values for all target analytes were below 25% with the exception of acetone (57.6%). The RRFs for all target analytes were greater than 0.01. Acetone results in the associated samples (i.e., TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10)1st analysis, TA-SB-05 (2-3)1st analysis, TA-SB-05 (7-8)) were qualified (detects were qualified J+, non-detects were not qualified).	Yes
	No	Acetone in CCV performed on 8/21/2018 09:04:30 (msd15) (TA-SB-07 (9-10)).	CCV was performed on 8/21/2018 09:04:30 (msd15). The %D values for all target analytes were below 25% with the exception of acetone (63.7%). The RRFs for all target analytes were greater than 0.01. The acetone results for the associated sample (i.e., TA-SB-07 (9-10)) were qualified (detects were qualified J+ and non-detects were not qualified).	Yes
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Acetone in TA-SB-07 (9-10), TA-SB-05 (2-3). Chlorobenzene in TA-SB-07 (9-10).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TH08019
Lab: SHEALY
Media TA-TB-01 (08072018) and TA-TB-02 (08072018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 3.3°C, which is below the project limit of 4°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Chromium and sodium in TA-SB-27 (8-9).	MS analysis was performed twice using different spike concentrations for TA-SB-27 (8-9). The MS recoveries were within the QAPP limits (75-125%) for all metals, except for the following: Chromium (laboratory reported 114%/189% vs. GZA calculated 114%/185%), sodium (185%/222% vs. 186%/219%), and barium (113%/136% vs. 112%/136%) exceeded the upper control limit (125%). Iron MS recovery (laboratory reported -557%, GZA calculated 71%), magnesium (-1020%/-953% vs. -1020%/63%), and titanium (-11%/51% vs. 0%/93%) fell below the lower control limit (75%). The laboratory also reported MS recoveries outside of the control limits for aluminum (-1000%/2210% vs. -980%/122%). The original sample concentrations of aluminum, iron, magnesium, and titanium were above 4 times the spike concentrations. No action was required for aluminum, iron, magnesium, and titanium results. The post digest spike recoveries for chromium and sodium were within 75-125%. Detections for chromium and sodium were qualified J for TA-SB-27 (8-9).	Yes
Method Blank	No	Vanadium in Batch 80682 (all samples in this SDG).	No metal target analytes were detected in the method blanks, except for vanadium at 0.53 mgkg, below the RL of 1.3 mg/kg, in the MB associated with Batch 80682 (all samples in this SDG). Vanadium was detected above 5 times the method blank level in all affected samples. No action was taken.	No
Instrument Blank	No	Boron and iron detected in the instrument blanks associated with Run #MS2082218B (TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8)), Run #MS2082318A (no samples in this SDG), and Run #MS2082918B (no samples in this SDG).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Boron was detected in CCB1, CCB2, CCB3, CCB4 (Run #MS2082218B on 8/22/2018) at 1.426 ug/L, 1.119 ug/L, 1.007 ug/L, 0.945 ug/L, in CCB1, CCB2, CCB3 (Run #MS2082318A on 8/23/2018) at 0.964 ug/L, 2.849 ug/L, 1.195 ug/L, and in CCB1, CCB2 (Run #MS2082918B on 8/29/2018) at 1.245 ug/L, 14.71 ug/L, below the RL of 25 ug/L. Iron was detected in CCB1 (Run #MS2082218B on 8/22/2018) at 10.64 ug/L, and in CCB2, CCB4 (Run #MS2082318A) at 10.19 ug/L, 12.44 ug/L, below the RL of 25 ug/L. For Run #MS2082218B, the iron detection in CCB1 did not affect samples in this SDG, but the boron detections in CCB3 and CCB4 affected samples TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8). Boron was detected in all affected samples below 5 times the RL. Detections for boron below the RL were reported at the RL and qualified UB. Detections above the RL were not qualified. Samples were not analyzed for boron or iron in Runs #MS2082318A or #MS2082918B. Detections for boron and iron in the instrument blanks for these runs did not affect the sample results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	Initial calibration was conducted for ICP-MS metals on 8/16/2018, 8/22/2018, 8/23/2018, and 8/29/2018, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 8/22/2018, and the correlation coefficient was greater than the project limit of 0.99.	No
Continuing Calibration/Calibration Verification	No	Beryllium in Run #MS2082218B (TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8)).	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1) of the QAPP, except for beryllium in CCV4 (111%) and CCV5 (111%) (Run #MS2082218B on 8/22/2018). The CRQL Check Standard recoveries for mercury were within the project limits (70-130%). The CCV exceedances for beryllium in Run #MS2082218B affected samples TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8). Beryllium was detected in all affected samples; detections for beryllium were qualified J+.	Yes
Interference Check Sample	No	Titanium in Run #MS2082918B (no samples in this SDG).	The interference check recoveries were within the limits specified in the QAPP (80-120%), except for titanium (122%) in Run #MS2082918B. No samples in this SDG were analyzed for titanium in Run #MS2082918B. No action was taken.	No

Project Name/No. Michigan Project
SDG: TH08019
Lab: SHEALY
Media TA-TB-01 (08072018) and TA-TB-02 (08072018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Boron in TB-SB-27 (8-9).	A serial dilution was performed for TB-SB-27 (8-9). The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits), except for boron (14.7%). Boron was detected at 7.2 mg/kg, above 50 times the MDL (0.14 mg/kg). The boron detection in TB-SB-27 (8-9) was qualified J.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No

Project Name/No. Michigan Project
SDG: TH08019
Laboratory: SHEALY
Media TA-TB-01 (08072018) and TA-TB-02 (08072018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 3.3°C, which is below the project limit of 4°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for inorganic nonmetals in this SDG.	No
Method Blank	No	Cyanide in Batch 81041 (all samples in this SDG, except for trip blanks). Ammonia in Batch 81830 (all samples in this SDG, except for trip blanks). Chloride in Batch 81912 (TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13)) and Batch 81924 (TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8))	Total cyanide was detected in the method blank (MB) associated with Batch 81041 (all samples in this SDG, except for trip blanks) at 0.014 mg/kg, below the RL of 0.12 mg/kg. Cyanide was not detected in TA-SB-58 (12-13); no qualifier was required for the non-detect result. Cyanide was detected below the RL in all other affected samples; the results were reported at the RL and qualified UB. Ammonia was detected in the MB associated with Batch 81830 (all samples in this SDG, except for trip blanks) at 0.45 mg/kg, below the RL of 1.0 mg/kg. TA-SB-58 (7-8), TA-SB-58 (12-13) were detected at or above the RL but below 5 times the MB result; these results were qualified UB with the detected levels as RLs. TA-SB-27 (8-9), TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8) were detected above 5 times the MB result; no action was taken for these results. Chloride was detected in the MB associated with Batch 81912 (TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13)) at 1.9 mg/kg and in the MB for Batch 81924 (TA-SB-07 (3-4), TA-SB-07 (9-10), TA-SB-05 (2-3), TA-SB-05 (7-8)) at 2.0 mg/kg, below the RL of 10 mg/kg. Chloride was detected below the RL in TA-SB-58 (7-8), TA-SB-58 (12-13); the results were reported at the RL and qualified UB. Chloride was detected above 5 times the MB levels in TA-SB-27 (8-9), TA-SB-27 (8-9), TA-SB-58 (7-8), TA-SB-58 (12-13); no qualifiers were required for these results. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	A 5-point initial calibration was conducted for ammonia on 8/24/2018. The correlation coefficients were greater than the QAPP limit of 0.99. An 8-point initial calibration was conducted for cyanide on 8/17/2018, and the correlation coefficient was greater than 0.99. A 7-point initial calibration was conducted for nitrate/nitrite on 8/21/2018, and the correlation coefficient was greater than 0.99. A 7-point initial calibration was conducted for phosphorus, and the correlation coefficient was greater than 0.99. An initial calibration was conducted for chloride and sulfate on 8/3/2018, and the correlation coefficients for all target analytes were above the QAPP limit of 0.99. Initial calibration for hexavalent chromium was conducted on 8/6/2018, and the correlation coefficients were above 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No

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Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance.	All the samples were received at 3.3°C, 4.0°C and 5.0°C below 4°C temperature limit. All samples were processed and analyzed within the holding time limit identified for the project (14 days from sample collection to extraction, 40 days from extraction to analysis). The second run for samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3 were extracted 13 days after sample collection, within the 14-day requirement. No action was required based on the holding time.	No
Surrogate Recovery	No	2-Fluorophenol (DMC2) in the 2nd run on 8/27/2018 of samples TA-MW-1, TA-TMW-103, TA-MW-111, TA-MW-3.	All SVOC surrogate recoveries met the laboratory established limits with the following exceptions: The recovery of 2-Fluorophenol (DMC2) for the 2nd run on 8/27/2018 of samples TA-MW-1 (22%), TA-TMW-103(22%), TA-MW-104 (22%), TA-MW-111 (21%), and TA-MW-3 (22%) were below the laboratory established limits (24-127%). 2-Fluorophenol (DMC2) was diluted out in the 2nd run of TA-MW-104 (22%). No phenol compounds were detected in the 2nd run of samples TA-MW-1, TA-TMW-103, TA-MW-111, TA-MW-3; the non-detect results were qualified UJ.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Hexachlorocyclopentadiene in LCS samples associated with Batch 80431 and Batch 81338 (associated with run 1 (8/21/2018) and run 2 (8/26/2018-8/27/2018) of the following samples: TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3).	All LCS recoveries were within the laboratory established limits, except for the following cases: For the LCS associated with Batch 81338, hexachlorocyclopentadiene (21%) recovery was below the control limit (22-122%). For LCS associated with Batch 80431, recoveries for benzidine (0% vs 10-115%) and 3,3'-dichlorobenzidine (0% vs 10-126%), hexachlorocyclopentadiene (19% vs 22-122%) were below the control limits. Hexachlorocyclopentadiene was not detected in any of the samples associated with Batch 80431 (the 1st run of samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3). The non-detect results were qualified UJ. Benzidine, 3,3'-dichlorobenzidine, and hexachlorocyclopentadiene were not detected in the samples associated with associated with Batch 81338 (the 2nd runs of samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3). The non-detect results were qualified UR.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Hexachlorocyclopentadiene, benzidine and 3,3'-dichlorobenzidine in the 1st run (8/21/2018) of TA-MW-310A. Butyl benzyl phthalate and hexachlorocyclopentadiene in the 2nd run (8/26/2018) of TA-MW-310A.	MS/MSD analyses were performed for SVOCs on the 1st run and 2nd run of TA-MW-310A. MS/MSD recoveries for all target analytes were generally within the laboratory established limits with the following exceptions: For 1st run of TA-MW-310A, the MS/MSD recoveries of Hexachlorocyclopentadiene (22%/25%) were below the control limit of 30-130%. The MS/MSD RPDs were within the project limit of 30%, except for Benzidine (52%) and 3,3'-dichlorobenzidine (42%). The hexachlorocyclopentadiene, 3,3'-dichlorobenzidine, and benzidine non-detects in the 1st run of TA-MW-310A were qualified UJ. For 2nd run of TA-MW-310A, the MS/MSD recoveries of Butyl benzyl phthalate (52%/55% vs limit of 54-135%) and Hexachlorocyclopentadiene (20%/19% vs limit of 30-130%) were below the control limits. The MS/MSD RPDs were within the project limit of 30%. The hexachlorocyclopentadiene non-detect result for 2nd run of TA-MW-310A was qualified UR and the Butyl benzyl phthalate non-detect for 2nd run of TA-MW-310A was qualified UJ.	Yes
Method Blank	No	Bis(2-Ethylhexyl)phthalate in the method blanks for Batch 80398 (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B) and Batch 80431 (the 1st runs of TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3).	The method blank results show no detections of target SVOC analytes with the following exceptions: Bis(2-Ethylhexyl)phthalate (0.69ug/L and 0.73ug/L) vs (RL=4ug/L and MDL= 0.5ug/L) was detected in the method blanks for Batch 80398 and Batch 80431, respectively. This result affected the samples TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B (associated with Batch 80398), and for the 1st runs of TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3 (associated with Batch 80431). Detections of bis(2-ethylhexyl)phthalate below the RL were reported at the respective RLs and qualified UB. No action was taken for non-detect results or detections above the RLs.	Yes
Field/trip Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-MW-303E and TA-MW-303E DUP) was included in this SDG. Bis(2-Ethylhexyl)phthalate was detected in both the original and duplicated samples, but the RPD (-21%) was within 30%. No action was taken.	No

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Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	Initial calibration was conducted on 8/7/2018 19:02:30 (msd 10). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was above 0.99.	No
	Yes	---	Initial calibration was conducted on 8/7/2018 14:56:30 (msd 10). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was above 0.99.	No
	No	Benzo(b)fluoranthene and dibenzo(a,h)anthracene for TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and the 2nd run for samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3.	Initial calibration was conducted on 8/10/2018 12:27:30 (msd 11). The initial calibration %RSDs for all target analytes were below 20% or R^2 was greater than 0.99, except for benzo(b)fluoranthene (24%) and dibenzo(a,h)anthracene (20%). Benzo(b)fluoranthene and dibenzo(a,h)anthracene were not detected in the associated samples (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd runs for the following samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3). No action was taken.	No
	No	Benzo(b)fluoranthene for TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd run for samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3.	Initial calibration was conducted on 8/23/2018 14:50:30 (msd 11). The initial calibration %RSDs for all target analytes were below 20% or R^2 was greater than 0.99, with exception of benzo(b)fluoranthene (28%). Benzo(b)fluoranthene was not detected in the associated samples (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd run for samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3). No action was taken.	No
	Yes	---	Initial calibration was conducted on 8/14/2018 12:48:30 (msd 16). The initial calibration %RSDs for all target analytes were below 20% or R^2 was greater than 0.99.	No

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Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 8/13/2018 14:02:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	An ICV was performed on 8/7/2018 22:19:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	No	2,4-Dimethylphenol for TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd runs for samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3.	An ICV was performed on 8/10/2018 16:12:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for target analytes with the exception of 2,4-Dimethylphenol (32%). 2,4-Dimethylphenol was not detected in the associated samples (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd runs for the following samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3); no action was taken.	No
	No	Benzidine for TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd runs (8/26/2018-8/27/2018) for samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3.	An ICV was performed on 8/10/2018 19:59:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for target analytes with the exception of benzidine (25%). Benzidine was not detected in the associated samples (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd runs (8/26/2018-8/27/2018) for the following samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3). No action was taken.	No
	No	Bis(2-chloroethyl)ether, 2-chlorophenol for TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd runs (8/26/2018-8/27/2018) for samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3.	An ICV was performed on 8/23/2018 18:34:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for target analytes with the exception of bis(2-chloroethyl)ether (29%) and 2-chlorophenol (26%). Bis(2-chloroethyl)ether and 2-chlorophenol was not detected in the associated samples (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, and 2nd runs of samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3). No action was taken.	No
	Yes	---	An ICV was performed on 8/24/2018 00:18:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	No	2,4-Dimethylphenol , naphthalene, 2-methylnaphthalene, hexachlorocyclopentadiene, acenaphthylene, phenanthrene, anthracene, carbazole, fluoranthene, pyrene, di-n-octylphthalate for 1st run (8/21/2018) of TA-MW-304B.	An ICV was performed on 8/14/2018 16:28:30 on instrument msd16. The ICV %D did not exceed the project limit of 25% for target analytes with the exception of 2,4-dimethylphenol (26%), naphthalene (28%), 2-methylnaphthalene (26%), hexachlorocyclopentadiene (30%), acenaphthylene (25%), phenanthrene (25%), anthracene (27%), carbazole (28%), fluoranthene (29%), pyrene (25%), di-n-octylphthalate (25%). None of the above analytes were detected in the associated sample (the 1st run of TA-MW-304B on 8/21/2018). No action was taken.	No
	Yes	---	An ICV was performed on 8/14/2018 20:09:30 on instrument msd16. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	A CCV was performed on 8/24/2018 09:14:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	No	Pentachlorophenol for TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B.	A CCV was performed on 8/20/2018 09:03:30 (msd11). The CCV %D did not exceed the project limit of 25% for target analytes with the exception of Pentachlorophenol (-26%), and RRFs were all above 0.01. Pentachlorophenol was not detected in the associated samples (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B); the non-detect results were qualified UJ.	Yes

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Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	No	Bis(2-chloroethyl)ether and pentachlorophenol in CCV 8/21/2018 09:09:30 (not associated with any samples in this SDG).	A CCV was performed on 8/21/2018 09:09:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes with the exception of bis(2-chloroethyl)ether (25%) and pentachlorophenol (-26%). The RRFs for all target analytes were above 0.01. No samples in this SDG were analyzed within 24 hours of this CCV.	No
	Yes	---	A CCV was performed on 8/26/2018 10:09:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes, and the RRFs were all above 0.01.	No
	No	Pentachlorophenol for the 2nd runs (8/26/2018-8/27/2018) of the following samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3.	A CCV was performed on 8/27/2018 09:07:30 (msd11). The CCV %D did not exceed the project limit of 25% for target analytes with the exception of pentachlorophenol (-28%), and the RRFs were all above 0.01. Pentachlorophenol was not detected in the associated samples (the 2nd runs of samples TA-MW-304B, TA-MW-310A, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-MW-104, TA-MW-111, TA-MW-3). The non-detect results were qualified UJ.	Yes
	Yes	---	A CCV was performed on 8/21/2018 10:34:30 (msd16). The CCV %D did not exceed the project limit of 25% for any target analytes, and the RRFs were all above 0.01.	No
Target Analyte Identification	NA	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Caprolactam for TA-MW-308B; Caprolactam for TA-MW-301D; bis(2-Ethylhexyl)phthalate, Caprolactam for TA-MW-310A; Acenaphthene, bis(2-Ethylhexyl)phthalate, Caprolactam for TA-TMW-109; bis(2-Ethylhexyl)phthalate, Acenaphthene for TA-MW-1; bis(2-Ethylhexyl)phthalate for TA-TMW-103; Caprolactam, Phenanthrene, Anthracene, Fluoranthene, Pyrene, bis(2-Ethylhexyl)phthalate for TA-MW-104; bis(2-Ethylhexyl)phthalate for TA-MW-111.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	NA	---	All samples were aqueous.	No

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Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance.	The samples were received at 3.3°C, 4.0°C and 5.0°C. Although samples TA-TB-01(08082018), TA-TB-02(08082018), TA-TB-03(08082018), TA-TB-04(08082018) and TA-MW-3 were received at a temperature of 5.0°C, above the limit of 4.0°C, they were received within 24 hours from collection. All the samples were processed and analyzed within the 14-day holding time limit specified in the QAPP. No action was required.	No
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Bromomethane (methyl bromide), chloroethane, cyclohexane for TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B (associated with Batch 81090). Acetone for TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, TA-MW-304B (associated with Batch 81153).	All LCS recoveries were within the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 81090, the recoveries for Bromomethane (Methyl bromide) (133%), Chloroethane (132%), Cyclohexane (133%) were above the upper control limit (130%). For the LCS associated with Batch 81153, the recoveries for Acetone (62%) were below the lower control limit (70%). The samples TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B were associated with Batch 81090; Bromomethane (Methyl bromide), Chloroethane, Cyclohexane was not detected in any of the above referenced samples; no action was taken. The samples TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, TA-MW-304B were associated with Batch 81153. Acetone were qualified for these samples (detects were qualified as J-, non-detects were qualified UJ).	Yes
Matrix Spike/Matrix Spike Duplicates	Yes	----	MS analysis and MS/MSD analyses were performed for VOCs on TA-MW-303E DUP and TA-MW-310A, respectively. The MS/MSD recoveries were within the project limits of 70-130% for all target analytes. The RPD values between the MS and MSD for TA-MW-310A were within the project limit of 30% for aqueous samples.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Acetone detected in trip blank TA-TB-04(08082018).	Four trip blanks TA-TB-01(08082018), TA-TB-02(08082018), TA-TB-03(08082018) and TA-TB-04(08082018) were collected in Batch 81192 for this SDG. No VOCs were detected in these trip blanks with an exception of Acetone (3ug/L vs RL =20, DL=2) in TA-TB-04(08082018). Since acetone was only detected in one of the four trip blanks; it is difficult to evaluate potential impact to the samples in this SDG. As a conservative approach, no action was taken based on the trip blank results.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-MW-303E and TA-MW-303E DUP) was included in this SDG. Acetone was detected in both the original and duplicate samples; The RPD value (12%) was within 30%. No action was required.	No
Laboratory Duplicate Analysis	Yes	---	One laboratory duplicate analysis was performed for sample TA-MW-303E. Acetone was detected in both the original sample and the laboratory duplicate, and the RPD (24%) was below the project limit of 30%. No action was required.	No
Initial Calibration	Yes	---	Initial calibration was performed on 8/13/2018 13:55:30 (instrument msd7), 8/16/2018 1:08:30 (msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No

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Continuing Calibration Verification	Yes	---	ICV was performed on 8/13/2018 18:13:30 (msd7), and the %D values for all target analytes were below 25%.	No
	Yes	---	ICV was performed on 8/16/2018 04:09:30 (msd15), and the %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/14/2018 21:50:30 (msd7). The %D values for all target analytes were below 25%.	No
	No	Dichlorodifluoromethane for TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, TA-MW-304B.	CCV was performed on 8/19/2018 09:13:30 (msd7). The %D values for all target analytes were below 25% with exception of dichlorodifluoromethane (-34%). Dichlorodifluoromethane was not detected in any of the associated samples (i.e., TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, TA-MW-304B); the non-detect results were qualified UJ.	Yes
	No	Dichlorodifluoromethane for TA-TB-01(08082018), TA-TB-02(08082018), TA-TB-03(08082018), TA-TB-04(08082018) and TA-MW-3.	CCV was performed on 8/19/2018 20:43:30 (msd7). The %D values for all target analytes were below 25%, with exception of Dichlorodifluoromethane (-35%). Dichlorodifluoromethane was not detected in any of the associated samples (i.e., the four trip blanks TA-TB-01(08082018), TA-TB-02(08082018), TA-TB-03(08082018), TA-TB-04(08082018) and sample TA-MW-3); the non-detect results were qualified UJ.	Yes
	No	Dichlorodifluoromethane, chloroethane, cyclohexane for TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B.	CCV was performed on 8/17/2018 08:16:30 (msd15). The %D values for all target analytes were below 25%, with exception of dichlorodifluoromethane (-25%), chloroethane (27%), cyclohexane (35%). The results affected samples TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B. Dichlorodifluoromethane was not detected in the associated samples, and the non-detect results were qualified UJ.	Yes
	No	Dichlorodifluoromethane for TA-TMW-109,TA-MW-1,TA-TMW-103,TA-MW-104,TA-MW-111.	CCV was performed on 8/19/2018 20:54:30 (msd15). The %D values for all target analytes were below 25%, with exception of dichlorodifluoromethane (-35%). Dichlorodifluoromethane was not detected in any of the associated samples (i.e., TA-TMW-109,TA-MW-1,TA-TMW-103,TA-MW-104,TA-MW-111); the non-detect results were qualified UJ.	Yes
Target Analyte Identification	No	1,1-Dichloroethane in TA-MW-3.	The difference between the sample spectrum and the reference spectrum is generally within 20% with an exception: 1,1-Dichloroethane in TA-MW-3.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	NA	---	All samples were aqueous.	No

Project Name/No. Michigan Project
SDG: TH08014
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Slight temperature exceedance.	The samples were received at 3.3°C, 4.0°C and 5.0°C. Although the samples TA-TB-01(08082018), TA-TB-02(08082018), TA-TB-03(08082018), TA-TB-04(08082018) and TA-MW-3 were received at a temperature of 5.0°C, above the limit of 4.0°C, they were received within 24 hours from collection. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	An MS/MSD analysis was performed on TA-MW-310A for ICP-MS metals and mercury. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals, except for sodium recovery (132%) in the MS sample. However, GZA recalculated the MS recovery for sodium as 106%, which meets the control limits. Furthermore, the concentration of sodium in the original, unspiked sample was above 4 times the RL. No action was taken. An MS analysis was performed on TA-MW-3 for ICP-MS metals and mercury. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals.	No
Method Blank	No	Iron detected below the RL in the MB associated with Batch 80645 (all samples in this SDG)	No metal target analytes were detected in the method blanks, except for iron, which was detected (16 ug/L) below the RL (50 ug/L) in the MB associated with Batch 80645 (contains all samples in this SDG). Iron was detected above 5 times the RL in all affected samples except TA-MW-310B, TA-MW-310A, TA-TMW-109. No action was taken based on the method blank results for iron.	No
Instrument Blank	No	Antimony detected in CCB2 of Run #MS2082018F (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, and TA-MW-310B). Iron detected in multiple blanks in Run #MS2082018F (all samples in this SDG).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Antimony was detected in CCB2 (Run #MS2082018F on 8/21/2018) at 0.553 ug/L, below the RL of 2.0 ug/L. Iron was detected in CCB2, CCB3, CCB4, CCB5, CCB6 (Run #MS2082018F on 8/21/2018) at 34.51 ug/L, 33.06 ug/L, 34.08 ug/L, 32.44 ug/L, 35.62 ug/L, below the RL of 50 ug/L. Antimony was non-detect in all affected samples (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, and TA-MW-310B). No action was required. Iron was detected above the RL in all affected samples (all samples in this SDG). No action was taken based on the instrument blank results for iron.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.10 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for mercury were noted by the QAPP. Elevated reporting limits were also noted for other metals due to dilution.	No
Initial Calibration	Yes	---	Initial calibration was conducted for ICP-MS metals on 8/20/2018, and the correlation coefficients were greater than 0.995 for all target analytes. For mercury, a 5-point calibration was performed on 8/15/2018, and the correlation coefficient was greater than 0.995.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP). The CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	NA	---	No information was provided for interference check for this SDG.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Magnesium and sodium in the serial dilution performed on TA-MW-310A.	A serial dilution was performed for TA-MW-310A for ICP-MS metals. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits) except for magnesium (27.1%) and sodium (17.3%). Magnesium and sodium were detected above the 50 times the RL in TA-MW-310A. The results for magnesium and sodium in TA-MW-310A were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TH08014
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard	No	Scandium in TA-MW-303D, TA-MW-301D, TA-MW-308C, TA-TMW-109, TA-MW-3S, and run 2 (8/21/2018) of TA-MW-310C.	The %RI was within 60-125% of the response in the calibration blank for all internal standards, except for the following: Scandium in TA-MW-303D (71% relative to preceeding CCB vs. 59%), TA-MW-301D (71% relative to preceeding CCB vs. 55%), TA-MW-308C (71% relative to preceeding CCB vs. 59%), TA-TMW-109 (87% relative to preceeding CCB vs. 59%), TA-MW-3S (82% relative to preceeding CCB vs. 58%), and run 2 (8/21/2018) of TA-MW-310C (82% relative to preceeding CCB vs. 58%). Although the percent recovery results were below 60% for the above samples, the percent recovery results relative to the preceding CCB were within the project limits; no action was taken. In run 1 of TA-MW-310C the %RI for indium (43%), lithium (41%), scandium (41%), terbium (61% relative to preceeding CCB vs. 54%), and yttrium (44%) did not meet the minimum control limit (60%). TA-MW-310C was reanalyzed three more times, and only results from run 2, 3, and 4 (all conducted on 8/21/2018) were reported; no further action was required for the exceedances in run 1 of TA-MW-310C.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	NA	---	All samples were aqueous.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-MW-303E and TA-MW-303E DUP) was included in this SDG. The RPD values for all target analytes were within 30%. Copper was detected below the RL only in the original sample, and titanium was detected below the RL only in the duplicate. No action was required.	No

Project Name/No. Michigan Project
SDG: TH08014
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Slight temperature exceedance.	The samples were received at 3.3^{o}C, 4.0^{o}C and 5.0^{o}C. Although samples TA-TB-01(08082018), TA-TB-02(08082018), TA-TB-03(08082018), TA-TB-04(08082018) and TA-MW-3 were received at a temperature of 5.0^{o}C, above the limit of 4.0^{o}C, they were received within 24 hours from collection. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 24 hours for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	No	Sulfide and hardness in TA-MW-310A. Ammonia in TA-TMW-103.	An MS/MSD analysis was performed on TA-MW-308B for hexavalent chromium analysis and total cyanide analysis. The MS/MSD recoveries were within the project control limits (75-125%), and the RPD between the MS and MSD results was below the 50% project limit. An MS/MSD analysis was performed on TA-MW-310A for sulfide, phosphorus, nitrate-nitrite, total cyanide, chloride, and hardness analysis. The MSD recovery was within the project control limits (75-125%) except for sulfide (MS 64%) and hardness (69%). Sulfide was non-detect in TA-MW-310A; the result was qualified UJ. The detection for hardness was qualified J-. The RPD between the MS and MSD results was below the 50% project limit for all analytes. An MS/MSD analysis for total cyanide was performed on TA-MW-303E, TA-MW-308C, and TA-TMW-111. The MS/MSD recoveries were within the project limits (75-125%, and the RPD between the MS and MSD results was below 50%. An MS/MSD analysis was performed on TA-MW-303D for phosphorus analysis. The MS/MSD recoveries were within the project limits (75-125%), and the RPD between the MS and MSD results was below 50%. An MS/MSD analysis for ammonia was performed on TA-TMW-103 and TA-TMW-111, and the MS/MSD recoveries were within the project limits (75-125%), except for the ammonia MSD recovery for TA-TMW-103 (72%). The RPDs between the MS and MSD results were below the 50% project limit. The detection for ammonia in TA-TMW-103 was qualified J-. An MS/MSD analysis was performed on TA-MW-303E DUP for nitrate-nitrite analysis. The MS/MSD recoveries were within the project limits (75-125%), and the RPD between the MS and MSD results was below 50%. An MS/MSD analysis was performed on TA-TMW-103 for sulfate analysis. The MS/MSD recoveries were within the project limits (75-125%, and the RPD between the MS and MSD results was below 50%.	Yes
Method Blank	No	Ammonia in Batch 81149 (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, TA-MW-304B, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-TMW-104, TA-TMW-111, TA-MW-3) and in Batch 81494 (run 2 of TA-MW-310A). Nitrate-nitrite in Batch 81270 (all samples in this SDG). Hardness in Batch 81805 and in Batch 81806 (all samples in this SDG).	Ammonia was detected at 0.03 mg/L, below the RL of 0.10 mg/L, in the method blank (MB) for Batch 81149 (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C, TA-MW-310B, TA-MW-304B, TA-TMW-109, TA-MW-1, TA-TMW-103, TA-TMW-104, TA-TMW-111, TA-MW-3) and at 0.039 mg/L, below the RL of 0.10 mg/L, in Batch 81494 (run 2 of TA-MW-310A). Ammonia was either not detected or detected above the RLs in the above referenced samples except that ammonia was detected below the RL in run 2 of TA-MW-310A. The ammonia result for run 2 of TA-MW-310A was raised to RL and qualified with UB. The other ammonia results (i.e., non-detect results and detections for ammonia greater than RLs) were not qualified. Nitrate-nitrite was detected at 0.0017 mg/L, below the RL of 0.020 mg/L, in the MB for Batch 81270 (all samples in this SDG). Non-detect results and detections for nitrate-nitrite greater than RLs were not qualified. Detections below the RL for nitrate-nitrite were reported at the RL and qualified UB. Hardness was detected at 2.0 mg/L and 2.0 mg/L, below the RL of 10 mg/L, in the MBs for Batch 81805 and Batch 81806 (all samples in this SDG). Hardness was detected above RLs in all samples in this SDG. No action was required for the hardness results. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes

Project Name/No. Michigan Project
SDG: TH08014
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Instrument Blank	No	Phosphorus in CCB 8/19/2018 12:40 (TA-MW-303E, TA-MW-303E DUP, TA-MW-303D, TA-MW-308B, TA-MW-301D, TA-MW-308C, TA-MW-310C). Hexavalent chromium in CCB 8/8/2018 16:10:30 and CCB 8/8/2018 16:10:30 (TA-MW-308B).	No TCLs were detected in any instrument blank, except for phosphorus in the CCB in Analytical Batch 81174, injected on 8/19/2018 12:40, and hexavalent chromium was detected in the CCB on 8/8/2018 14:06:30 at 0.044 ug/L, and in the CCB on 8/8/2018 16:10:30 at 0.0048 ug/L. The bracket affected by the failing opening CCB for phosphorus analysis was reanalyzed, and the results from the reanalysis were reported. No further action was taken for the phosphorus results. Hexavalent chromium was non-detect in the sample impacted by the instrument blank detections (TA-MW-308B); no further action was required.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples in this SDG.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.10 in the QAPP. The laboratory detection limit for total cyanide exceeded the MDEQ target limit. For other target analytes, the laboratory reporting limits generally met the MDEQ target detection limits, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.995.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	NA	---	All samples were aqueous.	No
Field Duplicate Analysis	NA	---	One field duplicate pair (TA-MW-303E and TA-MW-303E DUP) was included in this SDG. The RPD values for all target analytes were within 30%, except for hexavalent chromium. However, hexavalent chromium was detected below the RL in the original sample, and the absolute difference between the original and duplicate sample was less than twice the RL. No action was required.	No

Project Name/No. Michigan Project
SDG: TH03007
Lab: SHEALY
Media TA-TB-01(08022018) and TA-TB-02(08022018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	All the samples were received at 2.7°C, below the 4°C temperature limit. All samples were processed and analyzed within the holding time limit specified in the QAPP (14 days from sample collection to extraction, 40 days from extraction to analysis). No action was required.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits. Nitrobenzene-d5 (DMC3) for TA-SB-AOC-C-02(2-3), DMC6 for TA-SB-03(6-7), and DMC2 for TA-SB-03(12-13) were diluted out.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Benzo(a)pyrene in Batch 80201 (associated with TA-SB-08(7-8)).	All LCS recoveries were within the laboraotry established limits, except for the following cases: For the LCS associated with Batch 80201, the Benzo(a)pyrene (52%) was below the control limit (55-134%). Benzo(a)pyrene was detected in the associated sample, TA-SB-08(7-8), and the result was qualified J-.	Yes
Matrix Spike/Matrix Spike Duplicates	No	4,6-Dinitro-2-methylphenol and hexachlorocyclopentadiene in the MS/MSD performed on TA-SB-09(2-3).	MS/MSD analyses were performed for SVOCs on TA-SB-09(2-3). MS/MSD recoveries were within the laboratory established limits for all analytes except that 4,6-dinitro-2-methylphenol (22%/18% vs 40-130% control limits) and hexachlorocyclopentadiene (8.3%/8.3% vs 18-121%) were below the laboratory established control limits. Additionally, the MS/MSD RPDs were within 50%. 4,6-Dinitro-2-methylphenol and hexachlorocyclopentadiene were not detected in the original sample; the non-detect results were qualified as UR as the MS and/or MSD recoveries were below 20%.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, phenanthrene, pyrene in TA-SB-08(7-8) and TA-SB-08(7-8) DUP.	One field duplicate pair (TA-SB-08(7-8) and TA-SB-08(7-8) DUP) was included in this SDG. Anthracene, benzo(g,h,i)perylene, fluorene, and 2-methylnaphthalene were non-detect in the duplicate sample, but detected in the original sample at below twice the RL. No action was required for these results. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene were detected in both the original and duplicate samples. The RPD values for these analytes were above 50%. The detected value in either the original or duplicate sample was less than five times the RL. The qualification was determined as follows: For Benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, phenanthrene, and pyrene, the absolute difference between the two samples was greater than twice the RL. Results for these analytes in both samples were qualified J. For Benzo(a)anthracene, benzo(k)fluoranthene, chrysene, indeno(1,2,3-c,d)pyrene, and naphthalene, the absolute difference between the two samples was less than twice the RL. No action was required for these analytes.	Yes
Initial Calibration	Yes	---	Initial calibration was conducted on 8/7/2018 19:02:30 (msd 10). The initial calibration results %RSDs for all target analytes were below 20% or the R^2 values were above 0.99.	No
	Yes	---	Initial calibration was conducted on 8/7/2018 14:56:30 (msd 10). For all target analytes, the initial calibration %RSDs were below 20% or R^2 values were greater than 0.99.	No
	No	Benzo(b)fluoranthene and dibenzo(a,h)anthracene in ICV 8/10/2018 12:27:30 (associated with TA-SB-06(2-3), TA-SB-08(7-8)).	Initial calibration was conducted on 8/10/2018 12:27:30 (msd 11). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99, except for Benzo(b)fluoranthene (24%) and Dibenzo(a,h)anthracene (20%). The benzo(b)fluoranthene and dibenzo(a,h)anthracene results for associated samples TA-SB-06(2-3), TA-SB-08(7-8) were qualified (detects were qualified as J+, non-detects were not qualified).	Yes

Project Name/No. Michigan Project
SDG: TH03007
Lab: SHEALY
Media TA-TB-01(08022018) and TA-TB-02(08022018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 8/13/2018 14:02:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	An ICV was performed on 8/7/2018 22:19:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	No	2,4-Dimethylphenol in ICV 8/10/2018 16:12:30 (associated with TA-SB-06(2-3), TA-SB-08(7-8)).	An ICV was performed on 8/10/2018 16:12:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for any target analytes except 2,4-dimethylphenol (32%). 2,4-Dimethylphenol was not detected in the associated samples (TA-SB-06(2-3) and TA-SB-08(7-8)); no action was taken.	No
	Yes	---	An ICV was performed on 8/10/2018 19:59:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	A CCV was performed on 8/20/2018 09:17:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	No	Pentachlorophenol for TA-SB-06(2-3), TA-SB-08(7-8).	A CCV was performed on 8/20/2018 09:03:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes with the exception of pentachlorophenol (-26%). RRFs for all target analytes were above 0.01. Pentachlorophenol was not detected in the associated samples (TA-SB-06(2-3) and TA-SB-08(7-8)); the non-detect results were qualified UJ.	Yes
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Anthracene for TA-SB-MA-03(13-14); Naphthalene, Phenanthrene and Fluoranthene for TA-SB-MA-03(7-8); Naphthalene, 2-Methylnaphthalene, Acenaphthene, Benzo(a)Anthracene, Chrysene, bis(2-Ethylhexyl)phthalate, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-c,d)pyrene, Benzo(g,h,i)perylene in TA-SB-AOC-C-02(2-3); Benzo(a)Anthracene in TA-SB-01(2-3); Fluoranthene and Pyrene in TA-SB-01(7-8); Benzo(a)Anthracene in TA-SB-02(2-3); Naphthalene, Benzo(a)Anthracene and Chrysene in TA-SB-02 (7-8); Naphthalene, Benzo(a)Anthracene in TA-SB-08(3-4); Acenaphthene, Benzo(a)Anthracene, Indeno(1,2,3-c,d)pyrene and Benzo(k)fluoranthene in TA-SB-08(7-8); Benzo(a)Anthracene in TA-SB-08(7-8)DUP; Naphthalene, Benzo(a)Anthracene, Indeno(1,2,3-c,d)pyrene in TA-SB-03(6-7); Naphthalene in TA-SB-03(12-13); Phenanthrene, Benzo(a)Anthracene and Benzo(b)fluoranthene in TA-SB-03(12-13); Phenanthrene in TA-SB-04(7-8);Benzo(a)Anthracene in TA-SB-04(12-13); Benzo(g,h,i)perylene in TA-SB-04(12-13); Benzo(a)Anthracene in TA-SB-06(7-8); Benzo(a)Anthracene and Indeno(1,2,3-c,d)pyrene in TA-SB-06(2-3)	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples	No

Project Name/No. Michigan Project
SDG: TH03007
Lab: SHEALY
Media TA-TB-01(08022018) and TA-TB-02(08022018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	All the samples were received at 2.7°C, below 4°C temperature limit, and were processed and analyzed within the 14-day holding time limit specified in the QAPP. No action was required.	No
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Chloromethane (methyl chloride) and dichlorodifluoromethane in TA-SB-MA-03(13-14), TA-SB-MA-03(7-8), TA-SB-AOC-C-02(2-3), TA-SB-AOC-C-02(9-10) associated with Batch 80723; and in TA-SB-01(2-3), TA-SB-01(7-8), TA-SB-09(6-7), TA-SB-02(2-3), TA-SB-02(7-8), TA-SB-08(7-8), TA-SB-08(7-8)DUP, TA-SB-03(6-7), TA-SB-03(12-13), TA-SB-04(7-8), TA-SB-04(12-13), TA-SB-06(7-8), TA-SB-06(2-3) associated with Batch 80775. Dichlorodifluoromethane in TA-TB-01 (08012018), TA-TB-02 (08012018) associated with Batch 79785. Acetone, carbon tetrachloride, 1,1-dichloroethene and dichlorodifluoromethane in TA-SB-09(2-3) associated with Batch 80393. Acetone and 2-hexanone in TA-SB-08(3-4) associated with Batch 80452.	All LCS recoveries were within the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 80723, the recoveries for chloromethane (methyl chloride) (68%) and dichlorodifluoromethane (60%) were below the lower control limit (70%). For the LCS associated with Batch 80775, the recoveries for chloromethane (methyl chloride) (66%) and dichlorodifluoromethane (62%) were below the lower control limit (70%). For the LCS associated with Batch 79785, the recovery for dichlorodifluoromethane (143%) was above the upper control limit (130%). For the LCS associated with Batch 80393, the recoveries for acetone (135%), carbon tetrachloride(131%), 1,1-dichloroethene (132%) were above the upper control limit (130%), while dichlorodifluoromethane (69%) was below the lower contorl limit (70%). For the LCS associated with Batch 80452, the recoveries for acetone (173%) was above the upper control limit (130%), while 2-hexanone (66%) was below the lower control limit (70%). Samples TA-SB-MA-03(13-14), TA-SB-MA-03(7-8), TA-SB-AOC-C-02(2-3), TA-SB-AOC-C-02(9-10) were associated with Batch 80723. Both chloromethane (methyl chloride) and dichlorodifluoromethane were non-detect for the associated samples, and the results were qualified UJ. Samples TA-SB-01(2-3), TA-SB-01(7-8), TA-SB-09(6-7), TA-SB-02(2-3), TA-SB-02(7-8), TA-SB-08(7-8), TA-SB-08(7-8)DUP, TA-SB-03(6-7), TA-SB-03(12-13), TA-SB-04(7-8), TA-SB-04(12-13), TA-SB-06(7-8), TA-SB-06(2-3) were associated with Batch 80775. Both chloromethane (methyl chloride) and dichlorodifluoromethane were non-detect for the associated samples, and the results were qualified UJ. The LCS exceedances for Batch 79785 affected the trip blanks TA-TB-01(08022018) and TA-TB-02(08022018) in this SDG. Dichlorodifluoromethane were non-detect in the associated samples; no action was required for these samples. TA-SB-09(2-3) was associated with Batch 80393. Acetone, carbon tetrachloride, 1,1-dichloroethene were non-detect in this sample, and the non-detect results were not qualified. The non-detect result for dichlorodifluoromethane was qualified UJ. TA-SB-08(3-4) was associated with Batch 80452. The non-detect result for acetone was not qualified, while the non-detect result for 2-hexanone was qualified UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Bromomethane and dichlorodifluoromethane in TA-SB-09(2-3). Dichlorodifluoromethane, methyl acetate, and trichloroethene in TA-SB-08(3-4).	MS/MSD analyses were performed for VOCs on TA-SB-09(2-3) and TA-SB-08(3-4). The MS/MSD recoveries were within the project limits of 70-130% for all target analytes with the following exceptions: The MS/MSD recoveries exceeded the control limits for bromomethane (143%/119%) and dichlorodifluoromethane (59%/55%) for sample TA-SB-09(2-3), and dichlorodifluoromethane (58%/55%), methyl acetate (121%/148%), and trichloroethene (104%/136%) for TA-SB-08(3-4). The RPD values between the MS and MSD were within the project limit of 50% for soil samples. Bromomethane and dichlorodifluoromethane were non-detect in TA-SB-09(2-3); the dichlorodifluoromethane result was qualified UJ, and no qualifier was required for the non-detect bromomethane result. Dichlorodifluoromethane, methyl acetate, and trichloroethene were non-detect in TA-SB-08(3-4). The dichlorodifluoromethane result was qualified UJ, and no qualifiers were required for the methyl acetate and trichloroethene results.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	Two trip blanks TA-TB-01(08022018) and TA-TB-02(08022018) were collected for this SDG. No VOCs were detected in the trip blank.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No

Project Name/No. Michigan Project
SDG: TH03007
Lab: SHEALY
Media TA-TB-01(08022018) and TA-TB-02(08022018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-08(7-8) and TA-SB-08(7-8) DUP) was included in this SDG. Carbon disulfide and methyl acetate were detected in both the original and duplicate samples, and the RPD was within 50%. Acetone was non-detect in the duplicate sample but detected in original sample at below twice the RL. No action was required.	No
Initial Calibration	Yes	---	Initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5), 8/7/2018 13:09:30 (msd5), and 8/14/2018 01:02:30 (msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration Verification	Yes	---	ICV was performed on 7/13/2018 16:07:30 (msd5), and the %D values for all target analytes were below 25%.	No
	Yes	---	ICV was performed on 8/7/2018 17:07:30 (msd5), and the %D values for all target analytes were below 25%.	No
	Yes	---	ICV was performed on 8/14/2018 03:43:30 (msd15), and the %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/3/2018 20:48:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/9/2018 20:10:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/10/2018 07:42:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/10/2018 20:32:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/14/2018 10:12:30 (msd15). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/14/2018 21:38:30 (msd15). The %D values for all target analytes were below 25%.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: m+p-Xylenes in TA-SB-AOC-C-02(2-3); Cyclohexane in TA-SB-01(2-3); 1,1,1-Trichloroethane in TA-SB-02(2-3); Cyclohexane in TA-SB-02(2-3); Methylcyclohexane in TA-SB-02(7-8); Acetone in TA-SB-08(7-8)DUP; 1,4-Dichlorobenzene in TA-SB-03(12-13); o-Xylene in TA-SB-06(2-3).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TH03007
Lab: SHEALY
Media TA-TB-01(08022018) and TA-TB-02(08022018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	All the samples were received at 2.7^{o}C, below the 4°C temperature limit. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium, sodium, and titanium in the MS/MSD performed on TA-SB-09(2-3).	An MS/MSD analysis was performed on TA-SB-09(2-3). The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals except for aluminum (4530%/4950%), barium (152%/158%), iron (230%/266%), sodium (178%/175%), and titanium (245%/268%). The RPDs between the MS and MSD results were within the QAPP limit of 50%. Aluminum and iron were measured at greater than 4 times the matrix spike concentration. No action was taken based on the MS/MSD results for aluminum or iron. The post-digest spike (PDS) recoveries for barium, sodium, and titanium were below 125%. As a result, the barium, sodium, and titanium resuls for TA-SB-09(2-3) were qualified (detections were qualified J, while no action was taken for non-detects).	Yes
	No	Barium, sodium, and titanium in the MS/MSD performed on TA-SB-08(3-4).	An MS/MSD analysis was performed on TA-SB-08(3-4). The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals except for aluminum (4390%/4950%), barium (167%/151%), iron (151%/38%), magnesium (207%/97%), sodium (190%/188%), and titanium (2011%/216%). The RPDs between the MS and MSD results were within the QAPP limit of 50%. Note that the MS/MSD recoveries calculated by GZA for chromium (89%/100% vs. laboratory reported 55%/95%) and lead (106%/122% vs. laboratory reported 111%/127%) were within the QAPP limits; therefore, no action was taken based on the chromium and lead MS/MSD results. Aluminum, iron, and magnesium were measured at greater than 4 times the matrix spike concentration. No action was taken based on the MS/MSD results for aluminum, iron, or magnesium. The post-digest spike (PDS) recoveries for barium, sodium, and titanium were below 125%. As a result, the barium, sodium, and titanium resuls for TA-SB-08(3-4) were qualified (detects were qualified J while no action was taken for non-detects).	Yes
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No
Instrument Blank	No	Boron in CCBs for Run #MS2082018E (all samples in this SDG except TA-SB-AOC-C-02(2-3) and TA-SB-01(7-8).	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5, CCB6, CCB7, CCB9 (Run #MS2082018E on 8/20/2018) at 0.993 ug/L, 0.980 ug/L, 0.755 ug/L, 1.155 ug/L, 1.029 ug/L, 1.372 ug/L, 1.320 ug/L, 0.703 ug/L, below the RL of 50 ug/L. With the exception of TA-SB-AOC-C-02(2-3) and TA-SB-01(7-8), all samples in this SDG were associated with the above CCBs. For all samples in this SDG but TA-SB-AOC-C-02(2-3) and TA-SB-01(7-8), detections for boron below the RLs were reported at the respective RLs and qualifed UB. No action was taken for non-detects or for detections above the RLs. Boron was detected in ICB1, CCB1, CCB2, CCB3 (Run #MS2082018F on 8/21/2018) at 0.806 ug/L, 1.434 ug/L, 2.283 ug/L, 2.037 ug/L, below the RL of 50 ug/L. No samples in this SDG were associated with these ICB/CCB results. Boron was detected in CCB1, CCB2, CCB3 (Run #MS2082218B on 8/22/2018) at 1.426 ug/L, 1.779 ug/L, 1.063 ug/L, below the RL of 50 ug/L. No samples in this SDG were associated with these ICB/CCB results. Iron was detected in CCB10 (Run #MS2082018E on 8/20/2018) at 11.290 ug/L, below the RL of 50 ug/L. Iron was detected in CCB2, CCB3 (Run #MS2082018F on 8/21/2018) at 19.010 ug/L, 34.510 ug/L, below the RL of 50 ug/L. Iron was detected in CCB1, (Run #MS2082218B on 8/22/2018) at 10.640 ug/L, below the RL of 50 ug/L. Iron was detected in all samples in this SDG at concentrations at least 100 times of the RLs; no action was taken for iron based on the CCB results. Beryllium was detected in CCB3 (Run #MS2082018F on 8/21/2018) at 0.140 ug/L, below the RL of 0.4 ug/L. No samples in this SDG were associated with CCB; no action was taken.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	Initial calibration correlation coefficients were greater than the project limit of 0.99.	No

Project Name/No. Michigan Project
SDG: TH03007
Lab: SHEALY
Media TA-TB-01(08022018) and TA-TB-02(08022018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	No	Mercury in CCV for Run #HG4080918 (TA-SB-AOC-C-02(2-3), TA-SB-AOC-C-02(9-10), TA-SB-01(2-3), TA-SB-01(7-8), TA-SB-09(2-3)).	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP), except for recoveries of mercury (87%) in CCV7 (Run #HG4080918). The samples associated with this CCV included TA-SB-AOC-C-02(2-3), TA-SB-AOC-C-02(9-10), TA-SB-01(2-3), TA-SB-01(7-8), TA-SB-09(2-3). The mercury results for TA-SB-AOC-C-02(2-3), TA-SB-AOC-C-02(9-10), TA-SB-01(2-3), TA-SB-01(7-8), TA-SB-09(2-3) were qualified (detects were qualified J-, while non-detects were qualified UJ). The CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	Yes
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum, barium, chromium, iron, lead, magnesium, titanium, and zinc in TA-SB-08(3-4). Aluminum and magnesium in TA-SB-09(2-3).	A serial dilution was performed for TA-SB-08(3-4) for ICP-MS metals. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits) except for aluminum (45%), barium (25%), chromium (16%), iron (12%), lead (15%), magnesium (56%), titanium (17%), and zinc (30%). The aluminum, barium, chromium, iron, lead, magnesium, titanium, and zinc results for TA-SB-08(3-4) were qualified J. A serial dilution was performed for TA-SB-09(2-3) for ICP-MS metals. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits) except for aluminum (18%) and magnesium (21%). The aluminum and magnesium results for TA-SB-09(2-3) were qualified J.	Yes
Internal Standard	No	Yttrium in TA-SB-01 (7-8) (not associated with any target analytes).	The %RI was within 60-125% of the response in the calibration blank for all internal standards, except for yttrium in TA-SB-01 (7-8) (222%). Yttrium was not associated with any target analytes; no further action was required.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	No	Cobalt, copper, iron, nickel, titanium, and mercury in TA-SB-08(7-8) and TA-SB-08(7-8) DUP.	One field duplicate pair (TA-SB-08(7-8) and TA-SB-08(7-8) DUP) was included in this SDG. The RPD values for all target analytes were within 50% with the following exceptions: cadmium (64%), cobalt (56%), copper (123%), iron (77%), nickel (99%), titanium (69%), and mercury (95%). Thallium was detected in TA-SB-08(7-8) DUP below the RL, while it was not detected in TA-SB-08(7-8); no action was taken for thallium. Cadmium was detected in TA-SB-08(7-8) at concentration below 5 times the RL and the absolute difference was within 2 times the RL; so no action was taken for cadmium. The cobalt, copper, iron, nickel, titanium, and mercury results for TA-SB-08(7-8) and TA-SB-08(7-8) DUP were qualified (detects were qualified J and non-detects were qualified UJ).	Yes

Project Name/No. Michigan Project
SDG: TH03007
Laboratory: SHEALY
Media TA-TB-01(08022018) and TA-TB-02(08022018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	All the samples were received at 2.7°C, below the 4°C temperature limit. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium in the MS/MSD performed on TA-SB-08(3-4). Nitrate-nitrite in the MS/MSD performed on TA-SB-09(2-3).	MS/MSD recoveries were within the project limits of 75-125% with the following exceptions: An MS/MSD analysis was performed on TA-SB-08(3-4) for hexavalent chromium analysis. The MS/MSD recoveries (52%/70%) were below the project control limits (75-125%), and the RPD was below 50%. The hexavalent chromium result for TA-SB-08(3-4) was qualified J-. An MS/MSD analysis was performed on TA-SB-09(2-3) for nitrate-nitrite analysis. The MS/MSD recoveries (53%/52%) were below the project control limits (75-125%), and the RPD was below 50%. The nitrate-nitrite results for TA-SB-09(2-3) was qualified J-. An MS/MSD analysis was performed on TA-SB-08(3-4) for ammonia, phosphorus, and sulfate analysis. Note the MS/MSD recoveries for ammonia calculated by GZA were within the project limits (100%/102% vs. laboratory reported 157%/172% for ammonia). No action was taken for the ammonia results. The MS/MSD recoveries calculated by GZA for phosphorus were below the project limits (69%/58% vs. laboratory reported -105%/376%); however, the phosphorus concentration in the original sample was greater than 4 times of the spike concentration, and thus no further action was required. The MS/MSD recoveries calculated by GZA for sulfate in TA-SB-08(3-4) were below the project limits (75%/71% vs. laboratory reported 71%/65%). The sulfate results in TA-SB-08(3-4) was qualified J-. An MS/MSD analysis was performed on TA-SB-09(2-3) for phosphorus analysis. The MS/MSD recoveries calculated by GZA were within the project limits (82%/84% vs. laboratory reported 24%/-105%), and the RPD was below 50%. No action was taken.	Yes
Method Blank	No	Total cyanide in method blanks associated with all samples in this SDG. Ammonia in the method blank for Batch 81834 (TA-SB-03(12-13) and TA-SB-04(12-13)).	Total cyanide was detected at 0.023 mg/kg, below the RL of 0.12 mg/kg, in the method blank (MB) associated with Batch 80791 (all samples in this SDG except TA-SB-06(7-8) and TA-SB-06(2-3)). Total cyanide was detected at 0.023 mg/kg, below the RL of 0.12 mg/kg, in the method blank (MB) associated with Batch 80871 (TA-SB-06(7-8) and TA-SB-06(2-3)). For all samples in this SDG, cyanide detections below the RLs were reported at the respective RLs and qualified UB, and no action was taken for non-detects or detections above the RLs. Ammonia was detected at 0.70 mg/kg, below the RL of 1.0 mg/kg, in the method blank associated with Batch 81834 (TA-SB-03(12-13) and TA-SB-04(12-13)). Ammonia was detected above at least 2 times the RLs in the associated samples. No action was taken based on the ammonia method blank results. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple inorganic non-metal analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	No	Ammonia in CRQL check (not associated with any samples in this SDG).	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP). CRQL check for ammonia on 8/24/2018 was above 130% at 136%. All ammonia sample results in this SDG were from 8/15/2018; no action was taken.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-08(7-8) and TA-SB-08(7-8) DUP) was included in this SDG. The RPD values for all target analytes were within 50%. No action was required.	No

Project Name/No. Michigan Project
SDG: TH02019
Lab: SHEALY
Media TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance.	The samples were received at 5.7°C and 5.9°C. Although the samples were received slightly above the project limit of 4°C, the samples were received close to 24 hours of sample collection. No further action was required. All samples were extracted within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits, except the recoveries of nitrobenzene-d5 (control limits 12-144%) in TA-SB-C-01 (2-3) (316%) and TA-SB-C-01 (2-3) DUP (207%). The laboratory case narrative states that these samples were diluted, which impacted the surrogate recoveries.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	No	2-Methylphenol and 3+4-methylphenol in the MS/MSD performed on TA-SB-AOC-D-01 (2-3).	MS/MSD analysis was conducted for TA-SB-AOC-D-01 (2-3). MS/MSD recoveries were within the laboratory established limits for all analytes except that the MS and/or MSD recoveries were above the control limits for 2-methylphenol (84%/114% vs 32-107% control limits) and 3+4-methylphenol (100%/118% vs 39-108%). Additionally, the MS/MSD RPDs were within the 50% project limit. 2-Methylphenol and 3+4-methylphenol were not detected in the original sample. No action was required.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP) was included in this SDG. The RPD values for all target analytes were within 50%, except for benzo(a)anthracene (55%), benzo(a)pyrene (68%), benzo(b)fluoranthene (69%), fluoranthene (60%), and pyrene (55%). The results for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, and pyrene in both the original and duplicate samples were within 5 times the RL and the absolute difference between the results was less than twice the RL; no action was required for these results. Benzo(k)fluoranthene was detected below the RL in the duplicate sample but not detected in the original sample, while 2-methylnaphthalene, 3+4-methylphenol, and naphthalene were detected below the RL in the original sample but not detected in the duplicate. No action was required for these results.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 8/7/2018 19:02:30 (msd10), 8/7/2018 14:45:30 (msd10), 8/14/2018 12:48:30 (msd16). For all target analytes, the initial calibration %RSDs were below the 20% limit, or R2 was above the 0.99 limit.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 8/13/2018 14:02:30 on instrument msd10. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	An ICV was performed on 8/7/2018 22:19:30 (msd10). The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	No	2,4-Dimethylphenol, naphthalene in the ICV on 8/14/2018 16:28:30 (not associated with samples in this SDG).	An ICV was performed on 8/14/2018 16:28:30 (msd16). The ICV %D did not exceed the project limit of 25% for any target analytes, except for 2,4-dimethylphenol (25.8%), naphthalene (28.3%), 2-methylnaphthalene (26.4%), hexachlorocyclopentadiene (29.7%), phenanthrene (25.3%), anthracene (27.4%), carbazole (28.2%), di-n-butyl phthalate (25.4%), and fluoranthene (29.3%). The ICV was performed in an initial calibration standard check run, and does not affect sample results. A subsequent ICV was performed on 8/14/2018 20:09:30 (msd16) and met the project limits.	No
	Yes	---	An ICV was performed on 8/14/2018 20:09:30 (msd16). The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	A CCV was performed on 8/16/2018 10:15:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/17/2018 09:24:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/19/2018 10:10:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/15/2018 09:01:30 (msd16). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/16/2018 09:44:30 (msd16). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No

Project Name/No. Michigan Project
SDG: TH02019
Lab: SHEALY
Media TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?

Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions:
			naphthalene in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-J-02 (9-10), TA-SB-MA-02 (7-8), TA-SB-C-01 (2-3);
			phenanthrene in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-E-02 (10-11), TA-SB-MA-02 (7-8), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP; benzo(a)anthracene in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-02 (7-8), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP;
			chrysene in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-MA-02 (7-8), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP; benzo(b)fluoranthene in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-J-02 (9-10), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP;
			indeno(1,2,3-c,d)pyrene in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-J-01 (2-3), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-E-02 (10-11), TA-SB-MA-02 (7-8); benzo(g,h,i)perylene in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-J-01 (2-3), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-J-02 (9-10); anthracene in TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3);
			benzo(k)fluoranthene in TA-SB-AOC-B-01 (2-3), TA-SB-AOC-J-02 (9-10), TA-SB-C-01 (2-3) DUP; benzo(a)pyrene in TA-SB-AOC-B-01 (2-3), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP; fluoranthene in TA-SB-AOC-B-01 (7-8), TA-SB-MA-01 (7-8), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP;
			acenaphthene in TA-SB-AOC-B-02 (2-3);
			carbazole in TA-SB-AOC-B-02 (2-3), TA-SB-AOC-E-01 (3-4); fluorene in TA-SB-AOC-J-01 (2-3), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-J-02 (9-10);
			m+p-cresol in TA-SB-AOC-E-01 (3-4), TA-SB-C-01 (2-3); phenol in TA-SB-AOC-J-02 (9-10); 2-methylnaphthalene in TA-SB-AOC-J-02 (9-10), TA-SB-MA-02 (7-8), TA-SB-C-01 (2-3); pyrene in TA-SB-MA-01 (7-8).
			
			The spectra for samples TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-J-02 (9-10), TA-SB-MA-01 (7-8), TA-SB-MA-02 (7-8), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP exhibited slightly irregular baselines.
				No

Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	No	Perylene-d12 in TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP.	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard), except the ISTD area for perylene-d12 in TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP were below 50% but above 20% of the standard area. For TA-SB-C-01 (2-3), the non-detect results for benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene were qualified UJ, while the detection of benzo(a)pyrene was qualified J. For TA-SB-C-01 (2-3) DUP, the non-detect results for indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene were qualified UJ, while the detections of benzo(k)fluoranthene and benzo(a)pyrene were qualified J.	Yes
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TH02019
Lab: SHEALY
Media TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance. Holding time exceedance for run 3 on 8/19/2018 of TA-SB-AOC-B-02 (2-3).	The samples were received at 5.7°C and 5.9°C. Although the samples were received slightly above the project limit of 4°C, the samples were received close to 24 hours of sample collection. No further action was required. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP, except for run 3 of TA-SB-AOC-B-02 (2-3) which took place on 8/19/2018, the 18th day after sample collection. The laboratory case narrative notes that reanalysis and dilution of TA-SB-AOC-B-02 (2-3) was required for methyl acetate to fall within the calibration range. Only methyl acetate was reported from run 3; however, the database included all VOC results from this run. All the run 3 TA-SB-AOC-B-02 (2-3) VOC results from 8/19/2018 were qualified (detects were qualified J-, while non-detects were qualified UJ). The methyl acetate result in the 1st analysis (8/13/2018) was rejected.	Yes
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recoveries for dichlorodifluoromethane and/or acetone in Batch 79785 (TA-TB-01 (08012018), TA-TB-02 (08012018)), Batch 80254 (TA-SB-AOC-D-01 (2-3)), Batch 80597 (TA-SB-56 (6-7), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5)), Batch 80703 (TA-SB-AOC-J-01 (2-3), TA-SB-AOC-J-01 (5-6), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12)), and Batch 80845 (TA-SB-C-01 (2-3)).	All LCS recoveries were within the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 79785, the recovery for dichlorodifluoromethane (143%) was above the upper control limit (130%). For the LCS associated with Batch 80254, the recovery for acetone (187%) was above the upper control limit (130%), while the recovery for dichlorodifluoromethane (59%) fell below the lower control limit (70%). For the LCS associated with Batch 80597, the recovery for acetone (145%) was above the upper control limit (130%). For the LCS associated with Batches 80703 and 80845, the recovery for dichlorodifluoromethane (67%) fell below the lower control limit (70%). The LCS exceedances for Batch 79785 affected only the trip blanks in this SDG; no action is required for these samples. The sample associated with Batch 80254 (TA-SB-AOC-D-01 (2-3)) was non-detect for both acetone and dichlorodifluoromethane. The non-detect result for acetone requires no qualifier, while the non-detect result for dichlorodifluoromethane was qualified UJ. All samples associated with Batch 80597 (TA-SB-56 (6-7), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5)) were non-detect for acetone; these results require no qualifiers. All samples associated with Batches 80703 and 80845 (TA-SB-AOC-J-01 (2-3), TA-SB-AOC-J-01 (5-6), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12)) were non-detect for dichlorodifluoromethane; these results were qualified UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Bromomethane and dichlorodifluoromethane in the MS/MSD performed on TA-SB-AOC-D-01 (2-3).	An MS/MSD analysis was performed for VOCs on TA-SB-AOC-D-01 (2-3). The MS/MSD recoveries were within the project limits of 70-130% for all target analytes, except for the MS/MSD recoveries for bromomethane (147%/137%), dichlorodifluoromethane (65%/58%). Additionally, the RPD value between the MS and MSD was below the project limit of 50% for all analytes. Bromomethane was non-detect in TA-SB-AOC-D-01 (2-3); no qualifier is required for these results. The non-detect result for dichlorodifluoromethane in TA-SB-AOC-D-01 (2-3) was qualified UJ.	Yes
	No	Dichlorodifluoromethane in the MS/MSD performed on TA-SB-AOC-J-01 (2-3).	An MS/MSD analysis was performed for VOCs on TA-SB-AOC-J-01 (2-3). The MS/MSD recoveries were within the project limits of 70-130% for all target analytes, except for the MS/MSD recoveries for dichlorodifluoromethane (44%/39%). Additionally, the RPD value between the MS and MSD was below the project limit of 50% for all analytes. The non-detect result for dichlorodifluoromethane in TA-SB-AOC-J-01 (2-3) was qualified UJ.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	Two trip blanks (TA-TB-01 (071618) and TA-TB-01 (071718)) were collected for this SDG. No VOCs were detected in the trip blank.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Carbon disulfide and methyl acetate in TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP.	One field duplicate pair (TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP) was included in this SDG. The RPD values for all target analytes were within 50%. Acetone, carbon disulfide, cyclohexane, ethylbenzene, 4-methyl acetate, methyl-2-pentanone, methylcyclohexane, and toluene were detected in the duplicate sample (TA-SB-C-01 (2-3) DUP) but non-detect in the original sample. The detections of carbon disulfide and methyl acetate were above twice the RL in TA-SB-C-01 (2-3) DUP; the non-detect results in the original sample were qualified UJ, and the detections in the duplicate sample were qualified J. All other detections in the duplicate sample were below twice their respective RLs; no action was required.	Yes

Project Name/No. Michigan Project
SDG: TH02019
Lab: SHEALY
Media TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	Initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5), 8/7/2018 13:09:30 (msd5), 8/13/2018 13:09:30 (msd5), 8/14/2018 01:02:30 (msd5), and 8/16/2018 16:36:30 (msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No
Continuing Calibration Verification	Yes	---	ICV was performed on 7/13/2018 16:07:30 (msd5), and the target analyte %D values were all below 25%.	No
	Yes	---	ICV was performed on 8/7/2018 17:07:30 (msd5), and the target analyte %D values were all below 25%.	No
	Yes	---	ICV was performed on 8/14/2018 03:35:30 (msd5), and the target analyte %D values were all below 25%.	No
	Yes	---	ICV was performed on 8/14/2018 03:43:30 (msd15), and the target analyte %D values were all below 25%.	No
	Yes	---	ICV was performed on 8/16/2018 19:14:30 (msd15), and the target analyte %D values were all below 25%.	No
	Yes	---	CCV was performed on 8/03/2018 20:48:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/09/2018 08:40:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/9/2018 20:10:30 (msd5). The %D values for all target analytes were below 25%.	No
	No	Acetone in CCV 8/13/2018 08:58:30 (associated with TA-SB-56 (6-7), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), run 1 of TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5)).	CCV was performed on 8/13/2018 08:58:30 (msd5). The %D values for all target analytes were below 25%, except for acetone (50.9%). Acetone was non-detect in all associated samples (associated with TA-SB-56 (6-7), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), run 1 on 8/13/2018 of TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5)); the non-detect results do not require qualification.	No
	Yes	---	CCV was performed on 8/14/2018 09:16:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	CCV was performed on 8/15/2018 10:00:30 (msd15). The %D values for all target analytes were below 25%.	No
	No	Acetone in CCV 8/19/2018 09:23:30 (associated with run 3 of TA-SB-AOC-B-02 (2-3)).	CCV was performed on 8/19/2018 09:23:30 (msd15). The %D values for all target analytes were below 25%, except for acetone (57.6%). This CCV was associated only with run 3 on 8/19/2018 of TA-SB-AOC-B-02 (2-3); since acetone was not detected in run 3 of TA-SB-AOC-B-02 (2-3); no action was taken.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: methylcyclohexane in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-02 (10-11), TA-SB-C-01 (2-3) DUP; toluene in TA-SB-AOC-D-01 (2-3); o-xylene in TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-02 (2-3), run 1 of TA-SB-AOC-B-02 (2-3), TA-SB-AOC-E-01 (3-4), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP; cyclohexane in TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-02 (10-11), TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP; 1,1,-dichloroethane in TA-SB-AOC-E-02 (10-11); 1,1,1-trichloroethane in TA-SB-AOC-E-02 (10-11); 4-methyl-2-pentanone in TA-SB-C-01 (2-3); m+p-xylenes in TA-SB-C-01 (2-3), TA-SB-C-01 (2-3) DUP; acetone in TA-SB-C-01 (2-3) DUP.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TH02019
Lab: SHEALY
Media TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Slight temperature exceedance.	The samples were received at 5.7°C and 5.9°C. Although the samples were received slightly above the project limit of 4°C, the samples were received close to 24 hours of sample collection. No further action was required. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium and sodium in the MS/MSD performed on TA-SB-AOC-D-01 (2-3).	An MS/MSD analysis was performed on TA-SB-AOC-D-01 (2-3) for ICP-MS metals and mercury. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals except for aluminum (4470%/4870%), barium (GZA calculated 80%/89% vs. laboratory calculated 58%/70%), iron (-163%/-413%), magnesium (-462%/-488%), sodium (198%/225%), and titanium (146%/252%). The RPDs between the MS and MSD results were within the QAPP limit of 50%. The post-digest spike (PDS) recoveries were within 75-125% for all ICP-MS metals except for aluminum (-865.6%), iron (-116.5%), magnesium (-54.5%), and titanium (49.0%). Aluminum, iron, magnesium, and titanium were measured at greater than 4x the matrix spike concentration; thus no action was required for these analytes. No action was taken for barium; and the sodium detect in TA-SB-AOC-D-01 (2-3) were qualified J+.	Yes
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No
Instrument Blank	No	Boron detected in blanks for Run #MS2082018C (TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12)). Iron detected in blanks for Run #MS2081718C (TA-SB-56 (6-7), TA-SB-AOC-D-01 (2-3)) and Run #MS2082018E (TA-SB-MA-02 (7-8)).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in CCB3 (Run #MS2081718C on 8/17/2018) at 11.24 ug/L and in CCB6 (Run #MS2082018E on 8/20/2018) at 11.29 ug/L, below the RL (25 ug/L). Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2082018E on 8/20/2018) at 0.993 ug/L, 0.980 ug/L, 0.755 ug/L, 1.155 ug/L, 0.703 ug/L, below the RL (25 ug/L). The detections for boron in Run #MS2082018C affected samples TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12). No action was taken for the detects above RLs. Detections below the RLs for the above referenced samples were reported at the RLs and qualified UB. The detections for iron affected TA-SB-56 (6-7), TA-SB-AOC-D-01 (2-3), and TA-SB-MA-02 (7-8). Iron was detected over 100 times the RLs in each of the affected samples. No qualifier was required for the iron results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	Initial calibration was conducted for ICP-MS metals on 8/17/2018, 8/20/2018, 8/21/2018, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 8/7/2018, and the correlation coefficient was greater than 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP). The CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum and magnesium in the serial dilution performed on TA-SB-AOC-D-01 (2-3).	A serial dilution was performed for TA-SB-AOC-D-01 (2-3) for ICP-MS metals. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits) except for aluminum (17.8%) and magnesium (19.6%). Aluminum and magnesium were detected above the 50 times the RL in TA-SB-AOC-D-01 (2-3). The results for aluminum and magnesium in TA-SB-AOC-D-01 (2-3) were qualified J.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TH02019
Lab: SHEALY
Media TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	No	Magnesium, sodium, titanium, and vanadium in TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP.	One field duplicate pair (TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP) was included in this SDG. The RPD values for all target analytes were within 50% except for magnesium (83%), sodium (55%), titanium (87%), and vanadium (87%). Sodium was detected below 5 times the RL in the duplicate sample, and the absolute difference between the original and duplicate samples was less than twice the RL; thus, no further action was required for the sodium results. Magnesium, titanium, and vanadium were detected above 5 times the RL in both samples, and the absolute difference exceeded twice the RLs. The results for magnesium, titanium, and vanadium in TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP were qualified J. Antimony and molybdenum were detected in the original sample but not detected in the duplicate. Since the detections were below twice their respective RLs, no qualification was required.	Yes

Project Name/No. Michigan Project
SDG: TH02019
Laboratory: SHEALY
Media TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Slight temperature exceedance.	The samples were received at 5.7°C and 5.9°C. Although the samples were received slightly above the project limit of 4°C, the samples were received close to 24 hours of sample collection. No further action was required. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	No	Total cyanide in TA-SB-AOC-J-02 (13-14), nitrate-nitrite in TA-SB-AOC-E-02 (5-6).	An MS/MSD analysis was performed on TA-SB-56 (6-7) for hexavalent chromium analysis. The MS/MSD recoveries were within the project control limits (75-125%), and the RPD was below 50%. An MS/MSD analysis was performed on TA-SB-AOC-B-01 (2-3) and TA-SB-AOC-E-02 (5-6) for ammonia analysis. The MS/MSD recoveries were within the project control limit (75-125%), and the RPD was below the 50% project limit. An MS/MSD analysis was performed on TA-SB-AOC-D-01 (2-3), TA-SB-MA-01 (11-12), and TA-SB-C-01 (2-3) for phosphorus analysis. The MS/MSD recoveries were outside of the project control limit (75-125%); however, the original sample concentrations exceeded 4 times the spike concentrations. No action was required. An MS/MSD analysis was performed on TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), and TA-SB-AOC-J-02 (13-14) for total cyanide analysis. The MS/MSD recoveries were within the project control limits (75-125%) except for the MSD recovery (57%) for TA-SB-AOC-J-02 (13-14). The RPD values were below 50%. The detection for total cyanide in TA-SB-AOC-J-02 (13-14) was qualified J-. An MS/MSD analysis was performed on TA-SB-56 (6-7) and TA-SB-AOC-E-02 (5-6) for nitrate/nitrite, chloride, and sulfate analysis. The MS/MSD recoveries were within the project control limits (75-125%) except for the nitrate-nitrite MS recovery (73%) for TA-SB-AOC-E-02 (5-6). The RPD values were below 50%. The detection for nitrate-nitrite in TA-SB-AOC-E-02 (5-6) was qualified J-.	Yes
Method Blank	No	Cyanide in Batch 80671 (TA-SB-56 (6-7), TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5), TA-SB-AOC-J-01 (2-3), TA-SB-AOC-J-01 (5-6), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10)) and Batch 80787 (TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12)). Chloride in Batch 81067 (TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12)).	Total cyanide was detected at 0.013 mg/kg, below the RL of 0.12 mg/kg, in the method blank (MB) associated with Batch 80671 (TA-SB-56 (6-7), TA-SB-AOC-D-01 (2-3), TA-SB-AOC-D-01 (8-9), TA-SB-AOC-D-02 (2-3), TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5), TA-SB-AOC-J-01 (2-3), TA-SB-AOC-J-01 (5-6), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10)). No action was taken for the detects above RLs. Detections below the RLs for the above referenced samples were reported at the RLs and qualified UB. Total cyanide was detected at 0.0021 mg/kg, below the RL of 0.12 mg/kg, in the MB associated with Batch 80787 (TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12)). No action was taken for the detects above RLs. Detections below the RLs for the above referenced samples were reported at the RLs and qualified UB. Chloride was detected at 2.5 mg/kg, below the RL of 10 mg/kg, in the MB associated with Batch 81067 (TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (7-8), TA-SB-MA-02 (11-12)). No action was taken for the detects above RLs. Detections below the RLs for the above referenced samples were reported at the RLs and qualified UB. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes

Project Name/No. Michigan Project
SDG: TH02019
Laboratory: SHEALY
Media TA-TB-01 (08012018) and TA-TB-02 (08102018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank, except for phosphorus in the CCB conducted 8/17/2018 13:00 (0.0078 mg/L). The affected samples (TA-SB-MA-02 (7-8), TA-SB-C-01 (2-3), TA-SB-C-01 (11-12), TA-SB-C-01 (2-3) DUP, TA-SB-MA-02 (11-12)) were reanalyzed, and no target analytes were detected in the CCB associated with the reanalysis. Only the reanalysis results were reported, and no further action was required.	No
Reported Quantitation Limits	No	Multiple inorganic non-metal analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was performed for all target analytes, and the correlation coefficients for all target analytes were above the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP), except for the phosphorus analysis CCV performed on 8/15/2018 14:12, which had a %D of 14%. All affected samples (TA-SB-AOC-D-02 (6-7), TA-SB-AOC-B-01 (2-3), TA-SB-AOC-B-01 (7-8), TA-SB-AOC-B-02 (2-3), TA-SB-AOC-B-02 (4-5), TA-SB-AOC-J-01 (2-3), TA-SB-AOC-J-01 (5-6), TA-SB-AOC-E-01 (3-4), TA-SB-AOC-E-01 (10-11), TA-SB-AOC-J-02 (9-10), TA-SB-AOC-J-02 (13-14), TA-SB-AOC-E-02 (5-6), TA-SB-AOC-E-02 (10-11), TA-SB-MA-01 (7-8), TA-SB-MA-01 (11-12), TA-SB-C-01 (2-3)) were re-analyzed, and the CCVs associated with the reanalysis met the control criteria. Only the reanalysis results are reported and require no qualifiers.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-C-01 (2-3) and TA-SB-C-01 (2-3) DUP) was included in this SDG. The RPD values for all target analytes were within 50% except for sulfate (79%). The original and duplicate sample results for sulfate were less than 5 times the RL, and the absolute difference between the results was less than twice the RL. No further action was required.	No

Project Name/No. Michigan Project
SDG: TH01025
Lab: SHEALY
Media TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were collected on 7/30/2018 and 7/31/2018 and received on 8/1/2018 at 2.0°C and 2.0°C. All samples were extracted within 14 days from sample collection and analyzed within 40 days from extraction. No action was taken based on the cooler temperature and sample holding time.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits. No action was taken based on the LCS/LCSD results.	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	MS analysis was performed twice on sample TA-SB-22 (2-3). The amount of spike was different between the two analyses. All MS recoveries were within the laboratory established limits.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No trip/field blank samples were collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected for this SDG (TA-SB-45 (6-7) and TA-SB-45 (6-7) DUP). Bis(2-ethylhexyl)phthalate, fluoranthene, phenanthrene, and pyrene were detected below the reporting limit in sample TA-SB-45 (6-7), but were not detected in TA-SB-45 (6-7) DUP. No other target SVOC analytes were detected in either sample. No action was taken based on the field duplicate results.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 8/14/2018 12:48:30 (instrument msd16). The initial calibration results met the limits of %RSDs for all target analytes were below 20% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	No	2,4-Dimethylphenol, naphthalene, 2-methylnaphthalene, hexachlorocyclopentadiene, phenanthrene, anthracene, carbazole, di-n-butylphthalate, fluoranthene, and di-n-octylphathalate in ICV on 8/14/2018 16:28:30.	An ICV was performed on 8/14/2018 16:28:30 and 20:09:30 (msd16). The ICV %D did not exceed the project limit of 25% for any target analytes except 2,4-dimethylphenol (25.8%), naphthalene (28.3%), 2-methylnaphthalene (26.4%), hexachlorocyclopentadiene (29.7%), phenanthrene (25.3%), anthracene (27.4%), carbazole (28.2%), di-n-butylphthalate (25.4%), fluoranthene (29.3%), and di-n-octylphathalate (25.2%). All samples in this SDG were associated with this ICV. All detects of the above referenced analytes in all samples in this SDG were qualified J+.	Yes
	No	Benzidine in CCV on 8/15/2018 09:25:30 (samples TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10)).	A CCV was performed on 8/15/2018 09:01:30 and 09:25:30 (msd16). The CCV %D did not exceed the project limit of 25% for any target analytes, except benzidine (48.5%). All impacted benzidine results were non-detect. No action was taken based on the CCV results.	No
	No	Benzidine in CCV on 8/16/2018 10:09:30 (samples TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), TA-SB-21 (9-10), TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-26 (8-9), TA-SB-14 (5-6), TA-SB-14 (7-8), TA-SB-12 (1-2), TA-SB-12 (4-5), and TA-SB-45 (6-7)).	A CCV was performed on 8/16/2018 09:44:30 and 10:09:30 (msd16). The CCV %D did not exceed the project limit of 25% for any target analytes, except benzidine (44.4%). All impacted benzidine results were non-detect. The RRFs for all target analytes were above 0.01.	No
	No	Benzidine in CCV on 8/17/2018 10:52:30 (samples TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-26 (8-9), TA-SB-14 (5-6), TA-SB-14 (7-8), TA-SB-12 (1-2), TA-SB-12 (4-5), TA-SB-45 (6-7), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-11 (6-7), TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), and TA-SB-22 (2-3)).	A CCV was performed on 8/17/2018 09:58:30 and 10:52:30 (msd16). The CCV %D did not exceed the project limit of 25% for any target analytes, except benzidine (47.8%). All impacted benzidine results were non-detect. The RRFs for all target analytes were above 0.01. Note that a closing CCV was not run for samples analyzed after this CCV.	No

Project Name/No. Michigan Project
SDG: TH01025
Lab: SHEALY
Media TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?

Target Analyte Identification	No	Multiple SVOCs in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions:
			m+p-cresol in TA-SB-30 (2-3);
			acetophenone in TA-SB-30 (2-3);
			acenaphthene in TA-SB-30 (2-3), TA-SB-13 (1-2), TA-SB-12 (0-1), TA-SB-22 (8-9), TA-SB-21 (6-7), TA-SB-21 (9-10);
			fluorene in TA-SB-30 (2-3), TA-SB-12 (1-2), TA-SB-45 (2-3), TA-SB-12 (0-1);
			benzo(b)fluoranthene in TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-14 (5-6), TA-SB-12 (1-2), TA-SB-45 (2-3), TA-SB-13 (6-7), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-21 (6-7), TA-SB-21 (9-10);
			indeno(1,2,3-c,d)pyrene in TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-12 (1-2), TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-13 (1-2), TA-SB-12 (0-1), TA-SB-50 (2-3), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-21 (6-7);
			benzo(g,h,i)perylene in TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-12 (1-2), TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-13 (1-2), TA-SB-12 (0-1), TA-SB-50 (2-3), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-21 (6-7);
			naphthalene in TA-SB-26 (5-6), TA-SB-12 (1-2), TA-SB-45 (2-3), TA-SB-12 (0-1), TA-SB-50 (2-3), TA-SB-10 (1-2), TA-SB-21 (6-7);
			pyrene in TA-SB-26 (5-6), TA-SB-45 (6-7), TA-SB-13 (1-2);
			phenanthrene in TA-SB-14 (5-6), TA-SB-45 (6-7), TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-13 (6-7), TA-SB-15 (2-3), TA-SB-50 (2-3), TA-SB-22 (2-3), TA-SB-21 (6-7);
			benzo(a)anthracene in TA-SB-14 (5-6), TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-22 (2-3), TA-SB-21 (6-7), TA-SB-21 (9-10);
			chrysene in TA-SB-14 (5-6), TA-SB-45 (2-3), TA-SB-22 (2-3), TA-SB-21 (6-7);
			anthracene in TA-SB-12 (1-2), TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-50 (2-3);
			fluoranthene in TA-SB-45 (6-7), TA-SB-15 (2-3);
			bis(2-ethylhexyl)phthalate in TA-SB-45 (6-7);
			benzo(k)fluoranthene in TA-SB-10 (1-2);
			2-methylnaphthalene in TA-SB-21 (6-7).
			
			The mass spectrum baselines exhibited slight irregularities in the following samples: TA-SB-30 (2-3), TA-SB-45 (6-7), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3).
				No

Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	No	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard), except in the undiluted analysis of sample TA-SB-45 (6-7) DUP. The results of this analysis were not reported. No action was taken based on the internal standard results.	No
Solids Percentage	Yes	---	Percent solids was at or above 79.2% for all solid samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TH01025
Lab: SHEALY
Media TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were collected on 7/30/2018 and 7/31/2018 and received on 8/1/2018 at 2.0°C and 2.0°C. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP. No action was taken based on the temperature and sample holding time.	No
Surrogate Recovery	No	Bromofluorobenzene in TA-SB-45 (2-3).	All VOC surrogate recoveries met the required criteria of 70-130% except that bromofluorobenzene recovery in TA-SB-45 (2-3) was slightly above 130% at 137%. The VOC detects for TA-SB-45 (2-3) were qualified J+, while the non-detects were not qualified.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recoveries for acetone and 2-hexanone (TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-26 (8-9), TA-SB-14 (5-6), TA-SB-14 (7-8), TA-SB-12 (1-2), TA-SB-12 (4-5), TA-SB-45 (6-7), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-11 (6-7), TA-SB-13 (1-2), and TA-SB-13 (6-7)). LCS recovery for acetone (TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10)).	For Batch 80452, the LCS recovery for acetone (173%) was above the project limits of 70-130%, and the LCS recovery for 2-hexanone (66%) was below the project limits. 2-hexanone was not detected in any impacted samples (TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-26 (8-9), TA-SB-14 (5-6), TA-SB-14 (7-8), TA-SB-12 (1-2), TA-SB-12 (4-5), TA-SB-45 (6-7), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-11 (6-7), TA-SB-13 (1-2), and TA-SB-13 (6-7)), and all non-detect 2-hexanone results were qualified UJ. Acetone detects were qualified J+, and acetone non-detects were not qualified. For Batch 80597, the LCS recovery for acetone (145%) was above the project limits of 70-130%. Acetone detects in impacted samples (TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10)) were qualified J+, and non-detects were not qualified. LCS recoveries for all other batches were within the project limits.	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	Two trip blanks were included in this SDG (TA-TB-01 (07312018) and TA-TB-02(07312018)). No target VOC analytes were detected in either trip blank.	No
Quantitation Limits	No	Multiple target analytes in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-45 (6-7) and TA-SB-45 (6-7) DUP) was collected for this SDG. Methylcyclohexane and methylene chloride were detected below the RL in TA-SB-45 (6-7) DUP, but not detected in TA-SB-45 (6-7). No other target VOC analytes were detected in either sample. No action was taken based on the field duplicate results.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5) and the results for all target analytes met the limits of either %RSD less than 30% or R2 greater than 0.995. The initial calibration was performed on 8/7/2018 13:09:30 (instrument msd5) and the results for all target analytes met the limits of either %RSD less than 30% or R2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/13/2018 16:07:30 (msd5), and the %D values were below 25% for all target analytes.	No
	Yes	---	An ICV was performed on 8/7/2018 17:07:30 (msd5), and the %D values were below 25% for all target analytes.	No
	No	Dichlorodifluoromethane in CCV on 8/3/2018 10:12:30 (TA-TB-01 (07312018) and TA-TB-02(07312018)).	A CCV was performed on 8/3/2018 10:12:30 (msd5). The %D values were all below 25% except for dichlorodifluoromethane (30%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in either impacted sample. No action was taken based on the CCV.	No
	Yes	---	A CCV was performed on 8/10/2018 07:42:30 (msd5). The %D values were all below 25%. The RRFs for all target analytes were greater than 0.01.	No
	Yes	---	A CCV was performed on 8/10/2018 20:32:30 (msd5). The %D values were all below 25%. The RRFs for all target analytes were greater than 0.01.	No
	No	Acetone and bromomethane in CCV on 8/13/2018 08:58:30 (TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10)).	A CCV was performed on 8/13/2018 08:58:30 (msd5). The %D values were all below 25% except for bromomethane (-26.7%) and acetone (50.9%). The RRFs for all target analytes were greater than 0.01. Bromomethane was not detected in any impacted sample. These non-detect results were qualified UJ. Acetone was detected below the RL in two samples (TA-SB-12 (0-1) and TA-SB-10 (1-2)), which were qualified J+. Non-detect acetone results were not qualified.	Yes

Project Name/No. Michigan Project
SDG: TH01025
Lab: SHEALY
Media TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Target Analyte Identification	No	Multiple target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: acetone in TA-SB-30 (2-3), TA-SB-45 (2-3), TA-SB-10 (1-2); 1,1,1-trichloroethane in TA-SB-30 (2-3); cyclohexane in TA-SB-30 (2-3), TA-SB-12 (0-1); methylcyclohexane in TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3), TA-SB-12 (0-1), TA-SB-50 (2-3), TA-SB-22 (8-9); tetrachloroethene in TA-SB-30 (2-3); o-xylene in TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-45 (2-3), TA-SB-12 (0-1); toluene in TA-SB-45 (2-3), TA-SB-22 (8-9); ethylbenzene in TA-SB-45 (2-3); m+p-xylenes in TA-SB-45 (2-3); isopropylbenzene in TA-SB-45 (2-3). The mass spectrum baseline exhibited some irregularities in the following samples: TA-SB-45 (6-7), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3)	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	Percent solids was at or above 79.2% for all solid samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TH01025
Lab: SHEALY
Media TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were collected on 7/30/2018 and 7/31/2018 and received on 8/1/2018 at 2.0°C and 2.0°C. All samples were processed and analyzed within the holding time limits specified in the QAPP. Metal samples were analyzed within 6 months from sample collection, and mercury were analyzed within 28 days.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium and sodium in MS analyses performed on TA-SB-50 (7-8).	MS analysis was performed on TA-SB-50 (7-8) for all metals other than mercury and on TA-SB-12 (1-2) for mercury. The laboratory reported results from a second MS analysis with a different amount of spike as an MSD for each sample. The MS recoveries were within the project limits of 75-125% for all target metals with the following exceptions: the MS recoveries for barium (186%/205%) and sodium (210%/184%) exceeded the project limits. Note the laboratory reported slightly different recoveries. The recoveries shown are based on GZA calculations. The post-digest spike recoveries for barium (88%) and sodium (90.3%) were within the project limits. The barium and sodium results in TA-SB-50 (7-8) were qualified J.	Yes
Method Blank	Yes	---	No metal TCLs were detected in the method blank.	No
Instrument Blank	No	Iron in CCB6 (Run #MS2081718C on 8/17/2018; impacted samples include TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-30 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10).) Boron in CCB1 and CCB2 (Run#MS2082018E on 8/20/2018; impacted samples include TA-SB-15 (7-8)).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in CCB6 (Run #MS2081718C on 8/17/2018) at 11.240 ug/L, below the reporting limit of 50 ug/L. Iron detects in the impacted samples (TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-30 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10)) were more than 10 times the level detected in the CCB; no action was taken based on the CCB result for iron. Boron was detected in CCB1 and CCB2 (Run #MS2082018E on 8/20/2018 at 0.993 ug/L and 0.980 ug/L, below the reporting limit of 50 ug/L. Boron was detected below the reporting limit in the impacted sample (TA-SB-15 (7-8)). The boron result was considered a non-detect at the reporting limit and qualified UB.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	For mercury, a 5-point calibration was performed on 8/7/2018 and the correlation coefficients were greater than 0.99. 4-point initial calibrations were conducted for all metals but mercury on 8/17/2018 and 8/20/2018, and the correlation coefficients were greater than the QAPP limit (0.99).	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP). CRQL Check Standard recoveries are within the project limits of 70-130%.	No
Interference Check Sample	Yes	---	The interference check results for chromium and lead were within the laboratory established limits. The interference check results for the other metals were within the project limits of 80-120%.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum, iron, and magnesium in TA-SB-50 (7-8).	Serial dilution was performed on sample TA-SB-50 (7-8). The %D was below 10%, or the original concentration was less than 50 times the MDL, with the following exceptions: aluminum (16.6%), iron (12.2%), and magnesium (18.8%). The aluminum, iron, and magnesium results in sample TA-SB-50 (7-8) were qualified J.	Yes
Internal Standard	No	Y and Bi in multiple samples.	The %RI was within 60-125% of the response in the calibration blank with the following exceptions: internal standard Y was above the limit for TA-SB-21 (6-7) (115% relative to blank of 85%). Y was not associated with any target analytes. Internal standard Bi was above the limit for TA-SB-10 (1-2) (125% relative to blank of 86%), TA-SB-10 (4-5) (113% relative to blank of 86%), and TA-SB-21 (9-10) (110% relative to blank of 86%). Bi was not associated with any target analytes.	No

Project Name/No. Michigan Project
SDG: TH01025
Lab: SHEALY
Media TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
ICP Linear Range	No	Magnesium, manganese, boron, and cobalt in multiple CCVs.	All sample results in this SDG were within the ICP linear range with the following exceptions noted by the laboratory: magnesium and manganese in the CCV analyzed on 8/17/2018 at 17:42:16, manganese in the CCV analyzed on 8/17/2018 at 20:03:31, manganese in the CCV analyzed on 8/17/2018 at 22:25:09, magnesium in the CCV analyzed on 8/17/2018 at 23:36:06, and boron and cobalt in the CCV analyzed on 8/18/2018 at 04:56:09. No action was taken on the project samples.	No
Solids Percentage	Yes	---	Percent solids was at or above 79.2% for all solid samples in this SDG.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected for this SDG (TA-SB-45 (6-7) and its duplicate TA-SB-45 (6-7) DUP). The results met one of three criteria: (1) target analyte was detected in both samples and RPD was below project limit of 50% for solids, (2) target analyte was detected in one sample <2xRL but not in the other, or (3) target analyte was not detected in either sample. No action was taken based on the field duplicate results.	No

Project Name/No. Michigan Project
SDG: TH01025
Laboratory: SHEALY
Media TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Total cyanide reanalysis performed outside of hold time for samples TA-SB-30 (2-3), TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-11 (6-7), TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10).	The samples were collected on 7/30/2018 and 7/31/2018 and received on 8/1/2018 at 2.0°C and 2.0°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes) with the following exception. Total cyanide was reanalyzed in samples TA-SB-30 (2-3), TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-11 (6-7), TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10). TA-SB-30 (2-3) outside the holding time requirement. However, only data analyzed on the 14th day or within 14th day from collection were reported in the database. No action was taken based on the holding time exceedance.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Cyanide in LCS associated with samples in Batch 80668.	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%), except in the LCS for cyanide in Batch 80668 (15%). Cyanide results associated with this batch in samples TA-SB-45 (2-3), TA-SB-11 (1-2), TA-SB-11 (6-7), TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (2-3), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10) were qualified (detects were qualified J-, while nondetects were qualified UJ) due to the low LCS recovery.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Total cyanide in MS/MSD of TA-SB-30 (2-3); Nitrate-nitrite in MS/MSD of TA-SB-15 (2-3) and TA-SB-22 (2-3); Phosphorus in MS/MSD of TA-SB-14 (7-8) and TA-SB-12 (1-2).	For cyanide, MS/MSD analysis was performed three times on sample TA-SB-30 (2-3). In the analysis associated with Batch 80529, the MS and MSD recoveries (GZA calculated 47% vs. laboratory reported 44%, and GZA calculated 33% vs. laboratory reported 28%) were below the project limits (75-125%), while the RPD was below the project limit of 50% for solids. In the analysis associated with Batch 80668, the MS and MSD recoveries (GZA calculated 71% vs. laboratory reported 73% and 4%) were below the project limits, and the RPD (GZA calculated 234% vs. laboratory reported 100%) was above the project limit of 50%. Total cyanide results in sample TA-SB-30 (2-3) were qualified J- based on the MS/MSD results. For hexavalent chromium, MS analysis was performed on samples TA-SB-30 (2-3), TA-SB-14 (5-6), TA-SB-22 (2-3), and TA-SB-21 (6-7). MS/MSD analysis was performed on sample TA-SB-15 (2-3). All MS/MSD results for hexavalent chromium were within the project limits. For phosphorus, MS/MSD analysis was performed on samples TA-SB-14 (7-8) and TA-SB-12 (1-2). All MS/MSD results for phosphorus were within the project limits, or the original concentration in the sample was greater than 4 times the spike concentration. For ammonia, MS/MSD analysis was performed on samples TA-SB-30 (2-3), TA-SB-15 (2-3) and TA-SB-22 (2-3). All MS/MSD results for ammonia were within the project limits. For nitrate-nitrite, MS/MSD analysis was performed on samples TA-SB-15 (2-3) and TA-SB-22 (2-3). The MS and MSD recoveries (18% and 24%) in sample TA-SB-15 (2-3) were below the project limits (75-125%). The non-detect nitrate-nitrite result in sample TA-SB-15 (2-3) was rejected and qualified UR. The MS and MSD recoveries in sample TA-SB-22 (2-3) (73% and GZA calculated 74% vs. laboratory reported 76%) were slightly below the project limits, and the detected result was qualified J-. RPDs were within the project limit of 50% for solids. For sulfate, MS/MSD analysis was performed on samples TA-SB-15 (2-3) and TA-SB-22 (2-3). All MS/MSD results for sulfate were within the project limits. For chloride, MS/MSD analysis was performed on samples TA-SB-15 (2-3) and TA-SB-22 (2-3). All MS/MSD results for chloride were within the project limits. Note the MS/MSD recoveries shown in the laboratory report seem to be incorrect for several samples. The values shown here are calculated by GZA.	Yes
Method Blank	No	Cyanide, chloride	Cyanide was detected in the method blanks at 0.016 mg/kg (Batch 80342), 0.030 mg/kg (Batch 80529), 0.019 mg/kg (Batch 80668), and 0.034 mg/kg (Batch 80782), respectively, below the RL 0f 0.12 mg/kg. All samples in the SDG were impacted, and cyanide was detected in all samples. Cyanide results detected below the reporting limit were reported at the RLs and qualified as non-detect (UB). Cyanide results detected above the reporting limits and cyanide non-detects were not qualified. Chloride was detected in the method blank at 2.3 mg/kg (Batch 80944), below the RL of 10 mg/kg. Associated samples include TA-SB-30 (2-3), TA-SB-26 (5-6), TA-SB-26 (8-9), TA-SB-14 (5-6), TA-SB-14 (7-8), TA-SB-12 (1-2), TA-SB-12 (4-5), TA-SB-45 (6-7), TA-SB-45 (6-7) DUP, TA-SB-45 (2-3), TA-SB-11 (6-7), TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), and TA-SB-15 (7-8). Chloride was detected in all of these samples. Impacted chloride results detected below the reporting limit were reported at the RLs and qualified as non-detect (UB). Chloride results detected above the RLs were not qualified. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No

Project Name/No. Michigan Project
SDG: TH01025
Laboratory: SHEALY
Media TA-TB-01 (07312018) and TA-TB-02(07312018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Reported Quantitation Limits	No	Multiple inorganic target analytes in multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and the correlation coefficients were greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	No	Phosphorus CRQL check, CCV for hexavalent chromium (TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10)).	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1) of the QAPP and CRQL Check Standard recoveries are within the 70-130% limits with the following exceptions: CRQL check standard recovery for phosphorus was slightly above the limit (141% and 132% vs. 130%). Phosphorus was detected much higher (at least 2 times of RLs) in the impacted samples (i.e., all samples in this SDG). The phosphorus results were not qualified based on the CRQL check result. ICV performed on 8/22/2018 00:31:30 was above the limit for sulfate (%D of 13.8% v. 10%). Samples in this SDG were not impacted. No action was taken. CCV performed on 8/17/2018 16:37:30 was rounded to be at the limit for hexavalent chromium (%D of 10.1% v. 10%). Associated samples included TA-SB-13 (1-2), TA-SB-13 (6-7), TA-SB-12 (0-1), TA-SB-15 (2-3), TA-SB-15 (7-8), TA-SB-50 (2-3), TA-SB-50 (7-8), TA-SB-22 (8-9), TA-SB-10 (1-2), TA-SB-10 (4-5), TA-SB-21 (6-7), and TA-SB-21 (9-10). No action was taken.	No
Laboratory Duplicate Analysis	NA	---	Laboratory duplicate analysis was not performed for any samples in this SDG.	No
Solids Percentage	Yes	---	Percent solids was at or above 79.2% for all solid samples in this SDG.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected for this SDG (TA-SB-45 (6-7) and its duplicate TA-SB-45 (6-7) DUP). Hexavalent chromium was not detected in either sample. Sulfate was detected below the reporting limit in sample TA-SB-45 (6-7) but not in TA-SB-45 (6-7) DUP. All other target analytes were detected in both, and the RPD between the duplicates was less than the project limit of 50% for solids. No action was taken based on the field duplicate results.	No

Project Name/No. Michigan Project
SDG: TG31022
Lab: SHEALY
Media TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance for one cooler (4.6°C vs. 4.0°C).	The samples were collected on 7/30/2018 and received on ice at 2.0°C and 4.6°C on 7/31/2018. The samples were received by the laboratory the next day from sample collection. The samples were received with ice; no action was taken based on the slight exceedance of temperature. All samples were extracted within the holding time limit (i.e., 14 days from sample collection to extraction and 40 days from extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits; while the surrogate recoveries for 2-fluorophenol and phenol-d5 in TA-SB-27 (1-2) were diluted out.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	No	Benzo(g,h,i)perylene, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, di-n-octylphthalate, hexachlorocyclopentadiene, pentachlorophenol, 2,4,5-trichlorophenol, benzo(a)anthracene, chrysene, fluoranthene, phenanthrene, and pyrene in TA-SB-29 (2-3) MS analyses.	MS/MSD analysis was performed for TA-SB-29 (2-3). The MS/MSD recoveries were within the laboratory established limits with the following exceptions: Benzo(g,h,i)perylene (32%/25% v. 36-125%), 4,6-dinitro-2-methylphenol (0%/0% v. 40-130%), hexachlorocyclopentadiene (13%/12% v. 18-121%), 2,4,5-trichlorophenol (45%/43% v. 46-122%), benzo(a)anthracene (45% v. 47-121%), chrysene (40% v. 45-126%), fluoranthene (GZA calculated 92%/83% vs. laboratory reported -10% v. 50-123%), phenanthrene (23% v. 49-117%), and pyrene (1% v. 47-119%) recovered below the limits in one or both analyses. 3,3'-dichlorobenzidine (131%/129% v. 10-119%), di-n-octylphthalate (156%/156% v. 49-142%), and pentachlorophenol (143%/140% v. 27-138%) recovered above the limits. J- qualifiers were added to the detected benzo(g,h,i)perylene, benzo(a)anthracene, chrysene, phenanthrene, and pyrene results in TA-SB-29 (2-3). A UJ qualifier was added to the non-detect 2,4,5-trichlorophenol result. The 4,6-dinitro-2-methylphenol and hexachlorocyclopentadiene results were rejected and qualified UR. No action was taken based on the 3,3'-dichlorobenzidine, di-n-octylphthalate, or pentachlorophenol MS recoveries.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	---	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP) was collected for this SDG. Benzo(a)anthracene, benzo(b)fluoranthene, fluoranthene, phenanthrene, and pyrene were each detected in TA-SB-27 (1-2) DUP within 2 times of the RL while not detected in TA-SB-27 (1-2). No action was taken based on the field duplicate results.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 8/7/2018 19:02:30 (msd10), 8/7/2018 14:56:30 (msd10), and 8/14/2018 12:48:30 (msd16). The initial calibration results met the limits of %RSDs for all target analytes below 20% or R^2 above 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	No	2,4-Dimethylphenol, naphthalene, 2-methylnaphthalene, hexachlorocyclopentadiene, phenanthrene, anthracene, carbazole, di-n-butyl phthalate, fluoranthene, and di-n-octylphthalate in ICV 8/14/2018 16:28:30.	An ICV was performed on 8/14/2018 16:28:30 and 20:09:30 (msd16), and %Ds were within 25% except for 2,4-dimethylphenol (25.8%), naphthalene (28.3%), 2-methylnaphthalene (26.4%), hexachlorocyclopentadiene (29.7%), phenanthrene (25.3%), anthracene (27.4%), carbazole (28.2%), di-n-butyl phthalate (25.4%), fluoranthene (29.3%), and di-n-octylphthalate (25.2%). Samples TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP were impacted. All impacted analytes were non-detect, except phenanthrene and fluoranthene in TA-SB-27 (1-2) DUP. A J+ qualifier was added to these detected results. No action was taken for the other results.	Yes
	Yes	---	An ICV was performed on 8/13/2018 14:02:30 (msd10) and 8/7/2018 22:19:30 (msd10), and %Ds were within 25%.	No
	No	Benzidine in the CCV associated with all samples in the SDG, except TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP.	A CCV was performed on 8/17/2018 09:24:30 and 09:49:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, except benzidine (38.8%), and RRFs were all above 0.01. All impacted benzidine results were non-detect and were not qualified.	No
	No	Benzidine in the CCV associated with TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP.	A CCV was performed on 8/15/2018 09:01:30 and 09:25:30 on instrument msd16. The CCV %D did not exceed the project limit of 25% for any target analytes, except benzidine (48.5%), and RRFs were all above 0.01. All impacted benzidine results were non-detect and were not qualified.	No

Project Name/No. Michigan Project
SDG: TG31022
Lab: SHEALY
Media TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: phenanthrene in TA-SB-51 (2-3) and TA-SB-27 (1-2) DUP; benzo(a)anthracene in TA-SB-51 (2-3), TA-SB-41 (2-3), TA-SB-57 (2-3), TA-SB-44 (1-2), TA-SB-52 (1-2), TA-SB-47 (3-4), TA-SB-47 (5-6), TA-SB-29 (2-3), and TA-SB-27 (1-2) DUP; chrysene in TA-SB-51 (2-3), TA-SB-41 (2-3), TA-SB-52 (1-2), TA-SB-47 (5-6), and TA-SB-27 (1-2) DUP; benzo(g,h,i)perylene in TA-SB-51 (2-3), TA-SB-52 (1-2), and TA-SB-27 (1-2) DUP; fluoranthene in TA-SB-41 (2-3); pyrene in TA-SB-41 (2-3); benzo(b)fluoranthene in TA-SB-41 (2-3) and TA-SB-27 (1-2) DUP; indeno(1,2,3-c,d)pyrene in TA-SB-41 (2-3), TA-SB-57 (2-3), TA-SB-44 (1-2), TA-SB-52 (1-2), TA-SB-47 (3-4), TA-SB-47 (5-6), and TA-SB-29 (2-3); naphthalene in TA-SB-44 (1-2), TA-SB-52 (1-2), and TA-SB-29 (2-3); acenaphthene in TA-SB-44 (1-2), TA-SB-47 (3-4), and TA-SB-29 (2-3); fluorene in TA-SB-44 (1-2) and TA-SB-27 (1-2) DUP; benzo(a)pyrene in TA-SB-47 (5-6) and TA-SB-27 (1-2) DUP; dibenzofuran in TA-SB-27 (1-2) DUP; and anthracene in TA-SB-27 (1-2) DUP.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	The percent solids was 82.5% or above for all soil samples.	No

Project Name/No. Michigan Project
SDG: TG31022
Lab: SHEALY
Media TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance for one cooler (4.6°C vs. 4.0°C).	The samples were collected on 7/30/2018 and received on ice at 2.0°C and 4.6°C on 7/31/2018. The samples were received by the laboratory the next day from sample collection. The samples were received with ice; no action was taken based on the slight exceedance of temperature. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	The surrogate recoveries were within the project limits of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Recoveries of acetone, carbon tetrachloride, 1,1-dichloroethene, and dichlorodifluoromethane in the LCS analyses associated with Batches 80328 and 80393, affecting these analytes in samples TA-SB-44 (7-8), TA-SB-52 (1-2), TA-SB-52 (6-7), TA-SB-47 (3-4), TA-SB-47 (5-6), TA-SB-29 (9-10), TA-SB-30 (13-14), TA-SB-27 (1-2), and TA-SB-27 (1-2) DUP.	All LCS recoveries were wthin the project limits of 70-130%, except for the following cases: In the LCS associated with Batch 80328, the recoveries were above the limit for acetone (135%), carbon tetrachloride (131%), and 1,1-dichloroethene (132%). The recovery was below the limit for dichlorodifluoromethane (69%). Samples TA-SB-44 (7-8), TA-SB-52 (1-2), and TA-SB-52 (6-7) were in Batch 80328. All impacted results were non-detect, except acetone in TA-SB-52 (1-2), which was detected below the RL. This result was qualified J+. Non-detect dichlorodifluoromethane results were qualified UJ, and no action was taken for non-detect results associated with high LCS recoveries. In the LCS associated with Batch 80393, the recoveries were above the limit for acetone (135%), carbon tetrachloride (131%), and 1,1-dichloroethene (132%). The recovery was below the limit for dichlorodifluoromethane (69%). Samples TA-SB-47 (3-4), TA-SB-47 (5-6), TA-SB-29 (9-10), TA-SB-30 (13-14), TA-SB-27 (1-2), and TA-SB-27 (1-2) DUP were analyzed in Batch 80393. All impacted results were non-detect other than 1,1-dichloroethene, which was detected below the RL in sample TA-SB-47 (3-4) and above the RL in TA-SB-30 (13-14). J+ qualifiers were added to these 1,1-dichloroethene results. Non-detect dichlorodifluoromethane results were qualified UJ, and no action was taken for non-detect results associated with high LCS recoveries. An LCSD was performed for Batch 79470. The recoveries were within the project limits, and the RPDs were within the project limit of 50% for solids.	Yes
Matrix Spike/Matrix Spike Duplicates	No	MS recoveries of bromomethane, dichlorodifluoromethane, 1,1,1-trichloroethane, and acetone in at least one of the two MS analyses performed on sample TA-SB-29 (2-3).	MS analysis was performed twice on sample TA-SB-29 (2-3). The amount of spike differed between the two analyses. Bromomethane (133%), dichlorodifluoromethane (60%/60%), 1,1,1-trichloroethane (150%/154%), and acetone (132%) recovered outside the project limits (70-130%). All impacted results were non-detect in sample TA-SB-29 (2-3). The dichlorodifluoromethane result was qualified UJ. No action was taken on the non-detect results associated with high recoveries.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	Two trip blanks (TA-TB-01 (07302018) and TA-TB-02 (07302018)) were collected for this SDG. No VOCs were detected in either trip blank. Soil samples were not qualified based on the aqueous trip blank results.	No
Quantitation Limits	No	---	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Methyl acetate, trichlorofluoromethane, xylenes (total), m+p-xylenes, and o-xylenes in field duplicate pair TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP.	One field duplicate pair (TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP) was collected for this SDG. The RPDs for methyl acetate (94%), trichlorofluoromethane (68%), xylenes (total) (145%), m+p-xylenes (143%), and o-xylenes (148%) exceeded 50%. The methyl acetate, trichlorofluoromethane, xylenes (total), m+p-xylenes, and o-xylenes results in both samples were qualified J. Ethylbenzene, isopropylbenzene, and 4-methyl-2-pentanone were detected in TA-SB-27 (1-2) within 2 times the RL but not detected in TA-SB-27 (1-2) DUP. No other VOCs were detected in either sample.	Yes
Initial Calibration	Yes	---	An initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995. An initial calibration was performed on 8/7/2018 13:09:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 7/13/2018 16:07:30 (msd5), and the %D values were within 25%.	No
	Yes	---	ICV was performed on 8/7/2018 17:07:30 (msd5), and the %D values were within 25%.	No
	Yes	---	CCV was performed on 8/1/2018 10:07:30 (msd5). The %D values for all target analytes were below 25%. The RRFs were greater than 0.01.	No
	No	Acetone in sample TA-SB-29 (2-3).	CCV was performed on 8/8/2018 08:25:30 (msd5). The %D values for all target analytes were below 25%, except for acetone (59.8%). The RRFs were greater than 0.01. Sample TA-SB-29 (2-3) was bracketed by this CCV. Acetone was non-detect, so no action was taken based on the %D exceedance indicating increased sensitivity.	No
	Yes	---	CCV was performed on 8/8/2018 21:36:30 (msd5). The %D values for all target analytes were below 25%. The RRFs were greater than 0.01.	No
	Yes	---	CCV was performed on 8/9/2018 20:10:30 (msd5). The %D values for all target analytes were below 25%. The RRFs were greater than 0.01.	No
	Yes	---	CCV was performed on 8/10/2018 07:42:30 (msd5). The %D values for all target analytes were below 25%. The RRFs were greater than 0.01.	No

Project Name/No. Michigan Project
SDG: TG31022
Lab: SHEALY
Media TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: 2-butanone in TA-SB-42 (1-2), TA-SB-30 (13-14), TA-SB-27 (1-2), and TA-SB-27 (1-2) DUP; cyclohexane in TA-SB-44 (1-2), TA-SB-52 (1-2), and TA-SB-47 (3-4); methylcyclohexane in TA-SB-44 (1-2), TA-SB-52 (1-2), and TA-SB-47 (3-4); o-xylene in TA-SB-44 (1-2), TA-SB-52 (1-2), TA-SB-47 (3-4), TA-SB-27 (1-2), and TA-SB-27 (1-2) DUP; acetone in TA-SB-52 (1-2); 1,1-dichloroethane in TA-SB-47 (3-4) and TA-SB-30 (13-14); 1,1,1-trichloroethane in TA-SB-47 (3-4); 1,1,2-trichloroethane in TA-SB-47 (3-4); freon 113 in TA-SB-30 (13-14); cis-1,2-dichloroethene in TA-SB-30 (13-14); and ethylbenzene in TA-SB-27 (1-2) DUP.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was 82.5% or above for all soil samples.	No

Project Name/No. Michigan Project
SDG: TG31022
Lab: SHEALY
Media TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Slight temperature exceedance for one cooler (4.6°C vs. 4.0°C).	The samples were collected on 7/30/2018 and received on ice at 2.0°C and 4.6°C on 7/31/2018. The samples were received by the laboratory the next day from sample collection. The samples were received with ice; no action was taken based on the slight exceedance of temperature. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium, titanium, and sodium in the MS/MSD analyses performed on sample TA-SB-29 (2-3).	MS analysis was performed twice for sample TA-SB-29 (2-3). The amount of spike differed between the two analyses. Aluminum (2820%/4740%), iron (-194%/476%), and magnesium (-321%/-661%) recovered outside of the project limits (75-125%) in both analyses. The original sample results were greater than 5 times the spike concentration, so no action was taken. Barium (156%/163%) and titanium (266%/381%) recovered above the project limits in both analyses, and sodium recovered above the limit in the second analysis (131%). The barium, titanium, and sodium results were qualified J because the post digestion spike results were below 125%. MS analysis was not performed for metals Batch 80001 or mercury Batch 79603.	Yes
Method Blank	No	Chromium, iron, and thallium in method blank associated with Batch 80001.	No metal target analytes were detected in the method blanks except that chromium, iron, and thallium were detected at 0.73 mg/kg, 4.5 mg/kg, and 0.043 mg/kg below the RLs of 1.3 mg/kg, 13 mg/kg, and 0.13 mg/kg, respectively, in Batch 80001. Samples TA-SB-51 (2-3), TA-SB-51 (6-7), TA-SB-41 (2-3), TA-SB-41 (5-6), TA-SB-57 (2-3), TA-SB-57 (6-7), TA-SB-42 (1-2), TA-SB-42 (6-7), TA-SB-49 (3-4), TA-SB-49 (7-8), TA-SB-44 (1-2), and TA-SB-44 (7-8) were impacted. Results detected below the reporting limit were qualified UB, and these results were considered non-detects at the reporting limit. No action was taken for non-detect results. If detected results were less than 5 times the method blank detection, they were qualified UB and reported at the RL. If detected results were greater than 5 times the method blank detection, no action was taken.	Yes
Instrument Blank	No	Boron and iron detected in the instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Boron was detected in CCB1 (Run #MS2081518C 6 on 8/15/2018) at 0.642 ug/L, below the RL of 50 ug/L. Iron was detected in CCB2 and CCB3 (Run #MS2081518C 6 on 8/15/2018) at 14.520 ug/L and 15.220 ug/L, below the RL of 50 ug/L. Project samples in this SDG were not impacted by the 8/15/2018 CCBs.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals, such as barium, iron, molybdenum, nickel, silver, vanadium, zinc, and mercury.	No
Initial Calibration	Yes	---	Initial calibration was conducted for all ICP-MS metals on 8/15/2018, 8/16/2018, and 8/17/2018, and R^2 was greater than the QAPP limit of 0.995. For mercury, a 5-point calibration was performed on 8/3/2018, and R^2 was greater than 0.995.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	No	Titanium in interference check for Run #MS2081518C (not associated with any samples in this SDG).	The interference check recoveries were within the limits specified in the QAPP (80-120%) except that titanium recovery for the run MS2081518C on 8/15/2018 was slightly above the limit at 121%. This did not impact project samples.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum, barium, lead, magnesium, and zinc results for TA-SB-29 (2-3).	A serial dilution was performed for TA-SB-29 (2-3). The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits) for all target analytes with the exception of aluminum (30.8%), barium (45.0%), lead (39.6%), magnesium (34.7%), and zinc (21.5%). The aluminum, barium, lead, magnesium, and zinc results for TA-SB-29 (2-3) were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG31022
Lab: SHEALY
Media TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard	No	Internal standard Y in samples TA-SB-41 (5-6) and TA-SB-29 (2-3). Internal standard Tb in sample TA-SB-29 (2-3).	The %RI was within 60-125% of the response in the calibration blank for all internal standards with the following exceptions: Internal standard Y was above the limit for TA-SB-41 (5-6) (142% v. calibration blank of 79%) and for TA-SB-29 (2-3) (506% v. calibration blank of 87% in 8/16/2018 analysis and 652% v. 98% in 8/17/2018 analysis). The non-detect selenium result in TA-SB-41 (5-6) was impacted by this exceedance and was qualified UJ. The detected cobalt, copper, and nickel results in sample TA-SB-41 (5-6) were impacted and qualified J. The 8/16/2018 results for TA-SB-29 (2-3) were not reported for any analytes associated with Y, and reported analytes from the 8/17/2018 analysis were not associated with Y. Internal Standard Bi was above the limit for TA-SB-49 (3-4) (118% v. calibration blank of 93%). This did not impact any project analytes. Internal standard Tb was above the limit for TA-SB-29 (2-3) (123% v. calibration blank of 90% in 8/16/2018 analysis and 141% v. calibration blank of 101% in 8/17/2018 analysis). Antimony, barium, and lead were detected above the reporting limit in TA-SB-29 (2-3) and were qualified J. Thallium was detected below the reporting limit and was qualified J.	Yes
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	The percent solids was 82.5% or above for all soil samples.	No
Field Duplicate Analysis	No	Magnesium in TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP.	One field duplicate pair was collected for this SDG (TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP). The RPDs were above the project limit of 50% for arsenic (71%), copper (93%), magnesium (64%), nickel (82%), and vanadium (101%). Cobalt was detected below the reporting limit in TA-SB-27 (1-2) but not in TA-SB-27 (1-2) DUP. With the exception of magnesium, all detections were within twice the RL, and the absolute difference was below the RL. The magnesium results were qualified J.	Yes

Project Name/No. AVS/SEM - Michigan Project
SDG: TG31022
Laboratory: SHEALY
Media TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Slight temperature exceedance for one cooler (4.6°C vs. 4.0°C).	The samples were collected on 7/30/2018 and received on ice at 2.0°C and 4.6°C on 7/31/2018. The samples were received by the laboratory the next day from sample collection. The samples were received with ice; no action was taken based on the slight exceedance of temperature. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium in TA-SB-29 (2-3); phosphorus in TA-SB-51 (2-3) and TA-SB-29 (2-3), nitrate-nitrite in TA-SB-49 (3-4), TA-SB-49 (7-8), and TA-SB-29 (2-3); total cyanide in TA-SB-27 (1-2) DUP.	MS/MSD recoveries were within the project limits of 75-125%, and the RPDs were within 50% with the following exceptions. The RPDs between the two MS analyses performed on samples TA-SB-51 (6-7) and TA-SB-49 (3-4) for hexavalent chromium reported by the laboratory (200% and 200%, respectively) is above the limit, but the amount of spike differed between the two analyses. The recovery of hexavalent chromium (71%) in the MS performed on sample TA-SB-29 (2-3) is below the limit. Hexavalent chromium was detected below the reporting limit in this sample and is qualified J-. The recovery of phosphorus in the MS/MSD analyses performed on samples TA-SB-51 (2-3) and TA-SB-29 (2-3) (185%/148% and 204%/286%,respectively) are above the limit, but the original sample concentrations are greater than 5 times the spike. Therefore, no action was taken. The recovery of nitrate-nitrite-N in the MS/MSD analyses performed on samples TA-SB-49 (3-4), TA-SB-49 (7-8), and TA-SB-29 (2-3) (9.7%/11%, 13%/16%, and 21%/15%,respectively) were below the limit. Nitrate-nitrite-N was not detected in samples TA-SB-49 (3-4) and TA-SB-49 (7-8) and was qualified as UR. The detected nitrate-nitrite result in sample TA-SB-29 (2-3) was qualified J-. Total cyanide in the MS/MSD analysis (24%/46%) performed on sample TA-SB-27 (1-2) DUP recovered below the limit, and the RPD (57%) was above the limit. Total cyanide was detected in sample TA-SB-27 (1-2) DUP and was qualified J-. Note the laboratory calculation for certain analytes were incorrect (e.g. phosphorus).	Yes
Method Blank	No	Total cyanide (all samples in this SDG); chloride (TA-SB-49 (3-4), TA-SB-51 (2-3), TA-SB-51 (6-7), TA-SB-41 (2-3), TA-SB-41 (5-6), TA-SB-57 (6-7), TA-SB-42 (1-2), TA-SB-42 (6-7), TA-SB-57 (2-3), TA-SB-49 (7-8), TA-SB-44 (1-2), and TA-SB-44 (7-8)).	Total cyanide was detected in the method blanks associated with Batches 80341 and 80342 at 0.016 mg/kg and 0.016 mg/kg, respectively, below the RL of 0.12 mg/kg. All samples in this SDG were associated with these two batches. Total cyanide was detected at the RL in sample TA-SB-51 (2-3) and above the RL in samples TA-SB-44 (1-2), TA-SB-52 (1-2), TA-SB-47 (3-4), TA-SB-47 (5-6), and TA-SB-29 (2-3). These results were greater than 5 times the concentration in the method blank; no action was taken. Total cyanide was detected below the RL in all other samples, which were qualified UB and reported as non-detects at the reporting limit. Chloride was detected in the method blank associated with Batch 80908 at 2.3 mg/kg, below the RL of 10 mg/kg. Chloride was not detected in sample TA-SB-49 (3-4), so no action was taken. Chloride was detected below the reporting limit in samples TA-SB-51 (2-3), TA-SB-51 (6-7), TA-SB-41 (2-3), TA-SB-41 (5-6), TA-SB-57 (6-7), TA-SB-42 (1-2), and TA-SB-42 (6-7). The chloride result was adjusted to a non-detect at the reporting limit and qualified UB. Chloride was detected at the reporting limit in sample TA-SB-57 (2-3) and above the reporting limit in samples TA-SB-49 (7-8), TA-SB-44 (1-2), and TA-SB-44 (7-8). These results were not qualified. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration performed for all target analytes had R^2 values greater than the QAPP limit of 0.99 for solids.	No
Continuing Calibration/Calibration Verification	No	CRQL check for ammonia and phosphorus.	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP) with the following exceptions: CRQL check for ammonia (69%) was below the project limit of 130%. Samples TA-SB-51 (2-3), TA-SB-51 (6-7), TA-SB-41 (2-3), TA-SB-41 (5-6), and TA-SB-57 (2-3) were impacted. The non-detect ammonia results in samples TA-SB-51 (2-3), TA-SB-51 (6-7), and TA-SB-57 (2-3) were qualified UJ. The ammonia results in samples TA-SB-41 (2-3) and TA-SB-41 (5-6) were above 2RLs; therefore no action was taken. CRQL check for phosphorus (141%) was above the project limit of 130%. Phosphorus was detected in all impacted samples (i.e., all samples in this SDG) at least 2 times the RLs; no action was taken.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No

Project Name/No. AVS/SEM - Michigan Project
SDG: TG31022
Laboratory: SHEALY
Media TA-TB-01(07302018) and TA-TB-02 (07302018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Solids Percentage	Yes	---	The percent solids was 82.5% or above for all soil samples.	No
Field Duplicate Analysis	No	Hexavalent chromium in field duplicate pair TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP.	One field duplicate pair was collected for this SDG (TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP). Ammonia was detected in TA-SB-27 (1-2) DUP but not in TA-SB-27 (1-2). The detection in TA-SB-27 (1-2) DUP was below twice the RL, so no action was taken. All other analytes were detected in both samples, and the RPDs for TA-SB-27 (1-2) and TA-SB-27 (1-2) DUP were within the project limit of 50% with the exception of hexavalent chromium (54%) and nitrate-nitrite (78%). Hexavalent chromium and nitrate-nitrite were detected in both samples within 5 times the RL. The absolute difference between the duplicate results was not greater than 2 times the RL for nitrate-nitrite-N but was greater than 2 times the RL for hexavalent chromium. A J qualifier was added to the hexavalent chromium results in both samples.	Yes

Project Name/No. Michigan Project
SDG: TG28004
Lab: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	TA-SB-28(6-7) extraction outside holding time.	The samples were received at 2.4°C and 2.8°C, within the QAPP limit of 4°C. All samples were extracted and analyzed within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from sample collection to analysis), with the following exceptions: the 2nd analysis (8/20/2018) of TA-SB-28(6-7) was extracted on the 24th day (8/18/2018) from sample collection (7/27/2018), outside the 14-day limit. The results were for the 2nd analysis of TA-SB-28(6-7) were qualified (detects were qualified J-, while non-detects were qualified UR).	Yes
Surrogate Recovery	No	DMC5 surrogate recoveries for TA-SB-28(2-3) and TA-SB-28(6-7).	All SVOC surrogate recoveries met the laboratory established limits with the following exceptions: DMC5 surrogate recoveries for TA-SB-28(2-3) and TA-SB-28(6-7) both analyses exceeded the laboratory limits (136% and 133%/133% vs. 127%). No SVOCs were detected in TA-SB-28(2-3); no action was taken. All base neutral TA-SB-28(6-7) in the above referenced samples were qualified (detects were qualified J+, and non-detects were not qualified). The surrogate recovery for DMC5 was diluted out for TA-SB-40(2-3).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Batch 79283, bis(2-chloroethyl)ether and 2,4-dimethylphenol.	The LCS recoveries were within the laboratory established limits except that for Batch 79283, LCS recoveries for bis(2-chloroethyl)ether and 2,4-dimethylphenol (108% and 135% vs. 105% and 123%) were above the laboratory established limits. Bis(2-chloroethyl)ether and 2,4-dimethylphenol were not detected in the associated sample (TA-SB-40(2-3)); no action was taken based on the LCS results.	No
Matrix Spike/Matrix Spike Duplicates	No	Bis(2-chloroethyl)ether, 2,4-dimethyphenol, 2-methylphenol, phenol in TA-SB-46(9-10) MS/MSD; 2,4-dimethylphenol, di-n-ocytylphthalate, fluoranthene, 2-methylphenol, pyrene, butyl benzyl phthalate, 2-methylnaphthalene, 3+4-methylphenol, phenanthrene in TA-SB-25(1-2) MS/MSD.	MS/MSD analysis was performed for TA-SB-46(9-10) and the MS/MSD recoveries were within the laboratory established limits with the following exceptions: MSD recoveries for bis(2-chloroethyl)ether (116% vs. 105%), 2,4-dimethyphenol (127% vs. 123%), 2-methylphenol (112% vs. 107%), phenol (109% vs. 108%) were above the laboratory established limits. The RPD between MS/MSD results met the project limit of 50%. Bis(2-chloroethyl)ether, 2,4-dimethyphenol, 2-methylphenol, phenol were not detected in TA-SB-46(9-10); no action was taken based on the MS/MSD results. MS/MSD analysis was performed for TA-SB-28(6-7) and the MS/MSD recoveries were within the laboratory established limits. The RPD between MS/MSD results met the project limit of 50%. MS/MSD analysis was performed for TA-SB-25(1-2) and the MS/MSD recoveries were within the laboratory established limits with the following exceptions: MS recoveries for 2,4-dimethylphenol (130% vs. 123%), di-n-ocytylphthalate (147% vs. 142%), fluoranthene (124% vs. 123%), 2-methylphenol (111% vs. 107%), pyrene (123% vs. 119%), and MSD recoveries for butyl benzyl phthalate (131% vs. 128%), 2,4-dimethylphenol (137% vs. 123%), di-n-octylphthalate (162% vs. 142%), fluoranthene (129% vs. 123%), 2-methylnaphthalene (113% vs. 106%), 2-methylphenol (117% vs. 107%), 3+4-methylphenol (114% vs. 108%), phenanthrene (122% vs. 117%), pyrene (132% vs. 119%) were above the laboratory established limits. All RPDs between the MS/MSD results were within 50%. The results for 2,4-dimethylphenol, di-n-ocytylphthalate, fluoranthene, 2-methylphenol, pyrene, butyl benzyl phthalate, 2-methylnaphthalene, 3+4-methylphenol, phenanthrene for TA-SB-25(1-2) were qualified (detects were qualified J+, while no action was taken for non-detects).	Yes
Method Blank	No	Bis(2-ethylhexyl)phthalate in the method blank associated with Batch 79161.	The method blank results show no detections of target SVOC analytes except that bis(2-ethylhexyl)phthalate was detected in the method blank in Batch 79161 at 49 ug/kg, below the RL of 67 ug/kg. The associated samples include TA-SB-25(7-8), TA-SB-31(2-3), TA-SB-31(7-8), TA-SB-28(2-3), TA-SB-28(6-7) 1st analysis on 8/15/2018, TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10). Bis(2-ethylhexyl)phthalate was detected in TA-SB-31(2-3), TA-SB-28(6-7) 1st analysis, TA-SB-32(2-3), TA-SB-32(9-10), TA-SB-46(9-10) below the RLs. The results were raised to the RLs with qualifier UB.	Yes
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Dimethyl phthalate and pyrene results in TA-SB-32(2-3) and TA-SB-32(2-3) DUP.	One field duplicate pair (TA-SB-32(2-3) and TA-SB-32(2-3) DUP) was collected for this SDG. The RPDs for the following analytes were above 50%: benzo(a)pyrene (82%), dimethyl phthalate (155%), indeno(1,2,3-c,d)pyrene (73%), pyrene (55%). For benzo(a)pyrene and indeno(1,2,3-c,d)pyrene, the results were within 5 times the RLs and the absolute difference between the duplicate samples was within the RL; no action was taken for benzo(a)pyrene and indeno(1,2,3-c,d)pyrene. The dimethyl phthalate and pyrene results in TA-SB-32(2-3) and TA-SB-32(2-3) DUP were qualified J. Benzo(a)anthracene, benzo(g,h,i)perylene, chrysene, bis(2-ethylhexyl)phthalate was each detected in one of the duplicate pair samples below the RL but not detected in the other sample of the duplicate pair. No action was taken.	Yes

Project Name/No. Michigan Project
SDG: TG28004
Lab: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	Initial calibration was conducted on 8/7/2018 19:02:30 (msd10). The initial calibration results %RSDs for all target analytes were below 20% or R^2 was greater than the QAPP limit of 0.99. Initial calibration was conducted on 8/7/2018 14:56:30 (msd10). The initial calibration results %RSDs for all target analytes were below 20% or R^2 was greater than 0.99. Initial calibration was conducted on 8/10/2018 12:27:30 (msd11). The initial calibration results %RSDs for all target analytes were below 20% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 8/13/2018 14:02:30 (msd10), and %Ds were within 25%. No action was taken.	No
	Yes	---	An ICV was performed on 8/7/2018 22:19:30 (msd10), and %Ds were within 25%. No action was taken.	No
	No	2,4-Dimethylphenol and bis(2-chloroethoxy)methane in ICV on 8/10/2018 16:12:30 (msd11).	An ICV was performed on 8/10/2018 16:12:30 and 19:59:30 (msd11), and %Ds were within 25% except that 2,4-dimethylphenol and bis(2-chloroethoxy)methane %Ds (32% and 27%) exceeded the limit of 25%. Another calibration and ICV were performed following this ICV; no samples were impacted by this ICV. No action was taken based on these ICV results.	No
	Yes	---	A CCV was performed on 8/15/2018 09:18:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/20/2018 09:17:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/14/2018 09:01:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	No	Pentachlorophenol in CCV 8/15/2018 09:00:30 on instrument msd11.	A CCV was performed on 8/15/2018 09:00:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes except for pentachlorophenol (-34%), and RRFs were all above 0.01. Associated samples include TA-SB-31(7-8), TA-SB-28(2-3), TA-SB-28(6-7) 1st analysis on 8/15/2018, TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7). The pentachlorophenol results in the above referenced were qualified (detects were qualified J- and non-detects were qualified UJ).	Yes
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: benzo(a)anthracene, bis(2-ethylhexyl)phthalate, indeno(1,2,3-c,d)pyrene in TA-SB-31(2-3), acenaphthene, fluoranthene, benzo(a)anthracene, benzo(k)fluoranthene, benzo(g,h,i)perylene in TA-SB-31(7-8), naphthalene, anthracene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SB-28(6-7) 1st analysis, phenanthrene, benzo(a)anthracene, chrysene in TA-SB-28(6-7) 2nd analysis, pyrene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-32(2-3), dimethjylphthalate, pyrene, benzo(a)anthracene, chrysene, indeno(1,2,3-c,d)pyrene, in TA-SB-32(2-3) DUP, naphthalene,benzo(a)anthracene, indeno(1,2,3-c,d)pyrene, in TA-SB-40(2-3), naphthalene, acenaphthene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene, in TA-SB-40(6-7), phenanthrene, benzo(a)anthracene, chrysene, indeno(1,2,3-c,d)pyrene, in TA-SB-48(1-2), benzo(a)anthracene, indeno(1,2,3-c,d)pyrene, in TA-SB-37(1-2), benzo(a)anthracene, indeno(1,2,3-c,d)pyrene, in TA-SB-37(6-7), naphthalene, benzo(a)anthracene, chrysene, benzo(a)pyrene, in TA-SB-20(5-6), phenanthrene, benzo(a)anthracene in TA-SB-34(6-7), benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-34(3-4), phenanthrene, anthracene, benzo(a)anthracene in TA-SB-66(0-1), n-nitrosodiphenylamine, benzo(a)anthracene, chrysene, indeno(1,2,3-c,d)pyrene in TA-SB-66(2-3), naphthalene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-33(1-2), phenanthrene, benzo(a)anthracene, chrysene in TA-SB-33(7-8), benzo(a)anthracene in TA-SB-59(2-3), phenanthrene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-24(0-1), naphthalene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene in TA-SB-24(5-6), naphthalene, acenaphthene, benzo(a)anthracene in TA-SB-25(1-2).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TG28004
Lab: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 2.4°C and 2.8°C, within the QAPP limit of 4°C. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	The surrogate recoveries were within the project limits of 70-130% for all target analytes.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Batch 79754, acetone, bromomethane, 2-butanone, chloroethane, cyclohexane (TA-SB-25(1-2)). Batch 80254, acetone and dichlorodifluoromethane (TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1), TA-SB-66(2-3), TA-SB-33(1-2), TA-SB-33(7-8), TA-SB-59(2-3), TA-SB-59(11-12), TA-SB-24(0-1)). Batch 80328, acetone, carbon tetrachloride, dichlorodifluoromethane, and 1,1-dichloroethene (TA-SB-24(5-6)).	All LCS/LCSD recoveries were wthin the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 79754, the recoveries for acetone (56%), bromomethane (245%), 2-butanone (64%), chloroethane (226%), cyclohexane (139%) were outside the control limits (70-130%). Associated sample with this Batch was TA-SB-25(1-2). None of the above referenced analytes were detected in TA-SB-25(1-2). The acetone and 2-butanone non-detected results for TA-SB-25(1-2) were qualified UJ. For Batch 80254, the LCS recoveries for acetone (187%) and dichlorodifluoromethane (59%) were outside the control limits (70-130%). Associated samples include TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1), TA-SB-66(2-3), TA-SB-33(1-2), TA-SB-33(7-8), TA-SB-59(2-3), TA-SB-59(11-12), TA-SB-24(0-1). The acetone results for the above samples were qualified (detects were qualified J+ while no action for non-detects). Dichlorodifluoromethane was not detected in any of the associated samples and the non-detects were qualified UJ. For Batch 80328, the LCS recoveries for acetone (135%), carbon tetrachloride (131%), dichlorodifluoromethane (69%), and 1,1-dichloroethene (132%) were outside the control limits (70-130%). TA-SB-24(5-6) was associated with this Batch. None of the above referenced analytes were detected in the associated sample; the dichlorodifluoromethane non-detect was qualified UJ. RPDs between LCS and LCSD met the project limit of 50%.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Acetone, bromomethane, 2-butanone, chloroethane, 1,2-bromo-3-chloropropane, dichlorodifluoromethane in TA-SB-25(1-2) MS/MSD.	MS and/or MSD recoveries for acetone (57%/73%), bromomethane (226%/195%), 2-butanone (65%/81%), chloroethane (225%/191%), 1,2-bromo-3-chloropropane (67%/71%), dichlorodifluoromethane (49%/40%) in the MS/MSD performed on TA-SB-25(1-2). The RPDs for all target analytes were within the project limit of 50%. None of the above referenced analytes were detected in TA-SB-25(1-2). The acetone, 2-butanone, 1,2-bromo-3-chloropropane, dichlorodifluoromethane results for TA-SB-25(1-2) were qualified UJ.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	Two trip blanks (TA-TB-01 (07272018) and TA-TB-02(07272018)) were collected for this SDG. No target analytes were detected in any of the trip blanks.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-32(2-3) and TA-SB-32(2-3) DUP) was collected for this SDG. No VOCs were detected in either sample except that methyl acetate was detected in TA-SB-32(2-3) below the RL. No action was taken based on the duplicate results for TA-SB-32(2-3) and TA-SB-32(2-3) DUP.	No
Initial Calibration	Yes	---	An initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995. An initial calibration was performed on 8/7/2018 13:09:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995. An initial calibration was performed on 7/30/2018 13:24:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No

Project Name/No. Michigan Project
SDG: TG28004
Lab: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/13/2018 16:07:30 (msd5), and the %D values were within 25%.	No
	Yes	---	An ICV was performed on 8/7/2018 17:07:30 (msd5), and the %D values were within 25%.	No
	Yes	---	An ICV was performed on 7/30/2018 16:37:30 (msd15). The %D values for all target analytes were all below 25%.	No
	Yes	---	A CCV was performed on 8/1/2018 10:07:30 (msd5). The %D values for all target analytes were below 25%. The RRFs for all target analytes were greater than 0.01.	No
	Yes	---	A CCV was performed on 8/8/2018 21:36:30 (msd5). The %D values for all target analytes were below 25%. The RRFs for all target analytes were greater than 0.01.	No
	No	Acetone in CCV performed on 8/9/2018 08:40:30 (msd5).	A CCV was performed on 8/9/2018 08:40:30 (msd5). The %D values for all target analytes were below 25% with the exception of acetone (50%). The RRFs for all target analytes were greater than 0.01. The acetone results for the associated samples (TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1), TA-SB-66(2-3), TA-SB-33(1-2), TA-SB-33(7-8)) were qualified (detects were qualified J+, and non-detects were not qualified).	Yes
	Yes	---	A CCV was performed on 8/9/2018 20:10:30 (msd5). The %D values for all target analytes were below 25%. The RRFs for all target analytes were greater than 0.01.	No
	Yes	---	A CCV was performed on 8/3/2018 08:14:30 (msd15). The %D values for all target analytes were below 25%. The RRFs for all target analytes were greater than 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: acetone in TA-SB-25(7-8), 1,1-dichloroethane, methylcyclohexane, o-xylene, 1,12-dichlorobenzene in TA-SB-31(2-3), acetone, 2-butanone in TA-SB-31(7-8), 2-butanone in TA-SB-32(9-10), 1,1,1-trichloroethane, methylcyclohexane, toluene, o-xylene in TA-SB-40(2-3), 1,1-dichloroethane, 1,1,1-trichloroethane, in TA-SB-40(6-7), methylcyclohexane in TA-SB-48(1-2), methylcyclohexane, o-xylene in TA-SB-37(1-2), acetone, 2-butanone in TA-SB-20(5-6), acetone, 2-butanone in TA-SB-34(6-7), acetone, 2-butanone in TA-SB-34(3-4), cyclohexane, methylcyclohexane, o-xylene in TA-SB-66(0-1), methylcyclohexane in TA-SB-33(1-2), acetone, 1,1-dichloroethane, 1,1,1-trichloroethane, methylcyclohexane, tetrachloroethene in TA-SB-59(2-3), acetone in TA-SB-59(11-12), cyclohexane, methylcyclohexane, toluene, o-xylene in TA-SB-24(0-1).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TG28004
Lab: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 2.4°C and 2.8°C, within the QAPP limit of 4°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium, beryllium, sodium, and zinc in TA-SB-66(0-1) MS/MSD; barium, copper, chromium, lead, magnesium, molybdenum, selenium, sodium, and zinc in TA-SB-25(1-2) MS/MSD.	The MS/MSD analysis was performed for TA-SB-66(0-1) for metals. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals except aluminum (6010%/6850%), barium (171%/172%), beryllium (26%/24%), chromium (185%/-20%), iron (-8280%/-9710%), magnesium (-1060%/-1120%), sodium (175%/212%), titanium (495%/695%), and zinc (GZA calculated 73%/89% vs. laboratory listed 140%/59%). The original sample concentratiions of aluminum, chromium, iron, magnesium, titanium were greater than 4 times the spike concentraions. The barium and sodium results of TA-SB-66(0-1) were qualified J as the post digest spike recoveries were below 125%. The beryllium result of TA-SB-66(0-1) was qualified qualified J-, as the post digest spike recovery was below 75%. The zinc result of TA-SB-66(0-1) was qualified J as the post digest spike recovery was within the limits. The RPDs between the MS and MSD results were within the QAPP limit of 50%. The MS/MSD analysis was performed for TA-SB-25(1-2) for metals. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals except aluminum (5290%/6510%), barium (39%/65%), copper (98%/126%), chromium (65%/81%), iron (-151%/251%), lead (2.9%/27%), magnesium (165%/284%), molybdenum (67%/68%), selenium (58%/63%), sodium (193%/225%), titanium (365%/362%). The original sample concentrations of aluminum, iron, titanium were greater than 4 times the spike concentraions. The copper, magnesium, sodium results of TA-SB-25(1-2) were qualified J as the post digest spike recoveries were below 125%. The selenium result of TA-SB-25(1-2) was qualified J, as the post digest spike recovery was below 75%. The barium, chromium, lead, molybdenum results of TA-SB-25(1-2) were qualified (detects were qualified J and non-detects were qualified UJ) as the post digest spike recoveries were above 75%. The RPDs between the MS and MSD results were within the QAPP limit of 50%.	Yes
Method Blank	No	Aluminum in Batch 80000; chromium, iron, thallium in Batch 80001.	No metal target analytes were detected in the method blanks except the following: aluminum was detected below RL (3 mg/kg vs. 10 mg/kg) in the method blank associated with Batch 80000. Associated samples include TA-SB-25(7-8), TA-SB-31(2-3), TA-SB-31(7-8), TA-SB-28(2-3), TA-SB-28(6-7), TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1). Aluminum was detected at least 10 times higher than the RLs; no action was taken based on the method blank results. Chromium, iron, and thallium were detected in the method blank for Batch 80001 at 0.73 mg/kg, 4.5 mg/kg, and 0.043 mg/kg, below the RLs of 1.3 mg/kg, 13 mg/kg, and 0.13 mg/kg. Associated samples include TA-SB-66(2-3), TA-SB-33(1-2), TA-SB-33(7-8), TA-SB-59(2-3), TA-SB-24(0-1), TA-SB-24(5-6), and TA-SB-25(1-2). Chromium and iron were detected at least 10 times higher than the RLs; no action was taken. Thallium was either not detected or detected below the RLs. For thallium detects in the above referenced samples, the results were reported at the RLs and qualified UB; no action was taken for thallium non-detects in the above referenced samples.	Yes

Project Name/No. Michigan Project
SDG: TG28004
Lab: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Instrument Blank	No	Boron, iron, beryllium, cadmium, thallium, silver detected in the instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in ICB1, CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2081318B on 8/13/2018) at 10.370 ug/L, 12.880 ug.L, 28.840 ug/L, 27.580 ug/L, 43.510 ug/L, 28.38 ug/L, below the RL of 50 ug/L. Iron was detected in CCB2, CCB3, CCB4 (Run #MS2081518C on 8/15/2018) at 14.52 ug/L, 15.22 ug/L, 11.05 ug/L, below the RL of 50 ug/L. No project samples were associated with these CCBs. Iron was detected in CCB1 (Run #MS2082218B on 8/22/2018) at 10.64 ug/L, below the RL of 50 ug/L. No project samples were associated with these CCBs. Iron was detected in all the project samples in this SDG at concentrations at least 10 times higher than the RLs. No action was taken based on the iron ICB and CCB results. Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2081318B on 8/13/2018) at 1.137ug/L, 1.504 ug/L, 1.433 ug/L, 1.663 ug/L, 1.810 ug/L, below the RL of 50 ug/L. Associated samples include TA-SB-25(7-8), TA-SB-31(2-3), TA-SB-31(7-8), TA-SB-28(2-3), TA-SB-28(6-7), TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1). The boron results for the above referenced samples were qualified (detects below the RLs were reported at the RLs and qualified UB; no action for detects above the RLs or non-detects). Boron was detected in CCB1 (Run #MS2081518C on 8/15/2018) at 0.642 ug/L, below the RL of 50 ug/L. No project samples were associated with these CCBs. Boron was detected in CCB1, CCB2, CCB3 (Run #MS2082218B on 8/22/2018) at 1.426 ug/L, 1.779 ug/L, 1.063 ug/L, below the RL of 50 ug/L. TA-SB-59(11-12) was associated with these CCBs. Boron was detected above the RL, and no action was taken. Beryllium was detected in CCB2, CCB4 (Run #MS2081318B on 8/13/2018) at 0.143ug/L, 0.161 ug/L, below the RL of 0.4 ug/L. Associated samples include TA-SB-25(7-8), TA-SB-31(2-3), TA-SB-31(7-8), TA-SB-28(2-3), TA-SB-28(6-7), TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1). The beryllium results for the above referenced samples were qualified (detects below the RLs were reported at the RLs and qualified UB; no action for detects above the RLs or non-detects). Cadmium was detected in CCB4 (Run #MS2081318B on 8/13/2018) at 0.150ug/L, below the RL of 0.5 ug/L. The associated samples include TA-SB-28(6-7), TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1). The cadmium results for the above referenced samples were qualified (detects below the RLs were reported at the RLs and qualified UB; no action for detects above the RLs or non-detects). Thallium was detected in CCB4 (Run #MS2081318B on 8/13/2018) at 0.140ug/L, below the RL of 0.5 ug/L. The associated samples include TA-SB-28(6-7), TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(0-1). The thallium results for the above referenced samples were qualified (detects below the RLs were reported at the RLs and qualifier UB; no action for detects above the RLs or non-detects). Silver was detected in ICB1 (Run #MS2081418A on 8/14/2018) at 0.241ug/L, below the RL of 1 ug/L. The following CCB results had no silver detected. No action was taken based on the ICB1 result.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	Initial calibrations had correlation coefficients above the control limit of 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No

Project Name/No. Michigan Project
SDG: TG28004
Lab: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Interference Check Sample	No	Titanium in the interference check recovery associated with Run #MS2081518C.	The interference check recoveries were within the limits specified in the QAPP (80-120%) except that titanium recovery for Run #MS2081518C on 8/15/2018 was slightly above the limit at 121%. The associated samples include TA-SB-66(2-3), TA-SB-33(1-2), TA-SB-33(7-8), TA-SB-59(2-3), TA-SB-24(0-1), TA-SB-24(5-6), TA-SB-25(1-2). The titanium results in the above referenced samples were qualified J+.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum, magnesium, and zinc results for TA-SB-66(0-1) and TA-SB-25(1-2).	For TCLP metals, a serial dilution was performed for TA-SB-66(2-3), and the %D for chromium was above 10%. The TCLP chromium result was qualified J. For metals, a serial dilution was performed for TA-SB-66(0-1). The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times the sample detection limits) for all target analytes with the exception of aluminum (27%), magnesium (31%), and zinc (12.9%). The aluminum, magnesium, and zinc results for TA-SB-66(0-1) were qualified J. A serial dilution was performed for TA-SB-25(1-2). The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times the sample detection limits) for all target analytes with the exception of aluminum (22%), magnesium (23%), and zinc (10.6%). The aluminum, magnesium, and zinc results for TA-SB-25(1-2) were qualified J.	Yes
Internal Standard	No	Internal standard Y in multiple samples (not associated with any target analytes).	The %RI was within 60-125% of the response in the calibration blank for all internal standards with the following exceptions: Internal standard Y for TA-SB-25(7-8) (172%), TA-SB-46(8-9) (127%), TA-SB-40(6-7) (131% relative to preceding CCB), TA-SB-25(7-8) (202%), TA-SB-32(9-10)(139%), TA-SB-40(2-3) (129%). None of these samples were associated with the internal standard for Y. No action was taken.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	No	Barium and copper for TA-SB-32(2-3) and TA-SB-32(2-3) DUP.	One field duplicate pair (TA-SB-32(2-3) and TA-SB-32(2-3) DUP) was collected for this SDG. RPDs for all metals were within the project limit of 50% except barium (139%), copper (72%), molybdenum (60%). The molybdenum detects were below 5 times the RLs, and the absolute difference was less than the RL. The barium and copper results for TA-SB-32(2-3) and TA-SB-32(2-3) DUP were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG28004
Laboratory: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 2.4ºC and 2.8ºC, within the QAPP limit of 4ºC. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium in TA-SB-25(1-2) MS/MSD; Cyanide in TA-SB-25(7-8) MS/MSD and TA-SB-25(1-2) MSD; Nitrate-nitrite in TA-SB-28(2-3) and TA-SB-25(1-2) MS/MSD.	MS/MSD recoveries were within the project limits of 70-130% and the RPDs were within 50%, with the following exceptions. Hexavalent chromium recoveries in TA-SB-25(1-2) MS/MSD were below the project limit of 75% at 36%/27%. The hexavalent chromium result was qualified J- for TA-SB-25(1-2). Cyanide recoveries in TA-SB-25(7-8) MS/MSD were below the project limit of 75% at 71%/68%. The cyanide result was qualified J- for TA-SB-25(7-8). Cyanide recoveries in TA-SB-25(1-2) MS/MSD were below the project limit of 75% at 72%/63%. The cyanide result was qualified J- for TA-SB-25(1-2). Ammonia recoveries in TA-SB-59(11-12) MS/MSD were below the project limit of 75%. The sample concentration was greater than 4 times the spike concentration; no action was taken. Nitrate-nitrite recoveries in TA-SB-28(2-3) MS/MSD were below the project limit of 75% at 1%/30%. The nitrate-nitrite result was qualified J- for TA-SB-28(2-3). Nitrate-nitrite recoveries in TA-SB-25(1-2) MS/MSD were below the project limit of 75% at 38%/52%. The nitrate-nitrite result was qualified J- for TA-SB-25(1-2). Phosphorus recoveries in TA-SB-59(11-12) MS/MSD and TA-SB-25(1-2) MS/MSD were above the project limit (170%/201% and -35%/250%); however, the original sample concentration was greater than 4 times of the spike concentration. The laboratory reported %RPDs over 200%; GZA calculated the %RPDs for both pairs of MS/MSDs were within the project limit of 50%. No action was taken based on the phosphorus MS/MSD results.	Yes
Method Blank	No	Total cyanide and ammonia detected in multiple method blanks.	Total cyanide was detected in the method blank associated with Batches 80061 and 80216 at 0.026 mg/kg and 0.022 mg/kg, below RL of 0.12 mg/kg. All samples in this SDG were associated with these method blanks. All samples were qualified (detections below the RLs were reported at the RLs and qualified UB; no action for detections at or above the RLs or for non-detects). Ammonia was detected in the method blank associated with Batches 80083 and 80264 at 0.50 mg/kg and 0.63 mg/kg, below RL of 1.0 mg/kg. All samples in this SDG but TA-SB-24(5-6) and TA-SB-25(1-2) were associated with these method blanks. Ammonia was detected above RL and 2 times the blank concentration in Ammonia in TA-SB-25(7-8), TA-SB-31(2-3), TA-SB-31(7-8), TA-SB-28(6-7), TA-SB-32(9-10), TA-SB-37(1-2), TA-SB-37(6-7), TA-SB-20(5-6), TA-SB-34(6-7), TA-SB-34(3-4), TA-SB-66(2-3), TA-SB-33(1-2), TA-SB-33(7-8), TA-SB-59(2-3), TA-SB-59(11-12), TA-SB-66(0-1); no action was taken. Ammonia was detected below the RLs in TA-SB-28(2-3), TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-46(9-10), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-24(0-1); the results were reported at the RLs and qualified UB. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs. Note the case narrative noted detection of phosphorus; however, detection was not noted in any method blank listed in the QC Summary in the report.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple inorganic non-metal analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.99.	No

Project Name/No. Michigan Project
SDG: TG28004
Laboratory: SHEALY
Media TA-TB-01(07272018) and TA-TB-02(07272018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	No	CRQL check for ammonia and phosphorus.	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP) with the following exceptions: CRQL check for ammonia was 69%, slighly below the project limit of 70%. The associated samples include TA-SB-24(5-6) and TA-SB-25(1-2). The non-detected ammonia result in TA-SB-24(5-6) was qualified UJ. The detection in TA-SB-25(1-2) was 10 times the RL; no action was taken. CRQL check for phosphorus was 66% on 8/6/2018, slighly below the project limit of 70%. Associated samples include TA-SB-31(2-3), TA-SB-31(7-8), TA-SB-28(2-3), TA-SB-28(6-7), TA-SB-32(2-3), TA-SB-32(2-3) DUP, TA-SB-32(9-10), TA-SB-46(8-9), TA-SB-46(9-10), TA-SB-40(2-3), TA-SB-40(6-7), TA-SB-48(10-11), TA-SB-48(1-2), TA-SB-37(1-2), TA-SB-37(6-7), and TA-SB-20(5-6). Phosphorus was detected in the associated samples at least at concentrations 2 times the RLs. No action was taken.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	No	Sulfate in TA-SB-32(2-3) and TA-SB-32(2-3) DUP.	One field duplicate pair (TA-SB-32(2-3) and TA-SB-32(2-3) DUP) was collected for this SDG. RPDs for all metals were within the project limit of 50%, except for sulfate (138%) and cyanide (55%). Cyanide was detected in both samples below the RLs; no action was taken. The sulfate results for TA-SB-32(2-3) and TA-SB-32(2-3) DUP were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG27014
Lab: SHEALY
Media TA-TB-02-07262018 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 3.5°C, which is below the 4°C temperature limit. All samples were extracted within the holding time limits specified in the QAPP (14 days from sample collection to extraction), and all samples were analyzed within 40 days from extraction.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits; while the surrogate recovery for TA-SB-35 (2-3) was diluted out.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Batch 79055, bis(2-chloroethyl)ether, 2,4-dimethylphenol, n-nitrosodi-n-propylamine (TA-SB-35 (2-3), TA-SB-35 (6-7), TA-SB-36 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (3-4), TA-SB-19 (7-8), TA-SB-18 (2-3), TA-SB-18 (6-7), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5) DUP).	The LCS recoveries were within the laboratory established limits, except for the following cases: For the LCS associated with Batch 79055, the recoveries for bis(2-chloroethyl)ether (112%), 2,4-dimethylphenol (126%), N-nitrosodi-n-propylamine (116%) were above the laboratory established limits. Associated samples include TA-SB-35 (2-3), TA-SB-35 (6-7), TA-SB-36 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (3-4), TA-SB-19 (7-8), TA-SB-18 (2-3), TA-SB-18 (6-7), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5) DUP. None of the above referenced analytes were detected in any of the associated samples. The bis(2-chloroethyl)ether, 2,4-Dimethylphenol, n-nitrosodi-n-propylamine results for the associated samples were not qualified.	No
Matrix Spike/Matrix Spike Duplicates	No	Acenaphthene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, caprolactam, 2,4-dinitrotoluene, di-n-octylphthalate, fluoranthene, fluorene, 2-methylnaphthalene, 3+4-methylphenol, pentachlorophenol, phenanthrene, pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, hexachlorocyclopentadiene, indeno(1,2,3-c,d)pyrene in the MS/MSD performed on TA-SB-19 (3-4).	MS/MSD analysis was performed for TA-SB-19 (3-4) and the MS/MSD recoveries were within the laboratory established limits with the following exceptions: MS and /or MSD recoveries for acenaphthene (112%/118%), anthracene (169%/150%), benzo(a)anthracene (171%/146%), benzo(b)fluoranthene (148%/129%), caprolactam (112%/126%), 2,4-dinitrotoluene (125%/69%), di-n-octylphthalate (140/152%), fluoranthene (281%/216%), fluorene (135%/132%), 2-methylnaphthalene (74%/114%), 3+4-methylphenol (56%/146%), pentachlorophenol (146%/148%), phenanthrene (387%/294%), pyrene (231%/169%) were above the laboratory established limits, while the MS and /or MSD recoveries for benzo(g,h,i)perylene (23%/8.4%), benzo(k)fluoranthene (91%/44%), hexachlorocyclopentadiene (0.0%/0.0%), indeno(1,2,3-c,d)pyrene (34%/0.71%) were below the laboratory established limits. The RPDs between the MS/MSD recoveries met the project limit of 50%. The acenaphthene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, caprolactam, 2,4-dinitrotoluene, di-n-octylphthalate, fluoranthene, fluorene, 2-methylnaphthalene, 3+4-methylphenol, pentachlorophenol, phenanthrene, and pyrene results for TA-SB-19 (3-4) were qualified (detects were qualified J+, and non-detects were not qualified). The benzo(g,h,i)perylene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene results for TA-SB-19 (3-4) were qualified (detects were qualified J- and non-detects were qualified UJ). The hexachlorocyclopentadiene non-detect result in TA-SB-19 (3-4) was qualified UR.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-38 (0.5-1.5) and TA-SB-38 (0.5-1.5) DUP) was collected for this SDG. The RPDs for acenaphthene (13%), acenaphthylene (0%), anthracene (32%), benzo(a)anthracene (6%), benzo(a)pyrene (11%), benzo(b)fluoranthene (12%), benzo(g,h,i)perylene (7%), benzo(k)fluoranthene (0%), chrysene (15%), fluoranthene (14%), fluorene (21%), indeno(1,2,3-c,d)pyrene (19%), naphthalene (14%), phenanthrene (32%), and pyrene (23%) were within the 50% limit. Carbazole, dibenzofuran, 2-methylnaphthalene were detected in TA-SB-38 (0.5-1.5) DUP within 2 times the RL but not detected in TA-SB-38 (0.5-1.5). No other VOCs were detected in either sample. No action was taken based on the TA-SB-38 (0.5-1.5) and TA-SB-38 (0.5-1.5) DUP results.	No
Initial Calibration	Yes	---	An initial calibration was conducted on 8/7/2018 14:56:30 (instrument msd10), and the initial calibration results %RSDs for all target analytes were below 20% or the R^2 values were above the limit of 0.99. An initial calibration was conducted on 8/10/2018 12:27:30 (instrument msd11), and the initial calibration results %RSDs for all target analytes were below 20% or the R^2 values were above the limit of 0.99.	No

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Media TA-TB-02-07262018 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 8/7/2018 18:38:30 and 22:19:30 (msd10), and %Ds for all target analytes were within 25%.	No
	Yes	---	An ICV was performed on 8/10/2018 16:12:30 and 19:59:30 (msd11), and %Ds for all target analytes were within 25%.	No
	Yes	---	A CCV was performed on 8/8/2018 09:28:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/14/2018 09:01:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/14/2018 09:01:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Acenaphthene in TA-SB-38 (0.5-1.5), TA-SB-17 (1-2), TA-SB-17 (7-8). Anthracene in TA-SB-18 (6-7), TA-SB-17 (1-2), TA-SB-38 (6-7). bis(2-Ethylhexyl)phthalate in TA-SB-18 (6-7). Benzo(a)Anthracene in TA-SB-35 (2-3), TA-SB-36 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (3-4), TA-SB-19 (7-8), TA-SB-18 (2-3), TA-SB-18 (6-7), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5) DUP, TA-SB-38 (6-7), TA-SB-39 (6-7), TA-SB-39 (1-2), TA-SB-17 (1-2), TA-SB-17 (7-8). Benzo(k)fluoranthene in TA-SB-18 (6-7), TA-SB-38 (6-7), TA-SB-39 (6-7), TA-SB-17 (1-2). Benzo(a)pyrene in TA-SB-19 (7-8). Fluorene in TA-SB-17 (1-2). Chrysene in TA-SB-36 (2-3), TA-SB-36 (5-6). Indeno(1,2,3-c,d)pyrene in TA-SB-35 (2-3), TA-SB-36 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (3-4), TA-SB-18 (2-3), TA-SB-18 (6-7), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5) DUP, TA-SB-38 (6-7), TA-SB-39 (6-7), TA-SB-39 (1-2), TA-SB-17 (1-2), TA-SB-17 (7-8). Naphthalene in TA-SB-35 (2-3), TA-SB-16 (6-7), TA-SB-19 (3-4), TA-SB-18 (2-3), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5) DUP, TA-SB-38 (6-7), TA-SB-39 (6-7), TA-SB-17 (1-2), TA-SB-17 (7-8). Phenanthrene in TA-SB-38 (6-7). Pyrene in TA-SB-19 (7-8).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

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Lab: SHEALY
Media TA-TB-02-07262018 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 3.5°C, which is below the 4°C temperature limit. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	No	DMC2 and DMC3 for TA-SB-39 (6-7).	The surrogate recoveries were within the project limits of 70-130%, except the DMC2 and DMC3 recoveries for TA-SB-39 (6-7) were below 70% at 35% and 26%. None of the VOC results for the above referenced samples were detected in TA-SB-39 (6-7). The TA-SB-39 (6-7) VOC results were qualified UJ.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recoveries for bromomethane, chloroethane, dichlorodifluoromethane in Batch 79610 (TA-SB-19 (3-4)).	All LCS recoveries were wthin the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 79610, the recoveries for bromomethane (243%), chloroethane (239%), dichlorodifluoromethane (54%) were outside the control limits (70-130%). The sample affected by the LCS exceedance is TA-SB-19 (3-4), analyzed on 8/2/2018. None of the above referenced analytes were detected in the associated sample. The dichlorodifluoromethane results for TA-SB-19 (3-4) analyzed on 8/2/2018 was qualified UJ. The bromomethane and bromomethane results for TA-SB-19 (3-4) were not qualified.	Yes
Matrix Spike/Matrix Spike Duplicates	No	MS recoveries for acetone, bromomethane, 2-butanone, chloroethane , 1,2-dibromo-3-chloropropane, 1,4-dichlorobenzene , dichlorodifluoromethane, 2-hexanone , 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene in the MS/MSD performed on TA-SB-19 (3-4).	MS analysis was performed twice on TA-SB-19 (3-4). The spike concentration differed by approximately a factor of two between the two MS samples. The MS recoveries for bromomethane (243%/227%), chloroethane (249%/218%) were above the project limits of 70-130%, while the MS recoveries for acetone (50%/65%), 2-butanone (63%/84%), 1,2-dibromo-3-chloropropane (69%/79%), 1,4-dichlorobenzene (68%/85%), dichlorodifluoromethane (42%/46%), 2-hexanone (65%/87%), 1,1,2,2-tetrachloroethane (68%/90%), 1,2,4-trichlorobenzene (49%/77%) were below the project limits of 70-130%. Bromomethane and chloroethane were not detected in TA-SB-19 (3-4); no action was taken for the bromomethane and chloroethane results. Acetone, 2-butanone, 1,2-dibromo-3-chloropropane, 1,4-dichlorobenzene, dichlorodifluoromethane, 2-hexanone, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene results for TA-SB-19 (3-4) were qualified (detects were qualified J-, and non-detects were qualified UJ).	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	One trip blank (TA-TB-02-07262018) was collected for this SDG. No VOCs were detected in TA-TB-02-07262018.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SB-38 (0.5-1.5) and TA-SB-38 (0.5-1.5) DUP) was collected for this SDG. The RPDs for methyl acetate (18%) and methylcyclohexane (7%) were within the 50% limit. Methylene chloride was detected in TA-SB-38 (0.5-1.5) DUP within 2 times the RL but not detected in TA-SB-38 (0.5-1.5). No other VOCs were detected in either sample. No action was taken based on the TA-SB-38 (0.5-1.5) and TA-SB-38 (0.5-1.5) DUP results.	No
Initial Calibration	Yes	---	An initial calibration was performed on 8/7/2018 13:09:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995. An initial calibration was performed on 8/2/2018 14:21:30 (instrument msd7), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995. An initial calibration was performed on 7/30/2018 13:24:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No

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Lab: SHEALY
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Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 8/7/2018 17:07:30 (msd5). The %D values for all target analytes were below 25%.	No
	Yes	---	ICV was performed on 8/2/2018 19:46:30 (msd7). The %D values for all target analytes were below 25%.	No
	Yes	---	ICV was performed on 7/30/2018 16:37:30 (msd15). The %D values for all target analytes were below 25%.	No
	No	Acetone in CCV performed on 8/8/2018 08:25:30 (msd5) (TA-SB-35 (2-3), TA-SB-35 (6-7), TA-SB-36 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (7-8), TA-SB-18 (2-3), TA-SB-18 (6-7), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5), DUP TA-SB-38 (6-7), TA-SB-39 (6-7), TA-SB-39 (1-2), TA-SB-17 (1-2), TA-SB-17 (7-8), TA-SB-20 (7-8)).	CCV was performed on 8/8/2018 08:25:30 (msd5). The %D values for all target analytes were below 25% with the exception of acetone (59.8%). The RRFs for all target analytes were greater than 0.01. Acetone results in the associated samples (TA-SB-35 (2-3), TA-SB-35 (6-7), TA-SB-36 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (7-8), TA-SB-18 (2-3), TA-SB-18 (6-7), TA-SB-38 (0.5-1.5), TA-SB-38 (0.5-1.5)DUP, TA-SB-38 (6-7), TA-SB-39 (6-7), TA-SB-39 (1-2), TA-SB-17 (1-2), TA-SB-17 (7-8), TA-SB-20 (7-8)) were qualified (detects were qualified J+, non-detects were not qualified).	Yes
	Yes	---	CCV was performed on 8/2/2018 19:23:30 (msd7). The %D values for all target analytes were below 25%. The RRFs were all greater than 0.01.	No
	No	Acetone in CCV performed on 8/2/2018 09:01:30 (msd15).	CCV was performed on 8/2/2018 09:01:30 (msd15). The %D values for all target analytes were below 25% with the exception of acetone (67.8%). The RRFs for all target analytes were greater than 0.01. The acetone result for TA-SB-19 (3-4) was qualified J+.	Yes
	Yes	---	CCV was performed on 8/3/2018 08:14:30 (msd15). The %D values for all target analytes were below 25%. The RRFs were greater than 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Methylcyclohexane in TA-SB-35 (2-3), TA-SB-36 (2-3), TA-SB-16 (6-7), TA-SB-18 (2-3), TA-SB-38 (0.5-1.5), TA-SB-39 (1-2). o-Xylene in TA-SB-35 (2-3), TA-SB-16 (6-7), TA-SB-18 (2-3), TA-SB-17 (1-2), TA-SB-17 (7-8). Acetone in TA-SB-35 (6-7), TA-SB-36 (5-6), TA-SB-18 (2-3), TA-SB-38 (6-7). 2-Butanone (MEK) in TA-SB-36 (2-3), TA-SB-38 (6-7). Methylene chloride in TA-SB-19 (3-4), TA-SB-19 (3-4). Cyclohexane in TA-SB-19 (3-4), TA-SB-19 (3-4), TA-SB-18 (2-3). Tetrahydrofuran in TA-SB-19 (3-4). 1,3,5-Trimethylbenzene in TA-SB-19 (3-4). 1,1,1-Trichloroethane in TA-SB-18 (2-3). 1,1-Dichloroethane in TA-SB-18 (2-3).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TG27014
Lab: SHEALY
Media TA-TB-02-07262018 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 3.5°C, which is below the 4°C temperature limit. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium, beryllium, chromium, copper, sodium, and titanium in MS/MSD on TA-SB-19 (3-4).	The MS/MSD analysis was performed on TA-SB-19 (3-4) for metals, including mercury. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals with the following exceptions. Barium (156%/161%), beryllium (25%/33%), chromium (44%/70%), copper (126%), sodium (137%/166%), and titanium (217%/359%) recovered outside the project limits in MS and/or MSD analyses. The post-digest spike results were 92.8% for barium, 38.1% for beryllium, 87.3% for chromium, 82.2% for copper, 71.6% for sodium, 70.6% for titanium. Based on the post-digest spike results, J qualifiers were added to the barium, chromium, copper, sodium, and titanium results in TA-SB-19 (3-4). A J- qualifier was added to the beryllium result in TA-SB-19 (3-4).	Yes
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No
Instrument Blank	No	Boron, beryllium, and iron in instrument blanks associated with Run #MS2081318B. Silver in ICB associated with Run #MS20181318B.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in ICB1, CCB1, CCB2, CCB3, CCB4, and CCB5 (Run #MS2081318B on 8/13/2018-8/14/2018) at 10.370 ug/L, 12.880 ug/L, 13.760 ug/L, 30.520 ug/L, 28.840 ug/L and 27.580 ug/L, respectively below the RL of 50 ug/L. Boron was detected in CCB1, CCB2, CCB3, CCB4, and CCB5 (Run #MS2081318B on 8/13/2018-8/14/2018) at 1.137 ug/L, 1.513 ug/L, 1.673 ug/L, 1.504 ug/L, and 1.433 ug/L, respectively, below the RL of 50 ug/L. Beryllium was detected in CCB4 (Run #MS20181318B on 8/13/2018-8/14/2018) at 0.143 ug/L, below the RL of 0.4 ug/L. Silver was detected in ICB1 (Run #MS2081418A on 8/14/2018) at 0.241 ug/L, below the RL of 1 ug/L. Boron and beryllium results for all samples in this SDG were reported within 12 hours of the contaminated CCBs. Detections below the reporting limits were considered non-detects at the reporting limit and qualified UB. No action was taken for detections above the RLs. Silver was not reported from Run #MS2081418A, and iron was not reported from Run #MS20181318B.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	Initial calibration was conducted for all ICP-MS metals on 8/13/2018 and 8/14/2018, and the correlation coefficients were above the limit of 0.99. For mercury, a 5-point calibration was performed on 7/31/2018 and 8/28/2018, and the correlation coefficient was greater than 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	No	Titanium in the interference check for Run #MS2081418A (not associated with samples in this SDG).	The interference check recoveries were within the limits specified in the QAPP (80-120%), except for titanium (122%) in the interference check sample on 8/14/2018 09:41 (Run #MS2081418A). Reported titanium results were not associated with this interference check sample; no action was taken.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum, copper, magnesium, and zinc in serial dilution performed on sample TA-SB-19 (3-4).	A serial dilution was performed for TA-SB-19 (3-4). The %D serial dilution results for all metals but aluminum (17.3%), copper (10.4%), magnesium (28.9%), and zinc (14.3%) met the QAPP limit (i.e., either serial dilution results lower than 10% or the original sample concentrations were below 50 times of the sample detection limits). The aluminum, copper, magnesium, and zinc detects in TA-SB-19 (3-4) were qualified J.	Yes

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Lab: SHEALY
Media TA-TB-02-07262018 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard	No	Internal standard Y in samples TA-SB-35 (2-3), TA-SB-36 (5-6), TA-SB-16 (6-7), TA-SB-16 (2-3), TA-SB-19 (7-8), TA-SB-18 (6-7), TA-SB-39 (1-2), TA-SB-17 (1-2), and TA-SB-20 (7-8) on 8/13/2018. Internal standard Bi in sample TA-SB-36 (5-6) and Y in samples TA-SB-16 (6-7), TA-SB-19 (7-8), TA-SB-18 (6-7), TA-SB-17 (1-2), and TA-SB-20 (7-8) on 8/14/2018.	The %RI was within 60-125% of the response in the calibration blank for all internal standards with the following exceptions. Internal standard Y was above the limit for TA-SB-35 (2-3) (119% relative to blank of 87%), TA-SB-36 (5-6) (114% relative to blank of 87%), TA-SB-16 (6-7) (113% relative to blank of 87%), TA-SB-16 (2-3) (128% relative to blank of 87%) , TA-SB-19 (7-8) (134% relative to blank of 93%), TA-SB-18 (6-7) (137% relative to blank of 93%), TA-SB-39 (1-2) (115% relative to blank of 91%), TA-SB-17 (1-2) (127% relative to blank of 91%), and TA-SB-20 (7-8) (117% relative to blank of 91%) on 8/13/2018. Y was not associated with any of the above referenced samples. Internal standard Bi was above the limit for TA-SB-36 (5-6) (138% relative to blank of 108%), and internal standard Y was above the limit for TA-SB-16 (6-7) (132% relative to blank of 103%), TA-SB-19 (7-8) (154% relative to blank of 109%), TA-SB-18 (6-7) (167% relative to blank of 109%), TA-SB-17 (1-2) (148% relative to blank of 106%), and TA-SB-20 (7-8) (136% relative to blank of 106%) on 8/14/2018. Y and Bi were not associated with any of the above referenced samples.	No
ICP Linear Range	No	Multiple target analytes in multiple calibrations.	All sample results in this SDG were within the ICP linear range with the following exceptions. The laboratory noted iron was outside the range in the ICV on 8/13/2018 at 20:04:44, the CCB on 8/13/2018 at 23:59:55, the CCB on 8/14/2018 at 01:10:30, the CCB on 8/14/2018 at 02:21:13, the CCB on 8/14/2018 at 03:31:58, the CCB on 8/14/2018 at 04:42:49, the CCV on 8/14/2018 at 06:58:35, and the CCB on 8/14/2018 07:04:33. Iron results were not reported from this run. The laboratory noted cadmium was outside the range in the CCB on 8/14/2018 at 03:31:58. The laboratory noted arsenic was outside the range in the CCV on 8/14/2018 at 04:36:54 and the CCV on 8/14/2018 at 06:48:35. The laboratory noted sodium was outside the range in the CCB on 8/14/2018 at 07:04:33, in the CCB on 8/14/2018 at 11:12:48, the CCB on 8/14/2018 at 12:23:28, the CCB on 8/14/2018 at 13:34:06, and the CCB on 8/14/2018 at 14:44:47. The laboratory noted boron was outside the range in the CCB on 8/14/2018 at 07:04:33 and the CCV on 8/14/2018 at 06:58:35. The laboratory noted beryllium, titanium, vanadium, zinc, selenium, and molybdenum were outside the range in the CCV on 8/14/2018 at 06:58:35. The laboratory noted cobalt and nickel were outside the range in the CCV on 8/14/2018 14:38:53. All project sample results were within the ICP linear range; no action was taken.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	No	Cadmium, magnesium, and vanadium in field duplicate pair TA-SB-38 (0.5-1.5) and TA-SB-38 (0.5-1.5) DUP.	One field duplicate pair was collected for this SDG (TA-SB-38 (0.5-1.5) and TA-SB-38 (0.5-1.5) DUP. The RPDs between the two samples met the project limit of 50% for solids, except for cadmium (60%), magnesium (88%), and vanadium (91%). The cadmium, magnesium, and vanadium results in samples TA-SB-38 (0.5-1.5) and TA-SB-38 (0.5-1.5) DUP were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG27014
Laboratory: SHEALY
Media TA-TB-02-07262018 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 3.5°C, which is below the 4°C temperature limit. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium, phosphorus, ammonia, nitrate-nitrite-N, and cyanide in MS/MSD performed on sample TA-SB-19 (3-4) phosphorus in MS/MSD performed on sample TA-SB-17 (1-2).	For phosphorus, MS/MSD analysis was performed on samples TA-SB-19 (3-4), TA-SB-17 (1-2), and TA-SB-17 (7-8). MS/MSD results were within the project limits, or the original sample result was greater than 4 times the spike concentration, with the following exceptions. The RPDs between the MS and MSD in samples TA-SB-19 (3-4) (GZA calculated -100% vs. laboratory reported 7%) and TA-SB-17 (1-2) (GZA calculated and laboratory reported 200%) were greater than the project limit of 50%. The detected phosphorus results in impacted samples (TA-SB-19 (3-4) and TA-SB-17 (1-2)) were qualified J. For hexavalent chromium, MS/MSD analysis was performed on samples TA-SB-19 (3-4) and TA-SB-38 (0.5-1.5). MS/MSD results were within the project limits, or the original sample result was greater than 4 times the spike, with the following exceptions. The MS/MSD recoveries in sample TA-SB-19 (3-4) were below the limits 75-125% in the MS/MSD analyses performed Batches 79303 (GZA calculated and laboratory reported 0%/0%) and 81106 (GZA calculated and laboratory reported 15%/23%). The non-detect hexavalent chromium results in sample TA-SB-19 (3-4) were rejected and qualified UR. The MSD recovery in sample TA-SB-38 (0.5-1.5) (GZA calculated 76% vs. laboratory reported 74%) was within the project limit 75-125%. No action was taken. For ammonia, MS/MSD analysis was performed on samples TA-SB-19 (3-4) and TA-SB-38 (0.5-1.5) DUP. MS/MSD results were within the project limits, or the original sample result was greater than 4 times the spike, with the following exceptions. The RPDs between the MS and MSD analyses were above the project limit of 50% for solids in the analyses performed on sample TA-SB-19 (3-4) in batches 79814 (GZA calculated 333% vs. laboratory reported 25%) and 80173 (GZA calculated 400% vs. laboratory reported 17%). The ammonia result in sample TA-SB-19 (3-4) was qualified J. For sulfate, MS/MSD analysis was performed on sample TA-SB-19 (3-4). MS/MSD results were within the project limits. For chloride, MS/MSD analysis was performed on sample TA-SB-19 (3-4). MS/MSD results were within the project limits. For nitrate-nitrite-N, MS/MSD analysis was performed on sample TA-SB-19 (3-4). Percent recoveries (GZA calculated 35%/19% vs. laboratory reported 36%/19%) were below the project limit 75-125%, and the RPD (GZA calculated 60% vs. laboratory reported 51%) was above the project limit. The detected nitrate-nitrite result in sample TA-SB-19 (3-4) was qualified J-. For cyanide, MS/MSD analysis was performed on samples TA-SB-19 (3-4) and TA-SB-20 (7-8). MS/MSD results were within the project limits, or the original sample result was greater than 4 times the spike, with the following exceptions. Percent recoveries in the MS/MSD analysis performed on sample TA-SB-19 (3-4) (GZA calculated 9%/65% vs. laboratory reported 9%/63%) were below the project limits of 75-125%, and the RPD (GZA calculated 150% vs. laboratory reported 120%) was above the project limit of 50% for solids. The cyanide detect in TA-SB-19 (3-4) was qualified J-.	Yes
Method Blank	No	Cyanide in Batch 79975 (associated with all samples in this SDG). Ammonia in Batch 80264 (associated with samples TA-SB-17 (1-2), TA-SB-17 (7-8), and TA-SB-20 (7-8)).	Total cyanide was detected in the method blank associated with Batch 79975 (associated with all samples in this SDG) at 0.015 mg/kg, below the RL of 0.12 mg/kg. Total cyanide detections above the RLs were all above 5 times the method blank level; no action was taken. Total cyanide detections below the reporting limit were qualified UB and reported as non-detect at the respective RL. Ammonia was detected in the method blank associated with Batch 80264 (associated with samples TA-SB-17 (1-2), TA-SB-17 (7-8), and TA-SB-20 (7-8)) at 0.63 mg/kg, below the RL of 1 mg/kg. Ammonia detects were all greater than 5 times the method blank level in the impacted samples; no action was taken. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	No	Phosphorus detected in CCBs.	No TCLs were detected in any instrument blank with the following exceptions. The laboratory noted QC fails for the phosphorus CCBs performed on 8/5/2018 14:28 and 8/6/2018 10:43. Samples associated with these blanks were reanalyzed and the results associated with the failing CCBs were not reported. No action was taken.	No
Reported Quantitation Limits	No	Multiple inorganic analytes in multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No

Project Name/No. Michigan Project
SDG: TG27014
Laboratory: SHEALY
Media TA-TB-02-07262018 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	Two 6-point initial calibrations were conducted for ammonia on 8/8/2018, and one 6-point initial calibration was conducted for ammonia on 8/9/2018 .The correlation coefficients were greater than the QAPP limit of 0.99. An 8-point initial calbiration was conducted for cyanide on 8/7/2018, and the correlation coefficient was greater than the limit of 0.99. Four 7-point initial calibrations were conducted for nitrate-nitrite on 8/6/2018, and two were conducted on 8/8/2018. The correlation coefficients were greater than the limit of 0.99. A 7-point initial calibration was conducted for phosphorus on 3/5/2018, and the correlation coefficient was greater than 0.99. Initial calibrations were conducted for chloride and sulfate on 5/29/2018 and 8/3/2018, and the correlation coefficients for all target analytes were above the QAPP limit of 0.99. Initial calibrations for hexavalent chromium were conducted on 8/6/2018, and the correlation coefficients were above 0.99.	No
Continuing Calibration/Calibration Verification	No	Phosphorus in CRQL check associated with samples TA-SB-17 (1-2), TA-SB-17 (7-8), and TA-SB-20 (7-8). Hexavalent chromium in CCVs associated with samples TA-SB-18 (6-7).	All ICV and CCV recoveries were within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP) with the following exceptions: For ammonia, CCVs analyzed on 8/8/2018 at 6:28:50 pm, 4:17:50 pm, 4:57:50 pm and on 8/9/2018 at 11:15:09 am and 11:49:09 am exceeded the %D limit with values of 11%, 18%, 11%, -17%, and -14%, respectively. Results impacted by these CCVs are not reported in this SDG. The phosphorus CCV analyzed on 8/6/2018 at 10:43 (%D -44%) was outside the project limit. Impacted samples were reanalyzed, and results from the analysis impacted by the CCV were not reported. The phosphorus CRQL check recovered outside the project limits 70-130% in the initial and reanalysis performed on 8/5/2018 (156% and 159%, respectively), but recovered within the limits (85%) after being reanalyzed at 12:28. The phosphorus CRQL check performed on 8/6/2018 11:00 recovered at 66%, below the project limits of 70-130%. Phosphorus in samples TA-SB-17 (1-2), TA-SB-17 (7-8), and TA-SB-20 (7-8) were impacted by the 8/6/2018 exceedance. Detected phosphorus results in TA-SB-17 (1-2), TA-SB-17 (7-8), and TA-SB-20 (7-8) were at least five times of the RLs; no action was taken based on the CRQL results. The hexavalent chromium CCVs analyzed on 8/15/2018 03:10:30 (%D of -99.9%; associated with sample TA-SB-18 (6-7)) and 8/15/2018 21:22:30 (%D of 10.3%, rounded to be at 10%; associated with samples TA-SB-18 (2-3), TA-SB-38 (0.5-1.5), TA-SB-16 (2-3), TA-SB-38 (0.5-1.5) DUP, TA-SB-39 (6-7), TA-SB-39 (1-2), TA-SB-17 (1-2), TA-SB-17 (7-8), and TA-SB-20 (7-8)) recovered outside the project limit. The hexavalent chromium result in sample TA-SB-18 (6-7) was rejected and qualified UR based on the CCV %D. No action was required for the other referenced samples.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected for this SDG (TA-SB-38 (0.5-1.5) and its duplicate TA-SB-38 (0.5-1.5) DUP). Ammonia was not detected in either sample, and the RPDs for all other target analytes were below the project limit of 50% for solids.	No

Project Name/No. Michigan Project
SDG: TG26015
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight holding time exceedance for the 2nd run for TA-SW-06 on 8/13/2018.	The samples were received at 2.7°C, 3.9°C, 3.5°C, and 2.6°C, all below the 4°C temperature limit. All samples were processed and analyzed within the holding time limit specified in the QAPP (14 days from sample collection to extraction, 40 days from extraction to analysis), except for the 2nd run for TA-SW-06 on 8/13/2018, which was extracted 14 days and 1.5 hours after sample collection. No action was taken for the slight exceedance (less than 2 hours) of extraction time for TA-SW-06.	No
Surrogate Recovery	No	2-Fluorophenol (DMC2) for 1st analysis on 8/6/2018 of TA-SW-06, TA-SW-07, and TA-SW-06MS.	The surrogate recoveries 2-fluorophenol (DMC2) and (phenol-d5) DMC4 for TA-SW-01 and 1st run (8/6/2018) of TA-SW-01 (DUP) were diluted out, respectively. All SVOC surrogate recoveries met the laboratory established limits with the exceptions below: 2-Fluorophenol (DMC2) for the 1st run (8/6/2018) for TA-SW-06 (23%), 1st run (8/6/2018) for TA-SW-07 (21%) were below the laboratory limits (24-127%); All phenol compounds results in the 1st run of the samples TA-SW-06 and TA-SW-07 were qualified (detects were qualified as J-, and non-detects were qualified UJ).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Hexachlorocyclopentadiene for 1st analysis (8/6/2018) of TA-SW-06, TA-SW-01, TA-SW-01 (DUP), TA-SW-07, TA-SW-05	The LCS recoveries were within the laboratory established limits, except for hexachlorocyclopentadiene recoveries in the LCS samples associated with Batch 79039 (21%) and Batch 80088 (20%), which were below the laboratory established limits of 22-122%. Hexachlorocyclopentadiene was not detected in the associated samples (1st analysis (8/6/2018) of TA-SW-06, TA-SW-01, TA-SW-01 (DUP), TA-SW-07, TA-SW-05); the non-detect results were qualified UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Hexachlorocyclopentadiene and benzidine in TA-SW-06 (both analyses).	MS/MSD analysis was performed for TA-SW-06 and the MS/MSD recoveries were within the laboratory established limits with the following exceptions: MS and MSD recoveries for hexachlorocyclopentadiene (15%/19%) in TA-SW-06 were both below the laboratory established limit (30-130%). The RPDs between the MS/MSD recoveries were within the project limit of 30% with exception of benzidine (44%). Hexachlorocyclopentadiene was non-detect in both runs for TA-SW-06, and the non-detect results were qualified UR. Benzidine was also non-detect in both runs for TA-SW-06, and the results were qualified UJ.	Yes
Method Blank	No	Butyl benzyl phthalate and bis(2-Ethylhexyl)phthalate in Batch 80088 (the 2nd run on 8/13/2018 for TA-SW-06, TA-SW-01(DUP), TA-SW-07).	The method blank results show no detections of target SVOC analytes with the following exceptions: Butyl benzyl phthalate and bis(2-Ethylhexyl)phthalate were detected at 0.59 ug/L and 0.71 mg/L in the method blank for Batch 80088 below the RLs (0.80 ug/L and 4.0 ug/L, respectively). Butyl benzyl phthalate and bis(2-Ethylhexyl)phthalate results were qualified in the 2nd run on 8/13/2018 for TA-SW-06, TA-SW-01, TA-SW-01(DUP), TA-SW-07. Butyl benzyl phthalate was not detected in any of the associated samples; no action was taken. Bis(2-ethylhexyl)phthalate was detected in all four samples below the RLs. The bis(2-ethylhexyl)phthalate results for TA-SW-06, TA-SW-01, TA-SW-01(DUP), TA-SW-07 analyzed on 8/13/2018 were raised to RLs with qualifier UB.	Yes
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SW-01 and TA-SW-01 (DUP)) were collected for this SDG, while there were two runs performed on TA-SW-01 (DUP). There were no detects in TA-SW-01 and 1st run of TA-SW-01 (DUP), while the bis(2-Ethylhexyl)phthalate was detected in 2nd run (8/13/2018) of TA-SW-01 (DUP), but below RL. No action was taken based on the results.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/19/2018 09:33:30 (msd11). The initial calibration results %RSDs for all target analytes were below 20% or R^2 was greater than 0.99.	No

Project Name/No. Michigan Project
SDG: TG26015
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/19/2018 13:17:30 and 17:03:30 (msd11), and %D values were within 25%.	No
	No	Hexachlorocyclopentadiene in CCV 08/06/2018 09:31:30 (msd11), 1st run for TA-SW-06, TA-SW-01, 1st run for TA-SW-01 (DUP), 1st run for TA-SW-07, TA-SW-05.	A CCV was performed on 08/06/2018 09:31:30 (msd11). The CCV %D did not exceed the project limit of 25% with exception Hexachlorocyclopentadien (29%). RRFs were all above 0.01. Hexachlorocyclopentadiene was not detected in the associated samples (i.e., 1st run on 8/6/2018 for TA-SW-06, TA-SW-01, 1st run on 8/6/2018 for TA-SW-01 (DUP), 1st run on 8/6/2018 for TA-SW-07, TA-SW-05); no action was taken.	No
	Yes	---	A CCV was performed on 08/12/2018 10:19:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/13/2018 09:02:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: Caprolactam in 1st run (8/6/2018) for TA-SW-06; acetophenone in 2nd run (8/13/2018) for TA-SW-06 and 2nd run (8/13/2018) for TA-SW-01(DUP); caprolactam in 2nd run (8/13/2018) for TA-SW-07.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	NA	---	All samples in this SDG were aqueous.	No

Project Name/No. Michigan Project
SDG: TG26015
Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 2.7°C, 3.9°C, 3.5°C, and 2.6°C, all below the 4°C temperature limit. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	The surrogate recoveries were within the project limits of 70-130% for all samples.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	All LCS recoveries were wthin the project limits of 70-130%.	No
Matrix Spike/Matrix Spike Duplicates	No	MS and/or MSD recoveries for acetone, bromomethane, carbon tetrachloride, chloromethane, dichlorodifluoromethane 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane, vinyl chloride in the MS/MSD performed on TA-SW-06.	MS and/or MSD recoveries for acetone (141%/139%), bromomethane (131%/130%), chloromethane (147%/150%), dichlorodifluoromethane (159%/162%), 1,1,2-trichloro-1,2,2-trifluoroethane (131%/121%), trichlorofluoromethane (134%/129%), vinyl chloride (133%/131%) in the MS/MSD performed on TA-SW-06 were above the project limit of 70-130%. The RPDs for all target analytes were within the project limit of 30%. The acetone, bromomethane, chloromethane, dichlorodifluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane, vinyl chloride results were qualified for TA-SW-06 (detects were qualified J+, and non-detects were not qualified).	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	One trip blank (TA-TB-01 (07262018)) was collected for this SDG. No VOCs were detected in TA-TB-01 (07262018).	No
Quantitation Limits	No	Multiple VOCs in multiple samples in this SDG.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SW-01 and TA-SW-01 DUP) was collected for this SDG. The RPD between the acetone results (119%) exceeded the limit of 30%. Acetone in both TA-SW-01 and TA-SW-01 DUP were within 5 times of the RL and the absolute difference was less than the RL. No other VOCs were detected in either sample. No action was taken.	No
Initial Calibration	Yes	---	An initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995. An initial calibration was performed on 7/25/2018 11:24:30 (instrument msd7), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 7/13/2018 16:07:30 (msd5), and the %D values were within 25%.	No
	Yes	---	ICV was performed on 7/25/2018 17:06:30 (msd7), and the %D values were within 25%.	No
	Yes	---	CCV was performed on 7/31/2018 09:45:30 (msd5). The %D values for all target analytes were below 25%. The RRFs were greater than 0.01.	No
	No	Dichlorodifluoromethane, acetone in CCV performed on 7/30/2018 20:54:30 (msd7) (TA-SW-06, TA-SW-01, TA-SW-01 (DUP), TA-SW-07).	CCV was performed on 7/30/2018 20:54:30 (msd7). The %D values for all target analytes were below 25%, except for dichlorodifluoromethane (30%), acetone (34%). The RRFs were greater than 0.01. The dichlorodifluoromethane and acetone results for TA-SW-06, TA-SW-01, TA-SW-01 (DUP), TA-SW-07 were qualified (detects were qualified J+ and non-detects were not qualified).	Yes
	Yes	---	CCV was performed on 7/31/2018 19:05:30 (msd7). The %D values for all target analytes were below 25%. The RRFs were greater than 0.01.	No
Target Analyte Identification	Yes	---	The difference between the sample spectrum and the reference spectrum is generally within 20%.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	NA	---	All samples in this SDG were aqueous.	No

Project Name/No. Michigan Project
SDG: TG26015
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 2.7°C, 3.9°C, 3.5°C, and 2.6°C, all below the 4°C temperature limit. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	The MS/MSD analysis was performed for TA-SW-06. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals, and the RPDs between the MS and MSD results were within the QAPP limit of 30%. MSD for magnesium was above the limit at 144%. The original sample concentration of magnesium was at least 4 times of the spike concentration; therefore, no action was taken.	No
Method Blank	No	Boron detected in the method blank for Batch 79353 (associated with all samples in this SDG).	No metal target analytes were detected in the method blanks with the following exceptions: Boron was detected in the method blank in Batch 79353 at 11 ug/L, below the RL of 50 ug/L. All samples in this SDG were associated this batch. All boron detects below the RLs were reported at the RLs and qualified UB. No action was taken for detections above the RLs.	Yes
Instrument Blank	No	Iron detected in instrument blanks for Run #MS2080918C.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in CCB2, CCB3, CCB4 (Run #MS2080918C on 8/10/2018) at 14.44 ug/L, 17.7 ug/L, 15.10 ug/L, below the RL of 25 ug/L. Iron was detected at concentrations at least 3 times of the RLs; no action was taken based on the instrument blank results.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.10 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for mercury were noted by the QAPP. Elevated reporting limits were also noted for other metals due to dilution.	No
Initial Calibration	Yes	---	Initial calibration results had calibration coefficients above the limit of 0.995.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	NA	---	The interference check information was not provided.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes	---	A serial dilution was performed for TA-SW-06. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits).	No
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	NA	---	All samples in this SDG were aqueous.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SW-01 and TA-SW-01 DUP) was collected for this SDG. The RPDs for for all analytes were within 30%. Zinc was detected below the RL in TA-SW-01 while not detected in TA-SW-01 DUP. No action was required.	No

Project Name/No. AVS/SEM - Michigan Project
SDG: TG26015
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 2.7°C, 3.9°C, 3.5°C, and 2.6°C, below the 4°C temperature limit. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	No	Hardness in TA-SW-06.	MS/MSD results met the project limits of 75-125%. The RPDs were within 30%. The laboratory report showed MS/MSD recoveries for hardness were below the limit (68%/72%) for TA-SW-06; the hardness data for TA-SW-06 was qualified J-.	Yes
Method Blank	No	Nitrate-nitrite in Batches 79429 and 79250 (associated with all samples in this SDG). Ammonia in Batches 79736 and 79768 (associated with all samples in this SDG).	Nitrate-nitrite was detected in the method blank associated with Batch 79249 (associated with TA-SW-06) at 0.0051 mg/L, below the RL of 0.020 m/L. Nitrate-nitrite was detected in TA-SW-06 at 1.2 mg/L, mucher high than the RL and blank result; no action was taken based on the method blank result. Nitrate-nitrite was detected in the method blank associated with Batch 79250 (associated with TA-SW-01, TA-SW-01(DUP), TA-SW-05, and TA-SW-07) at 0.0059 mg/L, below the RL of 0.020 m/L. Nitrate-nitrite detects below the RL were reported at the RLs and qualified UB; no action was taken for detections above the RLs. Ammonia was detected in the method blank associated with Batch 79736 (associated with all samples in this SDG except TA-SW-05) at 0.052 mg/L, below the RL of 0.10 m/L. Ammonia was detected in the method blank associated with Batch 79738 (associated with TA-SW-05) at 0.034 mg/L, below the RL of 0.10 m/L. Ammonia was detected in all samples below the RLs. All ammonia results in this SDG were reported at the respective RLs and qualified UB. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples in this SDG.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.10 in the QAPP. The laboratory detection limit for total cyanide exceeded the MDEQ target limit. For other target analytes, the laboratory reporting limits generally met the MDEQ target detection limits, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibrations performed were within the project limits (%RSDs less than 20% or correlation coefficients greater than 0.995) with the following exceptions: The initial calibration for nitrate on 5/29/2018 17:38:30 had a correlation coefficient of 0.994; however, this initial calibration was not associated with the project samples in this SDG. No action was taken.	No
Continuing Calibration/Calibration Verification	No	Ammonia CRQL.	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP) with the following exceptions: CRQL check for ammonia was above the limit (132% vs. 130%). The ammonia results were qualified as non-detects based on the method blank results; no action was taken.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	NA	---	All samples in this SDG were aqueous.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair (TA-SW-01 and TA-SW-01 DUP) was collected for this SDG, and the RPDs for all analytes were within the project limit of 30%.	No

Project Name/No. Michigan Project
SDG: TG24017
Lab: SHEALY
Media TA-TB-01 (07232018), TA-SW-03, TA-SW-04, and TA-SW-02 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	One cooler received slightly above the temperature limit. Holding time exceedances for second analysis on 8/12/2018 of TA-SW-02, TA-SW-03, and TA-SW-04.	The samples were received at 3.9°C and 5.3°C. Both coolers were received within 24 hours from sample collection, therefore no action was needed for samples received at 5.3°C. All samples were extracted within 14 days from sample collection and analyzed within 40 days from extraction with the following exceptions: The 2nd analysis (8/12/2018) of TA-SW-02, TA-SW-03, and TA-SW-04 was extracted on 8/8/2018, the 15th day from sample collection (7/24/2018); the SVOC results for the 2nd analysis of TA-SW-02, TA-SW-03, and TA-SW-04 were qualified (detects were qualified J-, and non-detects were qualified UJ).	Yes
Surrogate Recovery	No	2-Fluorophenol recovery in TA-SW-03 first analysis (7/27/2018) and TA-SW-02 first analysis (8/6/2018), and 2-fluorobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5 recoveries in TA-SW-04 first analysis (7/27/2018).	All SVOC surrogate recoveries met the laboratory established limits with the following exceptions: 2-fluorophenol recoveries in TA-SW-03 (22%) first analysis (7/27/2018) and TA-SW-02 (22%) first analysis (8/6/2018), and 2-fluorobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5 recoveries in TA-SW-04 first analysis (7/27/2018) (31%, 17%, 35%, 25%). The phenol compounds in TA-SW-03 (22%) first analysis (7/27/2018) and TA-SW-02 (22%) first analysis (8/6/2018) were qualified (detects were qualified J- and non-detects were qualified UJ). All target analyte results in TA-SW-04 first analysis (7/27/2018) were qualified (detects were qualified J-, and non-detects were qualified UJ).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Batch 79039 and 80088 (both analyses of TA-SW-03, TA-SW-04, and TA-SW-02), and Batch 79044 (all soil samples in this SDG).	The LCS recoveries were within the laboratory established limits with the exception of the following cases: for the LCS associated with Batch 79039 and Batch 80088, the recovery for hexachlorocyclopentadiene was below the laboratory established limit (21% vs. limit of 20-122%). The hexachlorocyclopentadiene results in all the aqueous samples in this SDG (both analyses) were qualified J-. For LCS recoveries associated with Batch 79044, the recovery for bis(2-chloroethyl)ether was above the laboratory established limit (107% vs. limit of 32-105%). Bis(2-chloroethyl)ether was not detected in any samples in this SDG; no action was taken.	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	No MS and/or MSD recoveries performed for any of the samples.	No
Method Blank	No	Butyl benzyl phthalate and bis(2-ethylhexyl)pthalate detected in method blank for Batch 80088 (the second analysis on 8/12/2018 and 8/13/2018 of the aqueous samples in this SDG).	The method blank results show no detections of target SVOC analytes except for the following cases: For the method blank results associated with Batch 80088 (the second analysis on 8/12/2018 and 8/13/2018 of the aqueous samples in this SDG), butyl benzyl phthalate (0.59 ug/L) and bis(2-ethylhexyl)phthalate (0.71 ug/L) were detected below the RLs (0.8 ug/L and 4 ug/L, respectively). Butyl benzyl phthalate was not detected in any samples in this SDG; no action was taken. Bis(2-Ethylhexyl)phthalate was detected below the RLs in the samples associated with Batch 80088 (second analysis of aqueous samples in this SDG); the sample results were reported at the RLs and qualified UB.	Yes
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate analysis was conducted for any samples in this SDG.	No
Initial Calibration	No	Benzo(b)fluoranthene in initial calibration on 8/10/2018 12:27:30 (all samples but TA-SB-67 (5-6) and TA-SB-67 (0-1) in this SDG).	Initial calibration was conducted on 7/18/2018 16:16:30 (msd10). The initial calibration %RSDs for all target analytes were below 20% or R^2 was greater than 0.99. Initial calibration was conducted on 7/19/2018 16:38:30 and on 8/10/2018 19:34:30 (msd11). The initial calibration %RSDs for all target analytes were below 20% or R^2 was greater than 0.99. Initial calibration was conducted on 8/10/2018 12:27:30 (msd11). The initial calibration %RSDs for all target analytes were below 20% or R^2 was greater than 0.99, except for benzo(b)fluoranthene (24%). The benzo(b)fluoranthene results for all associated samples were qualified (detections were qualified J+, and no action was taken for non-detects).	Yes

Project Name/No. Michigan Project
SDG: TG24017
Lab: SHEALY
Media TA-TB-01 (07232018), TA-SW-03, TA-SW-04, and TA-SW-02 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	No	Benzidine in CCV 7/18/2018 12:59:30 (msd10).	An ICV was performed on 7/18/2018 12:59:30 and 16:41:30 (MSD10). The %D values were within 25%, except for benzidine (29%). Benzidine was not detected in any samples in this SDG; no action was taken.	No
	No	2,4-Dimethylphenol in ICV 16:12:30 (msd11).	An ICV was performed on 7/19/2018 13:17:30 and 17:03:30 (msd11). The %D values were within 25%. An ICV was also performed on 8/10/2018 16:12:30 and 19:59:30 (msd11) and %D values were within 25%, except for %D of 2,4-dimethylphenol (31.5%). 2,4-Dimethylphenol was not detected in any samples in this SDG; no action was taken.	No
	Yes	---	A CCV was performed on 8/6/2018 09:46:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes.	No
	No	Hyexachlorocyclopentadiene in CCV 8/5/2018 10:17:30 (msd11).	A CCV was performed on 8/5/2018 10:17:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, with the exception of hexachlorocyclopentadiene (28%). RRFs were all above 0.01. Hexachlorocyclopentadiene was not detected in any samples in this SDG; no action was taken.	No
	No	Hexachlorocyclopentadiene in CCV 8/6/2018 09:31:30 on instrument msd11 (first analysis of TA-SW-03 on 7/27/2018, TA-SW-04 on 7/27/2018, TA-SW-02 on 8/6/2018).	A CCV was performed on 8/6/2018 09:31:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes except for hexachlorocyclopentadiene (-29%), and RRFs were all above 0.02. Hexachlorocyclopentadiene was not detected in any of the associated samples. The non-detects were qualified UJ.	Yes
	Yes	---	A CCV was performed on 8/7/2018 10:22:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/12/2018 10:19:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/13/2018 09:02:30 on instrumend msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: phenanthrene, anthracene, benzo(a)anthracene, chrysene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, and indeno(1,2,3-c,d)pyrene in TA-SB-67 (0-1); naphthalene, acenaphthene, fluorene, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-c,d)pyrene in TA-SB-AOC-G-01 (1-2); naphthalene, acenaphthene, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-c,d)pyrene in TA-SB-AOC-G-02 (1-2); naphthalene, acenaphthene, benzo(a)anthracene, benzo(b)fluranthene, and indeno(1,2,3-c,d)pyrene in TA-SB-AOC-G-02 (6-7); caprolactam and acetophenone in TA-SW-04; and acetophenone in TA-SW-02.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	No	Multiple internal standards for TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6),TA-SB-AOC-G-02 (1-2) and TA-SB-AOC-G-02 (6-7).	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard) with the following exceptions: For the samples analyzed on 8/6/2018, IS-1 (1,4-dichlorobenzene-d4) recoveries for TA-SB-AOC-G-02 (1-2) and TA-SB-AOC-G-02 (6-7); IS-2 (naphthalene-d8) recoveries for TA-SB-AOC-G-01 (1-2) and TA-SB-AOC-G-01 (5-6); IS-3 (acenaphthene-d10), IS-5 (chrysene-d12), and IS-6 (perylene-d12) recoveries for TA-SB-AOC-G-01 (5-6), TA-SB-AOC-G-02 (1-2) and TA-SB-AOC-G-02 (6-7); IS-4 (phenanthrene-d10) recoveries for TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6),TA-SB-AOC-G-02 (1-2) and TA-SB-AOC-G-02 (6-7) were below the project limit but above 25% of standards. The above referenced samples were reanalyzed on 8/7/2018 and the 8/6/2018 results were not reported. The internal standard recoveries for the 8/7/2018 analysis were within the project limits. No action was taken based on the 8/6/2018 internal standard results.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TG24017
Lab: SHEALY
Media TA-TB-01 (07232018), TA-SW-03, TA-SW-04, and TA-SW-02 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	One cooler received slightly above the temperature limit.	The samples were received at 3.9°C and 5.3°C. Both coolers were received within 24 hours from sample collection, therefore no action was needed for samples received at 5.3°C. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	The surrogate recoveries were within the project limits of 70-130%	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recovery for dichlorodifluoromethane in TA-SW-02; LCS recoveries for bromomethane (methyl bromide), chloroethane, cyclohexane, acetone, and 2-butanone (MEK) for samples TA-SB-67 (0-1), TA-SB-67 (5-6), TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6), TA-SB-AOC-G-02 (1-2), and TA-SB-AOC-G-02 (6-7).	All LCS recoveries were wthin the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 79272, the recovery for dichlorodifluoromethane (133%) was above the project limit of 130%. Associated samples include TA-SW-02. Dichlorodifluoromethane was not detected in TA-SW-02; no action was taken. For the LCS associated with Batch 79754, the recovery for bromomethane (245%), chloroethane (226%), and cyclohexane (139%) were above the project limit of 130%, while the recoveries for acetone (56%) and 2-butanone (64%) were below the project limit of 70%. Assocated samples include TA-SB-67 (0-1), TA-SB-67 (5-6), TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6), TA-SB-AOC-G-02 (1-2), and TA-SB-AOC-G-02 (6-7). The bromomethane, chloroethane, and cyclohexane results in the associated samples were qualified (detects qualified J+, no action for non-detects), and the acetone and 2-butanone results in the associated samples were qualified (detects were qualified J- and non-detects were qualified UJ).	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	No MS and/or MSD recoveries performed for any of the samples.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	One trip blank (TA-TB-01(07232018)) was collected for this SDG. No target analytes were detected. No action was taken based on the trip blank results.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate analysis was conducted for any samples in this SDG.	No
Initial Calibration	Yes	---	An initial calibration was performed on 7/13/2018 13:28:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. An initial calibration was performed on 7/30/2018 15:46:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 7/13/2018 16:07:30 (msd5), and the %D values were within 25%.	No
	Yes	---	ICV was performed on 7/30/2018 16:37:30 (msd15), and the %D values were within 25%.	No
	No	Dichlorodifluoromethane in CCV performed on 7/26/2018 20:33:30 (TA-TB-01 (0723018), TA-SW-03, and TA-SW-04).	CCV was performed on 7/26/2018 20:33:30 (msd5). The %D values for all target analytes were below 25% with the exception of dichlorodifluoromethane (29%). The RRFs were greater than 0.01. Dichlorodifluoromethane was not detected in the associated samples (TA-TB-01 (0723018), TA-SW-03, and TA-SW-04); no action was taken based on the CCV results.	No
	No	Dichlorodifluoromethane in CCV performed on 7/30/2018 20:12:30 (msd5) (TA-SW-02).	CCV was performed on 7/30/2018 20:12:30 (msd5). The %D values for all target analytes were below 25% with the exception of dichlorofluoromethane (33.5%) The RRFs were greater than 0.01. Dichlorodifluoromethane was not detected in the assocated sample (TA-SW-02); no action was taken based on the CCV results.	No
	Yes	---	CCV was performed on 8/03/2018 08:14:30 (msd15). The %D values for all target analytes were below 25%.	No
Target Analyte Identification	No	Various target analytes in multiple samples	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: methylene chloride in TA-SB-67 (5-6); methylene chloride, cyclohexane, and tetrachloroethane in TA-SB-AOC-G-01 (1-2); acetone in TA-SW-03; acetone in TA-SW-04; and acetone in TA-SW-02.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	All soil samples had solid percentage greater than 70%.	No

Project Name/No. Michigan Project
SDG: TG24017
Lab: SHEALY
Media TA-TB-01 (07232018), TA-SW-03, TA-SW-04, and TA-SW-02 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	One cooler received slightly above the temperature limit.	The samples were received at 3.9°C and 5.3°C. Both coolers were received within 24 hours from sample collection, therefore no action was needed for samples received at 5.3°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	For mercury, MS/MSD analysis was performed for TA-SB-67 (5-6). The MS/MSD recoveries were within the project limit (75-125%), and the RPD was within the project limit of 50% for soil. MS/MSD analysis was not performed for other metals for any samples in this SDG.	No
Method Blank	No	Boron and zinc in Batch 79206 (TA-SW-03, TA-SW-04, TA-SW-02).	No metal target analytes were detected in the method blanks except the following: boron and zinc were detected below RLs (13 ug/L vs. 50 ug/L and 3.2 ug/L vs. 10 ug/L) in the method blank associated with Batch 79206. Associated samples include TA-SW-02, TA-SW-03, TA-SW-04. Zinc was not detected in TA-SW-03; no action was taken. The rest of the boron and zinc results in the above referenced samples were below RLs; the results were reported at the RLs and qualified UB.	Yes
Instrument Blank	No	Boron, iron, beryllium, cadmium, thallium, silver detected in the instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Antimony was detected in CCB2 (Run #MS2080118C on 8/2/2018) at 1.073 ug/L, below the RL of 50 ug/L; no antimony results in this SDG were associated with this CCB2. Antimony was detected in CCB2 (Run #MS2080818B on 8/8/2018) at 0.656 ug/L, below the RL of 2 ug/L; no antimony results in this SDG were associated with this CCB2. Iron was detected in CCB2 (Run #MS2080118C on 8/2/2018) at 14.950 ug/L, below the RL of 20 ug/L; iron detected in the associated samples (i.e., TA-SW-02, TA-SW-03, TA-SW-04) were at least five times the levels detected in CCB2; no action was taken. Iron was detected in CCB4 (Run #MS2080818B on 8/9/2018) at 13.03 ug/L, below the RL of 20 ug/L, no iron results in this SDG were associated with this CCB4. Sodium was detected in CCB3 (Run #MS2080718C on 8/8/2018) at 154 ug/L, below the RL of 400 ug/L; sodium detected in the associated samples (i.e., TA-SW-02, TA-SW-03, TA-SW-04) were at least five times the levels detected in CCB3; no action was taken. Silver was detected in ICB1 (Run #MS2080818B on 8/8/2018) at 0.375 ug/L, below the RL of 1 ug/L, no silver results in this SDG were associated with this ICB1.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	Initial calibrations performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	No	Aluminum, arsenic, chromium, cobalt, copper, nickel, selenium, silver, vanadium, and zinc.	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP) with the following exception, and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%). CCV3 for Run MS2080118C on 8/2/2018 had recovery for zinc below the limit (89% vs. 90%). No project samples were associated with this CCV. CCV2 for Run MS2080718C on 8/8/2018 had recoveries for arsenic, chromium, cobalt, copper, nickel, selenium, silver, vanadium, and zinc below the limit (86%, 89%, 88%, 83%, 85%, 85%, 89%, 89%, 86%). CCV3 for Run MS2080718C on 8/8/2018 had recoveries for aluminum, arsenic, chromium, cobalt, copper, nickel, selenium, silver, and zinc below the limit (89%, 86%, 89%, 88%, 83%, 84%, 85%, 88%, 86%). The aluminum, arsenic, chromium, cobalt, selenium, silver, vanadium, and zinc results for the samples associated with CCV2 and CCV3 of Run MS2080718C on 8/8/2018 (TA-SW-02, TA-SW-03, TA-SW-04) were qualified (detects were qualified J- and non-detects were qualified UJ). Copper or nickel results for the above referenced samples were not impacted. CCV3 for Run MS2080818B on 8/8/2018 had recovery for silver below the limit (89% vs. 90%). No silver results were associated with this CCV3.	Yes
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA	---	Serial dilution was not performed for any samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TG24017
Lab: SHEALY
Media TA-TB-01 (07232018), TA-SW-03, TA-SW-04, and TA-SW-02 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard	No	Scandium and yttrium internal standard responses.	The %RI was within 60-125% of the response in the calibration blank for all internal standards with the following exceptions: Scandium for TA-SB-67(5-6) (67%, 59% relative to preceeding CCB). The associated aluminum, arsenic, beryllium, boron, chromium, cobalt, iron, magnesium, nickel, sodium, titanium, and vanadium results for TA-SB-67(5-6) were qualified (detects were qualified J and no action for non-detects). Yttrium for TA-SB-AOC-G-01(5-6) (145%), TA-SB-AOC-G-02(6-7) first analysis on 8/9/2018 (186%), TA-SB-AOC-G-02(6-7) 3rd analysis on 8/10/2018. None of the samples were associated with the internal standard for yttrium. No action was taken.	Yes
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	All soil samples had solid percentage greater than 70%.	No
Field Duplicate Analysis	NA	---	No field duplicate analysis was conducted for any samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TG24017
Laboratory: SHEALY
Media TA-TB-01 (07232018), TA-SW-03, TA-SW-04, and TA-SW-02 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	One cooler received slightly above the temperature limit.	The samples were received at 3.9°C and 5.3°C. Both coolers were received within 24 hours from sample collection, therefore no action was needed for samples received at 5.3°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes for soil samples and 14 days for cyanide, and 28 days for the other analytes for aqueous samples). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium in TA-SB-AOC-G-01 (1-2).	MS/MSD recoveries were within the project limits of 70-130% with the following exceptions. The RPDs were within 50%, except the laboratory reported the RPD between the MS/MSD for hexavalent chromium for TA-SB-67 (0-1) as 200%, while GZA calculated the RPD as 26%. In addtiton, the spiked concentrations were different for the two analyses. No action was taken. The MS/MSD recoveries of hexavalent chromium in TA-SB-AOC-G-01 (1-2) (-2.4%/-6.4%) were below the project limit of 75%. The hexavalent chromium result for TA-SB-AOC-G-01 (1-2) was qualified J-. The MS/MSD recoveries of phosphorus in TA-SB-AOC-G-01 (5-6) (161%/157%) were above the project limits of 75-125%. The original sample concentration was greater than 4 times the spike concentraton; no action was taken.	Yes
Method Blank	No	Hardness, nitrate-nitrite, total cyanide, ammonia.	Hardness was detected in the method blank associated with Batch 79192 at 2.0 mg/L, below the RL of 10 mg/L. Associated samples include TA-SW-03 and TA-SW-04. Hardness was detected in the associated samples above the RLs and five times the level detected in the method blank. No action was taken. Nitrate-nitrite was detected in the method blank associated with Batch 79248 at 0.0051 mg/L, below the RL of 0.020 mg/L. Associated samples included TA-SW-03, TA-SW-02, and TA-SW-04. Nitratge-nitrite was detected in the associated samples above the RLs and five times the level detected in the method blank. No action was taken. Total cyanide was detected in the method blank associated with Batch 79407 at 0.013 mg/kg, below the RL of 0.12 mg/kg. TA-SB-67 (0-1), TA-SB-67 (5-6), TA-SB-AOC-G-01 (1-2), TA-SB-AOC-G-01 (5-6), TA-SB-AOC-G-02 (1-2), TA-SB-AOC-G-02 (6-7). The cyanide results in the above referenced samples were qualified (detections below the RLs were raised to the RLs and qualified UB; no action for detections above the RLs or non-detects). Ammonia was detected in the method blank associated with Batch 79655 at 0.035 mg/L, below the RL of 0.10 mg/L. Associated samples included TA-SW-03, TA-SW-02, and TA-SW-04. Ammonia was not detected in the associated samples. No action was taken. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple inorganic non-metal analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	No	---	Initial calibrations performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	No	CRQL check for ammonia and phosphorus.	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D specified in Table D.1.1) of the QAPP with the following exceptions: CCV for phosphorus associated with TA-SW-02 was slightly above the limit (113% vs. 110%). The phosphorus detection in TA-SW-02 was qualified J+. ICV for chloride performed on 7/31/2018 19:59:30 had %D outside the project limits (-47% vs. -10-10%). All aqueous samples in this SDG were associated with this ICV. Chloride results for TA-SW-02, TA-SW-03, and TA-SW-04 were qualified J-. CCV for hexavalent chromium performed on 8/13/2018 03:01:30 had %D at 2873%, which exceeds the 10% project limit. No project samples were associated with this CCV; no action was taken.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No

Project Name/No. Michigan Project
SDG: TG24017
Laboratory: SHEALY
Media TA-TB-01 (07232018), TA-SW-03, TA-SW-04, and TA-SW-02 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Solids Percentage	Yes	---	All soil samples had solid percentage greater than 70%.	No
Field Duplicate Analysis	NA	---	No field duplicate analysis was conducted for any samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TG24016
Lab: SHEALY
Media TA-TB-01 (072418) (aqueous), all other sediment
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Cooler temperature (5.3°C) slightly above project limit (4°C).	The samples were collected on 7/23/2018 and 7/24/2018 and received at 3.9°C and 5.3°C, above the project limit of 4°C, on 7/24/2018 and 7/25/2018. No action was taken based on the cooler temperature exceedance. All samples were extracted and analyzed within the holding time limits specified in the QAPP (14 days from collection to extraction and 40 days from extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Bis(2-chloroethyl)ether (Batch 79044; associated samples TA-SED-T10-ISLAND (4-5), TA-SED-T1-1 (0-1), TA-SED-T1-1 (0-1) DUP, TA-SED-T1-3 (0-1), and TA-SED-T1-3 (0-1) DUP).	The LCS recoveries were within the laboratory established limits except that for Batch 79044, the LCS recovery for bis(2-chloroethyl)ether was above the laboratory established limit (107% vs. 32-105%). Bis(2-chloroethyl)ether was not detected in the associated samples. No action was taken based on the LCS results.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene in TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP.	Two field duplicate pairs were collected for this SDG (TA-SED-T1-1 (0-1) and TA-SED-T1-1 (0-1) DUP; TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP). In field duplicate pair TA-SED-T1-1 (0-1) and TA-SED-T1-1 (0-1) DUP, the RPD for all analytes detected in both samples was below 50%. Any analytes detected in only one sample were detected at a concentration below 2 times the RL. No action was taken based on the field duplicate results for samples TA-SED-T1-1 (0-1) and TA-SED-T1-1 (0-1) DUP. In field duplicate pair TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP, the RPD was above 50% for benzo(a)anthracene (146.67%), chrysene (157.32%), fluoranthene (169.23%), and pyrene (164.04%). The absolute differences were greater than 2 times the RL. Anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and phenanthrene were detected at a concentration >2x RL in TA-SED-T1-3 (0-1) DUP but not detected in TA-SED-T1-3 (0-1). Impacted results in samples TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP were qualified J if detected and UJ if non-detect.	Yes
Initial Calibration	Yes	---	Initial calibration was conducted on 7/18/2018 09:19:30 (msd10) and 7/19/2018 09:33:30 (msd11). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	No	Benzidine in ICV performed on 7/18/2018 16:41:30 (msd10).	An ICV was performed on 7/18/2018 12:59:30 and 16:41:30 (msd10). The ICV %D did not exceed the project limit of 25% for any target analytes, except benzidine (28.6%). RRFs were all above 0.01. Benzidine in samples TA-SED-T10-ISLAND (4-5), TA-SED-T1-1 (0-1), TA-SED-T1-1 (0-1) DUP, TA-SED-T1-3 (0-1), and TA-SED-T1-3 (0-1) DUP was impacted. Benzidine was not detected in any of these samples, so no action was taken.	No
	Yes	---	An ICV was performed on 7/19/2018 13:17:30 and 17:03:30 (msd11). The ICV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 8/6/2018 09:46:30 and 10:10:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
	No	Hexachlorocyclopentadiene in CCV on 8/2/2018 09:25:30.	A CCV was performed on 8/2/2018 09:25:30 and 09:49:30. The CCV %D did not exceed the project limit of 25% for any target analytes except hexachlorocyclopentadiene (-28.9%). RRFs were all above 0.01. This CCV does not impact any samples in the SDG. No action was taken.	No
	No	Hexachlorocyclopentadiene in CCV on 8/5/2018 10:17:30.	A CCV was performed on 8/5/2018 10:17:30 and 10:42:30. The CCV %D did not exceed the project limit of 25% for any target analytes, except hexachlorocyclopentadiene (27.7%). RRFs were all above 0.01. Hexachlorocyclopentadiene was not detected in any of the impacted samples (TA-SED-EASTDAM(0-0.5), TA-SED-T10-ISLAND (0-1), and TA-SED-T10-ISLAND (2-3)). No action was taken.	No

Project Name/No. Michigan Project
SDG: TG24016
Lab: SHEALY
Media TA-TB-01 (072418) (aqueous), all other sediment
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?

Target Analyte Identification	No	Various target analytes in multiple samples	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions:
			naphthalene in TA-SED-EASTDAM(0-0.5);
			acenaphthene in TA-SED-EASTDAM(0-0.5), TA-SED-T1-3 (0-1) DUP;
			benzo(a)anthracene in TA-SED-EASTDAM(0-0.5), TA-SED-T10-ISLAND(0-1), TA-SED-T1-1 (0-1), TA-SED-T1-1 (0-1) DUP, TA-SED-T1-3 (0-1), TA-SED-T1-3 (0-1) DUP; indeno(1,2,3-c,d)pyrene in TA-SED-EASTDAM(0-0.5), TA-SED-T10-ISLAND(0-1), TA-SED-T1-3 (0-1) DUP; phenanthrene in TA-SED-T10-ISLAND(0-1), TA-SED-T10-ISLAND(2-3);
			benzo(b)fluoranthene in TA-SED-T10-ISLAND(0-1), TA-SED-T10-ISLAND(2-3), TA-SED-T1-1 (0-1), TA-SED-T1-1 (0-1) DUP, TA-SED-T1-3 (0-1) DUP; benzo(g,h,i)perylene in TA-SED-T10-ISLAND(0-1); benzo(a)pyrene in TA-SED-T10-ISLAND(2-3); caprolactam in TA-SED-T1-1 (0-1), TA-SED-T1-3 (0-1), TA-SED-T1-3 (0-1) DUP; pyrene in TA-SED-T1-1 (0-1); chrysene in TA-SED-T1-1 (0-1), TA-SED-T1-3 (0-1).
			
			The mass spectra baselines exhibited slight irregularities for the following samples: TA-SED-EASTDAM(0-0.5), TA-SED-T1-1 (0-1), TA-SED-T1-3 (0-1) DUP.
				No

Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	All samples at solids percentage above 55.6%.	No

Project Name/No. Michigan Project
SDG: TG24016
Lab: SHEALY
Media TA-TB-01 (072418) (aqueous), all other sediment
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Reanalysis of sample TA-SED-T10-ISLAND(2-3) was performed outside of hold time. Cooler temperature (5.3°C) slightly above the project limit (4°C).	The samples were collected on 7/23/2018 and 7/24/2018 and received at 3.9°C and 5.3°C, above the project limit of 4°C, on 7/24/2018 and 7/25/2018. No action was taken based on the cooler temperature exceedance. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP, except reanalysis of sample TA-SED-T10-ISLAND(2-3), which was conducted on the 15th day after sample collection. Detections in the reanalysis were qualified J-, and non-detects were qualified UJ.	Yes
Surrogate Recovery	No	All surrogate recoveries in initial analysis of TA-SED-T10-ISLAND(2-3) on 8/3/2018 were above the limit.	All VOC surrogate recoveries met the required criteria of 70-130%, except in the initial analysis of TA-SED-T10-ISLAND(2-3) on 8/3/2018 for which the recoveries were above the limit (1,2-dichloroethane-d4 (148%), toluene-d8 (153%), and bromofluorobenzene (141%)). All surrogate recoveries in the reanalysis of sample TA-SED-T10-ISLAND(2-3) were within the limits. Non-detects in the initial analysis of TA-SED-T10-ISLAND(2-3) were not qualified, and detects were qualified J+.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Acetone, bromomethane, 2-butanone, chloroethane, and cyclohexane (Batch 79754).	All recoveries were within the project limits (70-130%) in the LCS analyses for Batches 78950 and 80054. Acetone (56%) and 2-butanone (64%) recovered below the limits in the LCS analysis associated with Batch 79754. Sample associated with this batch include all samples in this SDG but TA-TB-01(072418) and the 2nd analysis (8/7/2018) of TA-SED-T10-ISLAND(2-3). Non-detect acetone and 2-butanone results were qualified UJ, and detected results were qualified J- for the associated samples (i.e., all but TA-TB-01(072418) and the 2nd analysis on 8/7/2018 of TA-SED-T10-ISLAND(2-3)). Bromomethane (245%), chloroethane (226%), and cyclohexane (139%) recovered above the limits in the LCS analysis associated wtih batch 79754. Bromomethane, chloroethane, and cyclohexane was not detected in any project samples in this SDG; no action was taken.	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	Yes	---	One trip blank sample was included with this SDG (TA-TB-01 (072418)). No VOCs were detected in this trip blank. No action was taken based on the trip blank results.	No
Quantitation Limits	No	Multiple target analytes in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	Two field duplicate pairs were collected in this SDG (TA-SED-T1-1 (0-1) and TA-SED-T1-1 (0-1) DUP; TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP). Methyl acetate was the only target analyte detected in either field duplicate pair. RPDs were below 50%, the project limit for solids, between both pairs. No action was taken based on the field duplicate results.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5), on 8/7/2018 13:09:30 (instrument msd5), and on 7/30/2018 13:24:30 (instrument msd15) The results for all target analytes met the limits of either %RSDs below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 7/13/2018 16:07:30 (msd5). The %D values were all below 25%.	No
	Yes	---	ICV was performed on 8/7/2018 17:07:30 (msd5). The %D values were all below 25%.	No
	Yes	---	ICV was performed on 7/30/2018 16:37:30 (msd15). The %D values were all below 25%.	No
	No	Dichlorodifluoromethane and cyclohexane in CCV performed on 7/26/2018 20:33:30 (msd5).	CCV was performed on 7/26/2018 20:33:30 (msd5). The %D values were all below 25% except for dichlorodifluoromethane (29%) and cyclohexane (34%). RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane and cyclohexane were not detected in the only impacted sample, TA-TB-01 (072418). No action was taken.	No
	Yes	---	CCV was performed on 8/3/2018 08:14:30 (msd15). The %D values were all below 25%. RRFs all target analytes greater than 0.01.	No
Target Analyte Identification	No	Acetone in TA-SED-T10-ISLAND(2-3).	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exception: acetone in TA-SED-T10-ISLAND(2-3).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	All samples at solids percentage above 55.6%.	No

Project Name/No. Michigan Project
SDG: TG24016
Lab: SHEALY
Media TA-TB-01 (072418) (aqueous), all other sediment
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Cooler temperature (5.3°C) slightly above the project limit (4°C).	The samples were collected on 7/23/2018 and 7/24/2018 and received at 3.9°C and 5.3°C, above the project limit of 4°C, on 7/24/2018 and 7/25/2018. No action was taken based on the cooler temperature exceedance. All samples were processed and analyzed within the holding time limits specified in the QAPP. Metal samples were analyzed within 6 months from sample collection, and mercury samples were analyzed within 28 days from sample collection.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	No
Method Blank	No	Aluminum and zinc in the method blank associated with Batch 79023.	No metal TCLs were detected in the method blank except that aluminum and zinc were detected in the method blank associated with Batch 79023 at 9.1 mg/kg and 0.92 mg/kg, below the RLs of 10 mg/kg and 2.5 mg/kg, respectively. Aluminum and zinc were detected in all samples at a concentration greater than 5 times the RL. No action was taken based on the method blank results.	No
Instrument Blank	No	Boron, iron, silver in multiple instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. There were detections in the ICB and several CCBs associated with Run #MS2080818B on 8/8/2018, but these did not impact any project samples in this SDG. Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5, and CCB6 (Run #MS2080918C on 8/9/2018) at 0.866 ug/L, 0.909 ug/L, 0.940 ug/L, 1.295 ug/L, 0.790 ug/L, and 0.762 ug/L, below the RL of 50 ug/L. Silver was detected in ICB1 (Run #MS2081018A on 8/10/2018) at 0.240 ug/L, below the RL of 1 ug/L. Boron was detected in CCB1, CCB2, and CCB3 (Run #MS2081018A on 8/10/2018) at 1.126 ug/L, 1.366 ug/L, and 0.947 ug/L, below the RL of 50 ug/L. Iron was detected in CCB2 and CCB3 (Run #MS2081018A on 8/10/2018) at 10.190 ug/L and 13.500 ug/L, below the RL of 50 ug/L. Silver, boron, and iron results from 8/10/2018 were not reported. All boron results in this SDG were impacted by the ICB and CCBs on 8/9/2018. The non-detect results and detections above the RLs were not qualified; the detections below the RLs were reported at the respective RLs and qualified UB.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	For mercury, a 5-point calibration was performed on 7/31/2018 and the correlation coefficient was greater than 0.99. 4-point initial calibrations were conducted for all metals but mercury on 8/9/2018 and 8/10/2018 and the correlation coefficients were greater than the QAPP limit (0.99).	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP) with the following exceptions. Cobalt (112%) and silver (85%) in CCV2 (Run #MS2080818B on 8/8/2018 19:13) and silver in CCV3 (87%) (Run #MS2080818B on 8/8/2018 20:23) recovered outside the limits. No project samples were associated with this run; therefore no action was taken based on the CCV results. The CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA	---	Serial dilution was not conducted in this SDG.	No
Internal Standard	Yes		The %RI was within 60-125% of the response in the calibration blank.	No
ICP Linear Range	No	Molybdenum in CCV on 8/9/2018 19:19:24	All sample results in this SDG were within the ICP linear range with the following exception. The laboratory noted molybdenum as outside of the range in the CCV performed on 8/9/2018 at 19:19:24. No action was taken on the project samples.	No
Solids Percentage	Yes	---	All samples at solids percentage above 55.6%.	No

Project Name/No. Michigan Project
SDG: TG24016
Lab: SHEALY
Media TA-TB-01 (072418) (aqueous), all other sediment
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	No	Barium in TA-SED-T1-1 (0-1) and TA-SED-T1-1 (0-1) DUP. Aluminum, magnesium, titanium, and vanadium in TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP.	For all the metals, either the RPD values between the original sample and the corresponding duplicate were below the project of 50% for solids, the analyte was not detected in either sample, the analyte was detected in one sample at less than twice the RL but not the other, or at least one detection was below 5 times the RL with the absolute difference less than 2 times the RL with the following exceptions. Barium in TA-SED-T1 (0-1) and TA-SED-T1 (0-1) DUP (56%). Aluminum, magnesium, titanium, and vanadium in TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP (58%, 102%, 121%, 61%). The barium results in TA-SED-T1 (0-1) and TA-SED-T1 (0-1) DUP and the aluminum, magnesium, titanium, and vanadium results in TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG24016
Laboratory: SHEALY
Media TA-TB-01 (072418) (aqueous), all other sediment
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	One cooler was received above the temperature specified in the QAPP. Samples TA-SED-T10-ISLAND (0-1) and TA-SED-T10-ISLAND (2-3) were analyzed for hexavalent chromium outside of holding time.	The samples were collected on 7/23/2018 and 7/24/2018 and received at 3.9°C and 5.3°C, above the project limit of 4°C, on 7/24/2018 and 7/25/2018. No action was taken based on the cooler temperature exceedance. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes) with the following exception. Samples TA-SED-T10-ISLAND (0-1) and TA-SED-T10-ISLAND (2-3) were analyzed for hexavalent chromium on the 30th day, slightly outside of the hold time of 30 days specified in the QAPP. No action was taken for the slight exceedance of holding time limit.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	The MS/MSD analysis was performed for TA-SED-EASTDAM(0-0.5) for total cyanide analysis. The MS/MSD recoveries were within the limits of 75-125% and the RPD was below 50%. MS/MSD analysis was not performed for any other inorganics.	No
Method Blank	No	Cyanide in the method blank for Batch 79407 (associated with all samples in this SDG).	Total cyanide was detected in the method blank associated with Batch 79407 at a concentration of 0.013 mg/kg, below the reporting limit of 0.12 mg/kg. All samples in this SDG were analyzed for total cyanide in Batch 79407 and were detected below the reporting limit. The total cyanide results in all samples were qualified as non-detects at the respective RLs. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and the correlation coefficients were greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV, and CRQL Check Standard recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP for ICV and CCV, and 70-130% for CRQL check standard). There were some deficiencies for phosphorus and hexavalent chromium, but they did not bracket samples in this SDG.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	All samples at solids percentage above 55.6%.	No
Field Duplicate Analysis	Yes	---	Two field duplicate pairs were collected in this SDG (TA-SED-T1-1 (0-1) and TA-SED-T1-1 (0-1) DUP and TA-SED-T1-3 (0-1) and TA-SED-T1-3 (0-1) DUP). Hexavalent chromium was not detected in either pair. Ammonia was detected below the RL in TA-SED-T1-3 (0-1) DUP but not detected in TA-SED-T1-3 (0-1). The RPD values for all other analytes between the two samples in each pair were within the project limit of 50% for solids, except ammonia in TA-SED-T1 (0-1) and TA-SED-T1 (0-1) DUP (98%). Both results were within 5 times the RL and the absolute difference was less than twice the RL. No action was taken based on the field duplicate results.	No

Project Name/No. Michigan Project
SDG: TG21001
Lab: SHEALY
Media TA-TB-01(07202018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were collected on 7/20/2018 and received at 3.7°C on 7/21/2018. The sample was extracted and analyzed within the holding time limits specified in the QAPP.	No
Surrogate Recovery	No	Recovery of phenol-d5 in sample TA-SB-72 (1-2)DUP.	All SVOC surrogate recoveries met the laboratory established limits, except phenol-d5 (24% v. 26-148%) in sample TA-SB-72 (1-2)DUP. The low phenol recovery impacted acid compounds in sample TA-SB-72 (1-2)DUP. All associated results were non-detect and qualified UJ.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	No	Benzo(k)fluoranthene, chrysene, 3,3'-dichlorobenzidine, fluoranthene, pyrene, benzo(a)anthracene, and benzo(b)fluoranthene in at least one of the two MS analyses performed on sample TA-SB-71(1-2).	MS analysis was performed twice on sample TA-SB-71(1-2). The amount of spike differed between the two analyses. All recoveries were within the laboratory established limits, except benzo(k)fluoranthene (137% and 147% v. 47-130%), chrysene (168% and 196% v. 45-126%), 3,3'-dichlorobenzidine (0% and 0% v. 10-119%), fluoranthene (176% and 187% v. 50-123%), pyrene (140% and 148% v. 47-119%), benzo(b)fluoranthene (167% v. 28-139%), and benzo(a)anthracene (134% v. 47-121%). Benzo(k)fluoranthene, chrysene, fluoranthene, pyrene, benzo(a)anthracene, and benzo(b)fluoranthene were all detected in sample TA-SB-71 (1-2) and were qualified J+ based on the elevated MS recoveries. 3,3'-dichlorobenzidine was not detected and was rejected with qualifier UR based on the low MS recovery.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field/Trip Blank	NA	---	No trip/field blank samples were collected for SVOC analysis in this SDG.	No
Reporting Limits	No	Multiple SVOCs in project samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Anthracene in samples TA-SB-72(1-2) and TA-SB-72 (1-2) DUP.	One field duplicate pair was collected in this (SDG TA-SB-72(1-2) and TA-SB-72(1-2) DUP). Acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, carbazole, chrysene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene were detected in both samples. The RPDs were below the project limit of 50% for solid samples, except for anthracene (57%). The detected anthracene concentrations were less than five times the reporting limit, so the absolute difference was calculated. The absolute difference was greater than 2 times the reporting limit. Dibenzofuran was detected below the reporting limit in sample TA-SB-72(1-2) but not in sample TA-SB-72(1-2)DUP. The anthracene results in samples TA-SB-72(1-2) and TA-SB-72(1-2) DUP were qualified J. No other actions were taken based on the field duplicate analysis.	Yes
Initial Calibration	Yes	---	Initial calibration was conducted on 7/19/2018 09:33:30 (msd11). For all target analytes, the initial calibration %RSDs were below 20% or R^2 greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	Initial calibration was conducted on 7/19/2018 09:33:30 (msd11). For all target analytes, the initial calibration %RSDs were below 20% or R^2 greater than 0.99.	No
	Yes	---	A CCV was performed on 7/31/2018 10:03:30 and on 7/31/2018 10:28:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
	No	Hexachlorocyclopentadiene in CCV performed on 8/1/2018 09:15:30 (associated samples TA-SB-71(1-2), TA-SB-72(1-2), TA-SB-72(1-2) DUP).	A CCV was performed on 8/1/2018 09:15:30, on 8/1/2018 09:39:30 (msd11), and on 8/1/2018 10:04:30. The CCV %D did not exceed the project limit of 25% for any target analytes, except hexachlorocyclopentadiene (-31.6%). Hexachlorocyclopentadiene was not detected in any sample, and the non-detect results for TA-SB-71(1-2), TA-SB-72(1-2), TA-SB-72(1-2) DUP were qualified UJ due to the CCV exceedence indicating decreased sensitivity. RRFs were all above 0.01.	Yes
	No	Hexachlorocyclopentadiene in CCV performed on 8/2/2018 09:25:30 (TA-SB-72(3-4), TA-SB-73(1-2), TA-SB-73(6-7), TA-SB-74(1-2), TA-SB-74(5-6)).	A CCV was performed on 8/2/2018 09:25:30 and on 8/2/2018 09:49:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes, except hexachlorocyclopentadiene (-28.9%). Hexachlorocyclopentadiene was not detected in any sample, and these non-detect results in the associated samples (TA-SB-72(3-4), TA-SB-73(1-2), TA-SB-73(6-7), TA-SB-74(1-2), TA-SB-74(5-6)) were qualified UJ due to the CCV exceedance indicating decreased sensitivity. RRFs were all above 0.01.	Yes
Target Analyte Identification	No	Various target analytes in multiple project samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: naphthalene, benzo(a)anthracene, and indeno(1,2,3-c,d)pyrene in TA-SB-71 (1-2); naphthalene, acenaphthene, dibenzofuran, fluorene, carbazole, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-c,d)pyrene in TA-SB-72 (1-2); naphthalene, acenaphthene, fluorene, carbazole, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, and indeno(1,2,3-c,d)pyrene in TA-SB-72 (1-2) DUP; naphthalene, acenaphthene, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-c,d)pyrene in TA-SB-72 (3-4)); phenol, acenaphthylene, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-c,d)pyrene in TA-SB-73 (1-2); pyrene and benzo(ghi)perylene in TA-SB-73 (6-7); and naphthalene, antrhacene, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-c,d)pyrene in TA-SB-74 (1-2).	No

Project Name/No. Michigan Project
SDG: TG21001
Lab: SHEALY
Media TA-TB-01(07202018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	Percent solids for all soil samples in the SDG was 80.0% or higher.	No

Project Name/No. Michigan Project
SDG: TG21001
Lab: SHEALY
Media TA-TB-01(07202018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were collected on 7/20/2018 and received at 3.7°C on 7/21/2018. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	No	Recovery of bromofluorobenzene surrogate in samples TA-SB-72 (1-2), TA-SB-72 (1-2) DUP, and TA-SB-74 (1-2).	All VOC surrogate recoveries met the required criteria of 70-130%, except bromofluorobenzene in samples TA-SB-72 (1-2) (69%), TA-SB-72 (1-2) DUP (68%), and TA-SB-74 (1-2) (62%). All VOCs in TA-SB-72 (1-2), TA-SB-72 (1-2) DUP, and TA-SB-74 (1-2) were qualified (detects were qualified J- and nondetects were qualified UJ based on the low surrogate recovery results).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recoveries of bromomethane, chloroethane, and dichlorodifluoromethane associated with all samples in the SDG. LCS recovery of 2-butanone associated with sample TA-SB-74 (5-6).	LCS results were within the project limits of 70-130% in the LCS samples with the following exceptions. Bromomethane recovered above the limit in the LCS samples associated with Batches 79018 (239%), 79455 (271%), and 79610 (243%). Chloroethane recovered above the limit in the LCS samples associated with Batches 79018 (270%), 79455 (270%), and 79610 (239%). 2-butanone recovered slightly above the limit in the LCS associated with Batch 79610 (131%). Dichlorodifluoromethane recovered below the limit in the LCS samples associated with Batches 79018 (65%), 79455 (62%), and 79610 (54%). All samples in this SDG were associated with these three batches. Bromomethane and chloroethane were not detected in any sample in the SDG; no action was taken based on the LCS recovery results. 2-Butanone was non-detect in sample TA-SB-74 (5-6), the only sample in Batch 79610, and this non-detect result was not qualified based on the LCS recovery. Dichlorodifluoromethane was not detected in any sample in the SDG. UJ qualifiers were added to the non-detect dichlorodifluoromethane results based on the low LCS recovery.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Recoveries of bromomethane, chloroethane, and dichlorodifluoromethane in MS analysis performed on sample TA-SB-71 (1-2).	MS analysis was performed twice for sample TA-SB-71 (1-2). The amount of spike added was different for the two analyses. Recoveries of bromomethane (255%/216%) and chloroethane (294%/249%) were above the project limit (130%) in both MS analyses. Recovery of dichlorodifluoromethane (68%) was slightly below the project limit (70%) in the second MS analysis. All impacted analytes were non-detect in sample TA-SB-71 (1-2). Qualifiers were not added based on the elevated MS recoveries. The non-detect dichlorodifluoromethane result was qualified UJ based on the low MS recovery.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	NA	---	Sample TA-TB-01 (07202018) was submitted for VOC analysis, but analysis is not included in the laboratory report.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected in this (SDG TA-SB-72(1-2) and TA-SB-72(1-2) DUP). Cyclohexane and methyl acetate were detected in both samples. The RPD for cyclohexane was below the project limit of 50% for solid samples while the RPD for methyl acetate was 57%. Methyl acetate was detected below the reporting limit in both samples. Methylcyclochexane was detected below the reporting limit in sample TA-SB-72 (1-2) but not in TA-SB-72 (1-2)DUP. No other analytes were detected in either sample, and no action was taken based on the field duplicate results.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/23/2018 12:21:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 7/23/2018 15:28:30, and the %D values were within 25% for all target analytes.	No
	No	Bromomethane, chloroethane, and cyclohexane in the CCV associated with sample TA-SB-71 (1-2).	CCV was performed on 7/27/2018 09:03:30 (msd15). The %D values were all below 25%, except bromomethane (48.6%), chloroethane (34.9%), and cyclohexane (30.1%/27.3%). RRFs for all target analytes were greater than 0.01. The CCV performed on 7/27/2018 impacted only sample TA-SB-71 (1-2). Bromomethane and chloroethane were non-detect in this sample and were not qualified based on the CCV. The detected cyclohexane result was qualified J+.	Yes
	Yes	---	CCV was performed on 8/1/2018 at 08:48:30 (msd15.i). The %D values were all below 25%. RRFs for all target analytes were greater than 0.01.	No
	No	Acetone in the CCV associated with TA-SB-74(5-6) .	CCV was performed on 8/2/2018 at 09:01:30. The %D values were all below 25%, except acetone (67.8%). RRFs for all target analytes were greater than 0.01. Only TA-SB-74(5-6) was associated with this CCV. Acetone was not detected in the impacted sample; no action was taken.	No
Target Analyte Identification	No	Various target analytes in multiple project samples	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: cyclohexane in samples TA-SB-71 (1-2), TA-SB-72 (1-2), TA-SB-72 (1-2) DUP, and TA-SB-74 (1-2); methylcyclohexane in sample TA-SB-72 (1-2); acetone in sample TA-SB-72 (1-2) DUP; 2-butanone in sample TA-SB-72 (1-2) DUP; methyl acetate in sample TA-SB-72 (3-4)); and chloromethane in sample TA-SB-73 (1-2).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	Percent solids for all soil samples in the SDG was 80.0% or higher.	No

Project Name/No. Michigan Project
SDG: TG21001
Lab: SHEALY
Media TA-TB-01(07202018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were collected on 7/20/2018 and received at 3.7°C on 7/21/2018. All samples were processed and analyzed within the holding time limits specified in the QAPP. Metal samples analyzed via EPA method 6020B were analyzed within 6 months from sample collection, and mercury analysis via EPA method 7471B was performed within 28 days from sample collection.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	MS recovery of barium, beryllium, boron, copper, lead, sodium, and zinc in the MS performed twice on sample TA-SB-71(1-2).	The MS analysis was performed twice for metals analysis via EPA method 6020B on sample TA-SB-71(1-2). The amount of spike added was different for the two analyses. 42 mg/kg was added for all analytes except iron, magnesium, and sodium, in the first matrix spike. 420 mg/kg was added for iron, magnesium, and sodium. In the second matrix spike, 41 mg/kg and 410 mg/kg were added, respectively. Recovery was above the QAPP limit of 125% for aluminum (6830%/3960%), iron (383%), magnesium (707%/2360%), and titanium (248%) in both matrix spikes. Recovery was below the QAPP limit for iron (-588%) and titanium (60%) in the second matrix spike. Because the original samples concentrations were >4x the spike concentrations (2,500 v. 42 and 41), (20,000 v. 420 and 410), (11,000 v. 420 and 410), and (220 v. 42 and 41) for aluminum, iron, magnesium, and titatnium, respectively, qualifiers were not added to those results in sample TA-SB-71(1-2) based on the MS results. Recoveries were above the QAPP limit of 125% for barium (184%), boron (134%/131%), and sodium (166%/144%). J qualifiers were added to these detected results in sample TA-SB-71(1-2). Boron was not detected; therefore, this result was not qualified in sample TA-SB-71(1-2) based on the MS results. Recoveries were below the QAPP limit of 75% for beryllium (66%/70%), copper (60%), lead (52%), and zinc (38%). Beryllium was detected below the reporting limit, and copper, lead, and zinc were detected above the reporting limit in sample TA-SB-71(1-2). J qualifiers were added to these results based on the MS/MSD results. The MS analysis was performed twice for mercury analysis via EPA method 7471B on sample TA-SB-71(1-2). The amount of spike was different for the two analyses. Recovery was within the QAPP limit for both MS samples. The post digest spike recoveries were within the project limits (75-125%) with the exception of aluminum (164.9%), iron (137.5%), and magnesium (149.5%).	Yes
Method Blank	No	Aluminum and zinc in the method blank associated with all samples in the SDG.	Aluminum was detected at 9.1 mg/kg, and zinc was detected at 0.92 mg/kg, below the respective reporting limits of 10 mg/kg and 2.5 mg/kg in the method blank associated with metals batch 79023. No other metal TCLs were detected in the method blank. Qualifiers were not added based on the detections of aluminum and zinc because sample aluminum concentrations ranged from 1,700-5,500 mg/kg, more than 5 times the concentration in the blank, and sample zinc concentrations ranged from 21-250 mg/kg, more than 5 times the concentration in the blank. No action was taken based on the method blank results.	No
Instrument Blank	No	Silver in ICB1, zinc in CCB2, iron in CCB3, and boron in CCB1, CCB2, CCB3, and CCB4 of Run#MS2080818B 6 on 8/8/2018. Boron in CCB1, CCB2, CCB3, CCB4, and CCB5 of Run#MS2080918C 6 on 8/9/2018.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Silver was detected in ICB1 (Run#MS2080818B 6 on 8/8/2018) at 0.375 ug/L, below the RL of 0.500 ug/L. Zinc was detected in CCB2 (Run#MS2080818B 6 on 8/8/2018) at 4.472 ug/L, below the RL of 5 ug/L. Iron was detected in CCB 3 (Run#MS2080818B 6 on 8/8/2018) at 17.720 ug/L, below the RL of 25 ug/L. Boron was detected in CCB1, CCB2, CCB3, and CCB4 (Run#MS2080818B 6 on 8/8/2018) at 0.792 ug/L, 0.873 ug/L, 0.759 ug/L, and 1.115 ug/L, below the RL of 25 ug/L. Boron was detected in CCB1, CCB2, CCB3, CCB4, and CCB5 (Run#MS2080918C 6 on 8/9/2018) at 0.866 ug/L, 0.909 ug/L, 0.940 ug/L, 0.888 ug/L, and 1.295 ug/L, below the RL of 25 ug/L. Silver results from analysis on 8/8/2018 were not reported. The concentrations of zinc and iron in impacted samples were more than 2 times the RLs. No action was taken for silver, iron, and zinc results based on the instrument blank results. All boron detects below the RLs were reported at the RLs and qualifed UB. No action was taken for non-detects or detects greater than the RL.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals, such as barium, iron, molybdenum, nickel, silver, vanadium, zinc, and mercury.	No
Initial Calibration	Yes	---	For mercury, a 5-point calibration was performed on 7/27/2018 at 09:50 and at 14:23, and the correlation coefficient was greater than 0.99. A 4-point initial calibration was conducted for all metals but mercury on 8/8/2018, and correlation coefficients were greater than the QAPP limit of 0.99 for solid samples.	No

Project Name/No. Michigan Project
SDG: TG21001
Lab: SHEALY
Media TA-TB-01(07202018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	No	Cobalt in CCV2 (Run #MS2080818B on 8/8/2018), and Silver in CCV2, CCV3, and CCV4 (Run #MS2080818B on 8/8/2018).	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP) with the following exceptions. Cobalt recovered slightly above the limits in CCV2 (Run #MS2080818B on 8/8/2018) at 112%. Silver recovered slightly below the limits in CCV2, CCV3, and CCV4 (Run #MS2080818B on 8/8/2018) at 85%, 87%, and 85%, respectively. Silver and cobalt results impacted by the CCVs analyzed on 8/8/2018 were not reported. Results from reanalysis on 8/9/2018 are reported. Mercury recovered below the limits (26.8%) in the CCV performed on 7/27/2018 at 13:44:40. The two project samples bracketed by this CCV, samples TA-SB-74 (1-2) and TA-SB-74 (5-6), were reanalyzed. No action was taken based on ICV or CCV recoveries. CRQL Check Standard recoveries are within the project limits of 70-130%.	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum, copper, lead, magnesium, and titanium in the serial dilution performed on sample TA-SB-71(1-2).	A serial dilution was performed for TA-SB-71(1-2). The %D serial dilution results for all metals but aluminum (44.4%), copper (15.9%), lead (12.8%), magnesium (43.1%), and titanium (15.9%) met the QAPP limit (i.e., either serial dilution results lower than 10% or the original sample concentrations were below 50 times of the sample detection limits). The aluminum, copper, lead, magnesium, and titanium detects in TA-SB-71(1-2) were qualified J.	Yes
Internal Standard	Yes	---	%RI within 60-125% of the response in the continuing calibration blank immediately preceding project sample analysis with the following exceptions. Yttrium was above the project limit in samples TA-SB-71 (3-4) (140% on 8/8/2018, 143% on 8/9/2018), TA-SB-72 (3-4)) (128% on 8/8/2018, 131% on 8/9/2018), TA-SB-74 (1-2) (127% on 8/9/2018), and TA-SB-74 (5-6) (137% on 8/9/2018). No action was taken based on the yttrium exceedance because it does not affect reported analytes.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range with the following exceptions. The laboratory indicated cobalt was outside of the range in the CCV analyzed on 8/8/2018 at 19:13. The laboratory indicated silver was outside of the range in the CCVs analyzed on 8/8/2018 at 19:13, 20:23, and 21:34. Any impacted cobalt and silver results on 8/8/2018 were not reported. Samples were reanalyzed on 8/9/2018, and those results are reported for impacted analytes.	No
Solids Percentage	Yes	---	Percent solids for all soil samples in the SDG was 80.0% or higher.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected in this (SDG TA-SB-72(1-2) and TA-SB-72(1-2) DUP). Antimony, boron, molybdenum, selenium, silver, sodium, and thallium were not detected in either sample. All other analytes were detected in both samples, and the RPD values were within the project limit of 50% for solid samples, except magnesium for which the RPD was 61%. The detected magnesium results were less than 5 times the RL, and the absolute difference between the two samples was less than the reporting limit; therefore, no action was taken.	No

Project Name/No. Michigan Project
SDG: TG21001
Laboratory: SHEALY
Media TA-TB-01(07202018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were collected on 7/20/2018 and received at 3.7°C on 7/21/2018. The samples were analyzed per analytical methods specified in the QAPP Table B.3.2. The samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Percent recovery in MS and/or MSD performed on sample TA-SB-71(1-2) for total cyanide, and nitrate-nitrite-N. Percent recovery in MS/MSD performed on sample TA-SB-73(1-2) for total cyanide.	The MS/MSD analysis was performed for TA-SB-71(1-2) for hexavalent chromium, ammonia, sulfate, and chloride. The results were within the QAPP limits (75-125%), and the RPDs were within the project limit of 50% for solid samples. The MS/MSD analysis was performed for TA-SB-71(1-2) for phosphorus analysis. The MS/MSD recoveries were below the project limit of 75% (-134%/-38%). Because the original sample concentration (230 mg/kg) was greater than 4 times the spike concentration (26 mg/kg), qualifiers were not added to the phosphorus result in sample TA-SB-71(1-2) based on the MS/MSD recoveries. The RPD between the MS and MSD was within the project limit of 50% for solid samples. The percent recovery shown for the MSD in the laboratory report (813%) seems to be incorrect. The MS/MSD analysis for total cyanide was performed on samples TA-SB-71(1-2) and TA-SB-73(1-2). The MS recovery (12%) was below the project limit of 75% while the MSD recovery (81%) was within the QAPP limits (75-125%), and the RPD between the MS and MSD (100%) was above the project limit of 50% for solid samples for sample TA-SB-71(1-2). The MS/MSD recoveries (59%/20%) were below the project limit of 75%, and the RPD between the MS and MSD was within the project limit of 50% for solid samples for sample TA-SB-73(1-2). Total cyanide was detected above the reporting limit in samples TA-SB-71(1-2) and TA-SB-73(1-2). Both results were qualified J-. The MS/MSD analysis for nitrate-nitrite-N was performed on sample TA-SB-71(1-2). The MS/MSD recoveries (64%/63%) were below the project limit of 75% while the RPD between the MS and MSD was within the project limit of 50% for solid samples. Nitrate-nitrite-N was detected above the reporting limit in sample TA-SB-71(1-2) and was qualified J-.	Yes
Method Blank	No	Total cyanide in the method blanks associated with all samples in the SDG.	Total cyanide was detected in the method blank at 0.032 mg/kg and 0.012 mg/kg, below the RL of 0.12 mg/kg, for Batches 79310 and 79406, respectively. Total cyanide was detected below the reporting limit in samples TA-SB-71(3-4), TA-SB-73(6-7), and TA-SB-74(5-6); the results were reported at the RLs and qualifed UB. No action was taken for the total cyanide results in this SDG. No other TCLs were detected in a method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	No	Phosphorus.	No TCLs were detected in any instrument blank with the following exception. The laboratory indicated the CCB performed for phosphorus on 8/2/2018 at 14:56 failed. All project samples in this SDG had been analyzed immediately before or after this CCB and were reanalyzed. No detail information was provided by the laboratory. As a conservative apporach, no action was taken. There are some "QC Fail" markups by the laboratory on nitrate-nitrite and nitrite QA/QC pages on the non-metals QC pages tab. None of these would impact project samples.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and correlation coefficients were greater than the QAPP limit of 0.99 for solids.	No
Continuing Calibration/Calibration Verification	No	CCV for hexavalent chromium associated with all samples except TA-SB-73(6-7) and TA-SB-74(5-6).	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP) and CRQL Check Standard recoveries were within the 70-130% limits with the following exceptions: The CCV performed on 8/13/2018 3:01:30 AM for hexavalent chromium was outside of the limit (2872.6% vs. 10%). This CCV was analyzed within 12 hours of all samples in the SDG except samples TA-SB-73(6-7) and TA-SB-74(5-6). J+ qualifiers were added to the detected hexavalent chromium results in samples TA-SB-71(1-2), TA-SB-72(1-2), TA-SB-72(1-2) DUP, TA-SB-72(3-4)), TA-SB-73 (1-2), and TA-SB-74(1-2). The non-detect result in sample TA-SB-71 (3-4) was not qualified based on the CCV %D.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	Percent solids for all soil samples in the SDG was 80.0% or higher.	No
Field Duplicate Analysis	Yes	---	One field duplicate pair was collected in this (SDG TA-SB-72(1-2) and TA-SB-72(1-2) DUP). Sulfate was not detected in either sample. Ammonia was detected below the reporting limit in sample TA-SB-72(1-2) DUP but not detected in sample TA-SB-72(1-2). All other analytes were detected in both samples and the RPD values were within the project limit of 50% for solid samples.	No

Project Name/No. Michigan Project
SDG: TG19003
Lab: SHEALY
Media TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 3.0°C, 4.4°C, and 2.7°C. The cooler with a temperature of 4.4°C was received within 24 hours from sample collection. All samples were extracted and analyzed within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from sample extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits, while the surrogate recoveries for TA-SB-54 (0-1), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-64 (0-1), TA-SB-64 (4-5), TA-SB-53 (5-6), TA-SB-82 (0-1) were diluted out.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	No	Benzo(g,h,i)perylene in TA-SB-75 (5-6) MS/MSD.	MS/MSD analysis was performed for TA-SB-75 (5-6), and the MS/MSD recoveries were within the laboratory established limits with the following exceptions: MS and/or MSD recoveries for benzo(g,h,i)perylene (25%/20%), dibenzo(a,h)anthracene (31%/29%), 4,6-dinitro-1-methylphenol (26%/36%), hexachlorocyclopentadiene (20%/17%), indeno(1,2,3-c,d)pyrene (31%/27%) were below the laboratory established limits, while the MSD recovery for 2-methylphenol (114%) was above the laboratory established limits. The RPD between the MS/MSD results met the project limit of 50%. The benzo(g,h,i)perylene, dibenzo(a,h)anthracene, 4,6-dinitro-1-methylphenol, hexachlorocyclopentadiene, indeno(1,2,3-c,d)pyrene results for TA-SB-75 (5-6) were qualified (detects were qualified J-, and non-detects were qualified UJ). 2-Methylphenol was not detected in TA-SB-75 (5-6), and no action was taken. MS/MSD analysis was performed for TA-SB-55 (1-2), and the MS/MSD recoveries were within the laboratory established limits with the following exceptions: MS and /or MSD recoveries for benzo(g,h,i)perylene (33%/16%), hexachlorocyclopentadiene (13%/14%), indeno(1,2,3-c,d)pyrene (57%/37%) were below the laboratory established limits, while the MSD recoveries for benzo(a)anthracene (127%), fluoranthene (239%), phenanthrene (191%), and pyrene (173%) were above the laboratory established limits. The RPD between the MS/MSD results for TA-SB-55 (1-2) MS/MSD met the project limit of 50% except phenanthrene (53%). The benzo(g,h,i)perylene, hexachlorocyclopentadiene, indeno(1,2,3-c,d)pyrene results for TA-SB-55 (1-2) were qualified (detects were qualified J- and non-detects were qualified UJ). Benzo(a)anthracene, fluoranthene, phenanthrene, and pyrene results for TA-SB-55 (1-2) were qualified J+.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	Two field duplicate pairs (TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP; TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP) were collected for this SDG. For field duplicate pair TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP, the RPDs for benzo(a)anthracene (73%), benzo(g,h,i)perylene (102%), pyrene (64%), toluene (131%), exceeded 50%. However, the absolute difference was within the RL and the detected results were all within 5 times the RLs. Anthracene, benzo(a)pyrene, chrysene, indeno(1,2,3-c,d)pyrene, 2-methylnaphthalene, and naphthalene were each detected in TA-SB-75 (5-6) within 2 times of RL while not detected in TA-SB-75 (5-6) DUP. No action was taken based on the TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP results. For field duplicate pair TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP, the RPDs for all target analytes were within 50%. Naphthalene was detected in TA-SB-65 (1-2) below the RL but not detected in TA-SB-65 (1-2) DUP. No action was taken based on the TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP results.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/18/2018 09:19:30 and 7/19/2018 09:33:30. The initial calibration %RSDs for all target analytes were below 20% or R^2 was above 0.99.	No

Project Name/No. Michigan Project
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Media TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	No	Benzidine in CCV 16:41:30 (msd10) (TA-SB-75 (5-6) DUP, TA-SB-54 (3-4), TA-SB-55 (1-2), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9), TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5)).	An ICV was performed on 7/18/2018 12:59:30 and 16:41:30 (msd10) and %D values were within 25% except that %D for benzidine was 29%. Benzidine was not detected in any of the associated samples (i.e., (TA-SB-75 (5-6) DUP, TA-SB-54 (3-4), TA-SB-55 (1-2), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9), TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5)). No action was taken.	No
	Yes	---	An ICV was performed on 7/19/2018 13:17:30 and 16:41:30 (msd11), and %D values were within 25%.	No
	Yes	---	A CCV was performed on 7/29/2018 09:53:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 7/26/2018 09:15:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	No	Hexachlorocyclopentadiene in CCV 7/27/2018 09:31:30 on instrument msd11 (TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-75 (5-6)).	A CCV was performed on 7/27/2018 09:31:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes except for hexachlorocyclopentadiene (-28%), and RRFs were all above 0.01. The hexachlorocyclopentadiene results in the associated samples (TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-75 (5-6)) were qualified (detects were qualified J-, and non-detects were qualified UJ).	Yes
	No	Hexachlorocyclopentadiene in CCV 7/30/2018 10:12:30 on instrument msd11.	A CCV was performed on 7/30/2018 10:12:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes except for hexachlorocyclopentadiene (-26%), and RRFs were all above 0.01. No samples in this SDG were associated with this CCV; no action was taken.	No
	Yes	---	A CCV was performed on 7/31/2018 10:03:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: acenaphthene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-56 (1-2), naphthalene, phenanthrene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-54 (0-1), naphthalene, phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene in TA-SB-75 (5-6), phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene in TA-SB-75 (5-6) DUP, naphthalene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-55 (1-2), benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene in TA-SB-55 (5-6), fluoranthene in TA-SB-60 (7-8), naphthalene, fluorene, carbazole, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SB-76 (7-8), naphthalene, phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SB-65 (1-2), phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SB-65 (1-2) DUP, phenanthrene, benzo(a)anthracene, chrysene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SB-65 (4-5), naphthalene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SB-53 (0-1), phenanthrene, anthracene, benzo(a)anthracene in TA-SB-64 (0-1), naphthalene, acenaphthene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SB-53(7-8), naphthalene, fluoranthene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene in TA-SB-64 (4-5), naphthalene, benzo(a)anthracene in TA-SB-53 (5-6), naphthalene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-43 (1-2), naphthalene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-43 (7-8), acenaphthene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SB-82 (0-1), naphthalene, fluoranthene, benzo(a)anthracene in TA-SB-82 (6-7),	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

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Media TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Holding time exceedances: the 2nd analysis on 8/2/2018 of TA-SB-60 (8-9), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5), TA-SB-53 (0-1) were performed on the 15th day from sample collectiion. TA-SB-64 (4-5) and TA-SB-82 (0-1) were analyzed on the 14th day from collection with about 0-2 hours exceedance.	The samples were received at 3.0°C, 4.4°C, and 2.7°C. The cooler with temperature of 4.4°C was received within 24 hours from sample collection. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP except the following: the 2nd analysis on 8/2/2018 of TA-SB-60 (8-9), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5) were performed on the 15th day from sample collectiion. TA-SB-64 (4-5), TA-SB-53 (0-1), and TA-SB-82 (0-1) were analyzed on the 14th day from collection with about 0-3 hours exceedance. The results for the 2nd analysis on 8/2/2018 of TA-SB-60 (8-9), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5), TA-SB-53 (0-1) were qualified (detects were qualified J-, and non-detects were qualified UJ). No action was taken for TA-SB-64 (4-5), TA-SB-53 (0-1), TA-SB-82 (0-1) due to the slight exceedance of holding time.	Yes
Surrogate Recovery	No	All three surrogate recoveries for TA-SB-60 (8-9) 1st analysis on 7/31/2018, TA-SB-65 (1-2), TA-SB-65 (1-2) DUP 1st analysis on 7/31/2018; DMC3 for TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-75 (7-8), TA-SB-64 (4-5), TA-SB-53 (5-6), TA-SB-60 (8-9) 2nd analysis on 8/2/2018; DMC2 and DMC3 for TA-SB-65 (4-5) 1st analysis on 7/31/2018; DMC1 and DMC3 for TA-SB-82 (6-7).	The surrogate recoveries were within the project limits of 70-130% with the following exceptions: All three surrogate recoveries for TA-SB-60 (8-9) 1st analysis, TA-SB-65 (1-2), TA-SB-65 (1-2) DUP 1st analysis on 7/31/2018 were below the project limit of 70% at 66%/67%/58%, 33%/27%/22%, and 65%/56%/44%. DMC3 recoveries for TA-SB-56 (1-2) (69%), TA-SB-54 (0-1) (68%), TA-SB-75 (5-6) (55%), TA-SB-75 (7-8)(66%), TA-SB-64 (4-5) 2nd analysis on 8/2/2018 (56%), TA-SB-60 (8-9) 2nd analysis on 8/2/2018 (68%), and TA-SB-53 (5-6) (69%) were below 70%. DMC2 and DMC3 recoveries for TA-SB-65 (4-5)1st analysis on 7/31/2018 were below 70% at 66% and 55%. DMC1 and DMC3 recoveries for TA-SB-82 (6-7) were below 70% at 69% and 63%. All the VOC results for the above referenced samples (except TA-SB-65 (1-2), which the surrogates were diluted out) were qualified (detects were qualified J-, and non-detects were qualified UJ).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Batch 79203: bromomethane, 1,1,2-trichloro-1,2,2-trifluoroethane (TA-SB-56 (1-2), TA-SB-54 (0-1), and TA-SB-75 (5-6)). Batch 79334: acetone, bromomethane, carbon tetrachloride, chloroethane, cyclohexane, dichlorodifluoromethane (TA-SB-75 (5-6) DUP, TA-SB-54 (3-4), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9) 1st analysis on 7/31/2018, TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP 1st analysis on 7/31/2018, TA-SB-65 (4-5) 1st analysis on 7/31/2018, TA-SB-53 (0-1) 1st analysis on 7/31/2018, TA-SB-64 (0-1), TA-SB-53(7-8), TA-SB-53 (5-6), TA-SB-43 (1-2), TA-SB-43 (7-8), TA-SB-82 (6-7)). Batch 78861: bromomethane, chloroethane, cyclohexane (TA-SB-55 (1-2)). Batch 79610: bromomethane, 2-butanone, chloroethane, dichlorodifluoromethane (TA-SB-64 (4-5), TA-SB-82 (0-1), TA-SB-60 (8-9) 2nd analysis on 8/2/2018, TA-SB-65 (1-2) DUP 2nd analysis on 8/2/2018, TA-SB-65 (4-5) 2nd analysis on 8/2/2018, TA-SB-53 (0-1) 2nd analysis on 8/2/2018).	All LCS recoveries were wthin the project limits of 70-130%, except for the following cases: For the LCS associated with Batch 79203, the recoveries for bromomethane (66%), 1,1,2-trichloro-1,2,2-trifluoroethane (131%) were outside the control limits (70-130%). Associated samples include TA-SB-56 (1-2), TA-SB-54 (0-1), and TA-SB-75 (5-6). Bromomethane and 1,1,2-trichloro-1,2,2-trifluoroethane were not detected in any of the associated samples. The bromomethane results for TA-SB-56 (1-2), TA-SB-54 (0-1), and TA-SB-75 (5-6) were qualified UJ. For Batch 79334, the LCS recoveries for acetone (65%), bromomethane (259%), carbon tetrachloride (132%), chloroethane (247%), cyclohexane (166%), dichlorodifluoromethane (64%) were outside the control limits (70-130%). Associated samples include TA-SB-75 (5-6) DUP, TA-SB-54 (3-4), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9) 1st analysis on 7/31/2018, TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP 1st analysis on 7/31/2018, TA-SB-65 (4-5) 1st analysis on 7/31/2018, TA-SB-53 (0-1) 1st analysis on 7/31/2018, TA-SB-64 (0-1), TA-SB-53(7-8), TA-SB-53 (5-6), TA-SB-43 (1-2), TA-SB-43 (7-8), TA-SB-82 (6-7). None of the above referenced analytes were detected in any of the associated samples with the following exceptions - acetone was detected in TA-SB-65 (1-2) DUP 2nd analysis on 8/2/2018 and TA-SB-82 (6-7); cyclohexane was detected in TA-SB-53 (0-1) 1st analysis on 7/31/2018. All acetone and dichlorodifluoromethane results for the above associated samples were qualified (detects were qualified J- and non-detects were qualified UJ). The cyclohexane detected result in TA-SB-53 (0-1) 1st analysis on 7/31/2018 was qualified J+. For Batch 78861, the LCS recoveries for bromomethane (216%), chloroethane (225%), cyclohexane (138%) were above the upper control limit (130%). None of the above referenced analytes were detected in the associated sample TA-SB-55 (1-2); no action was taken. For Batch 79610, the LCS recoveries for bromomethane (243%), 2-butanone (131%), chloroethane (239%), dichlorodifluoromethane (54%) were outside the project limits. None of the above referenced analytes were detected in the associated samples (i.e., TA-SB-64 (4-5), TA-SB-82 (0-1), TA-SB-60 (8-9) 2nd analysis on 8/2/2018, TA-SB-65 (1-2) DUP 2nd analysis on 8/2/2018, TA-SB-65 (4-5) 2nd analysis on 8/2/2018, TA-SB-53 (0-1) 2nd analysis on 8/2/2018). The dichlorodifluoromethane results for the above referenced samples were qualified UJ.	Yes

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Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Matrix Spike/Matrix Spike Duplicates	No	MS and/or MSD recoveries for acetone, benzene, bromomethane, 2-butanone, carbon tetrachloride, chlorobenzene, chloroethane, cyclohexane, dichlorodifluoromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,2-dichloropropane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, ethylbenzene, isopropylbenzene, methylcyclohexane, stryene, tetrachloroethene, toluene, 1,1,1-trichloroethane, trichloroethene, xylenes, m+p-xylenes, o-xylenes in the MS/MSD performed on TA-SB-55 (1-2). The RPDs of 2-butanone, 2-hexanone, 1,1,2,2-tetrachloroethane in TA-SB-55 (1-2)MS/MSD.	MS and/or MSD recoveries for acetone (89%/67%), benzene (133%/99%), bromomethane (281%/211%), 2-butanone (101%/58%), carbon tetrachloride (132%/100%), chlorobenzene (132%/101%), chloroethane (311%/236%), cyclohexane (146%/138%), dichlorodifluoromethane (61%/55%), 1,1-dichloroethane (135%/103%), 1,2-dichloroethane (134%/101%), 1,2-dichloropropane (134%/102%), cis-1,3-dichloropropene (131%/98%), trans-1,3-dichloropropene (132%/101%), ethylbenzene (140%/102%), isopropylbenzene (142%/106%), methylcyclohexane (143%/103%), stryene (134%/102%), tetrachloroethene (143%/113%), toluene (141%/104%), 1,1,1-trichloroethane (140%/105%), trichloroethene (138%/114%), xylenes (139%/103%), m+p-xylenes (146%/107%), o-xylenes (131%/100%) in the MS/MSD performed on TA-SB-55 (1-2). The RPDs for all target analytes were within the project limit of 50% with the exception of 2-butanone (66%), 2-hexanone (76%), 1,1,2,2-tetrachloroethane (52%). None of the above referenced analytes were detected in TA-SB-55 (1-2). The acetone, dichlorodifluoromethane, 2-butanone, 2-hexanone, and 1,1,2,2-tetrachloroethane results were qualified UJ.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Acetone and methylene chloride in TA-TB-01 (07182018) (TA-SB-56 (1-2)).	Three trip blanks (TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018)) were collected for this SDG. Acetone was detected in TA-TB-01 (07182018) at 2.0 ug/L, below the RL of 20 ug/L. Methylene chloride was detected in TA-TB-01 (07182018) at 0.77 ug/L, below the RL of 1.0 ug/L. No other VOCs were detected in TA-TB-01 (07182018). No VOCs were detected in the trip blank TA-TB-02 (07182018) or TA-TB-01 (07192018). Soil samples were not qualified based on the aqueous trip blank results.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Methyl acetate, toluene, and 1,1,1-trichloroethane results in TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP.	Two field duplicate pairs (TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP; TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP) were collected for this SDG. For field duplicate pair TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP, the RPDs for methyl acetate (95%), toluene (131%), and 1,1,1-trichloroethane (175%) exceeded 50%. 1,1-dichloroethane was detected in TA-SB-75 (5-6) DUP within 2 times the RL but not detected in TA-SB-75 (5-6). No other VOCs were detected in either sample. The methyl acetate, toluene, and 1,1,1-trichloroethane result in both samples were qualified J. For field duplicate pair TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP, the RPD for methyl acetate (11%) was within the 50% limit. No other VOCs were detected in either sample.	Yes
Initial Calibration	Yes	---	An initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. An initial calibration was performed on 7/23/2018 12:21:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. An initial calibration was performed on 7/25/2018 11:24:30 (instrument msd7), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. An initial calibration was performed on 7/30/2018 13:24:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No

Project Name/No. Michigan Project
SDG: TG19003
Lab: SHEALY
Media TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 7/13/2018 16:07:30 (msd5). The %D values were within 25%.	No
	Yes	---	ICV was performed on 7/25/2018 17:06:30 (msd7). The %D values were within 25%.	No
	Yes	---	ICV was performed on 7/23/2018 15:28:30 (msd15). The %D values for all target analytes were all below 25%.	No
	Yes	---	ICV was performed on 7/30/2018 16:37:30 (msd15). The %D values for all target analytes were below 25%.	No
	No	Dichlorodifluoromethane in CCV performed on 7/26/2018 20:33:30 (msd5) (TA-TB-01 (07192018)).	CCV was performed on 7/26/2018 20:33:30 (msd5). The %D values for all target analytes were below 25% with the exception of dichlorodifluoromethane (29%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in the associated sample (i.e., TA-TB-01 (07192018)); no action was taken based on the CCV results.	No
	Yes	---	CCV was performed on 7/25/2018 16:43:30 (msd7). The %D values for all target analytes were below 25%. The RRFs for all target analytes were greater than 0.01.	No
	No	Acetone in CCV performed on 7/30/2018 10:09:30 (msd7) (TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-75 (5-6)).	CCV was performed on 7/30/2018 10:09:30 (msd7). The %D values for all target analytes were below 25% with the exception of acetone (49%). The RRFs were greater than 0.01. The acetone results for TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-75 (5-6) were qualified (detects were qualified J+ and non-detects were not qualified).	Yes
	No	Bromomethane and chloroethane in CCV on 7/26/2018 08:57:30 (TA-SB-55 (1-2)).	CCV was performed on 7/26/2018 08:57:30 (msd15). The %D values for all target analytes were below 25% except for bromomethane (37%) and chloroethane (49%). The RRFs were greater than 0.01. Bromomethane and chloroethane were non-detect in all associated sample (TA-SB-55 (1-2)); no action was taken based on the CCV results.	No
	No	Dichlorodifluoromethane in CCV performed on 7/31/2018 08:28:30 (msd15) (TA-SB-75 (5-6) DUP, TA-SB-54 (3-4), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9) 1st analysis on 7/31/2018, TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP 1st analysis on 7/31/2018, TA-SB-65 (4-5) 1st analysis on 7/31/2018, TA-SB-53 (0-1) 1st analysis on 7/31/2018, TA-SB-64 (0-1), TA-SB-53(7-8), TA-SB-53 (5-6), TA-SB-43 (1-2), TA-SB-43 (7-8), TA-SB-82 (6-7)).	CCV was performed on 7/31/2018 08:38:30 (msd15). The %D values for all target analytes were below 25% with the exception of dichlorodifluoromethane (-28%). The RRFs were greater than 0.01. The dichlorodifluoromethane results in the associated samples (i.e., TA-SB-75 (5-6) DUP, TA-SB-54 (3-4), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9) 1st analysis on 7/31/2018, TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP 1st analysis on 7/31/2018, TA-SB-65 (4-5) 1st analysis on 7/31/2018, TA-SB-53 (0-1) 1st analysis on 7/31/2018, TA-SB-64 (0-1), TA-SB-53(7-8), TA-SB-53 (5-6), TA-SB-43 (1-2), TA-SB-43 (7-8), TA-SB-82 (6-7)) were qualified (detects were qualified J-, and non-detects were qualified UJ).	Yes
	No	Acetone in CCV performed on 7/30/2018 10:09:30 (msd7) (TA-SB-60 (8-9) 2nd analysis on 8/2/2018, TA-SB-65 (1-2) DUP 2nd analysis on 8/2/2018, TA-SB-65 (4-5) 2nd analysis on 8/2/2018, TA-SB-53 (0-1) 2nd analysis on 8/2/2018 on 7/30/2018, TA-SB-64 (4-5), TA-SB-82 (0-1)).	CCV was performed on 8/2/2018 09:01:30 (msd15). The %D values for all target analytes were below 25% with the exception of acetone (68%). The RRFs for all target analytes were greater than 0.01. The acetone detects in the associated samples (i.e., TA-SB-60 (8-9) 2nd analysis on 8/2/2018, TA-SB-65 (1-2) DUP 2nd analysis on 8/2/2018, TA-SB-65 (4-5) 2nd analysis on 8/2/2018, TA-SB-53 (0-1) 2nd analysis on 8/2/2018, TA-SB-64 (4-5), TA-SB-82 (0-1)) were qualified J+, and no action was taken for the non-detect results.	Yes
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: methylene chloride in TA-SB-56 (1-2), TA-SB-53 (5-6), TA-SB-43 (1-2), cyclohexane in TA-SB-56 (1-2), TA-SB-53 (0-1) both analyses, TA-SB-54 (0-1), TA-SB-82 (0-1), 1,1,1-trichloroethane in TA-SB-75 (5-6), 1,1-dichloroethane, 1,1,1-trichloroethane in TA-SB-75 (5-6) DUP, methyl acetate in TA-SB-55 (1-2), acetone in TA-SB-82 (0-1). 2-butanone in TA-SB-78 (5-6); methyl acetate in TA-SB-78 (6-7), TA-SB-83 (1-2); methylene chloride in TA-SB-81 (5-6), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (4-5); methylcyclohexane in TA-SB-62 (5-6); cyclohexane in TA-SB-63 (1-2).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TG19003
Lab: SHEALY
Media TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 3.0°C, 4.4°C, and 2.7°C. The cooler with temperature of 4.4°C was received within 24 hours from sample collection. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium, sodium, beryllium, boron, chromium, copper, lead, and zinc in TA-SB-55 (1-2) MS/MSD.	The MS/MSD analysis was performed for TA-SB-55 (1-2) for metals. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals except aluminum (1680%/4920%), barium (111%/188%), beryllium (24%/21%), boron (29%/29%), chromium (68%/100%), copper (59%/65%), iron (-168%/-59%), lead (60%/88%), magnesium (513%/167%), sodium (99%/133%), titanium (112%/295%), and zinc (GZA calculated 27%/53%). The original sample concentratiions of aluminum, iron, magnesium, titanium were greater than 4 times of the spike concentrations. The barium and sodium results of TA-SB-55 (1-2) were qualified J, as the post digest spike recoveries were below 125%. The beryllium, boron,copper, and zinc results of TA-SB-55 (1-2) were qualified (detects were qualified J- and non-detects were qualified UJ) as the post digest spike recoveries were below 75%. The lead and chromium results of TA-SB-55 (1-2) were qualified J, as the post digest spike recoveries were greater than 75%. The RPDs between the MS and MSD results were within the QAPP limit of 50%.	Yes
Method Blank	No	Boron in Batch 79002 (TA-SB-43 (7-8), TA-SB-82 (0-1), TA-SB-82 (6-7)).	No metal target analytes were detected in the method blanks except that boron was detected in the method blank for Batch 79002 at 3.9 mg/kg, below the RL of 13 mg/kg. Boron was detected below the RLs in the associated samples (i.e., TA-SB-43 (7-8), TA-SB-82 (0-1), TA-SB-82 (6-7)). The results were reported at the RLs and qualified UB.	Yes
Instrument Blank	No	Boron and iron detected in the instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Boron was detected in CCB1, CCB2, CCB3 (Run #MS2073118C on 7/31/2018) at 0.814 ug/L, 0.828 ug/L, 0.587 ug/L, below the RL of 50 ug/L. No project samples were associated with these CCBs. Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2080718C on 8/7/2018) at 0.897 ug/L, 0.654 ug/L, 0.725 ug/L, 0.597 ug/L, 0.585 ug/L, below the RL of 50 ug/L. Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2080818B on 8/8/2018) at 0.792 ug/L, 0.733 ug/L, 0.746 ug/L, 0.893 ug/L, 0.717 ug/L, below the RL of 50 ug/L. Boron was detected in CCB1, CCB2, CCB3 (Run #MS2080818C on 8/9/2018) at 0.979 ug/L, 1.331 ug/L, 1.364 ug/L, below the RL of 50 ug/L. Boron was detected in TA-SB-43 (7-8), TA-SB-82 (0-1), and TA-SB-82 (6-7) at 6.1 mg/kg, 6.0 mg/kg, and 8.8 mg/kg, below RLs of 17 mg/kg, 13 mg/kg, 21 mg/kg. Boron was not detected in the other samples in this SDG. TA-SB-43 (7-8), TA-SB-82 (0-1), and TA-SB-82 (6-7) were analyzed between CCB4 and CCB5 on Run MS2080818B on 8/8/2018, when boron was detected at 0.893 ug/L, 0.717 ug/L, below the RL of 50 ug/L. The boron concentrations of TA-SB-43 (7-8), TA-SB-82 (0-1), and TA-SB-82 (6-7) were below the RLs; the results were reported at the RLs and qualified as UB. Iron was detected in CCB7 (Run #MS2080718C on 8/7/2018) at 10.160 ug/L, below the RL of 50 ug/L. The samples associated with this CCB7 include TA-SB-65 (4-5), TA-SB-53 (0-1), TA-SB-64 (0-1), TA-SB-53(7-8), TA-SB-64 (4-5), TA-SB-53 (5-6), TA-SB-43 (1-2). Iron was detected in the associated samples at concentrations at least 10 times higher than the RLs. No action was taken based on the iron CCB result. Silver was detected in ICB1 (Run#MS2080818B on 8/8/2018) at 0.375 ug/L, below the RL of 1 ug/L. No project silver results were associated with this ICB1. The iron detection in CCB4 also affects all samples in this SDG, except for the trip blank. Iron was detected in each sample, and the detections for iron were at least 100 times higher than the RLs. No action was taken based on the instrument blank results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	A 4-point initial calibration was conducted for TCLP metals on 8/23/2018, and the correlation coefficients were greater than 0.99. Initial calibration was conducted for all ICP-MS metals on 7/31/2018, 8/7/2018, 8/8/2018 and 8/9/2018, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 9/17/2018 and 7/27/2018, and the correlation coefficient was greater than 0.99.	No

Project Name/No. Michigan Project
SDG: TG19003
Lab: SHEALY
Media TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	No	Lead for ICV1 for Run MS2080818C.	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1) of the QAPP with the following exception, and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%). Copper, nickel, and zinc recoveries for CCV3 for Run MS2073118C were below the project limit of 90% (85%, 89%, and 88%, respectively). No project samples were associated with this CCV. Copper recovery for CCV2 for Run MS2080818B was below the project limit of 90% (89%). No copper analysis for any project samples was associated with this CCV. Silver recovery for CCV5 for Run MS2080818B was below the project limit of 90% (85%). No silver analysis for any project samples was associated with this CCV. Lead recovery for ICV1 for Run MS2080818C was below the project limit of 90% (89%). The CCV1 was within the limit; no action was taken based on the ICV1 result. Copper recovery for CCV1 for Run MS2080818C was below the project limit of 90% (89%). No sample results in this SDG were associated with this CCV1; no action was taken.	No
Interference Check Sample	No	Titanium in the interference check sample.	The interference check recoveries were within the limits specified in the QAPP (80-120%), except the titanium recovery for the interference check sample associated with Runs #MS2073118C on 7/31/2018 and #MS2080818C on 8/9/2018, which was slightly above the limit at 126% and 122%. None of the titanium data for this SDG were associated with this interference check. No action was taken.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum, barium, lead, and magnesium results for TA-SB-55 (1-2).	A serial dilution was performed for TA-SB-55 (1-2). The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits) for all target analytes with the exception of aluminum (18%), barium (12%), lead (12%), and magnesium (20%). The aluminum, barium, lead, and magnesium results for TA-SB-55 (1-2) were qualified J.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	No	Antimony, cadmium, copper, iron, lead, magnesium, titanium, zinc, and mercury in TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP.	Two field duplicate pairs were collected for this SDG (TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP, and TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP). The RPDs for TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP were within the project limit of 50%. The RPDs for TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP were above the project limit of 50% for antimony (158%), cadmium (121%), copper (157%), iron (69%), lead (147%), magnesium (64%), nickel (81%), titanium (166%), zinc (92%), and mercury (86%). The detection of nickel in both samples were below the RLs; no action was taken for nickel. The antimony, cadmium, copper, iron, lead, magnesium, titanium, zinc, and mercury results in TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG19003
Laboratory: SHEALY
Media TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 3.0°C, 4.4°C, and 2.7°C. The cooler with temperature of 4.4°C was received within 24 hours from sample collection. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium in TA-SB-55 (1-2) MS/MSD; phosphorus in TA-SB-65 (4-5)MS/MSD; and nitrate-nitrite in TA-SB-55 (1-2) MS.	MS/MSD recoveries were within the project limits of 70-130% with the following exceptions. The RPDs were within 50%. Hexavalent chromium recoveries in TA-SB-55 (1-2) MS/MSD were below the project limit of 75% at 73%/72%. Hexavalent chromium was not detected in TA-SB-55 (1-2), and the result was qualified UJ. Phosphorus MS/MSD recoveries in TA-SB-55 (1-2) were below the project limits (GZA calculated -37%/74% vs. laboratory reported -45%/1040%). However, the original sample concentration was greater than 4 times the spike concentration; no action was taken based on the phosphorus MS/MSD recoveries. Phosphorus MS/MSD recoveries in TA-SB-65 (4-5) were outside the project limits (GZA calculated 0%/132% vs. laboratory reported 5.4%/405%). The phosphorus result for TA-SB-65 (4-5) was qualified J. Nitrate-nitrite MS recovery in TA-SB-55 (1-2) was slightly below the limit (74% vs. 75%) while the MSD recovery was within the limit (79% vs. 75%-125%). The nitrate-nitrite result in TA-SB-55 (1-2) was qualified J-. Note the laboratory calculation for certain analytes (e.g. phosphorus and nitrate-nitrite) were incorrect.	Yes
Method Blank	No	Total cyanide, ammonia, chloride in multiple method blanks.	Total cyanide was detected in the method blanks associated with Batches 79014, 79024, and 79310 at 0.033 mg/kg, 0.0018 mg/kg, and 0.032 mg/kg, below RL of 0.12 mg/kg . Sample TA-SB-56 (1-2) was associated with Batch 79014, and total cyanide was detected below RL. The total cyanide result for TA-SB-56 (1-2) was reported at the RL and qualified UB. TA-SB-82 (0-1) and TA-SB-82 (6-7) were associated with Batch 79310. Total cyanide was detected above the RL in TA-SB-82 (0-1); no action was taken. Total cyanide was detected below RL in TA-SB-82 (6-7); the result was reported at the RL and qualified UB. The rest of the samples in this SDG were associated with Batch 79024. Total cyanide was detected below the RL in TA-SB-54 (3-4), TA-SB-55 (1-2), TA-SB-64 (0-1), TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9), TA-SB-53(7-8), TA-SB-53 (5-6), TA-SB-43 (1-2), TA-SB-43 (7-8). The non-detect results were reported at the RLs and qualified UB. Total cyanide was detected above the RLs and 5 times the blank result in TA-SB-54 (0-1), TA-SB-53 (0-1), TA-SB-75 (5-6), TA-SB-75 (5-6) DUP, TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5), TA-SB-64 (4-5); no action was taken for these samples. Ammonia was detected in the method blank associated with Batch 79429 and 79431 at 0.40 mg/kg and 0.40 mg/kg, below the RL of 1.0 mg/kg. All samples in this SDG but TA-SB-82 (6-7) were associated with the above method blanks. Ammonia was detected below the RL in TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-54 (3-4), TA-SB-55 (1-2), TA-SB-53 (0-1), TA-SB-64 (0-1),TA-SB-82 (0-1), and the results were reported at the RLs and qualified UB. Ammonia was detected above the RLs and 5 times the blank result in TA-SB-75 (5-6), TA-SB-75 (5-6) DUP, TA-SB-55 (5-6), TA-SB-75 (7-8), TA-SB-60 (7-8), TA-SB-60 (8-9), TA-SB-76 (7-8), TA-SB-65 (1-2), TA-SB-65 (1-2) DUP, TA-SB-65 (4-5), TA-SB-53(7-8), TA-SB-64 (4-5), TA-SB-43 (7-8), TA-SB-53 (5-6), TA-SB-43 (1-2); no action was taken for these samples. Chloride was detected in the method blank associated with Batch 79642 at 2.0 mg/kg, below RL of 10 mg/kg. Chloride was detected below the RLs in TA-SB-53 (0-1),TA-SB-43 (1-2), TA-SB-43 (7-8); the results were reported at the RLs and qualified UB. Chloride was detected above the RLs and 2 times the blank level in TA-SB-64 (0-1), TA-SB-53(7-8), TA-SB-64 (4-5), TA-SB-53 (5-6), TA-SB-82 (0-1), TA-SB-82 (6-7); no action was taken for these samples. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs. Note the case narrative noted blank detection of phosphorus; however, detection was not noted in any method blank listed in the QC Summary in the report.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple inorganic non-metal analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No

Project Name/No. Michigan Project
SDG: TG19003
Laboratory: SHEALY
Media TA-TB-01 (07182018), TA-TB-02 (07182018), TA-TB-01 (07192018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	Initial calibration performed for all target analytes had the correlation coefficients greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	No	CRQL check for ammonia.	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP) with the following exceptions: CRQL check recoveries for ammonia were 143% and 138%, above the project limit of 130%. All samples in this SDG were associated with the CRQLs. The ammonia results for TA-SB-56 (1-2), TA-SB-54 (0-1), TA-SB-54 (3-4), TA-SB-55 (1-2), TA-SB-55 (5-6), TA-SB-53 (0-1), TA-SB-64 (0-1), TA-SB-82 (0-1) were within 2 times of the RLs but were qualified as UB based on the method blank results; no action was taken. Ammonia results in TA-SB-53 (5-6), TA-SB-43 (1-2), TA-SB-55 (5-6) were within 2 times of the RLs and were qualified J+.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	Yes	---	Two field duplicate pairs were collected for this SDG (TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP, and TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP). The RPDs for TA-SB-75 (5-6) and TA-SB-75 (5-6) DUP were within the project limit of 50%. The RPDs for TA-SB-65 (1-2) and TA-SB-65 (1-2) DUP were within the project limit of 50% for all analytes with the exception of ammonia (56%). Ammonia was detected in TA-SB-65 (1-2) with 5 times the RL and the absolute difference between the duplicate results was not greater than 2 times the RL. No action was taken based on the duplicate results.	No

Project Name/No. Michigan Project
SDG: TG17025
Lab: SHEALY
Media TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 2.3°C and 2.4°C, within the project limit of 4°C. All samples were extracted and analyzed within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from sample extraction to analysis).	No
Surrogate Recovery	No	The TA-SB-76 (1-2) reanalysis on 7/27/2018 for 2-fluorophenol and phenol-d5, TA-SB-61 (5-6) for phenol-d5, TA-SB-62 (3-4) for 2-fluorophenol and phenol-d5, TA-SB-62 (5-6) for phenol-d5, TA-SB-70 (0-1) for 2-fluorophenol, phenol-d5, and 2,4,6-tribromophenol, and TA-SB-63 (7-8) for 2-fluorophenol and phenol-d5.	All SVOC surrogate recoveries met the laboratory established limits, except the recoveries of 2-fluorophenol (control limits 16-136%), phenol-d5 (control limits 26-148%), and/or 2,4,6-tribromophenol (control limits 27-128%) in the following cases: The TA-SB-76 (1-2) reanalysis on 7/27/2018 for 2-fluorophenol (14%) and phenol-d5 (15%), TA-SB-61 (5-6) for phenol-d5 (9.8%), TA-SB-62 (3-4) for 2-fluorophenol (13%) and phenol-d5 (8.8%), TA-SB-62 (5-6) for phenol-d5 (21%), TA-SB-70 (0-1) for 2-fluorophenol (3.8%), phenol-d5 (7.5%), and 2,4,6-tribromophenol (6.6%), and TA-SB-63 (7-8) for 2-fluorophenol (1.9%) and phenol-d5 (11%). Phenol compounds were not detected in any of the above referenced samples. The non-detect results for phenol compounds were qualified UJ for TA-SB-76 (1-2), TA-SB-62 (5-6). The non-detect results for phenol compounds were qualified UR for TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-63 (7-8), and TA-SB-70 (0-1).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	No	Multiple SVOCs in TA-SB-76 (1-2) MS/MSD.	MS/MSD analysis was conducted for TA-SB-76 (1-2). MS/MSD recoveries were within the laboratory established limits for all analytes except that the MS and/or MSD recoveries were outside the respective control limits for anthracene (-19%/132%), benzo(a)anthracene (-158%/108%), benzo(a)pyrene (-1920%/-228%), benzo(b)fluoranthene (-2780%/1650%), benzo(g,h,i)perylene (-292%/97%), benzo(k)fluoranthene (-989%/5730%), carbazole (-4.9%/117%), chrysene (-65%/254%), dibenzo(a,h)anthracene (242%/357%), 3,3'-dichlorobenzidine (0.00%/0.00%), 2,4-dinitrotoluene (61%/75%), di-n-octylphthalate (149%/201%), fluoranthene (-35%/318%), hexachlorocyclopentadiene (0.00%/0.00%), indeno(1,2,3-c,d)pyrene (-417%/24%), 3+4-methylphenol (83%/126%), naphthalene (62%/122%), n-nitrosodiphenylamine (-65%/84%), pentachlorophenol (139%/147%), phenanthrene (-77%/283%), pyrene (51%/421%). Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene were present in the original, unspiked sample at more than 4 times the spike concentration. Thus, no action was taken for these analytes based on the MS/MSD results. The MS/MSD RPDs were within the 50% project limit except for anthracene (52%), benzo(a)pyrene (59%), benzo(b)fluoranthene (70%), benzo(k)fluoranthene (150%), carbazole (55%), hexachloroethane (52%), and n-nitrosodiphenylamine (77%). Detections of anthracene, carbazole, naphthalene and n-nitrosodiphenylamine were qualified J based on the MS/MSD recoveries and RPD results. The non-detect result for 2,4-dinitrotoluene was qualified UJ. 3,3'-Dichlorobenzidine and hexachlorocyclopentadiene MS/MSD percent recoveries were below 20%, and thus the non-detect results in the original sample were qualified UR. Dibenzo(a,h)anthracene, di-n-octylphthalate, 3+4-methylphenol, and pentachlorophenol were non-detect in the original sample; no further action was required for these results. Hexachloroethane non-detect in the original sample was qualified UJ due to the MS/MSD RPD exceedance.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/19/2018 09:33:30. For all target analytes, the initial calibration %RSDs were below 20% or R^2 was above 0.99.	No

Project Name/No. Michigan Project
SDG: TG17025
Lab: SHEALY
Media TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	No	2,4-Dimethylphenol in ICV on 7/19/2018 13:17:30.	An ICV was performed on 7/19/2018 13:17:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for any target analytes, except 2,4-dimethylphenol (24.1%). 2,4-dimethylphenol was not detected in any samples in this SDG; no action was taken.	No
	Yes	---	An ICV was performed on 7/19/2018 13:17:30 on instrument msd11. The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	A CCV was performed on 7/26/2018 09:15:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	No	Hexachlorocyclopentadiene in CCV on 7/27/2018 09:31:30 (TA-SB-76 (1-2) reanalysis on 7/27/2018, TA-SB-61 (7-8), TA-SB-70 (5-6)).	A CCV was performed on 7/27/2018 09:31:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes except for hexachlorocyclopentadiene (-27.8%), and RRFs were all above 0.01. The hexachlorocyclopentadiene results in the associated samples (i.e., TA-SB-76 (1-2) reanalysis on 7/27/2018, TA-SB-61 (7-8), TA-SB-70 (5-6)) were qualified (detects were qualified J-, and nondetects were qualified UJ).	No
	Yes	---	A CCV was performed on 7/29/2018 09:53:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: naphthalene in TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), the 2nd run of TA-SB-76 (1-2), TA-SB-62 (5-6), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (2-3); acenaphthene in TA-SB-80 (2-3), TA-SB-78 (6-7), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-70 (5-6); benzo(a)anthracene in TA-SB-80 (2-3), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), the 1st and 2nd run of TA-SB-76 (1-2), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (1-2), TA-SB-83 (4-5); benzo(b)fluoranthene in TA-SB-80 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (7-8), TA-SB-77 (2-3), TA-SB-83 (1-2); indeno(1,2,3-c,d)pyrene in TA-SB-80 (2-3), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), the 1st and 2nd run of TA-SB-76 (1-2), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (2-3), TA-SB-83 (1-2); phenanthrene in TA-SB-78 (5-6), TA-SB-81 (5-6), the 2nd run of TA-SB-76 (1-2), TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-63 (7-8), TA-SB-77 (5-6); chrysene in TA-SB-78 (5-6), TA-SB-81 (5-6), TA-SB-62 (3-4), TA-SB-70 (0-1); benzo(g,h,i)perylene in TA-SB-78 (5-6), TA-SB-81 (5-6), TA-SB-77 (5-6); 2-methylnaphthalene in TA-SB-81 (5-6); n-nitrosodiphenylamine in the 1st and 2nd run of TA-SB-76 (1-2); anthracene in TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1); benzo(a)pyrene in TA-SB-61 (5-6), TA-SB-62 (5-6), TA-SB-63 (7-8), TA-SB-77 (5-6); fluoranthene in TA-SB-83 (4-5). The spectra for samples TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), the 1st run of TA-SB-76 (1-2), TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-62 (5-6) exhibited slightly irregular baselines.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TG17025
Lab: SHEALY
Media TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 2.3°C and 2.4°C, within the project limit of 4°C. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recoveries for bromomethane, chloroethane, and cyclohexane in Batch 78861 (TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6)), Batch 79017 (TA-SB-78 (6-7), TA-SB-81 (5-6)). LCS recoveries for bromomethane and chloroethane in Batch 78716 (TA-SB-76 (1-2)). LCS recoveries for bromomethane, chloroethane, and dichlorodifluoromethane in Batch 79018 (TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (1-2), TA-SB-83 (4-5)).	All LCS recoveries were within the project limits of 70-130%, except for the following cases: For the LCS associated with Batches 78861 and 79017, the recoveries for bromomethane (216%/216%), chloroethane (225%/225%), and cyclohexane (138%/138%) were above the upper control limit (130%). For Batch 78716, the LCS recoveries for bromomethane (205%) and chloroethane (223%) were above the upper control limit (130%). For Batch 79018, the LCS recoveries for bromomethane (239%) and chloroethane (270%) were above the upper control limit (130%), while the dichlorodifluoroethane recovery (65%) fell below the lower control limit (70%). None of bromomethane, chloroethane, or cyclohexane was detected in any samples in this SDG except that cyclohexane was detected in TA-SB-63 (1-2). TA-SB-63 (1-2) was associated with Batch 79018 and the cyclohexane recovery for the LCS in this batch met the requirement. So no action was taken for bromomethane, chloroethane, or cyclohexane based on the LCS results. Dichlorodifluoromethane was non-detect in all associated samples; the results were qualified UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Bromomethane, chloroethane, and dichlorodifluoromethane in the MS/MSD performed on TA-SB-76 (1-2).	An MS/MSD analysis was performed for VOCs on TA-SB-76 (1-2). The MS/MSD recoveries were within the project limits of 70-130% for all target analytes, except for the MS/MSD recoveries for bromomethane (213%/227%), chloroethane (234%/257%), and dichlorodifluoromethane (59%/60%). Additionally, the RPD value between the MS and MSD was below the project limit of 50% for all analytes. Bromomethane and chloroethane were non-detect in TA-SB-76 (1-2); no qualifier is required for these results. The non-detect result for dichlorodifluoromethane was qualified UJ.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Methylene chloride in TA-TB-01 (071618) and TA-TB-01 (071718) (together, associated with all samples in this SDG).	Two trip blanks (TA-TB-01 (071618) and TA-TB-01 (071718)) were collected for this SDG. Methylene chloride was detected in both, at 0.55 ug/L and 0.74 ug/L, respectively, below the RL of 1.0 ug/L. No other VOCs were detected in the trip blank. Methylene chloride was detected below the RL in TA-SB-81 (5-6) at 140 ug/L (RL 190 ug/L), TA-SB-77 (5-6) at 49 ug/L (RL 89 ug/L), TA-SB-77 (2-3) at 130 ug/L (RL 240 ug/L), and TA-SB-83 (4-5) at 22 ug/L (RL 52 ug/L). It is difficult to evaluate potential impacts to the soil samples by the aqueous blank; no action was taken based on the trip blank.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Initial Calibration	Yes	---	Initial calibrations were performed on 7/25/2018 11:24:30 (instrument msd7) and on 7/23/2018 12:21:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above the limit of 0.995.	No

Project Name/No. Michigan Project
SDG: TG17025
Lab: SHEALY
Media TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/25/2018 17:06:30 (msd7). The %D values for all target analytes were below 25%.	No
	Yes	---	An ICV was performed on 7/23/2018 15:28:30 (msd15). The %D values for all target analytes were all below 25%.	No
	Yes	---	A CCV was performed on 7/25/2018 16:43:30 (msd7). The %D values for all target analytes were below 25%.	No
	No	Bromomethane and chloroethane in CCV on 7/25/2018 20:10:30 (not associated with any samples in this SDG).	A CCV was performed on 7/25/2018 20:10:30 (msd15). The %D values for all target analytes were below 25% except for bromomethane (37.5%) and chloroethane (38.7%). No samples in this SDG were associated with this CCV; no further action was required.	No
	No	Bromomethane and chloroethane in CCV on 7/26/2018 08:57:30 (TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6)).	CCV was performed on 7/26/2018 08:57:30 (msd15). The %D values for all target analytes were below 25% except for bromomethane (36.8%) and chloroethane (48.5%). Bromomethane and chloroethane were non-detect in all associated samples; these results were qualified UJ.	Yes
	No	Bromomethane and chloroethane in CCV on 7/27/2018 09:03:30 (TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (1-2), TA-SB-83 (4-5)).	CCV was performed on 7/27/2018 09:03:30 (msd15). The %D values for all target analytes were below 25% except for bromomethane (48.6%) and chloroethane (34.9%). Bromomethane and chloroethane were non-detect in all associated samples; no action was taken.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: toluene in TA-SB-79 (2-3); 2-butanone in TA-SB-78 (5-6); methyl acetate in TA-SB-78 (6-7), TA-SB-83 (1-2); methylene chloride in TA-SB-81 (5-6), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (4-5); methylcyclohexane in TA-SB-62 (5-6); cyclohexane in TA-SB-63 (1-2).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No

Project Name/No. Michigan Project
SDG: TG17025
Lab: SHEALY
Media TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 2.3ºC and 2.4ºC, within the project limit of 4ºC. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Antimony, beryllium, copper molybdenum, sodium, and titanium in the MS/MSD performed on TA-SB-76 (1-2).	An MS/MSD analysis was performed on TA-SB-76 (1-2) for ICP-MS metals, mercury, and TCLP metals (chromium & lead). The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals except for aluminum (8510%/9990%), antimony (65%/75%), barium (412%/271%), beryllium (54%/56%), chromium (-614%/1070%), copper (-1.1%/153%), iron (206%/507%), lead (181%/254%), magnesium (94%/131%), molybdenum (74%/81%), sodium (136%/155%), titanium (126%/134% vs. laboratory calculated 211%/245%), and zinc (-905%/-972%). The RPDs between the MS and MSD results were within the QAPP limit of 50%. The post-digest spike (PDS) recoveries were within 75-125% for all ICP-MS metals. Aluminum, barium, chromium, iron, lead, and zinc were measured at greater than 4 times the matrix spike concentrations. No action was taken based on the MS/MSD results for these analytes. Additionally, magnesium was present in the original sample at greater than 4 times the MSD spike concentration, and thus no action was required for the MSD recovery exceedance. Detections for antimony, beryllium, copper, and titanium in TA-SB-76 (1-2) were qualified J. The non-detect result for molybdenum in TA-SB-76 (1-2) was qualified UJ. Sodium was not detected in TA-SB-76 (1-2); no qualifier is required for this result.	Yes
	Yes	---	An MS/MSD analysis was performed on TA-SB-83 (4-5) and TA-SB-81 (5-6) for mercury. The MS/MSD recoveries were within the QAPP limits (75-125%), and the RPD between the MS and MSD results was within the QAPP limit of 50%.	No
	Yes	---	An MS/MSD analysis was performed on TA-SB-80 (2-3) for chromium (TCLP). The MS/MSD recoveries were within the QAPP limits (75-125%), and the RPD between the MS and MSD results was within the QAPP limit of 50%.	No
Method Blank	No	Boron detected below the RL in the method blank associated with Batch 79002 (TA-SB-62 (3-4)).	No metal target analytes were detected in the method blanks, except for boron at 3.9 mg/kg, below the RL (13 mg/kg), in the method blank associated with Batch 79002 (TA-SB-62 (3-4)). Boron was not detected in the associated sample (TA-SB-62 (3-4)); no action was required.	No
Instrument Blank	No	Chromium (TCLP) detected in blanks for Run #I4082418A (TA-SB-80 (2-3), TA-SB-79 (2-3), TA-SB-79 (4-5), and TA-SB-78 (5-6). Boron detected in blanks for Run #MS2073118C (no samples in this SDG), Run #MS2080618A (no samples in this SDG), Run #MS2080718C (2nd run for TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-63 (7-8), and 1st run on 8/7/2018 of TA-SB-62 (3-4)), and Run #MS2080818B (no samples in this SDG). Silver detected in blanks for Run #MS2080618A (all samples in this SDG, excluding trip blanks) and Run #MS2080818B (no samples in this SDG).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Chromium (TCLP) was detected in ICB1, CCB1, and CCB2 (Run #I4082418A on 8/24/2018) at -0.0014 mg/L, -0.0017 mg/L, and -0.0013 mg/L, at/above the negative method detection limit (-MDL) of -0.0013 but below the -RL of -0.0050 mg/L. Boron was detected in CCB1, CCB2, CCB3 (Run #MS2073118C on 7/31/2018) at 0.814 ug/L, 0.828 ug/L, 0.587 ug/L, in CCB1 (Run #MS2080618A on 8/6/2018) at 0.751 ug/L, in CCB1, CCB2, CCB3 (Run #MS2080718C on 8/7/2018) at 0.897 ug/L, 0.654 ug/L, 0.725 ug/L, and in CCB1 and CCB2 (Run #MS2080818B on 8/8/2018) at 0.792 ug/L and 0.733 ug/L, below the RL of 25 ug/L. Silver was detected in ICB1 (Run #MS2080618A on 8/6/2018) at 0.363 ug/L, in ICB1 (Run #MS2080818B on 8/1/2018) at 0.375 ug/L, below the RL of 0.5 ug/L. For chromium (TCLP) analysis, Run #I4082418A included samples TA-SB-80 (2-3), TA-SB-79 (2-3), TA-SB-79 (4-5), and TA-SB-78 (5-6). Chromium (TCLP) was detected below the RL (0.10 mg/L) in TA-SB-80 (2-3) at 0.024 mg/L; no action was taken. No samples in this SDG were analyzed for boron in Run #MS2073118C and Run #MS2080818B. For Run #MS2080618A, all samples in this SDG were analyzed after CCV2/CCB2, and thus the detection in CCB1 does not affect the sample results. The boron blank detections in Run #MS2080718C affect the 2nd run results for TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-63 (7-8), and the 1st run on 8/7/2018 results for TA-SB-62 (3-4). Boron was non-detect in TA-SB-62 (3-4), and the result requires no qualifier. The boron results from the reanalyses of the other associated samples were not reported, and thus no qualifiers were required for the reported results. The detection of silver in ICB1 for Run #MS2080618A affects all samples in the run (which includes all samples in this SDG, except for the trip blanks). Silver was detected below the RL in TA-SB-80 (2-3), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-63 (7-8), TA-SB-83 (1-2). The detections below the RL were reported at the RL and qualified UB. Silver was non-detect or detected above RL in the rest of the samples; no action was taken. No samples in this SDG were analyzed for silver in Run #MS2080818B; the detection of silver in ICB1 for this run does not affect the sample results.	Yes

Project Name/No. Michigan Project
SDG: TG17025
Lab: SHEALY
Media TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	A 4-point initial calibration was conducted for TCLP metals on 8/17/2018, and the correlation coefficients were above the QAPP limit of 0.99. Initial calibration was conducted for ICP metals on 8/24/2018, and the correlation coefficients were above the limit of 0.99. Initial calibration was conducted for ICP-MS metals on 8/1/2018, 8/7/2018, 8/8/2018, and 8/9/2018, and the correlation coefficients were above the limit of 0.99. For mercury, a 5-point calibration was performed on 7/20/2018, 7/25/2018, and 8/28/2018 (TCLP), and the correlation coefficient was above the limit of 0.99.	No
Continuing Calibration/Calibration Verification	No	Copper, nickel, sodium, and/or zinc in CCVs associated with Run #MS2073118C (no samples in this SDG), Run #MS2080618A, and Run #MS2080818B.	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP), except for recoveries of copper (82%), sodium (111%), and zinc (86%) in CCV2 (Run #MS2073118C), copper (85%), nickel (89%), and zinc (88%) in CCV3 (Run #MS2073118C), copper (89%) in CCV1 (Run #MS2080618A), copper (89%) in CCV2 (Run #MS2080818B). No samples in this SDG were analyzed in Run #MS2073118C. All samples in this SDG analyzed during Run #MS2080618A were analyzed after CCV2, and thus the copper recovery exceedance in CCV1 does not affect any sample results. Results for TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), and the first runs on 8/6/2018 of TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2) were impacted by the copper recovery exceedance in CCV2. Copper was detected in all of the affected samples; the detections were qualified J-. The CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	Yes
Interference Check Sample	No	Titanium in Run #MS2073118C (no samples in this SDG).	The interference check recoveries were within the limits specified in the QAPP (80-120%), except for titanium (126%) in Run #MS2073118C. No samples in this SDG were analyzed in Run #MS2073118C, and thus no sample results were affected.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum and copper in the serial dilution performed on TA-SB-76 (1-2).	A serial dilution was performed for TA-SB-76 (1-2) for ICP-MS metals. The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits) except for aluminum (26.8%) and copper (10.7%). Aluminum and copper were detected above the 50 times the RL in TA-SB-76 (1-2). The results for aluminum and copper in TA-SB-76 (1-2) results were qualified J.	Yes
Internal Standard	No	Y (yttrium) (not associated with any target analytes).	The %RI was within 60-125% of the response in the calibration blank for all internal standards, except for yttrium in TA-SB-61 (7-8) (139%), TA-SB-62 (5-6) (127%), and TA-SB-70 (0-1) (133%). Yttrium was not associated with any target analytes; no further action was required.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No

Project Name/No. Michigan Project
SDG: TG17025
Laboratory: SHEALY
Media TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 2.3°C and 2.4°C, within the project limit of 4°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium, cyanide, phosphorus, nitrate-nitrite, and chloride in the MS/MSD performed on TA-SB-76 (1-2). Hexavalent chromium in the MS/MSDs performed on TA-SB-70 (0-1) and TA-SB-83 (1-2). Phosphorus in the MS/MSDs performed on TA-SB-77 (2-3).	An MS/MSD analysis was performed on TA-SB-76 (1-2) for hexavalent chromium analysis. The MS/MSD recoveries (68%/39%) were below the project control limits (75-125%), and the RPD was above 50%. (Note that the spike between the MS and MSD samples were over two orders of magnitude apart; therefore, should be considered two separate MS analysis). The hexavalent chromium result for TA-SB-76 (1-2) was qualified J-. An MS/MSD analysis was performed on TA-SB-70 (0-1) for hexavalent chromium analysis. The MS recovery (108%) met the control criteria, but the MSD recovery (48%) was below the project control limit. The RPD exceeded the 50% project limit, but the spike concentrations were different between the MS and MSD samples. Hexavalent chromium was not detected in TA-SB-70 (0-1); the non-detect result was qualified UJ. An MS/MSD analysis was performed on TA-SB-83 (1-2) for hexavalent chromium analysis. The MS/MSD recoveries (0%/0%) were below the control limits (75-125%). The non-detect result for hexavalent chromium in TA-SB-83 (1-2) was qualified UR. An MS/MSD analysis was performed on TA-SB-76 (1-2) and TA-SB-63 (1-2) for cyanide analysis. The MS/MSD recoveries were within the project limits (75-125%) except for the MS recovery in TA-SB-76 (1-2) (GZA calculated 0%; laboratory showed -58%). The RPD between the MS and MSD results was below 50% except for TA-SB-76 (1-2) (200%). The detection for cyanide in TA-SB-76 (1-2) was qualified J-. An MS/MSD analysis was performed on TA-SB-76 (1-2), TA-SB-77 (2-3), and TA-SB-83 (1-2) for phosphorus analysis. The MS/MSD recoveries were all outside the control limits; however, the original sample concentration of phosphorus for TA-SB-76 (1-2) and TA-SB-83 (1-2) exceeded 4 times the MS/MSD spike concentration, and thus no action is required for these two samples. The MS/MSD recoveries for TA-SB-77 (2-3) (52%/17% vs. laboratory reported 65%/329%) were outside the control limits (75-125%); the phosphorus detection in TA-SB-77 (2-3) was qualified J-. An MS/MSD analysis was performed on TA-SB-76 (1-2) for ammonia, nitrate-nitrite, sulfate, and chloride. The MS/MSD recoveries were all within the project control limits (75-125%) and RPDs were within 50%, except for the MS and MSD recoveries for nitrate-nitrite (-925%/-125% vs. laboratory reported -59%/770%) and chloride (110%/60% vs. laboratory reported 141%/90%), and the nitrate-nitrite RPD (67%) exceeded 50%. The original sample concentration of nitrate-nitrite was greater than 4 times the MS/MSD spike concentration; no action was required for the nitrate-nitrite result for TA-SB-76 (1-2). The chloride detection in TA-SB-76 (1-2) was qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG17025
Laboratory: SHEALY
Media TA-TB-01 (071618) and TA-TB-01 (071718) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Method Blank	No	Cyanide in Batch 78724 (TA-SB-80 (2-3)), Batch 78725 (TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6)), and Batch 79014 (TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (1-2), TA-SB-83 (4-5)). Phosphorus in Batch 79029 (TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6)). Ammonia in Batch 79136 (TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6)).	Total cyanide was detected at 0.011 mg/kg, below the RL of 0.12 mg/kg, in the method blank (MB) associated with Batch 78724 (TA-SB-80 (2-3)). Cyanide was detected below the RL and the result was raised to RL with qualifier UB. Total cyanide was detected at 0.011 mg/kg, below the RL of 0.12 mg/kg, in the MB for Batch 78725 (TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6)). Cyanide was detected below the RL in TA-SB-80 (3-4), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-81 (4-5), TA-SB-61 (7-8), TA-SB-70 (5-6); these results were reported at the respective RLs and qualified UB. Cyanide was detected above the RL in TA-SB-79 (2-3), TA-SB-76 (1-2), TA-SB-61 (5-6), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1); no action was taken. Total cyanide was detected at at 0.033 mg/kg, below the RL of 0.12 mg/kg, in the MB for Batch 79014 (TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (1-2), TA-SB-83 (4-5)). Cyanide was detected below the RL in TA-SB-77 (5-6), TA-SB-77 (2-3), TA-SB-83 (4-5); these results were reported at the respective RLs and qualified UB. Cyanide was detected above the RL in TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-83 (1-2); no action was taken. Phosphorus was detected at 1.6 mg/kg, below the RL of 5.0 mg/kg, in the MB for Batch 79029 (TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6)). Phosphorus was detected above the RL in all samples in this SDG; no action was taken. Ammonia was detected at 0.48 mg/kg, below the RL of 1.0 mg/kg, in the MB for Batch 79136 (TA-SB-80 (2-3), TA-SB-80 (3-4), TA-SB-79 (2-3), TA-SB-79 (4-5), TA-SB-78 (5-6), TA-SB-78 (6-7), TA-SB-81 (5-6), TA-SB-76 (1-2), TA-SB-81 (4-5), TA-SB-61 (5-6), TA-SB-61 (7-8), TA-SB-62 (3-4), TA-SB-62 (5-6), TA-SB-70 (0-1), TA-SB-70 (5-6), TA-SB-63 (1-2), TA-SB-63 (7-8), TA-SB-77 (5-6)). Ammonia was detected below the RL in TA-SB-76 (1-2); the result was reported at the RL and qualified UB. Ammonia was detected above the RLs in the rest of the samples; no action was taken. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	No	Nitrite in ICB 8/1/2018 2:54:28 PM (all samples in this SDG).	No TCLs were detected in any instrument blank, except the ICB for nitrite analysis conducted on 8/1/2018 2:54:28 PM was noted by the laboratory to have a "QC fail." No detailed information was provided by the laboratory; as a conservative measure, no action was taken.	No
Reported Quantitation Limits	No	Multiple inorganic non-metal analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration performed for all target analytes had correlation coefficients greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	The percent solids was above 30% for all samples.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No

Project Name/No. Michigan Project
SDG: TG14035
Lab: SHEALY
Media TA-TB-01(071318) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 4.3°C, slightly above the project limit of 4°C. No action is required for this slight temperature exceedance. All samples were extracted and analyzed within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from sample extraction to analysis).	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for SVOCs in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/18/2018 09:19:30 and 7/19/2018 09:33:30. For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	A CCV was performed on 7/23/2018 09:27:30 on instrument msd10. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 7/25/2018 08:33:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes, and RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: phenanthrene in TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T7-ISLAND(1-2), TA-SED-T7-ISLAND(3-4), TA-SED-T7-ISLAND(6-7), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5); benzo(a)anthracene in TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T7-ISLAND(1-2), TA-SED-T7-ISLAND(3-4), TA-SED-T7-ISLAND(6-7), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5), TA-SED-T9-ISLAND(6.5-7.5); chrysene in TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T7-ISLAND(1-2), TA-SED-T7-ISLAND(3-4), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5); benzo(b)fluoranthene in TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T7-ISLAND(1-2), TA-SED-T7-ISLAND(3-4), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5); benzo(k)fluoranthene in TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T7-ISLAND(1-2), TA-SED-T7-ISLAND(3-4), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(4-5); fluoranthene in TA-SED-T4-ISLAND(6-7); diethylphthalate in TA-SED-T7-ISLAND(6-7); benzo(a)pyrene in TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(4-5); indeno(1,2,3-c,d)pyrene in TA-SED-T9-ISLAND(1-2); benzo(g,h,i)perylene in TA-SED-T9-ISLAND(1-2).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	No	Percent solids below 30% for TA-SED-T4-ISLAND(0-0.5) (20.0%), TA-SED-T9-ISLAND(1-2) (29.4%).	The percent solids was above 30% for all samples except TA-SED-T4-ISLAND(0-0.5) (20.0%), TA-SED-T9-ISLAND(1-2) (29.4%). SVOC results for TA-SED-T4-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2) were qualified (J for detections, UJ for non-detects).	Yes

Project Name/No. Michigan Project
SDG: TG14035
Lab: SHEALY
Media TA-TB-01(071318) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Holding time exceedance for the reanalysis of TA-SED-T4-ISLAND(0-0.5) on 7/26/2018.	The samples were received at 4.3°C, slightly above the project limit of 4°C. No action is required for this slight temperature exceedance. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP, except for the reanalysis of TA-SED-T4-ISLAND(0-0.5) which was conducted on the 15th day (7/26/2018) after sample collection. The VOC results for TA-SED-T4-ISLAND(0-0.5) reanalysiswere qualified (J for detections, UJ for non-detects).	Yes
Surrogate Recovery	No	1,2-Dichloroethane-d4, toluene-d8, and bromofluorobenzene surrogate recoveries outside of control limits for run 1 on 7/24/2018 of TA-SED-T4-ISLAND(0-0.5) and TA-SED-T9-ISLAND(4-5).	All VOC surrogate recoveries met the required criteria of 70-130%, except for TA-SED-T4-ISLAND(0-0.5) (1st analysis, 7/24/2018) for which 1,2-dichloroethane-d4, toluene-d8, and bromofluorobenzene recoveries (44%, 42%, 39%, respectively) were below the lower control limit (70%). TA-SED-T4-ISLAND(0-0.5) was reanalyzed due to the surrogate recovery exceedances; the surrogate recoveries in the reanalysis met the control criteria. VOC results for the original analysis of TA-SED-T4-ISLAND(0-0.5) on 7/24/2018 were qualified (J- for detections, UJ for non-detects). For TA-SED-T9-ISLAND(4-5) run 1 (7/24/2018), 1,2-dichloroethane-d4, toluene-d8, and bromofluorobenzene recoveries (157%, 163%, 152%) were above the upper control limit (130%). No information was provided for the 2nd analysis. For run 1 (on 7/25/2018) of TA-SED-T9-ISLAND(4-5), detections of acetone, 2-butanone, carbon disulfide, methyl acetate, and methylene chloride were qualified J+. The non-detect results for all other analytes in TA-SED-T9-ISLAND(4-5) were not qualified.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recoveries for bromomethane, chloroethane, and/or cyclohexane in Batches 78608 (run 1 of TA-SED-T4-ISLAND(0-0.5)), 78714 (TA-SED-T4-ISLAND(4-5), TA-SED-T4-ISLAND(6-7), TA-SED-T7-ISLAND(1-2)), 78861 (run 2 on 7/26/2018 of TA-SED-T4-ISLAND(0-0.5)), and 78716 (TA-SED-T7-ISLAND(3-4), TA-SED-T7-ISLAND(6-7), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5), TA-SED-T9-ISLAND(6.5-7.5)).	All LCS recoveries were within the project limits of 70-130%, except for the following cases: For Batches 78608, 78714, 78861, the LCS recoveries for bromomethane (190%, 190%, 216%), chloroethane (216%, 216%, 225%), and cyclohexane (151%, 151%, 138%) were above the upper control limit (130%). For Batch 78716, the LCS recoveries for bromomethane (205%) and chloroethane (223%) were above the upper control limit (130%). All associated samples were non-detect for bromomethane, chloroethane, and cyclohexane; thus, no qualifiers were required.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for VOCs in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Methylene chloride in TA-TB-01(071318).	One trip blank TA-TB-01(071318) was collected for this SDG. Methylene chloride was detected at 0.55 ug/L, below the RL of 1.0 ug/L. No other VOCs were detected in the trip blank. Methylene chloride was detected below the RL in TA-SED-T4-ISLAND(0-0.5) at 260 ug/kg (RL 550 ug/kg), TA-SED-T4-ISLAND(4-5) at 140 ug/kg (RL 250 ug/kg), TA-SED-T7-ISLAND(6-7) at 69 ug/kg (RL 91 ug/kg), TA-SED-T9-ISLAND(4-5) at 110 ug/kg (RL 180 ug/kg). It is difficult to evaluate impacts of aqueous trip blank to soil/SOIL samples; as a conservative approach, no action was taken based on the trip blank results.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Initial Calibration	Yes	---	An initial calibration was performed on 7/13/2018 11:16:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. An initial calibration was performed on 7/23/2018 12:21:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.995.	No

Project Name/No. Michigan Project
SDG: TG14035
Lab: SHEALY
Media TA-TB-01(071318) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/13/2018 16:07:30 (msd5), and the %D values were all below 25%.	No
	Yes	---	An ICV was performed on 7/23/2018 15:28:30 (msd15). The %D values for all target analytes were all below 25%.	No
	Yes	---	A CCV was performed on 7/19/2018 13:38:30 (msd5). The %D values were all below 25%, and the RRFs for all target analytes were greater than 0.01.	No
	No	Bromomethane in CCV on 7/24/2018 12:35:30 (1st run on 7/24/2018 of TA-SED-T4-ISLAND(0-0.5)).	A CCV was performed on 7/24/2018 12:35:30 (msd15). The %D values were all below 25% except for bromomethane (45.3%). The RRFs for all target analytes were greater than 0.01. Bromomethane was non-detect in the associated sample (1st run on 7/24/2018 of TA-SED-T4-ISLAND(0-0.5)); no action was taken.	Yes
	No	Bromomethane and chloroethane in CCV on 7/25/2018 08:52:30 (TA-SED-T4-ISLAND(4-5), TA-SED-T4-ISLAND(6-7), TA-SED-T7-ISLAND(1-2), TA-SED-T7-ISLAND(3-4), TA-SED-T7-ISLAND(6-7), TA-SED-T9-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5), TA-SED-T9-ISLAND(6.5-7.5)).	A CCV was performed on 7/25/2018 08:52:30 (msd15). The %D values were all below 25%, except for bromomethane (62.6%) and chloroethane (77.7%). The RRFs for all target analytes were greater than 0.01. Bromomethane and chloroethane were non-detect in all associated samples; the results were qualified UJ.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: methylene chloride in TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T9-ISLAND(4-5); acetone in TA-TB-01(071318).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	No	Percent solids below 30% for TA-SED-T4-ISLAND(0-0.5) (20.0%), TA-SED-T9-ISLAND(1-2) (29.4%). VOC results for TA-SED-T4-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2).	The percent solids was above 30% for all samples except TA-SED-T4-ISLAND(0-0.5) (20.0%), TA-SED-T9-ISLAND(1-2) (29.4%). VOC results for TA-SED-T4-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2) were qualified (J for detections, UJ for non-detects).	Yes

Project Name/No. Michigan Project
SDG: TG14035
Lab: SHEALY
Media TA-TB-01(071318) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 4.3°C, slightly above the project limit of 4°C. No action is required for this slight temperature exceedance. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	Yes	---	The MS/MSD analysis was performed for TA-SED-T4-ISLAND(4-5) for TCLP metals (chromium & mercury). The MS/MSD recoveries were within the QAPP limits (75-125%) for all TCLP metals, and the RPDs between the MS and MSD results were within the QAPP limit of 50%. MS/MSD analysis was not performed for any samples for metal analysis in this SDG.	No
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No
Instrument Blank	No	Boron, silver, and iron detected in the instrument blanks associated with Run #MS2072618A (associated with all samples in this SDG).	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Boron was detected in CCB1 (Run #MS2072618A on 7/26/2018) at 0.949 ug/L, below the RL of 25 ug/L. Silver was detected in ICB1 (Run #MS2072618A on 7/26/2018) at 0.296 ug/L, below the RL of 0.5 ug/L. Iron was detected in CCB4 (Run #MS2072618A on 7/26/2018) at 12.36 ug/L, below the RL of 25 ug/L. For Run #MS2072618A, no samples in this SDG were run within 12 hours of CCV1/CCB1; thus, the boron detection in CCB1 does not affect any samples in this SDG. The detection of silver in ICB1 affects all samples in the run (which includes all samples in this SDG, except for the trip blank). However, silver was non-detect in all samples in this SDG, and no qualifier was required for the non-detect results. The iron detection in CCB4 also affects all samples in this SDG, except for the trip blank. Iron was detected in each sample, and the detections for iron were at least 100 times higher than the RLs. No action was taken based on the instrument blank results.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The laboratory reporting limits for aluminum, magnesium, selenium, and sodium were elevated above the MDEQ target detection limits. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	A 4-point initial calibration was conducted for TCLP metals on 8/17/2018, and the correlation coefficients were greater than 0.99. Initial calibration was conducted for all ICP-MS metals on 7/27/2018, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 7/18/2018 and 8/15/2018, and the correlation coefficients were greater than 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes	---	A serial dilution was performed for TA-SED-T4-ISLAND(4-5) for chromium (TCLP). The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits). Serial dilution was not performed for the metal analysis for any samples in this SDG.	No
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank for all internal standards.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	No	Percent solids below 30% for TA-SED-T4-ISLAND(0-0.5) (20.0%), TA-SED-T9-ISLAND(1-2) (29.4%).	The percent solids was above 30% for all samples except TA-SED-T4-ISLAND(0-0.5) (20.0%), TA-SED-T9-ISLAND(1-2) (29.4%). Metal results for TA-SED-T4-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2) were qualified (J for detections, UJ for non-detects).	Yes
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No

Project Name/No. Michigan Project
SDG: TG14035
Laboratory: SHEALY
Media TA-TB-01(071318) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 4.3°C, slightly above the project limit of 4°C. No action is required for this slight temperature exceedance. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for inorganic nonmetals in this SDG.	No
Method Blank	No	Cyanide in Batch 78309 (associated with all samples in this SDG).	Total cyanide was detected in the method blank associated with Batch 78309 (associated with all samples in this SDG) at 0.0098 mg/kg, below the RL of 0.12 mg/kg. Total cyanide was detected above the RL; no action was taken. Total cyanide was detected below the RL in TA-SED-T4-ISLAND(0-0.5), TA-SED-T4-ISLAND(4-5), TA-SED-T4-ISLAND(6-7), TA-SED-T7-ISLAND(1-2), TA-SED-T7-ISLAND(3-4), TA-SED-T7-ISLAND(6-7), TA-SED-T9-ISLAND(1-2), TA-SED-T9-ISLAND(4-5), TA-SED-T9-ISLAND(6.5-7.5); the total cyanide results in these samples were qualified UB as non-detects at the respective RLs. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	Yes	---	The laboratory reporting limits for ammonia met the MDEQ target detection limit listed in Table A.7.8 in the QAPP. No target detection limits were listed for the other target analytes.	No
Initial Calibration	Yes	---	A 5-point initial calibration was conducted for ammonia on 7/26/2018. The correlation coefficients were greater than the QAPP limit of 0.99. An 8-point initial calibration was conducted for cyanide on 7/20/2018, and the correlation coefficients were greater than 0.99. 7-point initial calibrations were conducted for nitrate/nitrite on 7/27/2018, and the correlation coefficients were greater than 0.99. A 7-point initial calibration was conducted for phosphorus on 7/20/2018 and 7/23/2018, and the correlation coefficients were greater than 0.99. An initial calibration was conducted for chloride on 7/26/2018, and the correlation coefficients for all target analytes was above the QAPP limit of 0.99. Initial calibrations for hexavalent chromium were conducted on 8/1/2018 08:49:30 and 8/6/2018, and the correlation coefficients were above 0.99.	No
Continuing Calibration/Calibration Verification	No	Hexavalent chromium in the CCVs performed on 8/2/2018 04:08:30 and 8/2/2018 06:37:30 (associated with all samples in this SDG).	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP) with the following exceptions: For hexavalent chromium, the following CCVs exceeded the %D limit: the CCV on 8/2/2018 04:08:30 (-13.2%), the CCV on 8/2/2018 06:37:30 (-24.3%). Both CCV exceedances affect all samples in this SDG. Hexavalent chromium was non-detect in all associated samples; the results were qualified UJ.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	No	Percent solids below 30% for TA-SED-T4-ISLAND(0-0.5) (20.0%), TA-SED-T9-ISLAND(1-2) (29.4%).	The percent solids was above 30% for all samples except TA-SED-T4-ISLAND(0-0.5) (20.0%), TA-SED-T9-ISLAND(1-2) (29.4%). All results for TA-SED-T4-ISLAND(0-0.5), TA-SED-T9-ISLAND(1-2) were qualified (J for detections, UJ for non-detects).	Yes
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No

Project Name/No. Michigan Project
SDG: TG11006
Lab: SHEALY
Media Soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	The sample was received at a cooler temperature above the QAPP limit.	The sample was collected on 7/9/2018 and received at 5.7°C on 7/11/2018. No action was taken due to the slight exceedance of the project limit of 4°C. The sample was extracted and analyzed within the holding time limits specified in the QAPP.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field/Trip Blank	NA	---	No trip/field blank samples were collected for this SDG.	No
Reporting Limits	No	Multiple SVOCs in project sample	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	Field duplicate analysis was not conducted for any samples in this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/19/2018 09:33:30 (msd11). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	ICV was performed on 7/19/2018 13:17:30 and 17:03:30 (msd11). The %D values were all below 25%.	No
	Yes	Hexachlorocyclopentadiene and 4,6-dinitro-2-methylphenol in samples associated with CCV performed on 7/23/2018 09:13:30.	A CCV was performed on 7/23/2018 09:13:30 (msd11) and on 7/23/2018 09:38:30. The CCV %D did not exceed the project limit of 25% for any target analytes, except hexachlorocyclopentadiene (25.1%) and 4,6-dinitro-2-methylphenol (28.2%). Hexachlorocylclopentadiene or 4,6-dinitro-2-methylphenol was not detected in TA-SED-T7-ISLAND (0-0.5); no action was taken. RRFs for all target analytes were greater than 0.01.	No
Target Analyte Identification	No	Various target analytes in project sample.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: phenanthrene, fluoranthene, benzo(a)anthracene, chrysene, and benzo(b)fluoranthene in sample TA-SED-T7-ISLAND (0-0.5).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	Percent solids in the only sample in the SDG was 65.4%.	No

Project Name/No. Michigan Project
SDG: TG11006
Lab: SHEALY
Media Soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	The sample was received at a cooler temperature above the QAPP limit.	The sample was collected on 7/9/2018 and received at 5.7°C on 7/11/2018. No action was taken due to the slight exceedance of the project limit of 4°C. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Acetone, bromomethane, 2-butanone, and chloroethane in sample TA-SED-T7-ISLAND (0-0.5).	LCS results were within the project limits of 70-130% in the LCS sample associated with Batch 77934 with the following exceptions. Acetone (50%), bromomethane (63%), 2-butanone (69%), and chloroethane (61%) recovered below the project limits. Acetone and 2-butanone were detected below the reporting limit in sample TA-SED-T7-ISLAND (0-0.5). J- qualifiers were added to these results. Bromomethane and chloroethane were non-detect in sample TA-SED-T7-ISLAND (0-0.5) were non-detect and qualified UJ.	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	NA	---	No trip/field blank samples were collected for this SDG.	No
Quantitation Limits	No	Multiple VOCs in the only sample in this SDG.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	Field duplicate analysis was not conducted for any samples in this SDG.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/16/2018 11:05:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	No	Dichlorodifluoromethane and acetone in the ICV on 7/16/2018 19:32:30.	ICV was performed on 7/16/2018 19:32:30 (msd15). The %D values were all below 25% with the exception of dichlorodifluoromethane (27%) and acetone (28%). Dichlorodifluoromethane was not detected in the sample in this SDG; no action was taken. Acetone result for the sample in this SDG was qualified J+.	Yes
	Yes	---	CCV was performed on 7/17/2018 08:17:30 (msd15). The %D values were all below 25%. RRFs for all target analytes were greater than 0.01.	No
Target Analyte Identification	Yes	---	The difference between the sample spectrum and the reference spectrum is generally within 20%.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	Percent solids in the only sample in the SDG was 65.4%.	No

Project Name/No. Michigan Project
SDG: TG11006
Lab: SHEALY
Media Soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	The sample was received at a cooler temperature above the QAPP limit.	The sample was collected on 7/9/2018 and received at 5.7°C on 7/11/2018. No action was taken due to the slight exceedance of the project limit of 4°C. All samples were processed and analyzed within the holding time limits specified in the QAPP. Metal samples analyzed via EPA method 6020B were analyzed within 6 months from sample collection, and mercury analysis via EPA method 7471B was performed within 28 days from sample collection.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	No
Method Blank	Yes	---	No metal TCLs were detected in the method blank.	No
Instrument Blank	No	Boron in CCB1, CCB2, CCB3, CCB4, and CCB5 of Run #MS2072718B on 7/27/2018, and boron in CCB1 of Run #MS2073118C on 7/31/2018.	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Boron was detected in CCB1, CCB2, CCB3, CCB4, and CCB5 (Run #MS2072718B on 7/27/2018) at 1.523 ug/L, 3.593 ug/L, 2.027 ug/L, 2.176 ug/L, and 1.770 ug/L, respectively, below the RL value of 25 ug/L. The boron results for the project sample were impacted by the born detects in these CCBs. Because the impacted boron result was non-detect, no action was taken. Boron was detected in CCB1 (Run #MS2073118C on 7/31/2018) at 0.814 ug/L, below the RL value of 25 ug/L. The project sample was not impacted by this detection.	No
Reported Quantitation Limits	No	Multiple metals in the only sample in this SDG.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The laboratory reporting limits for aluminum, magnesium, selenium, and sodium were elevated above the MDEQ target detection limits. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	For mercury, a 5-point calibration was performed on 7/16/2018, and the correlation coefficient was greater than 0.99. A 4-point initial calibration was conducted for all metals but mercury on 7/27/2018, and the correlation coefficients were greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	No	Copper, silver, and zinc in CCV1 and CCV2 (Run #MS2072718B on 7/27/2018) and nickel in CCV2 (Run #MS2072718B on 7/27/2018) Copper in CCV1 (Run #MS2080118C on 8/1/2018).	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP) with the following exceptions. Copper, silver, and zinc recovered slightly below the limits in CCV1 (Run #MS2072718B on 7/27/2018) at 85%, 89%, and 88%, respectively, and in CCV2 (Run #MS2072718B on 7/27/2018) at 85%, 88%, and 88%, respectively. Nickel recovered slightly below the limits in CCV2 (Run #MS2072718B on 7/27/2018) at 88%. Results from 7/27/2018 were reported and impacted the project sample. Copper, nickel, and zinc were detected above the reporting limit in sample TA-SED-T7-ISLAND (0-0.5), and these results were qualified J-. Silver was not detected and was qualified UJ. Copper recovered slightly below the limits in CCV1 (Run #MS2080118C on 8/1/2018) at 87%. This did not impact the project sample. CRQL Check Standard recoveries were within the project limits of 70-130%.	Yes
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA	---	Serial dilution was not conducted in this SDG.	No
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the continuing calibration blank immediately preceding project sample analysis.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	Percent solids in the only sample in the SDG was 65.4%.	No
Field Duplicate Analysis	NA	---	Field duplicate analysis was not conducted for any samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TG11006
Laboratory: SHEALY
Media Soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	The sample was received at a cooler temperature above the QAPP limit.	The sample was collected on 7/9/2018 and received at 5.7°C on 7/11/2018. No action was taken due to the slight exceedance of the project limit of 4°C. The sample was analyzed per analytical methods specified in the QAPP Table B.3.2. The sample was analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	No
Method Blank	No	Total cyanide in the only sample in the SDG.	Total cyanide was detected in the method blank at 0.012 mg/kg, below the RL of 0.12 mg/kg, for Batch 77896. Total cyanide was detected below the RL in the only sample submitted for analysis in this SDG. The total cyanide result in this sample was qualified as a non-detect at the respective RL. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank. ICB and CCB results are not marked with QC status in nitrate-nitrite QC pages.	No
Reported Quantitation Limits	No	Multiple analytes in the only sample in the SDG.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and the correlation coefficients were greater than the QAPP limit of 0.99 for solids.	No
Continuing Calibration/Calibration Verification	No	CCVs for cyanide and hexavalent chromium.	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1) of the QAPP and CRQL Check Standard recoveries are within the 70-130% limits with the following exceptions: The CCV performed for cyanide on 7/17/2018 at 16:48:48 was outside of the limit (111%). The laboratory reported the total cyanide result from 7/17/2018, and the only result in this SDG was impacted by the 7/17/2018 CCV. Total cyanide was detected below the RL in this sample and was qualified as a non-detect at the respective RL based on the method blank result. No action was taken based on the CCV result. The CCVs performed on 7/28/2018 at 04:31:30 (CCV INMIC687-05) and at 06:16:30 (CCV INMIC687-05) for sulfate were lightly outside of the limit (%D values were 10.1% and 10.3%, respectively, vs. 10%). The only sample in this SDG was analyzed for sulfate on 7/27/2018 at 12:53:30, more than 12 hours before these CCVs; therefore, no action was taken. CCVs performed on 7/28/2018 at 07:22 and 09:51 for hexavalent chromium were outside the limit (%D values were 17.2% and 11.5%, respectively, vs. 10%). The hexavalent chromium result in sample TA-SED-T7-ISLAND (0-0.5) was analyzed on 7/28/2018 at 13:10 and was impacted. Hexavalent chromium was not detected in the sample in this SDG; no action was taken. The CCVs performed on 8/1/2018 at 19:51 and 23:22 and on 8/2/2018 at 0:12, 2:16, 4:08, and 6:37 for hexavalent chromium were also outside of the limit (12.1%, 13.5%, 12.2%, 17%, 13.2%, and 24.3% vs. 10%). These were analyzed more than 12 hours after the only sample in the SDG.	No
Laboratory Duplicate Analysis	NA		No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	Percent solids in the only sample in the SDG was 65.4%.	No
Field Duplicate Analysis	NA	---	Field duplicate analysis was not conducted for any samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TG11005
Lab: SHEALY
Media TA-TB-01 (071018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Cooler temperature (5.7°C) slightly exceeded 4°C.	The samples were received at 5.7°C. Although the cooler was received above the project limit of 4°C, the cooler was received within 24 hours from sample collection; therefore, no action was required. All samples were extracted and analyzed within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from sample extraction to analysis).	Yes
Surrogate Recovery	No	Phenol-d5 surrogate recovery outside of control criteria for TA-SB-68 (3-4).	All SVOC surrogate recoveries met the laboratory established limits, except the recovery for phenol-d5 (25%) for TA-SB-68 (3-4) was slightly below the laboratory control limits (26-148%). The associated target analytes (phenol compounds) were not detected in TA-SB-68 (3-4) and the non-detects were qualified UJ.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for SVOCs in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/19/2018 09:33:30. For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	No	Hexachlorocyclopentadiene and 4,6-dinitro-2-methylphenol in CCV on 7/23/2018 09:13:30 (all samples in this SDG).	A CCV was performed on 7/23/2018 09:13:30 on instrument msd11. The CCV %D did not exceed the project limit of 25% for any target analytes except hexachlorocyclopentadiene (-25%) and 4,6-dinitro-2-methylphenol (-28%). RRFs were all above 0.01. Hexachlorocyclopentadiene and 4,6-dinitro-2-methylphenol were not detected in any samples in this SDG; the non-detects in all samples in this SDG were qualified UJ.	Yes
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: naphthalene in TA-SB-AOC-H-03 (2-2), TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3); acenaphthene in TA-SB-AOC-H-03 (2-2), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5); fluoranthene in TA-SB-AOC-H-03 (2-2); benzo(a)anthracene in TA-SB-AOC-H-03 (2-2), TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3), TA-SB-69 (4-5); benzo(b)fluoranthene in TA-SB-AOC-H-03 (2-2), TA-SB-68 (3-4), TA-SB-69 (2-3); benzo(a)pyrene in TA-SB-AOC-H-03 (2-2); benzo(g,h,i)perylene in TA-SB-AOC-H-03 (2-2), TA-SB-68 (3-4), TA-SB-69 (2-3),TA-SB-69 (4-5); phenanthrene in TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-69 (2-3), TA-SB-69 (4-5); indeno(1,2,3-c,d)pyrene in TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3), TA-SB-69 (4-5); chrysene in TA-SB-68 (3-4), TA-SB-69 (2-3), TA-SB-69 (4-5); fluorene in TA-SB-AOC-H-01 (2-3), TA-SB-69 (2-3). The following samples exhibited slightly irregular spectrum baselines: TA-SB-AOC-H-03 (2-2), TA-SB-69 (2-3)	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	All samples were at solids percentage above 30%.	No

Project Name/No. Michigan Project
SDG: TG11005
Lab: SHEALY
Media TA-TB-01 (071018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Cooler temperature (5.7^{o}C) slightly exceeded 4°C.	The samples were received at 5.7^{o}C. Although the cooler was received above the project limit of 4°C, the cooler was received within 24 hours from sample collection; therefore, no action was required. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recoveries for acetone, bromomethane, 2-butanone, chloroethane for batch 78522 (associated with TA-SB-AOC-H-03 (2-2.5), TA-SB-AOC-H-03 (5-6), TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3)).	For Batch 78522, the LCS recoveries for acetone (50%), bromomethane (63%), 2-butanone (69%), and chloroethane (61%) were below the limit of 70%. All other LCS recoveries were wthin the project limits of 70-130%. The results for acetone, bromomethane, 2-butanone, and chloroethane in TA-SB-AOC-H-03 (2-2.5), TA-SB-AOC-H-03 (5-6), TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3) have been qualified (J- for detects, UJ for non-detects).	Yes
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for VOCs in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Acetone in TA-TB-01 (71018) (associated with all samples in this SDG).	One trip blank TA-TB-01 (71018) was collected for this SDG. Acetone was detected in TA-TB-01 (71018) at 2.1 ug/L, below the RL of 20 ug/L. No other VOCs were detected in the trip blank. Acetone was detected in TA-SB-AOC-H-03 (2-2.5) at 5200 ug/kg, at above twice the RL (2400 ug/kg), and in TA-SB-AOC-H-02 (2-3) at 330 ug/kg, below the RL of 1100 ug/kg. It is difficult to evaluate impact of trip blank to the soild samples; no action was taken.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/6/2018 17:44:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. The initial calibration was performed on 7/5/2018 23:48:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. The initial calibration was performed on 7/16/2018 11:05:30 (instrument msd15) and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. The initial calibration was performed on 7/23/2018 12:21:30 (instrument msd15) and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/6/2018 21:13:30 (msd5), and the %D values were less than 25%.	No
	No	Dichlorodifluoromethane in ICV on 7/6/2018 02:55:30 (associated with no samples in this SDG).	An ICV was performed on 7/6/2018 02:55:30 (msd15), and the %D values were all within 25% except for dichlorodifluoromethane (43%). None of the samples in this SDG were impacted by this ICV.	No
	No	Dichlorodifluoromethane and acetone in ICV on 7/16/2018 19:32:30 (associated with TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3), TA-SB-69 (4-5)).	An ICV was performed on 7/16/2018 19:32:30 (msd15), and the %D values were below 25% except for dichlorodifluoromethane (27%) and acetone (28%). Dichlorodifluoromethane and acetone were not detected in any of the associated samples (TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3), TA-SB-69 (4-5)); therefore, no action was taken based on the ICV results.	No
	Yes	---	ICV was performed on 7/23/2018 15:28:30 (msd15). The %D values for all target analytes were all below 25%.	No
	Yes	---	CCV was performed on 7/12/2018 15:16:30 (msd5). The %D values were all below 25%, and the RRFs for all target analytes were greater than 0.01.	No
	No	Dichlorodifluoromethane in CCV on 7/15/2018 15:09:30 (no samples in this SDG).	CCV was performed on 7/15/2018 15:09:30 (msd15). The %D values were all below 25% except for dichlorodifluoromethane (50%), acetone (25.9%). RRFs all target analytes greater than 0.01. None of the samples in this SDG were associated with this CCV; thus no action was required.	No
	Yes	---	CCV was performed on 7/17/2018 08:17:30 (msd15). The %D values were all below 25%, and the RRFs for all target analytes were greater than 0.01.	No

Project Name/No. Michigan Project
SDG: TG11005
Lab: SHEALY
Media TA-TB-01 (071018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Target Analyte Identification	No	1,1,1-Trichloroethane in TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3); trans-1,2-dichloroethene in TA-SB-68 (3-4); 1,1-dichloroethane in TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3); cis-1,2-dichloroethene in TA-SB-68 (3-4); 1,2-dichloroethane in TA-SB-68 (3-4); cyclohexane in TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5); methylene chloride in TA-SB-AOC-H-01 (2-3), TA-SB-69 (2-3); and acetone in TA-TB-01 (071018).	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: 1,1,1-trichloroethane in TA-SB-68 (1-2), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3); trans-1,2-dichloroethene in TA-SB-68 (3-4); 1,1-dichloroethane in TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3); cis-1,2-dichloroethene in TA-SB-68 (3-4); 1,2-dichloroethane in TA-SB-68 (3-4); cyclohexane in TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5); methylene chloride in TA-SB-AOC-H-01 (2-3), TA-SB-69 (2-3); and acetone in TA-TB-01 (071018).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	All samples were at solids percentage above 30%.	No

Project Name/No. Michigan Project
SDG: TG11005
Lab: SHEALY
Media TA-TB-01 (071018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Cooler temperature (5.7°C) slightly exceeded 4°C.	The samples were received at 5.7°C. Although the cooler was received above the project limit of 4°C, the cooler was received within 24 hours from sample collection; therefore, no action was required. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Magnesium, sodium, titanium, boron, chromium, and cobalt recoveries for the MS/MSD performed on TA-SB-AOC-H-03 (5-6) were outside of control limits.	The MS/MSD analysis was performed for TA-SB-AOC-H-03 (5-6) for total metals. The MS/MSD recoveries were within the QAPP limits (75-125%) for all metals, except for the following: The MS and/or MSD recoveries for aluminum (5530%/7600%), iron (92%/743%), magnesium (150%/347%), sodium (118%/158%), titanium (121%/476%), and zinc (96%/130%) exceeded the project limits. The MS and/or MSD recoveries for boron (32%/32%), chromium (66%/84%), and cobalt (74%/80%) were below the project limits. No MS/MSD was performed for beryllium. The RPDs between the MS and MSD results were within the QAPP limit of 50% for all metals except for titanium (56%). The post digest spike was performed on SB-AOC-H-03 (5-6), and recoveries were within the QAPP limits (75-125%) except for aluminum (-234.9%), beryllium (31.5%), boron (33.7%), iron (30.5%), sodium (59.7%), and titanium (74.9%). The original sample concentrations were above 4 times the spike concentrations for aluminum and iron. Therefore, no action was taken for aluminum or iron based on the MS/MSD results. Magnesium, sodium, titanium, zinc were detected in TA-SB-AOC-H-03 (5-6); these results were qualified J based on the MS/MSD and post digest results. Boron was non-detect in TA-SB-AOC-H-03 (5-6) and the result was qualified UJ; no further action was required. Chromium and cobalt detects were qualified J. The MS/MSD analysis was performed for TA-SB-AOC-H-03 (2-2.5) for TCLP metals (chromium & lead). All MS/MSD recoveries were within the QAPP limits (75-125%), and RPDs were within 50%.	Yes
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No
Instrument Blank	No	Boron, silver, and iron detected in instrument blanks associated with Run #MS2072618A and Run #MS2072718A.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Boron was detected in CCB1 (Run #MS2072618A on 7/26/2018) at 0.949 ug/L and in ICB1, CCB1, CCB2 (Run #MS2072718A on 7/27/2018) at 0.644 ug/L, 1.719 ug/L, and 2.093 ug/L, below the RL of 25 ug/L. Silver was detected in ICB1 (Run #MS2072618A on 7/26/2018) at 0.296 ug/L and in ICB1 (Run #MS2072718A on 7/27/2018) at 0.405 ug/L, below the RL of 0.5 ug/L. Iron was detected in CCB4 (Run #MS2072618A on 7/26/2018) at 12.36 ug/L, below the RL of 25 ug/L. For Run #MS2072618A, the boron detection in CCB1 does not affect any samples in this SDG, and the samples in this SDG were not analyzed for boron in Run #MS2072718A; thus the instrument blank detections of boron do not affect the sample results. However, the silver detection in ICB1 affects all samples in the run (which includes all samples in this SDG, except for the trip blank), and the iron detection in CCB4 affects TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3), TA-SB-69 (4-5). For the associated samples in which silver was not detected (TA-SB-AOC-H-03 (2-2.5), TA-SB-AOC-H-03 (5-6), TA-SB-68 (3-4), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (4-5)), no action is required for these results. Silver was detected below the RL in TA-SB-68 (1-2), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-02 (6-7), TA-SB-69 (2-3); silver results for these samples should be reported at the RL and qualified UB. The iron detects in TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (2-3), TA-SB-69 (4-5) were at least 10 times higher than the RLs; no action was taken based on the instrument blank results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The laboratory reporting limits for aluminum, magnesium, selenium, and sodium were elevated above the MDEQ target detection limits. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No

Project Name/No. Michigan Project
SDG: TG11005
Lab: SHEALY
Media TA-TB-01 (071018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	A 4-point initial calibration was conducted for TCLP metals on 8/17/2018, and the correlation coefficients were greater than 0.99. A 4-point initial calibration was conducted for all ICP-MS metals on 7/26/2018 and 7/27/2018, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 7/16/2018, and the correlation coefficients were greater than 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and the CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Chromium in TA-SB-AOC-H-03 (2-2.5).	A serial dilution was performed for TA-SB-AOC-H-03 (2-2.5) for chromium (TCLP) and lead (TCLP). The %D serial dilution results met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits), except for chromium (25%). TCLP results were not qualified in this data validation assessment; no further action was taken.	Yes
Internal Standard	No	Yttrium in TA-SB-AOC-H-03 (5-6), TA-SB-68 (1-2), TA-SB-AOC-H-02 (6-7), TA-SB-69 (2-3), TA-SB-69 (4-5).	The %RI was within 60-125% of the response in the calibration blank, except for yttrium, which exceeded the maximum %RI for TA-SB-AOC-H-03 (5-6) (154%), TA-SB-68 (1-2) (127%), TA-SB-AOC-H-02 (6-7) (181%), TA-SB-69 (2-3) (195%), TA-SB-69 (4-5) (129%). Yttrium was not associated with any target analytes; thus, no qualifiers were required.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	All samples were at solids percentage above 30%.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No

Project Name/No. Michigan Project
SDG: TG11005
Laboratory: SHEALY
Media TA-TB-01 (071018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Cooler temperature (5.7°C) slightly exceeded 4°C.	The samples were received at 5.7°C. Although the cooler was received above the project limit of 4°C, the cooler was received within 24 hours from sample collection; therefore, no action was required. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS/LCSD recoveries for all analytes were within the limits specified in the QAPP (80-120%), and the RPD between the LCS and LCSD recoveries were within the 50% limit.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for inorganic nonmetals in this SDG.	No
Method Blank	No	Cyanide in Batch 77896 (associated with all samples in this SDG).	Total cyanide was detected in the method blank associated with Batch 77896 (associated with all samples in this SDG) at 0.0012 mg/kg, below the RL of 0.12 mg/kg. Total cyanide was detected above 2 times RLs in TA-SB-AOC-H-03 (2-2.5), TA-SB-68 (1-2), TA-SB-AOC-H-01 (2-3), TA-SB-69 (2-3); no action was taken. Total cyanide was detected below the RL in TA-SB-AOC-H-03 (5-6), TA-SB-68 (3-4), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (4-5), TA-SB-69 (4-5); the total cyanide results in these samples were qualified UB as non-detects at the respective RLs. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples in this SDG.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	A 5-point initial calibration was conducted for ammonia on 7/25/2018. The correlation coefficients were greater than the QAPP limit of 0.99. An 8-point initial calbiration was conducted for cyanide on 7/17/2018, and the correlation coefficients were greater than 0.99. A 7-point initial calibration was conducted for nitrate/nitrite on 7/27/2018, and the correlation coefficients were greater than 0.99. A 7-point initial calibration was conducted for phosphorus on 7/20/2018 and 7/23/2018, and the correlation coefficients were greater than 0.99. An initial calibration was conducted for chloride on 5/29/2018 17:38:30 on instrument IC04, and the correlation coefficients for all target analytes was above the QAPP limit of 0.99. Initial calibrations for hexavalent chromium were conducted on 7/27/2018 17:19:30 and 8/1/2018 08:49:30, and the correlation coefficients were greater than 0.99.	No
Continuing Calibration/Calibration Verification	No	Hexavalent chromium in CCV performed on 7/28/2018 09:51:30 (TA-SB-AOC-H-03 (5-6), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (4-5)).	All ICV and CCV recoveries are within the project limits (90-110%, or below 10 %D, as specified in Table D.1.1 of the QAPP) with the following exceptions: For hexavalent chromium, the following CCVs exceeded the %D limit: the CCV on 7/28/2018 07:22:30 (-17.2 %D), the CCV on 7/28/2018 09:51:30 (-11.5 %D), the CCV on 8/1/2018 19:51:30 (-12.1 %D), the CCV on 8/1/2018 23:22:30 (-13.5 %D), the CCV on 8/2/2018 00:12:30 (-12.2 %D), the CCV on 8/2/2018 02:16:30 (-17 %D), the CCV on 8/2/2018 04:08:30 (-13.2 %D), the CCV on 8/2/2018 06:37:30 (-24.3 %D). Only the following hexavalent chromium analysis CCVs affected sample results: the CCV on 7/28/2018 09:51:30 (-11.5 %D) (associated with TA-SB-AOC-H-03 (5-6), TA-SB-AOC-H-02 (2-3), TA-SB-AOC-H-02 (6-7), TA-SB-AOC-H-01 (2-3), TA-SB-AOC-H-01 (4-5), TA-SB-69 (4-5)). The detected result for hexavalent chromium in TA-SB-AOC-H-01 (2-3) was qualified J-, and the non-detect result for hexavalent chromium in all other associated samples was qualified UJ.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	All samples were at solids percentage above 30%.	No
Field Duplicate Analysis	NA	---	No field duplicates were included in this SDG.	No

Project Name/No. Michigan Project
SDG: TG03032
Lab: SHEALY
Media Soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG, except TA-SED-T10-1 (0-1), were received at cooler temperatures above the QAPP limit.	The samples were collected on 6/29/2018 and received at 4.3°C, 4.7°C, and 5.6°C on 7/3/2018. All samples were extracted on the 7th day after sample collection, within the 14-day extraction holding time limit. All samples were analyzed within 40 days of extraction. No action was taken.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Butyl benzyl phthalate in the LCS associated with all samples in the SDG.	The LCS recoveries were within the laboratory established limits, except butyl benzyl phthalate (131% v. 46-128%). Butyl benzyl phthalate was not detected in any impacted samples; therefore, no qualifiers were added based on the LCS exceedance.	No
Matrix Spike/Matrix Spike Duplicates	No	Benzo(g,h,i)perylene, dibenzo(a,h)anthracene, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, hexachlorocyclopentadiene, hexachloroethane, indeno(1,2,3-c,d)pyrene, and 2-nitrophenol in sample TA-SED-T10-1 (0-1).	MS/MSD analysis was performed on sample TA-SED-T10-1 (0-1). MS/MSD recoveries were within the laboratory established limits with the following exceptions. Benzo(g,h,i)perylene (32%/33% v. 36-125%), dibenzo(a,h)anthracene (39%/39% v. 45-122%), 3,3'-dichlorobenzidine (0%/0% v. 10-119%), 4,6-dinitro-2-methylphenol (20%/19% v. 40-130%), hexachlorocyclopentadiene (0%/0% v. 18-121%), hexachloroethane (27%/20% v. 30-96%), indeno(1,2,3-c,d)pyrene (39%/40% v. 45-123%), and 2-nitrophenol (30%/23% v. 35-108%) recovered below the limits. All impacted analytes in sample TA-SED-T10-1 (0-1) were non-detect. 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, and hexachlorocyclopentadiene were rejected and qualified UR due to MS and/or MSD recovery below 20%. All other non-detects were qualified UJ. All RPD results were within the project limit of 50% for solids.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field/Trip Blank	NA	---	No trip/field blank samples were collected for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair (TA-SED-T10-1 (1.5-2.5) and TA-SED-T10-1DUP (1.5-2.5)) was collected for this SDG. Benzo(a)anthracene, Benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, phenanthrene, and pyrene were detected in both samples. The RPD values were within 50%. Benzo(k)fluoranthene was detected below the RL in TA-SED-T10-1 (1.5-2.5) but not in TA-SED-T10-1DUP (1.5-2.5), and chrysene was detected below the RL in TA-SED-T10-1DUP (1.5-2.5) but not in TA-SED-T10-1 (1.5-2.5). No action was taken based on the duplicate results.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/19/2018 09:33:30 (msd11). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/19/2018 13:17:30 (msd11) and on 7/19/2018 17:03:30 (msd11). The ICV %D did not exceed the project limit of 25% for any target analytes.	No
	Yes	---	A CCV was performed on 7/20/2018 10:07:30 (msd11) and on 7/20/2018 10:32:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: phenanthrene in TA-SED-T10-1 (0-1), TA-SED-T10-1 (1.5-2.5), TA-SED-T10-1DUP (1.5-2.5), TA-SED-T9-3 (0-1), TA-SED-T10-3 (0-1), and TA-SED-T10-3 (1-2); benzo(a)anthracene in TA-SED-T10-1 (0-1), TA-SED-T10-1 (1.5-2.5), TA-SED-T10-1DUP (1.5-2.5), TA-SED-T9-3 (0-1), TA-SED-T10-3 (0-1), and TA-SED-T10-3 (1-2); chrysene in TA-SED-T10-1 (0-1), TA-SED-T10-1DUP (1.5-2.5), TA-SED-T9-3 (0-1), and TA-SED-T10-3 (1-2); benzo(b)fluoranthene in TA-SED-T10-1 (0-1), TA-SED-T10-1 (1.5-2.5), TA-SED-T10-1DUP (1.5-2.5), TA-SED-T9-3 (0-1), TA-SED-T10-3 (0-1), and TA-SED-T10-3 (1-2); benzo(k)fluoranthene in TA-SED-T10-1 (0-1), TA-SED-T10-1 (1.5-2.5), TA-SED-T10-1DUP (1.5-2.5), TA-SED-T9-3 (0-1), TA-SED-T10-3 (0-1), and TA-SED-T10-3 (1-2); benzo(g,h,i)perylene in TA-SED-T10-1 (0-1) and TA-SED-T10-3 (0-1); benzo(a)pyrene in TA-SED-T10-1DUP (1.5-2.5), TA-SED-T9-3 (0-1), and TA-SED-T10-3 (0-1); and indeno(1,2,3-c,d)pyrene in TA-SED-T10-3 (1-2).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	No	TA-SED-T9-3 (0-1) and TA-SED-T10-3 (0-1).	All samples at solids percentage above 24.4%. Percent solids were below 30% in samples TA-SED-T9-3 (0-1) (24.4%) and TA-SED-T10-3 (0-1) (28.1%). J qualifiers were added to detected results, and UJ qualifiers were added to non-detect results.	Yes

Project Name/No. Michigan Project
SDG: TG03032
Lab: SHEALY
Media Soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in SDG, except TA-SED-T10-1 (0-1), were received at cooler temperatures above the QAPP limit.	The samples were collected on 6/29/2018 and received at 4.3°C, 4.7°C, and 5.6°C on 7/3/2018 and preserved with methanol. No action was taken due to the slight exceedance of the project limit of 4°C. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	No	TA-SED-T10-1 (0-1) for analytes associated with bromofluorobenzene surrogate.	All VOC surrogate recoveries met the required criteria of 70-130% with the following exception. Bromofluorobenzene was below the limit in TA-SED-T10-1 (0-1) 1st analysis (68%). The VOC results in sample TA-SED-T10-1 (0-1) 1st analysis were qualified (detects were qualified J- and non-detects were qualified UJ). No information was provided for the 2nd analysis results.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Acetone, 2-butanone (MEK), 2-hexanone, and cyclohexane in 1st analysis on 7/13/2018 of samples TA-SED-T10-1 (0-1), TA-SED-T10-3 (0-1), and TA-SED-T10-3 (1-2).	LCS results were within the project limits of 70-130% in the LCS sample associated with batch 77492. LCS results were within the project limits of 70-130% in the LCS associated with batch 77666 with the following exceptions. Acetone (58%), 2-butanone (MEK) (61%), and 2-hexanone (57%) recovered below the project limits. Acetone, 2-butanone (MEK), and 2-hexanone (57%) results in the associated samples (i.e., 1st analysis on 7/13/2018 of TA-SED-T10-1 (0-1), TA-SED-T10-3 (0-1), and TA-SED-T10-3 (1-2)) were qualified (detects were qualified J- and non-detects were qualified UJ). Cyclohexane (139%) recovered above the project limits. Cyclohexane was not detected in any impacted samples. No action was taken based on the cyclohexane LCS recovery.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Carbon disulfide, dichlorodifluoromethane, 1,1,2-trichloro-1,2,2-trifluoromethane, and trichlorofluoromethane in sample TA-SED-T10-1 (0-1).	MS analysis was performed twice for sample TA-SED-T10-1 (0-1). The amount of spike added was different for the two analyses. MS recoveries were within the project limits of 70-130% with the following exceptions. Carbon disulfide (62%), dichlorodifluoromethane (25%/30%), 1,1,2-trichloro-1,2,2-trifluoromethane (55%/60%), and trichlorofluoromethane (67%/69%) recovered below the limits. Carbon disulfide was detected in sample TA-SED-T10-1 (0-1), and a J- qualifier was added to this detected result. A UJ qualifier was added to the non-detect results for the other analytes. The qualifiers were added to both analyses.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	NA	---	No trip/field blank samples were collected for this SDG.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair (TA-SED-T10-1 (1.5-2.5) and TA-SED-T10-1DUP (1.5-2.5)) was collected for this SDG. Acetone, carbon disulfide, methyl acetate, and methylene chloride were detected in both samples. The RPD values were within 50%, except for carbon disulfide (87%). Both detections were <2x the RL. 2-Butanone was detected below the RL in TA-SED-T10-1DUP (1.5-2.5) but was not detected in TA-SED-T10-1 (1.5-2.5). No action was taken based on the duplicate results.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/5/2018 23:48:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	No	Dichlorodifluoromethane in samples associated with ICV performed on 7/6/2018 02:55:30 (msd15).	ICV was performed on 7/6/2018 02:55:30 (msd15), and the recoveries were all within 75-125%, except dichlorodifluoromethane (143%). Dichlorodifluoromethane was not detected in any project samples. No action was taken based on the ICV recovery.	No
	No	Dichlorodifluoromethane and cyclohexane in CCV on 7/12/2018 07:13:30 (msd15).	CCV was performed on 7/12/2018 07:13:30 (msd15). The %D values were all below 25%, except dichlorodifluoromethane (59.2%) and cyclohexane (36.1%). RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane and cyclohexane were not detected in any of the project samples; the non-detected results were not qualified.	No
	No	Dichlorodifluoromethane and cyclohexane in CCV on 7/13/2018 07:08:30 (msd15).	CCV was performed on 7/13/2018 07:08:30 (msd15). The %D values were all below 25%, except dichlorodifluoromethane (60.9%) and cyclohexane (48.9%/54.4%). RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane and cyclohexane were not detected in any of the project samples; the non-detected results were not qualified.	No
Target Analyte Identification	No	Tetrachloroethene in TA-SED-T10-1 (0-1) and acetone in TA-SED-T10-1DUP (1.5-2.5).	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: tetrachloroethene in TA-SED-T10-1 (0-1) and acetone in TA-SED-T10-1DUP (1.5-2.5).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	No	TA-SED-T9-3 (0-1) and TA-SED-T10-3 (0-1)	All samples at solids percentage above 24.4%. Percent solids were below 30% in samples TA-SED-T9-3 (0-1) (24.4%) and TA-SED-T10-3 (0-1) (28.1%). J qualifiers were added to detected results, and UJ qualifiers were added to non-detect results.	Yes

Project Name/No. Michigan Project
SDG: TG03032
Lab: SHEALY
Media Soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	All samples in SDG, except TA-SED-T10-1 (0-1), were received at cooler temperatures above the QAPP limit.	The samples were collected on 6/29/2018 and received at 4.3°C, 4.7°C, and 5.6°C on 7/3/2018. No action was taken due to the slight exceedance of the project limit of 4°C. All samples were processed and analyzed within the holding time limits specified in the QAPP. Metal samples analyzed via EPA method 6020B were analyzed within 6 months from sample collection, and mercury analysis via EPA method 7471B was performed within 28 days from sample collection.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium, beryllium, boron, magnesium, and titanium in TA-SED-T10-1 (0-1) MS/MSD.	The MS/MSD analysis was performed for TA-SED-T10-1 (0-1) for all metals. The MS/MSD recoveries were within the QAPP limits of 75-125% for all metals with the following exceptions. MS and/or MSD recoveries for aluminum (4350%/3480%), barium (138%), iron (214%), magnesium (153%/160%), and titanium (177%/176%) exceeded the project limits. MS and/or MSD recoveries for beryllium (43%/42%) and boron (47%/46%) were below the QAPP limits. The RPDs between the MS and MSD were within the QAPP limit of 50% for solids for all metals. With the exception of aluminum (-55%), beryllium (49.2%), boron (51.5%), and iron (72.5%), the post digest spike recoveries were within 75-125% limits. The original sample concentrations were above 4 times the spike concentrations for aluminum and iron. Therefore, no action was taken for aluminum or iron based on the MS/MSD results. The detected barium, magnesium, and titanium in sample TA-SED-T10-1 (0-1) were qualified J. Beryllium was detected below the reporting limit and qualified J-, and the non-detect boron result was qualified UJ.	Yes
Method Blank	No	Silver (all samples in this SDG).	No metal TCLs were detected in the method blank, except silver was detected in the method blank in Batch 77542 at 0.061 mg/kg, below the RL of 0.25 mg/kg. Silver was not detected in any impacted sample (i.e., all samples in this SDG), except for a detection below the RL in sample TA-SED-T10-3 (1-2). No action was taken for non-detect results. The silver result in sample TA-SED-T10-3 (1-2) was reported at the RL and qualified UB.	Yes
Instrument Blank	No	Iron in ICB1, CCB3, CCB4, and CCB5; silver in ICB1; and boron in CCB1, CCB2, CCB3, CCB4, and CCB5 of Run #MS2071618C on 7/16/2018.	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Iron was detected in ICB1, CCB3, CCB4, and CCB5 (Run #MS2071618C on 7/16/2018) at 13.590 ug/L, 11.720 ug/L, 14.260 ug/L, and 10.260 ug/L, respectively, below the RL of 25 ug/L. Silver was detected in ICB1 (Run #MS2071618C on 7/16/2018) at 0.426 ug/L, below the RL of 0.5 ug/L. Boron was detected in CCB1, CCB2, CCB3, CCB4, and CCB5 (Run #MS2071618C on 7/16/2018) at 1.457 ug/L, 1.830 ug/L, 2.769 ug/L, 1.701 ug/L, and 2.199 ug/L, respectively, below the RL of 25 ug/L. All iron, silver, and boron results for the project samples were impacted by the iron, silver, and boron detects in ICB and/or CCBs in Run #MS2071618C on 7/16/2018. All iron detects were above the RLs (with raw data checked) and >5x the blank results. No action was taken for the iron results. All silver and boron results were non-detect with the exception of silver in sample TA-SED-T10-3 (1-2), which was detected below the RL. The detected silver in sample TA-SED-T10-3 (1-2) was qualified UB, and no action was taken for non-detect results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The laboratory reporting limits for aluminum, magnesium, selenium, and sodium were elevated above the MDEQ target detection limits. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	For mercury, a 5-point calibration was performed on 7/10/2018, and the correlation coefficients were greater than 0.99. A 4-point initial calibration was conducted for all metals but mercury on 7/16/2018, and the correlation coefficient was greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP). CRQL Check Standard recoveries are within the project limits of 70-130%.	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes	---	For all metals including chromium, a serial dilution was performed for TA-SED-T10-1 (0-1). The %D serial dilution results for all metals met the QAPP limit (i.e., either serial dilution results lower than 10% or the original sample concentrations were below 50 times of the sample detection limits).	No

Project Name/No. Michigan Project
SDG: TG03032
Lab: SHEALY
Media Soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard	No	---	The %RI was within 60-125% of the response in the continuing calibration blank immediately preceding project sample analysis with the following exceptions. Yttrium was above the project limit in samples TA-SED-T10-1 (0-1) (127%), TA-SED-T10-1 (1.5-2.5) (135%), TA-SED-T10-1DUP (1.5-2.5) (139%), TA-SED-T10-1 (3-4) (133%), TA-SED-T9-3 (0-1) (126%), and TA-SED-T10-3 (1-2) (126%). No action was taken based on the Yttrium exceedance because it does not affect reported analytes.	No
ICP Linear Range	Yes	---	All sample resuls were within the ICP linear range.	No
Solids Percentage	No	TA-SED-T9-3 (0-1) and TA-SED-T10-3 (0-1).	All samples at solids percentage above 24.4%. Percent solids were <30% in samples TA-SED-T9-3 (0-1) (24.4%) and TA-SED-T10-3 (0-1) (28.1%). J qualifiers were added to detected results, and UJ qualifiers were added to non-detect results.	Yes
Field Duplicate Analysis	No	Copper in TA-SED-T10-1 (1.5-2.5) and TA-SED-T10-1DUP (1.5-2.5).	The RPD values for copper (51%) and mercury (62%) between TA-SED-T10-1 (1.5-2.5) and its duplicate TA-SED-T10-1DUP (1.5-2.5) were above the project limit of 50%. Mercury was detected below the reporting limit in both samples. Therefore, no action was taken based onthe mercury results for the duplicate pair. The copper results for TA-SED-T10-1 (1.5-2.5) and its field duplicate TA-SED-T10-1DUP (1.5-2.5) were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG03032
Laboratory: SHEALY
Media Soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	All samples in SDG, except TA-SED-T10-1 (0-1), were received at cooler temperatures above the QAPP limit.	The samples were collected on 6/29/2018 and received at 4.3°C, 4.7°C, and 5.6°C on 7/3/2018. No action was taken due to the slight exceedance of the project limit of 4°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	MS and or MSD recovery above the project limits in TA-SED-T10-1 (0-1) for hexavalent chromium, total cyanide, nitrate/nitrite, ammonia, and sulfate.	The MS/MSD analysis was performed for TA-SED-T10-1 (0-1) for hexavalent chromium analysis. The MS/MSD recoveries (0%/0%) were below the limits of 75-125% and the RPD was below 50%. The non-detect hexavalent chromium result in sample TA-SED-T10-1 (0-1) was rejected based on the MS/MSD results. The MS/MSD analysis was performed for TA-SED-T10-1 (0-1) for total cyanide analysis. The MS/MSD recoveries (27%/32%) were below the project limits of 75-125%; while the RPD was within 50%. Total cyanide was detected below the RL in sample TA-SED-T10-1 (0-1). A J-qualifier was added to this result based on the MS/MSD results. The MS/MSD analysis was performed for TA-SED-T10-1 (0-1) for phosphorus analysis. The MS/MSD recoveries (43%/61%) were outside the project limits of 75-125%, and the RPD was below 50%. The MSD recovery (631%) and RPD (3.4%) shown in the laboratory report are incorrect. The original phosphorus concentration in TA-SED-T10-1 (0-1) was above 4 times the spike concentration; no action was taken based on the MS/MSD results. MS/MSD analysis was performed for TA-SED-T10-1 (0-1) for nitrate-nitrite analysis. The MS/MSD results (55%/49%) were below the project limits of 75-125% while the RPD was within 50%. A J- qualifier was added to the detected nitrate/nitrite result in sample TA-SED-T10-1 (0-1) based on the MS/MSD results. MS/MSD analysis was performed for TA-SED-T10-1 (0-1) for ammonia analysis. The MS result (74%) was below the project limits of 75-125% while the MSD result was within the limits, and the RPD was within 50%. A J- qualifier was added to the detected ammonia result in sample TA-SED-T10-1 (0-1) based on the MS result. MS/MSD analysis was performed for TA-SED-T10-1 (0-1) for sulfate analysis. The MS results were within the project limits of 75-125% while the MSD result (73%) was below the project limits, and the RPD was within 50%. A J- qualifier was added to the detected sulfate result in sample TA-SED-T10-1 (0-1) based on the MSD result. MS/MSD analysis was performed for TA-SED-T10-1 (0-1) for chloride analysis. The MS/MSD results were within the project limits of 75-125%, while the RPD was within 50%.	Yes
Method Blank	No	Total cyanide in all samples in the SDG.	Total cyanide was detected in the method blank at 0.014 mg/kg, below the RL of 0.12 mg/kg, for Batch 77361. All samples in this SDG were associated with Batch 77361. Total cyanide was detected in all the samples submitted for analysis in this SDG below the RLs. The total cyanide results in all samples were qualified as non-detects and reported at the respective RLs. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	No	Nitrite in ICB 7/13/2018 2:04:55 PM.	No TCLs were detected in any instrument blank. There is a QC Fail for the ICB performed on 7/13/2018 2:04:55 PM on page 3850 of SDG TG03032. ICB and CCB results are not marked with pass in Nitrate-Nitrite QC pages. No detailed information was provided by the laboratory. As a conservative approach, no action was taken.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples in the SDG.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and correlation coefficients were greater than the QAPP limit of 0.99 for solids.	No
Continuing Calibration/Calibration Verification	No	Phosphorus CRQL check, CCV for hexavalent chromium (all samples in this SDG)	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and CRQL Check Standard recoveries were within the 70-130% limits with the following exceptions: CRQL check standard recovery for phosphorus was above the limit (150% and 135% vs. 130%). Phosphorus was detected in all impacted samples (i.e., all samples in this SDG) at or above 2 times the RLs; no action was taken. CCVs performed on 7/25/2018 at 02:47 (CCV TQ78596-404) and at 07:45 (CCV TQ78596-404) for hexavalent chromium were outside of the limit (%D values were 10.3% and -100%, respectively, vs. 10%). The laboratory reported the hexavalent chromium results from 7/25/2018; and all the hexavalent chromium results in this SDG were impacted by the 7/25/2018 CCV. Hexavalent chromium was not detected in any of the samples in this SDG. Because the %D exceeded 90%, the non-detect hexavalent chromium results were rejected.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No

Project Name/No. Michigan Project
SDG: TG03032
Laboratory: SHEALY
Media Soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Solids Percentage	No	TA-SED-T9-3 (0-1) and TA-SED-T10-3 (0-1).	All samples at solids percentage above 24.4%. Percent solids were below 30% in samples TA-SED-T9-3 (0-1) (24.4%) and TA-SED-T10-3 (0-1) (28.1%). J qualifiers were added to detected results, and UJ qualifiers were added to non-detect results for samples TA-SED-T9-3 (0-1) and TA-SED-T10-3 (0-1).	Yes
Field Duplicate Analysis	No	Sulfate in TA-SED-T10-1 (1.5-2.5) and corresponding duplicate TA-SED-T10-1DUP (1.5-2.5).	The RPD values for all target analytes between TA-SED-T10-1 (1.5-2.5) and its duplicate TA-SED-T10-1DUP (1.5-2.5) were within the project limit of 50% for solids, except nitrate-nitrite (86%) and sulfate (65%). The detected nitrate-nitrite results were less than twice the reporting limit, so no action was taken. The sulfate results for TA-SED-T10-1 (1.5-2.5) and TA-SED-T10-1DUP (1.5-2.5) were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TG03001
Lab: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 4.4°C, 3.6°C, 4.3°C. Two coolers were received above the project limit of 4°C. One cooler was received within 24 hours from sample collection for the majority of the samples in the cooler. All samples were extracted within 14 days from sample collection and analyzed within 40 days from extraction. No action was taken based on the cooler temperature and sample holding time.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Butyl benzyl phthalate.	The LCS recoveries were within the laboratory established limits except that butyl benzyl phthalate recovery in the LCS was slightly above the laboratory established limit (131% vs. 128%). Butyl benzyl phthalate was not detected in any samples in this SDG. No action was taken based on the LCS/LCSD results.	No
Matrix Spike/Matrix Spike Duplicates	No	Benzo(g,h,i)perylene, dibenzo(a,h)anthracene, hexachloroethane, indeno(1,2,3-c,d)pyrene in TA-SED-T9-1(0-1) MS and/or MSD.	Benzo(g,h,i)perylene, dibenzo(a,h)anthracene, hexachloroethane, indeno(1,2,3-c,d)pyrene recoveries in TA-SED-T9-1(0-1) MS and/or MSD were below the laboratory established limits (34%/37%, 40%/40%, 22%/22%, 40%/40%). The RPDs were all within the project limit of 50%. Benzo(g,h,i)perylene, dibenzo(a,h)anthracene, hexachloroethane, and indeno(1,2,3-c,d)pyrene were not detected in TA-SED-T9-1(0-1), and the non-detected results were qualified UJ.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No trip/field blank samples were collected for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate samples were collected for this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/19/2018 09:33:30 (instrument msd11). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was above 0.99.	No
	Yes	---	Initial calibration was conducted on 7/18/2018 09:19:30 (instrument msd10). For all target analytes, the initial calibration %RSDs were below 20% or R^2 was above 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	No	Benzidine in ICV on 7/18/2018 16:41:30 (TA-SED-RC-1 (1.2-2.2), TA-SED-RC-2 (0-1), TA-SED-RC-2 (1-2), TA-SED-RC-2 (2-3), TA-SED-BOAT RAMP (0-1), TA-SED-BOAT RAMP (1-1.9), TA-SED-RC ACCESS (0-1), TA-SED-RC ACCESS (1.5-2.5), TA-SED-RC-3 (0-0.4), TA-SED-8-2 (0-1),TA-SED-T9-1 (0-1))	An ICV was performed on 7/18/2018 12:59:30 and 16:41:30 (msd10). The ICV %D did not exceed the project limit of 25% for any target analytes except benzidine (29%). Benzidine was not detected in any of the impacted samples (i.e., TA-SED-RC-1 (1.2-2.2), TA-SED-RC-2 (0-1), TA-SED-RC-2 (1-2), TA-SED-RC-2 (2-3), TA-SED-BOAT RAMP (0-1), TA-SED-BOAT RAMP (1-1.9), TA-SED-RC ACCESS (0-1), TA-SED-RC ACCESS (1.5-2.5), TA-SED-RC-3 (0-0.4), TA-SED-8-2 (0-1),TA-SED-T9-1 (0-1)); therefore, no action was taken based on the CCV results.	No
	Yes	---	An ICV was performed on 7/19/2018 13:17:30 and 17:03:30 (msd11). The ICV %D did not exceed the project limit of 25% for any target analytes. No action was taken based on the CCV results.	No
	Yes	---	A CCV was performed on 7/22/2018 10:22:30 and 10:46:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 7/23/2018 09:27:30 and 09:52:30 (msd10). The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 7/20/2018 10:07:30 and 10:32:30. The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
	Yes	---	A CCV was performed on 7/22/2018 10:08:30 and 10:32:30 (msd11). The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No

Project Name/No. Michigan Project
SDG: TG03001
Lab: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Target Analyte Identification	No	Multiple SVOCs in multiple samples	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: naphthalene, acenaphthene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-T4-3(0-1), phenol, naphthalene, acenaphthene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-T4-3(1-1.7), acenaphthene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SED-RC-1(0-1), naphthalene, acenaphthene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-RC-1(1.2-2.2), benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-RC-2(0-1), acenaphthene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-RC-2(1-2), phenol, naphthalene, acenaphthene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SED-RC-2(2-3), phenanthrene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-BOAT RAMP(0-1), benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-BOAT RAMP (1-2), phenanthrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene in TA-SED-RC ACCCESS(0-1), benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene in TA-SED-RC ACCCESS(1-2), benzo(a)anthracene, chrysene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-RC 3(0-0.4), benzo(b)fluoranthene, benzo(k)fluoranthene TA-SED-8-2(0-1), benzo(a)anthracene in TA-SED-8-2(1-2), benzo(a)anthracene and benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-4-2(0-1), phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-4-2 (1-2), naphthalene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-4-2(2-3), phenanthrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene in TA-SED-T9-1(2-3), phenanthrene, benzo(a)anthracene in TA-SED-T9-1(4-5).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50%-200% of standard).	No
Solids Percentage	No	TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) percent solids below 30%.	The % solids for TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) were 21%, 24%, 17%, 26%, below the project limit of 30%. The TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) results were qualified (detects were qualified J and non-detects were qualified UJ). The % solids for the other samples were greater than 30%; no action was taken for the other samples.	Yes

Project Name/No. Michigan Project
SDG: TG03001
Lab: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 4.4°C, 3.6°C, 4.3°C. Two coolers were received above the project limit of 4°C. One cooler was received within 24 hours from sample collection for the majority of the samples in the cooler. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP. No action was taken based on the temperature and sample holding time.	No
Surrogate Recovery	No	DMC1 and DMC2 for TA-SED-RC ACCESS(1.5-2.5) 1st analysis on 7/15/2018.	All VOC surrogate recoveries met the required criteria of 70-130% except that DMC1 and DMC2 recoveries in TA-SED-RC ACCESS(1.5-2.5) 1st analysis on 7/15/2018 were slightly above 130% at 135% and 133%. The VOC detects for TA-SED-RC ACCESS(1.5-2.5) 1st analysis were qualified J+ while the non-detects were not qualified. No information was provided for the TA-SED-RC ACCESS(1.5-2.5) 2nd or 3rd analyses; no action was taken for these results.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	LCS recoveries for acetone, 2-butanone, 2-hexanone, and cyclohexane (TA-SED-T4-3 (0-1), TA-SED-T4-3 (1-1.7), TA-SED-RC-1 (0-1), TA-SED-RC-1 (1.2-2.2), TA-SED-RC-2 (0-1), TA-SED-RC-2 (1-2), TA-SED-RC-2 (2-3), TA-SED-BOAT RAMP (0-1), TA-SED-BOAT RAMP (1-1.9), TA-SED-RC ACCESS (0-1)).	For Batch 77666, the LCS recoveries for acetone (58%), 2-butanone (61%), 2-hexanone (57%) were below the project limits of 70-130%. The LCS recovery for cyclohexane (139%) was above the project limits. Cyclohexane was not detected in any impacted samples; no action was taken based on the LCS results. The acetone, 2-butanone, and 2-hexanone results for the impacted samples (TA-SED-T4-3 (0-1), TA-SED-T4-3 (1-1.7), TA-SED-RC-1 (0-1), TA-SED-RC-1 (1.2-2.2), TA-SED-RC-2 (0-1), TA-SED-RC-2 (1-2), TA-SED-RC-2 (2-3), TA-SED-BOAT RAMP (0-1), TA-SED-BOAT RAMP (1-1.9), TA-SED-RC ACCESS (0-1)) analyzed on 7/13/2018 were qualified. Detects were qualified J-, while non-detects were qualified UJ. LCS recoveries for all other batches were within the project limits.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Acetone (131%/113%), benzene (134%/139%), bromodichloromethane (132%/138%), bromoform (132%/144%), 2-butanone (134%/134%), chlorobenzene(133%/137%), chloroform (132%/132%), dibromochloromethane (135%/141%), 1,2-dibromoethane (132%/135%), 1,1-dichloroethane (132%/128%), 1,2-dichloroethane (131%/134%), cis-1,2-dichloroethene (131%/131%), 1,2-dichloropropane (136%/145%), cis-1,3-dichloropropene (134%/145%), trans-1,3-dichloropropene (133%/139%), ethylbenzene (144%/146%), isopropylbenzene (145%/152%), styrene (142%/154%), tetrachloroethene (138%/142%), toluene (136%/142%), 1,1,1-trichloroethane (130%/132%), 1,1,2-trichloroethane (132%/136%), trichloroethene (139%/146%), xylenes (143%/150%), m+p-xylenes (144%/147%, and o-xylenes (142%/153%) recoveries in TA-SED-T9-1(0-1) MS and/or MSD were above the limit of 130%.	MS/MSD analysis was conducted for TA-SED-T9-1(0-1). The MS/MSD recoveries were within the 70-130% limits with the following exceptions: Acetone (131%/113%), benzene (134%/139%), bromodichloromethane (132%/138%), bromoform (132%/144%), 2-butanone (134%/134%), chlorobenzene(133%/137%), chloroform (132%/132%), dibromochloromethane (135%/141%), 1,2-dibromoethane (132%/135%), 1,1-dichloroethane (132%/128%), 1,2-dichloroethane (131%/134%), cis-1,2-dichloroethene (131%/131%), 1,2-dichloropropane (136%/145%), cis-1,3-dichloropropene (134%/145%), trans-1,3-dichloropropene (133%/139%), ethylbenzene (144%/146%), isopropylbenzene (145%/152%), styrene (142%/154%), tetrachloroethene (138%/142%), toluene (136%/142%), 1,1,1-trichloroethane (130%/132%), 1,1,2-trichloroethane (132%/136%), trichloroethene (139%/146%), xylenes (143%/150%), m+p-xylenes (144%/147%, and o-xylenes (142%/153%) recoveries in MS and/or MSD were above the limit of 130%. The RPD values between the MS and MSD were all within 50%. Only acetone and 2-butanone were detected in the original sample; the acetone and 2-butanone detects in TA-SED-T9-1(0-1) were qualified J+; no action was taken for the non-detects in the sample.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No

Project Name/No. Michigan Project
SDG: TG03001
Lab: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field/Trip Blank	No	Acetone, carbon disulfide, and methylene chloride detected in the trip blank.	Acetone and carbon disulfide were detected at 2.2 ug/L and 0.48 ug/L, below the RLs of 20 ug/L and 1.0 ug/L in the trip blank (TA-TB-01(6/29/2018)). Methylene chloride was detected in the trip blank at 1.5 ug/L, above the RL of 1.0 ug/L. The samples in the same cooler with TA-TB-01(6/29/2018) include TA-SED-8-2(0-1), TA-SED-8-2(1-2), TA-SED-8-2(3-4.1), TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), TA-SED-9-1(2-3). Acetone, carbon disulfide, and methylene chloride were detected in TA-SED-8-2(1-2) at 430 ug/kg, 59 ug/kg, and 85 ug/kg, below the RL of 1100 ug/kg, 110 ug/kg, and 110 ug/kg. Methylene chloride was detected in TA-SED-8-2(3-4.1) at 61 ug/kg, below the RL of 110 ug/kg. Acetone and carbon disulfide were detected in TA-SED-4-2(0-1) at 1300 ug/kg and 280 ug/kg, below the RLs of 6700 ug/kg and 670 ug/kg. Acetone was detected in TA-SED-4-2(1-2) at 940 ug/kg, below the RL of 2700 ug/kg. Acetone and carbon disulfide were detected in TA-SED-4-2(2-3) at 610 ug/kg and 79 ug/kg, below the RLs of 1700 ug/kg and 170 ug/kg. Carbon disulfide was detected in TA-SED-9-1(2-3) at 170 ug/kg, above the RL of 150 ug/kg. Acetone and methylene chloride were detected in TA-SED-9-1(2-3) at 930 ug/kg and 72 ug/kg, below the RL of 1500 ug/kg and 150 ug/kg. Acetone was detected in TA-SED-T9-1(0-1) at 1700 ug/kg, below the RL of 4500 ug/kg. Acetone, carbon disulfide, and methylene chloride were detected in TA-SED-9-1(4-5) at 330 ug/kg, 65 ug/kg, and 54 ug/kg, below the RL of 1100 ug/kg, 110 ug/kg, and 110 ug/kg. It is difficult to evaluate impact of trip blank to the solid samples. As a conservative approach, the data were not qualified.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate samples were collected for this SDG.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/6/2018 17:44:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. The initial calibration was performed on 7/5/2018 23:48:30 (instrument msd15), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/6/2018 21:13:30 (msd5), and the %D values were all below 25%.	No
	No	Dichlorodifluoromethane in ICV on 7/6/2018 02:55:30 (msd15; all samples in this SDG but TA-TB-01(6/29/2018)).	An ICV was performed on 7/6/2018 02:55:30 (msd15), and the %D values were all within 25% except that %D for dichlorodifluoromethane was 43%, above the 25% limit. Dichlorodifluoromethane was not detected in any of the impacted samples (all samples in this SDG but TA-TB-01(6/28/2018)); no action was taken based on the ICV results.	No
	No	Acetone in CCV on 7/11/2018 09:36:30 (TA-TB-01(6/29/2018)).	A CCV was performed on 7/11/2018 09:36:30 (msd5). The %D values were all below 25% except for acetone (33%). The RRFs for all target analytes were greater than 0.01. The acetone detected result in TA-TB-01(6/29/2018) was qualified J+.	No
	No	Dichlorodifluoromethane in CCV on 7/11/2018 07:29:30 (msd15; 13-15).	A CCV was performed on 7/11/2018 07:29:30 (msd15). The %D values were all below 25% except for dichlorodifluoromethane (36%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (TA-SED-8-2(0-1), TA-SED-8-2(1-2), and TA-SED-8-2(3-4.1)); the non-detected results were not qualified.	No
	No	Dichlorodifluoromethane in 7/12/2018 07:13:30 (msd15; TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), TA-SED-T9-1(2-3), TA-SED-T9-1(0-1), and TA-SED-T9-1(4-5)).	A CCV was performed on 7/12/2018 07:13:30 (msd15). The %D values were all below 25% except for dichlorodifluoromethane (59%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), TA-SED-T9-1(2-3), TA-SED-T9-1(0-1), and TA-SED-T9-1(4-5)); the non-detected results were not qualified.	No
	No	Dichlorodifluoromethane and cyclohexane in 7/13/2018 07:08:30 (msd15; (TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-RC-1(0-1), TA-SED-RC-1(1.2-2.2), TA-SED-RC-2(0-1), TA-SED-RC-2(1-2), TA-SED-RC-2(2-3), TA-SED-BOAT RAMP(0-1), TA-SED-BOAT RAMP(1-1.9), TA-SED-RC ACCESS(0-1)).	A CCV was performed on 7/13/2018 07:08:30 (msd15). The %D values were all below 25% except for dichlorodifluoromethane (61%) and cyclohexane (49%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane and cyclohexane were not detected in any of the impacted samples ((TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-RC-1(0-1), TA-SED-RC-1(1.2-2.2), TA-SED-RC-2(0-1), TA-SED-RC-2(1-2), TA-SED-RC-2(2-3), TA-SED-BOAT RAMP(0-1), TA-SED-BOAT RAMP(1-1.9), TA-SED-RC ACCESS(0-1)); the non-detected results were not qualified.	No
	No	Dichlorodifluoromethane and acetone in 7/15/2018 10:09:30 (msd15; TA-SED-RC ACCESS(1.5-2.5) and TA-SED-RC-3(0-0.4)).	A CCV was performed on 7/15/2018 10:09:30 (msd15). The %D values were all below 25% except for dichlorodifluoromethane (50%) and acetone (26%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane and acetone were not detected in any of the impacted samples (TA-SED-RC ACCESS(1.5-2.5) and TA-SED-RC-3(0-0.4)); the non-detected results were not qualified.	No

Project Name/No. Michigan Project
SDG: TG03001
Lab: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Target Analyte Identification	No	Multiple target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: carbon disulfide in TA-SED-BOAT RAMP(0-1) and TA-SED-4-2(0-1), toluene in TA-SED-RC ACCESS(1.5-2.5) and TA-SED-T9-1(4-5), methylene chloride in TA-SED-8-2(0-1) and TA-SED-8-2(3-4.1), acetone in TA-TB-01(6/29/2018).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	No	TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) percent solids below 30%.	The % solids for TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) were 21%, 24%, 17%, 26%, below the project limit of 30%. The TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) results were qualified (detects were qualified J and non-detects were qualified UJ). The % solids for the other samples were greater than 30%; no action was taken for the other samples.	Yes

Project Name/No. Michigan Project
SDG: TG03001
Lab: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 4.4°C, 3.6°C, 4.3°C. Two coolers were received above the project limit of 4°C. One cooler was received within 24 hours from sample collection for the majority of the samples in the cooler. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium, titanium, beryllium, and boron for TA-SED-T9-1(0-1).	MS/MSD analysis was performed for TA-SED-T9-1(0-1). The MS/MSD recoveries were within the project limits of 75-125% for all target metals with the following exceptions: The MS and/or MSD recoveries for aluminum (5060%/3810%), barium (143%/129%), iron (120%/126%), titanium (229%/207%) exceeded the project limits; while the MS and/or MSD recoveries for beryllium (37%/39%), boron (33%/34%) were below the project limits. The aluminum and iron concentrations in TA-SED-T9-1(0-1) were greater than 4 times the spike concentrations; therefore, no action was taken for the aluminum or iron sample results based on the MS/MSD results. The post-digest spike recoveries for barium (91%) and titanium (87%) were within the project limits, while the post-digest spike recoveries for beryllium (45%) and boron (42%) were below the project limits. The barium and titanium results in TA-SED-T9-1(0-1) were qualified J, while the beryllium detect in TA-SED-T9-1(0-1) was qualified J-, and the boron non-detect in TA-SED-T9-1(0-1) was qualified UJ.	Yes
Method Blank	Yes	---	No metal TCLs were detected in the method blank.	No
Instrument Blank	No	Iron in ICB1, CCB3, CCB4, CCB5 (Run #MS2071618C on 7/16/2018; impacted samples include TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7). Iron in ICB1 (Run #MS2071718C on 7/17/2018; impacted samples include all samples in this SDG but TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7). Silver in ICB1 (Run #MS2071618C on 7/16/2018); impacted samples include TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7). Boron in CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2071618C on 7/16/2018); impacted samples include TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7). Boron in ICB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2071718C on 7/17/2018); impacted samples include all samples in this SDG but TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7)).	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Iron was detected in ICB1, CCB3, CCB4, CCB5 (Run #MS2071618C on 7/16/2018) at 13.59 ug/L, 11.720 ug/L,14.26 ug/L, 10.260 ug/L, below the RL of 20 ug/L. Iron detections in the impacted samples (TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7)) were more than 10 times the concentrations detected in the ICB and CCBs; no action was taken based on these ICB and CCB results for iron. Iron was detected in ICB1 (Run #MS2071718C on 7/17/2018) at 10.060 ug/L, below the RL of 25 ug/L. Iron detections in the impacted samples (all samples in this SDG but TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7)) were more than 10 times the levels detected in the ICB and CCBs; no action was taken based on these ICB and CCB results for iron. Silver was detected in ICB1 (Run #MS2071618C on 7/16/2018) at 0.426 ug/L, below the RL of 0.5 ug/L. Impacted samples include TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7). Silver was not detected in TA-SED-T4-3(0-1), while it was detected below RL in TA-SED-T4-3(1-1.7). The silver result in TA-SED-T4-3(1-1.7) was reported at the RL and qualified UB. No action was taken for the non-detect in TA-SED-T4-3(0-1). Silver was detected in ICB1 (Run #MS2072618A.6 on 7/26/2018) at 0.296 ug/L, below the RL of 0.5 ug/L. No silver results in this SDG were associated with this ICB1. Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2071618C on 7/16/2018) at 1.457 ug/L, 1.830 ug/L, 2.769 ug/L, 1.701 ug/L, 2.199 ug/L, below the RL of 25 ug/L. Boron was not detected in the impacted samples (TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7)). No action was taken based on these boron CCB results. Boron was detected in ICB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2071718C on 7/17/2018) at 1.332 ug/L, 1.291 ug/L, 1.111 ug/L, 0.775 ug/L, 1.336 ug/L, below the RL of 25 ug/L. Boron was not detected in any of the impacted samples (i.e., all samples except TA-SED-T4-3(0-1) and TA-SED-T4-3(1-1.7)). No action was taken based on these ICB and CCB results for boron. Boron was detected in CCB1, CCB2 (Run #MS2072618A.6 on 7/26/2018) at 0.949 ug/L, 0.678 ug/L, below the RL of 25 ug/L. No samples in this SDG were associated wtih these CCBs.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The laboratory reporting limits for aluminum, magnesium, selenium, and sodium were elevated above the MDEQ target detection limits. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No

Project Name/No. Michigan Project
SDG: TG03001
Lab: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	For TCLP chromium and lead, a 5-point calibration was performed on 8/8/2018. The initial calibration results were within 10% of the true values, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 7/16/2018, and the correlation coefficients were greater than 0.99. A 4-point initial calibration was conducted for all metals but mercury on 7/17/2018, and the correlation coefficient was greater than the QAPP limit (0.99998 vs. 0.99).	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP). CRQL Check Standard recoveries were within the project limits of 70-130%.	No
Interference Check Sample	Yes	---	The interference check results for chromium and lead were within the laboratory established limits. The interference check results for the other metals were within the project limits of 80%-120%.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Vanadium in TA-SED-T4-3(0-1).	The %D for the serial dilution result for lead for TA-SED-T4-3(0-1) was above 10% at 14%; the original sample concentration was not greater than 5 times of the MDL. No action was taken based on the serial dilution results. The serial dilution for the other metals was performed for TA-SED-T9-1(0-1), and the results were within the project limit of 10% with the following exceptions - arsenic (17%), beryllium (321%), cadmium (61%), chromium (11%), cobalt (18%), copper (14%), nickel (11%), thallium (393%), and vanadium (11%). With the exception of vanadium, the original sample concentrations for the above referenced metals were not greater than 50 times of the MDLs. The vanadium result for TA-SED-T4-3(0-1) was qualified J.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank with the following exceptions: internal standard Y was above the limit for TA-SED-T4-3(1-1.7) (130%), TA-SED-RC-1(0-1) (133%), TA-SED-RC-2(2-3) (146%), TA-SED-RC ACCESS(1.5-2.5) (127%), TA-SED-8-2(0-1) (122% relative to calibration blank of 95%), TA-SED-8-2(1-2)(132%), TA-SED-8-2(3-4.1) (127%), TA-SED-4-2(1-2) (122% relative to blank of 95%), TA-SED-T9-1(2-3)(146%), TA-SED-T9-1(0-1) (121% relative to blank of 95%). Y was not associated with any of the above referenced samples.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	No	TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) percent solids below 30%.	The percent solids for TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) were 21%, 24%, 17%, 26%, below the project limit of 30%. The TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) results were qualified (detects were qualified J and non-detects were qualified UJ). The percent solids for the other samples were greater than 30%; no action was taken for the other samples.	Yes
Field Duplicate Analysis	NA	---	No field duplicate samples were collected for this SDG.	No

Project Name/No. Michigan Project
SDG: TG03001
Laboratory: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 4.4°C, 3.6°C, 4.3°C. Two coolers were received above the project limit of 4°C. One cooler was received within 24 hours from sample collection for the majority of the samples in the cooler. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium, nitrate/nitrite, and sulfate in MS/MSD of TA-SED-RC-1 (0-1) and TA-SED-T9-1 (0-1). Total cyanide in MS/MSD of TA-SED-T9-1(0-1). Ammonia in MS/MSD of TA-SED-T4-3(0-1) and TA-SED-T9-1 (0-1).	The MS/MSD analysis was performed for TA-SED-RC-1 (0-1) and TA-SED-T9-1 (0-1) for hexavalent chromium analysis. The MS/MSD recoveries (0%/73% and 0%/0%) were below the project limits of 75-125%, and the RPD was greater than 50% at 200% for TA-SED-RC-1 (0-1) MS/MSD. The non-detected hexavalent chromium results in TA-SED-RC-1 (0-1) and TA-SED-T9-1 (0-1) were qualified UR. The MS/MSD analysis was performed for TA-SED-T9-1(0-1) for total cyanide analysis. The MS/MSD recoveries (35%/39%) were below the project limits of 75-125%, while the RPD was within 50%. The cyanide result for TA-SED-T9-1(0-1) was qualified J-. The MS/MSD analysis was performed for TA-SED-RC-1 (0-1) for total cyanide analysis, and the results were within the project limits of 75-125%, while the RPD was within 50%. The MS/MSD analysis was performed for TA-SED-T9-1(0-1) for phosphorus analysis. The MS/MSD recoveries reported by the laboratory (GZA calculated 184%/153% vs. laboratory reported 193%/698%) exceeded the project limits of 75-125%,while the RPDs between the MS/MSD results were within the project limit of 50%. The original sample concentration was greater than 4 times the spike concentration; no action was taken based on the phosphorus MS/MSD results. MS/MSD analysis was performed for TA-SED-RC-1 (0-1) for nitrate/nitrite analysis. The MS/MSD recoveries (65%/61%) were below the project limits of 75-125%, while the RPD was within 50%. The nitrate/nitrite result for TA-SED-RC-1 (0-1) was qualified J-. MS/MSD analysis was performed for TA-SED-T9-1(0-1) for nitrate/nitrite analysis. The MS/MSD recoveries (3.4%/12%) were below the project limits of 75-125%, while the RPD was slightly above 50% at 51%. The nitrate/nitrite result for TA-SED-T9-1(0-1) was qualified J-. MS/MSD analysis was performed for TA-SED-T4-3 (0-1) and TA-SED-T9-1(0-1) for ammonia analysis. The MS/MSD results reported in the laboratory reports were within the project limits of 75-125% (96%/92% and 104%/104%), and the RPDs were within 50%. MS/MSD recoveries calculated by GZA were below the project limits. However, the original sample concentrations in both TA-SED-T4-3 (0-1) and TA-SED-T9-1(0-1) were greater than 4 times of the spike concentrations; no action was taken based on the ammonia MS/MSD results. MS/MSD analysis was performed for TA-SED-RC-1 (0-1) for sulfate analysis. The MSD result (129%) was above the the project limits of 75-125% while the MS (115%) was within the limits, and the RPD was within 50%. The TA-SED-RC-1 (0-1) sulfate result was qualified J+. MS/MSD analysis was performed for TA-SED-T9-1(0-1) for sulfate analysis. The MS recovery (laboratory reported 74% while GZA calculated recovery below 0%) was below the the project limits of 75-125%; the MSD reported by the laboratory (115%) was within the project limits while GZA calculated recovery below 0%. The RPD was below 50%. The TA-SED-T9-1(0-1) sulfate result was qualified J-. MS/MSD analysis was performed for TA-SED-RC-1 (0-1) and TA-SED-T9-1(0-1) for chloride analysis. The laboratory reported MS/MSD results and the RPD were within the project limits. However, GZA calculated MS/MSD recoveries for TA-SED-T9-1(0-1) (74%/63% vs. laboratory reported 100%/91%) were below the project limits; the chloride result for TA-SED-T9-1(0-1) was qualified J-.	Yes
Method Blank	No	Cyanide detected in multiple method blanks.	Cyanide was detected in the method blanks at 0.017 mg/kg (Batch 77212) and 0.020 mg/kg (Batch 77337), respectively, below the RL 0f 0.12 mg/kg. Cyanide was detected below the RLs in the impacted samples TA-SED-8-2(0-1), TA-SED-8-2(1-2), TA-SED-8-2(3-4.1), TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), TA-SED-T9-1(0-1), TA-SED-T9-1(4-5) while not detected in TA-SED-T9-1(2-3). The cyanide results in TA-SED-8-2(0-1), TA-SED-8-2(1-2), TA-SED-8-2(3-4.1), TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), TA-SED-T9-1(0-1), TA-SED-T9-1(4-5) were reported at the RLs and qualified UB. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	Multiple inorganic analytes in multiple samples in this SDG.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and correlation coefficients were greater than the QAPP limit of 0.99.	No

Project Name/No. Michigan Project
SDG: TG03001
Laboratory: SHEALY
Media TA-TB-01 (6/29/2018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	No	Phosphorus CRQL check, CCV for hexavalent chromium (TA-SED-8-2(3-4.1), TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), TA-SED-T9-1(2-3), TA-SED-T9-1(0-1), and TA-SED-T9-1(4-5)).	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and CRQL Check Standard recoveries were within the 70-130% limits with the following exceptions: CRQL check standard recovery for phosphorus was slightly above the limit (142% vs. 130%). Phosphorus was detected much higher (at least 2 times the RLs) in the impacted samples (i.e., all samples in this SDG). The phosphorus results were not qualified based on the CRQL check result. The %D values for the CCVs performed on 7/26/2018 10:33:30 and 18:01:30 for hexavalent chromium were slightly above the limit (%D values were -12% and -20% vs. 10%). No samples in this SDG were impacted by the above referenced CCVs; therefore, no action was taken for the sulfate results based on the CCV results. The %D values for the CCV performed on 7/28/2018 03:01:30 and 7/31/2018 on 01:58:30 and 7/31/2018 on 02:48:30 for hexavalent chromium were slightly above the limit (%D values were -11%, -18%, and -18% vs. 10%). The samples impacted by the CCV on 7/31/2018 01:58:30, 01:58:30, and 02:48:30 include TA-SED-8-2(3-4.1), TA-SED-4-2(0-1), TA-SED-4-2(1-2), TA-SED-4-2(2-3), TA-SED-T9-1(2-3), TA-SED-T9-1(0-1), and TA-SED-T9-1(4-5). Hexavalent chromum was not detected in any of the above referenced samples, and the non-detect results were qualified UJ.	Yes
Laboratory Duplicate Analysis	NA	---	Laboratory duplicate analysis was not performed for any samples in this SDG.	No
Solids Percentage	No	TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) percent solids below 30%.	The % solids for TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) were 21%, 24%, 17%, 26%, below the project limit of 30%. The TA-SED-T4-3(0-1), TA-SED-T4-3(1-1.7), TA-SED-4-2(0-1), TA-SED-T9-1(0-1) results were qualified (detects were qualified J and non-detects were qualified UJ). The % solids for the other samples were greater than 30%; no action was taken for the other samples.	Yes
Field Duplicate Analysis	NA	---	No field duplicate pair was collected for this SDG.	No

Project Name/No. Michigan Project
SDG: TF30001
Lab: SHEALY
Media Aqueous
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance for two of the three coolers.	The samples were received at 2.6°C, 4.5°C, and 5.2°C. Although two of the coolers were received above the project limit of 4°C, the coolers were received within 24 hours from sample collection. All samples were extracted within the holding time limits specified in the QAPP.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No trip/field blank samples were collected for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate samples were collected for this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/18/2018 09:19:30. For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	Benzidine in ICV on 7/18/2018 16:41:30 (all samples in this SDG).	An ICV was performed on 7/18/2018 12:59:30 and 16:41:30. The ICV %D did not exceed the project limit of 25% for any target analytes except benzidine (29%). Benzidine was not detected in any of the impacted samples (i.e., all samples in this SDG); therefore, no action was taken based on the CCV results.	No
	Yes	---	A CCV was performed on 7/20/2018 09:45:30 and 10:09:30. The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
Target Analyte Identification	No	Phenanthrene and caprolactam in TA-EQB-01(07022018).	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: phenanthrene and caprolactam in TA-EQB-01(07022018).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50%-200% of standard).	No
Solids Percentage	NA	---	All samples were aqueous samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TF30001
Lab: SHEALY
Media Aqueous
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance for two of the three coolers.	The samples were received at 2.6°C, 4.5°C, and 5.2°C. Although two of the coolers were received above the project limit of 4°C, the coolers were received within 24 hours from sample collection. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	LCS results were within the project limits of 70-130%.	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	No
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	NA	---	No trip/field blank samples were collected for this SDG.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.10 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate samples were collected for this SDG.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/6/2018 17:44:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995. The initial calibration was performed on 7/7/2018 10:23:30 (instrument msd7), and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/6/2018 21:13:30 (msd5), and the %D values were all below 25%.	No
	Yes	---	An ICV was performed on 4/30/2018 02:55:30 (msd7), and the %D values were all below 25%.	No
	Yes	---	A CCV was performed on 7/10/2018 20:42:30 (msd7). The %D values were all below 25% for all analytes. The RRFs for all target analytes were greater than 0.01.	No
	No	Acetone in CCV on 7/11/2018 09:36:30 (TA-EQB-01 (07022018), TA-EQB-02 (07022018), TA-EQB-03 (07022018)).	CCV was performed on 7/11/2018 09:36:30 (msd5). The %D values were all below 25% except for acetone (33%). The RRFs for all target analytes were greater than 0.01. Acetone results in the associated samples were qualified (detects were qualified J+, while no action was taken for non-detects).	Yes
Target Analyte Identification	No	Acetone in TA-EQB-01 and TA-EQB-02(07022018).	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: acetone in TA-EQB-01 and TA-EQB-02(07022018).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	NA	---	All samples were aqueous samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TF30001
Lab: SHEALY
Media Aqueous
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Slight temperature exceedance for two of the three coolers.	The samples were received at 2.6°C, 4.5°C, and 5.2°C. Although two of the coolers were received above the project limit of 4°C, the coolers were received within 24 hours from sample collection. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	NA	---	MS/MSD analysis was not conducted for any samples in this SDG.	Yes
Method Blank	No	Boron (all samples in this SDG).	No metal TCLs were detected in the method blank, except that boron was detected in the method blank in Batch 77295 at 35 ug/L, below the RL of 50 ug/L. Boron was detected in all the impacted samples (i.e., all samples in this SDG) below the respective RLs. All boron results in this SDG were reported as non-detects at the respective RLs.	Yes
Instrument Blank	No	Iron in ICB1, CCB1, CCB2 (Run #MS2071218A on 7/12/2018).	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Iron was detected in ICB1, CCB1, CCB2 (Run #MS2071218A on 7/12/2018) at 14.44 ug/L, 12.610 ug/L, 13.000 ug/L, below the RL of 20 ug/L. No samples is this SDG were impacted by the iron detect in ICB1, CCB1, and CCB2 for Run #MS2071218A on 7/12/2018. No action was taken based on the instrument blank results.	No
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.10 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for mercury were noted by the QAPP. Elevated reporting limits were also noted for other metals due to dilution.	No
Initial Calibration	Yes	---	For chromium, a 5-point calibration was performed on 7/31/2018, and the correlation coefficients were greater than 0.995. For mercury, a 5-point calibration was performed on 7/6/2018, and the correlation coefficient was greater than 0.995. A 4-point initial calibration was conducted for all metals but mercury on 7/10/2018, and the correlation coefficient was greater than the QAPP limit (0.99998 vs. 0.995).	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP). CRQL Check Standard recoveries were within the project limits of 70-130%.	No
Interference Check Sample	NA	---	No information is available for interference check results.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	NA	---	Serial dilution was not performed for any samples in this SDG.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	NA	---	All samples were aqueous samples in this SDG.	No
Field Duplicate Analysis	NA	---	No field duplicate samples were collected for this SDG.	No

Project Name/No. Michigan Project
SDG: TF30001
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Holding time exceedance for hexavalent chromium for TA-EQB-01(07022018). Slight temperature exceedance for two of the three coolers.	The samples were received at 2.6°C, 4.5°C, and 5.2°C. Although two of the coolers were received above the project limit of 4°C, the coolers were received within 24 hours from sample collection. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 24 hours for hexavalent chromium, and 28 days for the other analytes), except that hexavalent chromium was analyzed approximately 1 hour outside the 24-hour limit for TA-EQB-01(07022018). The hexavalent chromium non-detect result for TA-EQB-01(07022018) was qualified UJ. No action was taken for the other analytes.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	MSD recovery of chloride in TA-EQB-01-6/29 above the project limits (137% vs. 75-125%).	The MS/MSD analysis was performed for TA-EQB-01-6/29 and TA-EQB-01(07022018) for hexavalent chromium analysis. The MS/MSD recoveries were within the project limits (75-125%), and the RPD was below 30%. The MS/MSD analysis was performed for TA-EQB-03(07022018) for total cyanide analysis. The MS/MSD recoveries were within the project limits (75-125%), while the RPD was within 30%. The MS/MSD analysis was performed for TA-EQB-01-6/29 and TA-EQB-02-6/29 for phosphorus analysis. The MS/MSD recoveries were within the project limits (75-125%), and the RPDs of the MS/MSD results were within the project limit of 30%. MS/MSD analysis was performed for TA-EQB-01-6/29 for nitrate/nitrite analysis. The MS/MSD results were within the project limits of 75-125%, while the RPD was within 30%. MS/MSD analysis was performed for TA-EQB-02(07022018) and TA-EQB-03(07022018) for ammonia analysis. The MS/MSD recoveries (106%/94%) were within the project limits of 75-125%, while the RPD was within 30%. MS/MSD analysis was performed for TA-EQB-01-6/29 and TA-EQB-01(07022018) for sulfate analysis. The MS/MSD results were within the project limits (75-125%), and the RPD was within 30%. MS/MSD analysis was performed for TA-EQB-01-6/29 for chloride analysis. The MS result was within the project limits of 75-125%, while the MSD result was above the project limits (137% vs. 75-125%). The RPD was within 30%. Chloride was not detected in the original sample; no action was taken based on the MS/MSD results. MS/MSD analysis was also performed for TA-EQB-02-6/29 for chloride analysis. The MS/MSD results were within the project limits of 75-125%, while the RPD was within 30%. MS/MSD analysis was performed for TA-EQB-03(07022018) for hardness. The MS/MSD results were within the project limits of 75-125%, while the RPD was within 30%.	No
Method Blank	No	Nitrate-nitrite detected in multiple method blanks.	Nitrate-nitrite was detected at 0.0062 mg/L, below the RL of 0.02 mg/L, in the method blank (MB) for Batch 77704, and detected at 0.048 mg/L, above the RL of 0.020 mg/L, in the MB for Batch 77834. With the exception of TA-EQB-01(07022018), nitrate-nitrite was detected below the RLs in all the samples submitted for analysis in this SDG. The nitrate-nitrite results in all samples but TA-EQB-01(07022018) were qualified as non-detects (UB) and reported at the respective RLs. The nitrate-nitrite result for TA-EQB-01(07022018) would be qualified as a non-detect with the detected concentration as the RL (UB qualifier). However, GZA did not qualify equipment blank samples for the project. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Equipment Blank	No	Ammonia, nitrate-nitrite, phosphorus, hardness.	Ammonia, nitrate-nitrite, phosphorus, and/or hardness was detected in one or more of the equipment blank samples submitted with this SDG (TA-EQB-01-6/29, TA-EQB-02-6/29, TA-EQB-01(07022018); no action was taken based on the equipment blank results.	No
Reported Quantitation Limits	No	Multiple analytes in multiple samples in this SDG.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.10 in the QAPP. The laboratory detection limit for total cyanide exceeded the MDEQ target limit. For other target analytes, the laboratory reporting limits generally met the MDEQ target detection limits, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and the correlation coefficients were greater than the QAPP limit of 0.995.	No
Continuing Calibration/Calibration Verification	No	Phosphorus CRQL check, CCV for sulfate (all samples in this SDG).	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and CRQL Check Standard recoveries were within the 70-130% limits with the following exceptions: CRQL check standard recovery for phosphorus was slightly above the limit (135% vs. 130%). Phosphorus was either not detected or detected below the RLs in the impacted samples (i.e., all samples in this SDG). The phosphorus detects were qualified J+, and no qualification was required for the non-detect results. CCVs performed on 7/17/2018 17:01:30 and 22:14:30, 7/20/2018 19:51:30, and 7/24/2018 14:16:30 for sulfate were slightly above the limit (%D values were 13%, 10.1%, and 29% vs. 10%). The laboratory reported the sulfate results from 7/20/2018; and all the sulfate results in this SDG were impacted by the 7/24/2018 CCV. Sulfate was not detected in any of the samples in this SDG; therefore, no action was taken for the sulfate results based on the CCV results.	Yes

Project Name/No. Michigan Project
SDG: TF30001
Laboratory: SHEALY
Media Aqueous
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Laboratory Duplicate Analysis	Yes	---	Laboratory duplicate analysis was performed for sulfide analysis for all samples in this SDG. Sulfide was not detected in any of the samples.	No
Solids Percentage	NA	---	All samples were aqueous samples in this SDG.	No
Field Duplicate Analysis	NA	---	No field duplicate pair was collected for this SDG.	No

Project Name/No. Michigan Project
SDG: TF29012
Lab: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in the SDG were received at 8.5°C or 8.8°C, slightly outside of the 4°C maximum temperature limit.	The samples were received at 8.5°C and 8.8°C. Although the coolers were received above the project limit of 4°C, the coolers were received within 24 hours from sample collection. All samples were extracted within 14 days and analyzed within 40 days of sample extraction, as specified in the QAPP.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	One LCS was performed for this SDG. The LCS recoveries were all within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	No	MS/MSD recoveries for anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, 3,3'-dichlorobenzidine, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene did not meet the control limits for TA-SB-MW-02 (1-2).	MS/MSD analysis was conducted for TA-SB-MW-02 (1-2). MS/MSD recoveries were within the laboratory established limits for all analytes except that the MS and/or MSD recoveries for anthracene (39%/63%), benzo(a)anthracene (16%/58%), benzo(a)pyrene (7.2%/53%), benzo(b)fluoranthene (1.7%/71%), benzo(g,h,i)perylene (9.6%/17%), dibenzo(a,h)anthracene (25%/47%), 3,3'-dichlorobenzidine (0%/14%), fluoranthene (-37%/62%), indeno(1,2,3-c,d)pyrene (11%/25%), phenanthrene (-22%/50%), and pyrene (6.2%/82%) were below the laboratory established limits. The MS/MSD RPDs for all analytes were below 50%. Anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene were detected in TA-SB-MW-02 (1-2); the results for these analytes were qualified J-. The non-detected dibenzo(a,h)anthracene result for TA-SB-MW-02 (1-2) was qualified UJ based on the MS and/or MSD results and the non-detect 3,3'-dichlorobenzidine result was qualified UR.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair (TA-SB-MW-04 (1-2) and TA-SB-MW-04DUP (1-2)) was collected for this SDG. The RPD values for all target analytes were within 50%.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/18/2018 09:19:30 on instrument msd10 and 7/19/2018 09:33:30 (msd11). The initial calibration result %RSDs for all analytes were below 25% or R^2 was greater than 0.99.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/18/2018 12:59:30 on instrument msd10. The percent recovery drift (%D) was below 25% for all target analytes.	No
	Yes	---	An ICV was performed on 7/18/2018 16:51:30 (msd10). The percent recovery drift (%D) was below 25% for all target analytes.	No
	Yes	---	An ICV was performed on 7/19/2018 13:17:30 (msd11). The percent recovery drift (%D) was below 25% for all target analytes.	No
	Yes	---	An ICV was performed on 7/19/2018 17:03:30 (msd11). The percent recovery drift (%D) was below 25% for all target analytes.	No
	Yes	---	A CCV was performed on 7/23/2018 09:27:30. The CCV %D did not exceed the project limit of 25% for target analytes, and RRFs were above 0.01 for all target analytes.	No
	Yes	---	A CCV was performed on 7/22/2018 10:08:30. The CCV %D did not exceed the project limit of 25% for any target analyte. RRFs were above 0.01 for all target analytes.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: acenaphthene in TA-SB-MW-01 (2-3), TA-SB-MW-01 (6-7), TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-02 (4-5); benzo(a)anthracene in TA-SB-MW-01 (2-3), TA-SB-MW-01 (6-7), TA-SB-MW-07 (4-5), TA-SB-MW-07 (6-7), TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-SB-MW-05 (1-2), TA-SB-MW-05 (1-2); indeno(1,2,3-c,d)pyrene in TA-SB-MW-01 (2-3), TA-SB-MW-01 (6-7), TA-SB-MW-07 (4-5), TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-SB-MW-05 (1-2), TA-SB-MW-05 (4-5); naphthalene in TA-SB-MW-01 (6-7), TA-SB-MW-07 (4-5), TA-SB-MW-06 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-SB-MW-05 (1-2); anthracene in TA-SB-MW-07 (4-5); chrysene in TA-SB-MW-07 (4-5), TA-SB-MW-07 (6-7), TA-SB-MW-08 (2-3); benzo(b)fluoranthene in TA-SB-MW-07 (4-5), TA-SB-MW-07 (6-7), TA-SB-MW-08 (5-6); benzo(k)fluoranthene in TA-SB-MW-07 (4-5); benzo(g,h,i)perylene in TA-SB-MW-07 (4-5), TA-SB-MW-07 (6-7); phenanthrene in TA-SB-MW-08 (2-3); benzo(a)pyrene in TA-SB-MW-08 (2-3); fluorene in TA-SB-MW-05 (1-2). Samples TA-SB-MW-01 (2-3), TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-05 (1-2) exhibited slightly irregular spectrum baselines.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No

Project Name/No. Michigan Project
SDG: TF29012
Lab: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard Responses & Retention Time	No	Acenaphthene-d10 in TA-SB-MW-06 (2-3).	The internal standard (ISTD) responses for all samples were within the acceptance criteria (-50% to +100% change in internal standard area, <30 second change in retention time) except that the ISTD area for acenaphthene-d10 in TA-SB-MW-06 (2-3) exceeded 200% the internal standard area. Detections in TA-SB-MW-06 (2-3) for acenaphthene were qualified J, while the non-detect results for hexachlorocyclopentadiene, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, 2-chloronaphthalene, dimethyl phthalate, acenaphthylene, 2,4-dinitrotoluene, dibenzofuran, diethylphthalate, and fluorene were qualified UJ.	Yes
Solids Percentage	Yes	---	All samples at solids percentage above 30%.	No

Project Name/No. Michigan Project
SDG: TF29012
Lab: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	All samples in the SDG were received at 8.5°C or 8.8°C, slightly outside of the 4°C maximum temperature limit. Holding time exceedance for the second runs (on 7/17/2018) and third runs (on 7/18/2018, not included in laboratory report) of samples TA-SB-MW-02 (1-2), TA-SB-MW-05 (1-2), TA-SB-MW-05 (4-5); for the second runs of TA-SB-MW-04 (5-6), TA-SB-MW-02 (4-5) (not included in laboratory report).	The VOC samples were received in 4 coolers at 8.5°C, 5.2°C, 4.7°C, and 4.4°C, preserved with methanol as specified in the QAPP. Although one of the coolers was received above the project limit of 4°C, the coolers were received within 24 hours from sample collection. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP, except for the second analysis of TA-SB-MW-02 (1-2) which was conducted on the 18th day after sample collection (7/17/2018), the third analysis of TA-SB-MW-02 (1-2) which was conducted on the 19th day after sample collection; the second analysis of TA-SB-MW-05 (1-2) which was conducted on the 15th day (7/17/2018), the third analysis of TA-SB-MW-05 (1-2) which was conducted on the 16th day after sample collection; the second analysis of TA-SB-MW-05 (4-5) which was conducted on the 15th day (7/17/2018); the third analysis of TA-SB-MW-05 (4-5) which was conducted on the 16th day. The third run results were not reported. The VOC results for the second analysis of TA-SB-MW-02 (1-2), TA-MW-05 (1-2), and TA-SB-MW-05 (4-5) were qualified (J for detections, UJ for non-detects). The laboratory narrative noted that reanalyses for TA-SB-MW-04 (5-6), TA-SB-MW-02 (4-5) were conducted outside of the 14-day holding time. The reanalyses confirmed the initial results; only the initial results were reported.	Yes
Surrogate Recovery	No	Surrogate recoveries did not meet the project criteria for bromofluorobenzene in TA-SB-MW-01 (6-7), TA-SB-MW-08 (5-6), TA-SB-MW-04DUP (1-2), the second analysis on 7/17/2018 of TA-SB-MW-02 (1-2), TA-SB-MW-04 (1-2) and both the original (7/13/2018) and reanalysis (7/17/2018) of TA-SB-MW-05 (1-2) .	All VOC surrogate recoveries met the required criteria of 70-130% except that recoveries were slightly below 70% in TA-SB-MW-01 (6-7) for bromofluorobenzene (67%), TA-SB-MW-08 (5-6) for bromofluorobenzene (67%), TA-SB-MW-04DUP(1-2) for 1,2-dichloroethane-d4 (64%), toluene d-8 (68%), and bromofluorobenzene (64%), the second analysis (7/17/2018) of TA-SB-MW-02 (1-2) for bromofluorobenzene (69%); and recoveries were outside the limits for samples TA-SB-MW-04 (1-2) for bromofluorobenzene (58%), the original analysis (7/13/2018) of TA-SB-MW-05 (1-2) for bromofluorobenzene (59%), the second analysis (7/17/2018) of TA-SB-MW-05 (1-2) for toluene-d8 (36%) and bromofluorobenzene (17%). The VOC results in TA-SB-MW-01 (6-7), TA-SB-MW-08 (5-6), TA-SB-MW-04DUP (1-2), the second (7/17/2018) analysis of TA-SB-MW-02 (1-2), TA-SB-MW-04 (1-2) and both the original (7/13/2018) and reanalysis (7/17/2018) of TA-SB-MW-05 (1-2) were qualified (detects were qualified J- and non-detects were qualified UJ).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Acetone, 2-butanone, 2-hexanone, and cyclohexane in LCS associated with Batch 77666 (the first (7/13/2018) analysis of five samples - TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-SB-MW-05 (1-2), and TA-SB-MW-05 (4-5)). Cyclohexane recovery exceeded the limits for the LCS associated with Batch 77933 (the second (7/17/2018) analysis of three samples - TA-SB-MW-02 (1-2), TA-SB-MW-05 (1-2), TA-SB-MW-05 (4-5)).	The LCS recoveries for all analytes were within the project limits (70-130%) except for the following: For Batch 77666, the LCS recoveries were below 70% for acetone (58%), 2-butanone (61%), and 2-hexanone (57%), while the LCS recovery for cyclohexane (139%) exceeded 130%. Results for acetone, 2-butanone, and 2-hexanone were qualified (J- for detects, UJ for non-detects) for the associated samples (i.e., the first analysis on 7/13/2018 of five samples - TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-SB-MW-05 (1-2), and TA-SB-MW-05 (4-5)). Detections of cyclohexane were qualified J+ in the original (7/13/2018) analyses of TA-SB-MW-02 (1-2), TA-SB-MW-05 (1-2), TA-SB-MW-05 (4-5). For Batch 77933, the LCS recovery for cyclohexane (139%) exceeded 130%. Detections of cyclohexane in the affected samples (the second analysis on 7/17/2018 of TA-SB-MW-02 (1-2), TA-SB-MW-05 (1-2), TA-SB-MW-05 (4-5)) were qualified J+.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Acetone and cyclohexane in the MS/MSD performed on TA-SB-MW-02 (1-2) exceeded the MSD recovery limits, and the RPD for cyclohexane exceeded the project limit.	MS/MSD analysis was conducted for TA-SB-MW-02 (1-2). The MS/MSD recoveries were within the project limits of 70-130% for all target analytes, except for the MSD recoveries for acetone (54%) and cyclohexane (143%). Additionally, the RPD value between the MS and MSD was below the project limit of 50% for all analytes except cyclohexane (60%). Acetone results in all analyses of TA-SB-MW-02 (1-2) were qualified (detects were qualified J- while non-detects were qualified UJ); while the cyclohexane detects in all analyses of TA-SB-MW-02 (1-2) were qualified J+.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Methylene chloride detected below the RL in TA-TB-02 (07022018).	One trip blank TA-TB-02 (07022018) was collected for this SDG. Methylene chloride was detected at 0.53 ug/L, below the RL of 1.0 ug/L. No other VOCs were detected in the trip blank. Methylene chloride was detected in multiple samples in this SDG. It is difficult to assess the association of the trip blank with the project samples. As a conservative approach, no action was taken based on the trip blank results. No field blank was submitted for VOC analysis for this SDG.	No

Project Name/No. Michigan Project
SDG: TF29012
Lab: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Cyclohexane RPD exceedance for TA-SB-MW-04 (1-2) and TA-SB-MW-04DUP (1-2).	A field duplicate pair (TA-SB-MW-04 (1-2) and TA-SB-MW-04DUP (1-2)) was collected for this SDG. The RPD values for all target analytes were within 50%, except for cyclohexane (73% RPD). Cyclohexane results for TA-SB-MW-04 (1-2) and TA-SB-MW-04DUP (1-2) were qualified J. Methylcyclohexane, total xylenes, m+p-xylenes, and o-xylenes were detected below 2 times the RL in only one of the field duplicate samples; no further action is required for these analytes.	Yes
Initial Calibration	Yes	---	Initial calibrations were performed on 7/6/2018 17:44:30 on instrument msd5, 7/5/2018 23:48:30 (msd15), and 7/16/2018 11:05:30 (msd15), and the results for all target analytes met the limits of either %RSD<30% or R^2 > 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/6/2018 21:13:30 on instrument msd5, and the recovery drift (%D) values were all below 25%.	No
	No	Dichlorodifluoromethane in ICV on 7/6/2018 02:55:30 (no samples in this SDG).	An ICV was performed on 7/6/2018 02:55:30 (msd15), and the %D values were all within 25%, except for dichlorodifluoromethane (43%). No samples in this SDG were associated with this ICV. No action was taken.	No
	No	Dichlorodifluoromethane and acetone in ICV on 7/16/2018 19:32:30 (no samples in this SDG).	An ICV was performed on 7/16/2018 19:32:30 (msd15), and the %D values were all within 25%, except for dichlorodifluoromethane (27.3%) and acetone (27.7%). No samples were associated with this ICV. No action was taken.	No
	No	Acetone in CCV VSTD050CU on 7/11/2018 09:36:30 (TA-TB-02 (07022018)).	CCV VSTD050CU was performed on 7/11/2018 09:36:30. The RRFs for all target analytes were above 0.01, and the percent recovery drifts (%D) were all within 25% except for acetone (32.8%). The only sample associated with this CCV was the trip blank; no further action was required.	No
	No	Dichlorodifluoromethane in CCV VSTD050DG on 7/12/2018 07:31:30 (TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), and TA-SB-MW-04DUP (1-2)).	CCV VSTD050DG was performed on 7/12/2018 07:31:30. The RRFs for all target analytes were above 0.01, and the %D values were all within 25% except for dichlorodifluoromethane (59.2%). Dichlorodifluoromethane results in the associated samples (TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), and TA-SB-MW-04DUP (1-2)) were all non-detect, and no action was taken.	No
	No	Dichlorodifluoromethane and cyclohexane in CCV VSTD050DU on 7/13/2018 07:08:30 (1st analysis on 7/13/2018 of four samples -TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-SB-MW-05 (1-2), and TA-SB-MW-05 (4-5)).	CCV VSTD050DU was performed on 7/13/2018 07:08:30. The RRFs for all target analytes were above 0.01, and the %D values were all below 25% except for dichlorodifluoromethane (60.9%) and cyclohexane (48.9%). Dichlorodifluoromethane was not detected in any of the impacted samples (1st analysis on 7/13/2018 of four samples -TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-SB-MW-05 (1-2), and TA-SB-MW-05 (4-5)); no action was taken. The detect results for cyclohexane in the 1st analysis (7/13/2018) of TA-SB-MW-02 (1-2), TA-SB-MW-05 (1-2), and TA-SB-MW-05 (4-5) were qualified J+.	Yes
	Yes	---	CCV VSTD050FI was performed on 7/17/2018 08:17:30. The RRFs for all target analytes were above 0.01, and the %D values were all below 25%.	No
Target Analyte Identification	No	Various VOCs in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: cyclohexane in TA-SB-MW-01 (2-3), TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-02 (1-2) (1st and 2nd runs), TA-SB-MW-05 (1-2) (1st and 2nd runs), TA-SB-MW-05 (4-5) (1st and 2nd runs); chlorobenzene in TA-SB-MW-01 (2-3); methylene chloride in TA-SB-MW-07 (4-5), TA-SB-MW-06 (2-3), TA-SB-MW-07 (6-7), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2) (1st and 2nd runs), TA-SB-MW-02 (4-5), TA-SB-MW-05 (4-5) (1st run); 1,1,1-trichloroethane in TA-SB-MW-07 (4-5), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-05 (1-2) (1st and 2nd runs), TA-SB-MW-05 (4-5) (1st & 2nd runs); m+p-xylenes in TA-SB-MW-06 (2-3); o-xylene in TA-SB-MW-06 (2-3); toluene in TA-SB-MW-04 (1-2); 1,3,5-trimethylbenzene in TA-SB-MW-02 (1-2) (1st and 2nd runs), TA-SB-MW-05 (1-2) (2nd run); 2-chlorotoluene in TA-SB-MW-02 (1-2) (2nd run); p-Isopropyltoluene (2nd run); hexachlorobutadiene in TA-SB-MW-02 (1-2) (2nd run); 1,2,3-trichlorobenzene in TA-SB-MW-02 (1-2) (2nd run); acetone in TA-SB-MW-05 (1-2) (1st and 2nd runs); 1,1-dichloroethane in TA-SB-MW-05 (1-2) (1st and 2nd runs), TA-SB-MW-05 (4-5) (1st and 2nd runs); hexane in TA-SB-MW-05 (1-2) (2nd run); n-butylbenzene in TA-SB-MW-05 (1-2) (2nd run). Sample TA-SB-MW-06 (2-3) exhibited an irregular baseline.	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No

Project Name/No. Michigan Project
SDG: TF29012
Lab: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria (-50% to +100% change in internal standard area, less than 30 second change in retention time).	No
Solids Percentage	Yes	---	All samples at solids percentage above 30%.	No

Project Name/No. Michigan Project
SDG: TF29012
Lab: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	All samples in the SDG were received at 8.5°C or 8.8°C, slightly outside of the 4°C maximum temperature limit.	The samples were received at 8.5°C and 8.8°C. Although the coolers were received above the project limit of 4°C, the coolers were received within 24 hours from sample collection. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Antimony, arsenic, barium, beryllium, boron, chromium, cobalt, copper, molybdenum, nickel, selenium, thallium, zinc MS and/or MSD recoveries outside of control criteria (75-175%).	The MS/MSD analysis was performed for TA-SB-MW-02 (1-2) for all ICP-MS metals. The MS/MSD recoveries were within the QAPP limits of 75-125% for all metals with the following exceptions. The RPD calculation was not applicable because the spike concentration was different (49 mg/kg vs 44 mg/kg) between the MS and MSD samples. MS and/or MSD recoveries for aluminum (9100%/7640%), barium (213%/136%), chromium (146%/16%), copper (154%/70%), iron (505%/-53%), titanium (317%/218%), zinc (129%/78%) were outside the project limits. MS and/or MSD recoveries for antimony (65%/56%), arsenic (81%/70%), beryllium (20%/17%), boron (25%/22%), cobalt (78%, 67%), magnesium (29%/54%), molybdenum (86%/73%), nickel (81%/66%), selenium (81%/74%), thallium (78%/71%) were below the QAPP limits. The post digest spike (PDS) recoveries were within 75-125% limits, with the exception of aluminum (-580.2%), beryllium (27.9%), boron (31.3%), magnesium (51.0%), and titanium (65.1%). The original sample concentrations for aluminum, iron, magnesium, and titanium were above 4 times the MS/MSD spike concentrations. Therefore, no action was taken for aluminum, iron, magnesium, or titanium sample results based on the MS/MSD results. Based on the MS/MSD and PDS results, the following TA-SB-MW-02 (1-2) results were qualified: The detections for antimony, arsenic, barium, chromium, cobalt, copper, molybdenum, nickel, selenium, thallium, and zinc were qualified J. The detect for beryllium was qualified J-, and the non-detect for boron was qualified UJ.	Yes
Method Blank	Yes	---	No metal target analytes were detected in the method blanks.	No

Project Name/No. Michigan Project
SDG: TF29012
Lab: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Instrument Blank	No	Boron, iron, silver detected in multiple instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2070618C on 7/6/2018) at 1.625 ug/L, 2.391 ug/L, 1.367 ug/L, 1.312 ug/L, and 1.128 ug/L below the RL of 25 ug/L. Boron was also detected in CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2071618C on 7/16/2018) at 1.457 ug/L, 2.199 ug/L, 2.111 ug/L, 2.080 ug/L, 2.653 ug/L, below the RL of 25 ug/L. Iron was detected in ICB1, CCB2, CCB3 (Run #MS2071618C on 7/16/2018) at 13.590 ug/L, 10.26 ug/L, 19.440 ug/L, below the RL (25 ug/L), and above the RL in CCB4 at 29.52 ug/L and CCB5 at 34.350 ug/L. Silver was detected in ICB1 (Run #MS2071618C on 7/16/2018) at 0.426 ug/L below the RL of 0.5 ug/L. Cadmium was detected in CCB5 (Run #MS2071618C on 7/16/2018) at 0.106 ug/L, below the RL of 0.25 ug/L. Thallium was detected in CCB5 (Run #MS2071618C on 7/16/2018) at 0.164 ug/L, below the RL of 0.25 ug/L. Boron was also detected in ICB1, CCB2, CCB3, CCB4 (Run #MS2071718C on 7/17/2018) at 1.332 ug/L, 2.697 ug/L, 2.152 ug/L, 1.291 ug/L, below the RL of 25 ug/L. Iron was also detected in ICB1 (Run #MS2071718C on 7/17/2018) at 10.060 ug/L, below the RL of 25 ug/L. For Run #MS2070618C, the boron instrument blank detections affect samples TA-SB-MW-01 (2-3), TA-SB-MW-01 (6-7), TA-SB-MW-07 (4-5), and TA-SB-MW-07 (6-7). Boron was detected below the RL in all 4 of the affected samples; the results should be reported at the RL and qualified UB. For Run #MS2071618C, the boron and silver detections affect samples TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-TB-02 (07022018), TA-SB-MW-05 (1-2), and TA-SB-MW-05 (4-5). Iron was not analyzed in this run for the affected samples. Boron was detected below the RL in TA-SB-MW-05 (1-2); the result should be reported at the RL and qualified UB. Boron was non-detect in all other affected samples; no further action is required for the non-detect results. Silver was detected below the RL in TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), and TA-SB-MW-05 (1-2); the silver results for the above referenced samples were raised to RLs and qualified UB. The non-detect results for silver in all other affected samples require no further action. For Run #MS2071718C, the iron ICB detections affect samples TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-TB-02 (07022018), TA-SB-MW-05 (1-2), and TA-SB-MW-05 (4-5). Boron was not analyzed in this run for the affected samples. Iron was detected over 100 times the RL in all affected samples; no action was taken based on the instrument blank results for this run.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The laboratory reporting limits for aluminum, magnesium, selenium, and sodium were elevated above the MDEQ target detection limits. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	For chromium and lead, a 5-point calibration was performed on 8/8/2018, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 7/17/2018, and the correlation coefficient was greater than 0.99. For the other metals, a 4-point calibration was performed on 8/9/2018, and the correlation coefficients were all greater than 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	Yes	---	An interference check was performed for all target metal analytes except mercury. The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	Yes	---	A serial dilution was performed for TA-SB-MW-02 (1-2) for all target metal analytes except mercury. The %D serial dilution results for all metals met the QAPP limit (i.e., either serial dilution result percent difference lower than 10%, or the original sample concentrations were below 50 times of the sample detection limits).	No

Project Name/No. Michigan Project
SDG: TF29012
Lab: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard	No	Yttrium in TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-04 (5-6), TA-SB-MW-02 (1-2), TA-SB-MW-02 (1-2)MS, TA-SB-MW-02 (1-2)MSD; and bismuth in TA-SB-MW-05 (1-2).	For each sample, the %RI was within 60-125% of the response in the calibration blank, except for the following cases: Yttrium exceeded the maximum %RI for TA-SB-MW-06 (2-3) (163%), TA-SB-MW-06 (4-5) (141%), TA-SB-MW-08 (2-3) (126%), TA-SB-MW-08 (5-6) (134%), TA-SB-MW-04 (1-2) (168%), TA-SB-MW-04DUP (1-2) (166%), TA-SB-MW-04 (5-6) (152%), TA-SB-MW-02 (1-2) original sample (167%), TA-SB-MW-05 (1-2) (185%). Bismuth exceeded the maximum %RI for TA-SB-MW-05 (1-2) (132%). No target analytes were associated with either internal standard, and thus no qualifiers were required.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	All samples at solids percentage above 30%.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair (TA-SB-MW-04 (1-2) and TA-SB-MW-04DUP (1-2)) was collected for this SDG. The RPD values for all target analytes were within 50%.	No

Project Name/No. Michigan Project
SDG: TF29012
Laboratory: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate-nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	All samples in the SDG were received at 8.5°C or 8.8°C, slightly outside of the 4°C maximum temperature limit.	The samples were received at 8.5°C and 8.8°C. Although the coolers were received above the project limit of 4°C, the coolers were received within 24 hours from sample collection. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium MS/MSD recovery exceedances for TA-SB-MW-07 (4-5) and TA-SB-MW-02 (1-2), phosphorus MS/MSD recovery exceedances for TA-SB-MW-02 (1-2), nitrate-nitrite MS/MSD recovery for TA-SB-MW-08 (2-3) and TA-SB-MW-02 (1-2).	MS/MSD analysis was performed for TA-SB-MW-07 (4-5) and TA-SB-MW-02 (1-2) for hexavalent chromium analysis. The MS/MSD recoveries (0%/0% and 73%/58%) did not meet the control limits (75-125%), while the RPD was below 50% (0% and 0.4%). The hexavalent chromium non-detect for TA-SB-MW-07 (4-5) was qualified UR, while the non-detected hexavalent chromium result for TA-SB-MW-02 (1-2) was qualified UJ. MS/MSD analysis was performed for TA-SB-MW-02 (1-2) for total cyanide analysis. The MS/MSD recoveries (79%/87%) were within the project control limits (75-125%), while the RPD was within 50%. No further action was required based on the MS/MSD results. MS/MSD analysis was performed for TA-SB-MW-08 (2-3) for phosphorus analysis. The MS/MSD recoveries (-64%/633%) were outside of the project limits (75-125%), while the RPD was within the project limit (50%). The original sample concentration for phosphorus (170 mg/kg) was over 4 times the spike amount (27 mg/kg), and thus no further action was required. MS/MSD analysis was performed for TA-SB-MW-02 (1-2) for phosphorus analysis. The MS/MSD recoveries (188%/619%) exceeded the project limit (125%), while the RPD was within 50%. Phosphorus was detected in TA-SB-MW-02 (1-2), and the result was qualified J+. MS/MSD analysis was performed for TA-SB-MW-08 (2-3) for nitrate-nitrite analysis. The MS/MSD results (0.58%/8.4%) were below the project limits (75-125%), and the RPD (120%) exceeded the project limit (50%). The nitrate-nitrite-N detected result for TA-SB-MW-08 (2-3) was qualified J- based on the MS/MSD results. MS/MSD analysis was performed for TA-SB-MW-02 (1-2) for nitrate-nitrite analysis. The MS/MSD results (15%/19%) were below the project limits (75-125%), while the RPD (17%) was within the project limit (50%). The nitrate-nitrite detected result for TA-SB-MW-02 (1-2) was qualified J- based on the MS/MSD results. MS/MSD analysis was performed for TA-SB-MW-08 (2-3) for sulfate analysis. The MS result reported by the laboratory (74%) was below the project limits (75-125%); however, GZA calculated the recovery as 75%, which meets the control limits. The MSD result (76%) was within the control limits and the RPD (2.9%) was within 50%. No action was taken. MS/MSD analysis was performed for TA-SB-MW-02 (1-2) for sulfate analysis. The MS/MSD results (115%/115%) were within the project limits (75-125%), while the RPD was within 50%. No further action was required based on these results. MS/MSD analyses were performed for TA-SB-MW-08 (2-3) and TA-SB-MW-02 (1-2) for chloride analysis. The MS/MSD results (80%/83% and 88%/90%) were within the project limits (75-125%) and the RPD was within 50% (2.3% and 0.13%). No further action was required based on these results.	Yes
Method Blank	No	Cyanide detected in the method blank associated with Batch 77361 (TA-SB-MW-01 (2-3), TA-SB-MW-01 (6-7), TA-SB-MW-07 (4-5), TA-SB-MW-07 (6-7), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (5-6), TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-02 (1-2), TA-SB-MW-02 (4-5), TA-SB-MW-0.5 (1-2)).	Total cyanide was detected in the method blank associated with Batch 77361 at 0.017 mg/kg, below the RL of 0.12 mg/kg. Total cyanide was detected in samples TA-SB-MW-01 (2-3), TA-SB-MW-01 (6-7), TA-SB-MW-07 (4-5), TA-SB-MW-07 (6-7), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (5-6), TA-SB-MW-02 (4-5) below the RLs. The total cyanide results in these samples were qualified UB as non-detects at the respective RLs. Total cyanide was detected in samples TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-04 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-02 (1-2), TA-SB-MW-05 (1-2) above the RLs and above 5 times the associated blank level. The total cyanide results in these samples were not qualified. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank, except for the initial calibration blank (ICB) performed on 7/18/2018 3:48:02 PM for nitrate-nitrite analysis. It was not clear which colum was impacted by the instrument blank. No nitrate-nitrite was detected in the CCBs; as a conservative measure, no action was taken.	No
Reported Quantitation Limits	No	Multiple inorganic non-metal analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and correlation coefficients were greater than the QAPP limit of 0.99.	No

Project Name/No. Michigan Project
SDG: TF29012
Laboratory: SHEALY
Media TA-TB-02 (07022018) (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate-nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification	No	Hexavalent chromium in CCVs associated with TA-SB-MW-07 (4-5), TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2), TA-SB-MW-05 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-05 (4-5).	All ICV and CCV recoveries were within the project limits (+/-10 percent recovery drift (%D), specified in Table D.1.1 of the QAPP), except for the following: For hexavalant chromium analysis -- the CCV performed on 7/21/2018 14:51:30, for which the percent recovery drift (21%) exceeded the control limit (+/-10%); the CCV performed on 7/21/2018 17:20:30 (18 %D); the CCV performed on 7/21/2018 18:10:30 (15 %D); the CCV performed on 7/21/2018 19:12:30 (13 %D); the CCV performed on 7/25/2018 00:30:30 (-100 %D); the CCV performed on 7/25/2018 01:20:30 (-96.2 %D); the CCV performed on 7/25/2018 02:22:30 (-19 %D); the CCV performed on 7/25/2018 07:45:30 (-100 %D); the CCV performed on 7/26/2018 10:33:30 (-12 %D); the CCV performed on 7/26/2018 18:01:30 (-20 %D); the CCV performed on 7/28/2018 00:07:30 (-13 %D); the CCV performed on 7/31/2018 01:58:30 (-18 %D); the CCV performed on 7/31/2018 02:48:30 (-18 %D). Only the following CCVs affected hexavalent chromium sample results in this SDG: the CCVs performed on 7/25/2018 01:20:30 (-96.2%) and 7/25/2018 02:22:30 (-19%) were associated with TA-SB-MW-07 (4-5), TA-SB-MW-07 (4-5)MS, TA-SB-MW-07 (4-5)MSD. The non-detected hexavalent chromium result in TA-SB-MW-07 (4-5) was qualified UR. The CCV performed on 7/25/2018 07:45:30 (-100 %D) was associated with TA-SB-MW-06 (2-3), TA-SB-MW-06 (4-5), TA-SB-MW-08 (2-3), TA-SB-MW-08 (5-6), TA-SB-MW-04 (1-2); the non-detected hexavalent chromium results in the above referenced samples were qualified UR. The CCVs performed on 7/26/2018 10:33:30 (-12%) and 7/26/2018 18:01:30 (-20%) were associated with TA-SB-MW-05 (1-2), TA-SB-MW-04DUP (1-2), TA-SB-MW-05 (4-5); the non-detected hexavalent chromium results in the above referenced samples were qualified UJ.	Yes
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	All samples at solids percentage above 30%.	No
Field Duplicate Analysis	Yes	---	The RPD values for all target analytes between TA-SB-MW-04 (1-2) and duplicate TA-SED-T2-2DUP(0-1) were within the project limit of 50%, except for nitrate-nitrite (122%). Both the original and duplicate sample results were below the RLs; thus, no qualifers were required. Additionally, chloride was not detected in the original sample, but was detected below the RL in the duplicate sample; no qualifiers were required.	No

Project Name/No. Michigan Project
SDG: TF28027
Lab: SHEALY
Media TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Cooler temperature (8.5°C) above 4°C, but below 10°C.	The samples were received at 4.3°C, 4.5°C, and 8.5°C. Although one of the coolers was received at 8.5°C, above the project limit of 4°C, the cooler was received within 24 hours from sample collection. All samples were extracted within the holding time limits specified in the QAPP. TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), were extracted within 7 days from sample collection, and TA-TA-SED-T8-1, TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1), TA-SED-T9-2 (2-3), TA-SED-T9-2 (4-5), SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T7-1 (4.2-5.2), TA-SED-T6-2 (6.4-7.4), TA-SED-T8-3 (3-4),TA-SED-T8-1 (0-1), were extracted on the 7th day from sample collection, TA-SED-T9-2 (5-6) was extracted on the 8th day from sample collection, and TA-SED-T6-2 (0-1) was extracted on the 9th day from sample collection, within the 14-day extraction limit. All samples were analyzed within 40 days from extraction.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Butyl benzyl phthalate in the LCS for Batch 77022 (associated with TA-SED-T9-2 (5-6)).	The LCS recoveries were within the laboratory established limits except that for Batch 77022, the LCS recovery for butyl benzyl phthalate was above the laboratory established limit (131% vs. 128%). Butyl benzyl phthalate was not detected in the associated sample, TA-SED-T9-2 (5-6). No action was taken based on the LCS results.	No
Matrix Spike/Matrix Spike Duplicates	No	MS/MSD recoveries for 4,6-dinitro-2-methylphenol and 2-methyophenol for TA-SED-T9-2 (0-1). MS/MSD not performed for 3,3'-dichlorobenzidine, 2,4-dinitrotoluene, hexachlorocyclopentadiene, hexachloroethane, or 2-nitrophenol; while MS was not performed for atrazine.	MS/MSD analysis was conducted for TA-SED-T9-2 (0-1), and the MS/MSD recoveries were within the laboratory established limits for all analytes except that the MS/MSD recoveries for 4,6-dinitro-2-methylphenol (217%/214%) and 2-methylphenol (121%/108%) were above the laboratory established limits. None of the above referenced analytes were detected in the original sample. The non-detected 4,6-dinitro-2-methylphenol and 2-methylphenol results were not qualified based on the MS and/or MSD results. The MS/MSD RPDs for all the analytes were below 50%. The laboratory reported showed the RPD for atrazine was above the project limit of 50% at 200%. However, no MS seemed to be performed for atrazine. MS/MSD was not performed for 3,3'-dichlorobenzidine, 2,4-dinitrotoluene, hexachlorocyclopentadiene, hexachloroethane, or 2-nitrophenol; while MS was not performed for atrazine.	No
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair (TA-SED-T8-3 (1.5-2.5) and TA-SED-T8-3DUP (1.5-2.5)) was collected for this SDG. The RPD values for all target analytes were within 50%. Anthracene was detected in TA-SED-T8-3DUP (1.5-2.5) below the RL, but was not detected in TA-SED-T8-3 (1.5-2.5). Benzo(b)fluoranthene was detected in TA-SED-T8-3 (1.5-2.5) within 2 times the RL, while benzo(b)fluoranthene was not detected in TA-SED-T8-3DUP (1.5-2.5). No action was taken based on the field duplicate results.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 7/5/2018 20:57:30 and 7/19/2018 09:33:30. For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No

Project Name/No. Michigan Project
SDG: TF28027
Lab: SHEALY
Media TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	A CCV was performed on 7/9/2018 09:29:30 and 09:54:30. The CCV %D did not exceed the project limit of 25% for any target analytes. The RRFs for all target analytes were above 0.01.	No
	No	Benzidine in CCV on 7/15/2018 10:42:30 (TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1)).	A CCV was performed on 7/15/2018 10:18:30 and 10:42:30. The CCV %D did not exceed the project limit of 25% for any target analytes except benzidine (30%). RRFs were all above 0.01. Benzidine was not detected in the associated samples (i.e., TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1)); no action was taken based on the CCV results.	No
	No	Pentachlorophenol and benzidine in CCV on 7/16/2018 08:12:30 and 08:36:30 (TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T7-1 (4.2-5.2), TA-SED-T7-1 (6.4-7.4)).	A CCV was performed on 7/16/2018 08:12:30 and 08:36:30. The CCV %D did not exceed the project limit of 25% for any target analytes except pentachlorophenol (-27%) and benzidine (49%). RRFs were all above 0.01. Pentachlorophenol or benzidine was not detected in any of the impacted samples (i.e., TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T7-1 (4.2-5.2), TA-SED-T7-1 (6.4-7.4)). All the pentachlorophenol non-detected results in the associated samples were qualified UJ, while the benzidine non-detects were not qualified.	Yes
	No	Benzidine in CCV on 7/17/2018 10:54:30 (TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T9-2 (2-3), TA-SED-T9-2 (4-5)).	A CCV was performed on 7/17/2018 10:30:30 and 10:54:30. The CCV %D did not exceed the project limit of 25% for any target analytes except benzidine (43%). RRFs were all above 0.01. Benzidine was not detected in any of the impacted samples (i.e., TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T9-2 (2-3), TA-SED-T9-2 (4-5)); the non-detected benzidine results were not qualified based on the CCV results.	No
	Yes	---	A CCV was performed on 7/20/2018 10:07:30 and 10:32:30. The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: phenanthrene, anthracene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SED-T6-2 (0-1), phenanthrene in TA-SED-T7-1 (2-3), benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene in TA-SED-T8-3 (0-1), benzo(a)anthracene, chrysene, benzo(b)fluoranthene in TA-SED-T8-3 (1.5-2.5), anthracene, benzo(a)anthracene, chrysene in TA-SED-T8-3DUP (1.5-2.5), benzo(a)anthracene, chrysene, indeno(1,2,3-c,d)pyrene in TA-SED-T8-3 (3-4), benzo(a)anthracene in TA-SED-T8-1 (1.5-2.5), phenanthrene in TA-SED-T9-2 (0-1), benzo(a)anthracene in TA-SED-T9-2 (2-3).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50-200% of standard).	No
Solids Percentage	Yes	---	All samples at solids percentage above 30%.	No

Project Name/No. Michigan Project
SDG: TF28027
Lab: SHEALY
Media TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Slight temperature exceedance for two of the three coolers.	The samples were received at 4.3°C, 4.5°C, and 8.5°C. Although one of the coolers was received at 8.5°C, above the project limit of 4°C, the cooler was received within 24 hours from sample collection. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	Yes	---	All VOC surrogate recoveries met the required criteria of 70-130%.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Cyclohexane (Batch 77135, TA-SED-T6-2 (0-1); Batch 77205, TA-TB-01 (6/27/18)); acetone (Batch 77269, TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T7-1 (4.2-5.2), TA-SED-T7-1 (6.4-7.4), TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1), TA-SED-T9-2 (2-3)); dichlorodifluoromethane (Batch 77205, TA-TB-01 (6/27/18)).	For Batches 77135 and 77205, the LCS recoveries for cyclohexane were slightly above the limit of 130% at 138% and 142%. For Batch 77269, the LCS recovery for acetone was slightly above the limit of 130% at 142%. For Batch 77205, the LCS recovery for dichlorodifluoromethane was above the laboratory established limit (142% vs. 140%). All other LCS recoveries were within the project limits of 70-130%. The associated samples in Batch 77135 include TA-SED-T6-2 (0-1). Cyclohexane was not detected in TA-SED-T6-2 (0-1); no action was taken based on the elevated LCS recovery. The associated samples in Batch 77205 include TA-TB-01 (6/27/18). Cyclohexane and dichlorodifluoromethane were not detected in TA-TB-01 (6/27/18); no action was taken based on the elevated LCS recoveries. The associated samples in Batch 77269 include TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T7-1 (4.2-5.2), TA-SED-T7-1 (6.4-7.4), TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1), TA-SED-T9-2 (2-3). The detected acetone results in the above referenced samples were qualified J+, while no action was taken for the non-detected results in the above referenced samples.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Acetone, 2-butanone, and dichlorodifluoromethane recoveries in TA-SED-T9-2 (0-1)MS and/or MSD.	MS/MSD analysis was conducted for TA-SED-T9-2 (0-1). The MS/MSD recoveries were within the project limits of 75-125% for all target analytes with the following exceptions: The MS and/or MSD recoveries for acetone (188%/91%), 2-butanone (156%/102%) were above the project limit of 125%. The MS/MSD recoveries for dichlorodifluoromethane (37%/41%) were below the project limit of 75%. The RPD value between the MS and MSD was above the project limit of 50% for acetone (72%). Acetone and 2-butanone detects in TA-SED-T9-2 (0-1) were qualified J+ while the dichlorodifluoromethane non-detect in TA-SED-T9-2 (0-1) was qualified UJ.	Yes
Method Blank	Yes	---	The method blank results showed no detections of target VOC analytes.	No
Field/Trip Blank	No	Acetone and/or methylene chloride in TA-TB-01 (6/28/2018) and TA-TB-02 (6/28/2018) (associated samples - TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1), TA-SED-T9-2 (2-3), TA-SED-T9-2 (4-5), TA-SED-T9-2 (5-6)).	Three trip blanks (TA-TB-01 (6/27/18), TA-TB-02 (6/28/2018), and TA-TB-01 (6/28/2018)) were collected for this SDG. Acetone was detected in TA-TB-02 (6/28/2018) at 2.2 ug/L, below the RL of 20 ug/L, while methylene chloride was detected in TA-TB-01 (6/28/2018) at 0.59 ug/L, and in TA-TB-02 (6/28/2018) at 0.98 ug/L, both below the RL of 1.0 ug/L. No other VOCs were detected in any of the trip blanks. No VOCs were detected in trip blank TA-TB-01 (6/27/18). Acetone and methylene chloride were detected in multiple samples in this SDG. It is difficult to assess the impacts of trip blank on the project samples. No action was taken based on the trip blank results.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair (TA-SED-T8-3 (1.5-2.5) and TA-SED-T8-3DUP (1.5-2.5)) was collected for this SDG. The RPD values for all target analytes were within 50%. Carbon disulfide was detected in TA-SED-T8-3DUP (1.5-2.5) below the RL, but was not detected in TA-SED-T8-3 (1.5-2.5). No action was taken based on the duplicate results.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/5/2018 23:48:30 (instrument msd15) and 7/6/2018 17:44:30 (instrument msd5), and the results for all target analytes met the limits of either %RSD below 30% or R^2 above 0.99.	No

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Lab: SHEALY
Media TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/6/2018 21:13:30 (msd5), and the %D values were all within 25%.	No
	No	Dichlorodifluoromethane in ICV on 7/6/2018 02:55:30.	An ICV was performed on 7/6/2018 02:55:30 (msd15), and the %D values were all within 25%, except that dichlorodifluoromethane recovery drift (43%) was above 25%. All soil samples in this SDG were analyzed followng this ICV. Dichlorodifluoromethane was not detected in any of the associated samples; no action was taken based on the ICV results.	No
	No	Dichlorodifluoromethane in CCV on 7/9/2018 09:03:30 (TA-SED-T6-2 (0-1)).	A CCV was performed on 7/9/2018 09:03:30. The %D values were all below 25%, except for dichlorodifluoromethane (52%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted sample (TA-SED-T6-2 (0-1)); the non-detected result was not qualified.	No
	No	Dichlorodifluoromethane in CCV on 7/9/2018 20:08:30 (TA-SED-T6-2 (0-1) and TA-TB-01 (6/27/18)).	A CCV was performed on 7/9/2018 20:08:30. The %D values were all below 25%, except for dichlorodifluoromethane (40%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (TA-SED-T6-2 (0-1) and TA-TB-01 (6/27/18)); the non-detected results were not qualified.	No
	Yes	---	A CCV was performed on 7/9/2018 21:34:30. The %D values were all below 25%. The RRFs for all target analytes were greater than 0.01.	No
	No	Dichlorodifluoromethane in CCV on 7/10/201808:24:30 (all the samples in this SDG except TA-SED-T6-2 (0-1), TA-TB-02 (6/28/2018), TA-SED-T9-2 (4-5), TA-SED-T9-2 (5-6), TA-TB-01 (6/28/2018)).	A CCV was performed on 7/10/2018 08:24:30. The %D values were all below 25%, except for dichlorodifluoromethane (55%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (all the samples in this SDG except TA-SED-T6-2 (0-1), TA-TB-02 (6/28/2018), TA-SED-T9-2 (4-5), TA-SED-T9-2 (5-6), TA-TB-01 (6/28/2018)); the non-detected results were not qualified.	No
	No	Dichlorodifluoromethane in CCV on 7/10/201808:24:30 (TA-SED-T9-2 (4-5) and TA-SED-T9-2 (5-6)).	CCV was performed on 7/11/2018 07:29:30. The %D values were all below 25% except for dichlorodifluoromethane (36%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (TA-SED-T9-2 (4-5) and TA-SED-T9-2 (5-6)); the non-detected results were not qualified.	No
Target Analyte Identification	No	Acetone in TA-SED-T6-2 (0-1) and TA-TB-02 (6/28/2018), methylene chloride in TA-SED-T8-3 (1.5-2.5), carbon disulfide in TA-SED-T8-1 (4-5), 1,4-dichlorobenzene in TA-SED-T9-2 (4-5), 1,2,4-trichlorobenzene in TA-SED-T9-2 (4-5).	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: acetone in TA-SED-T6-2 (0-1) and TA-TB-02 (6/28/2018), methylene chloride in TA-SED-T8-3 (1.5-2.5), carbon disulfide in TA-SED-T8-1 (4-5), 1,4-dichlorobenzene in TA-SED-T9-2 (4-5), 1,2,4-trichlorobenzene in TA-SED-T9-2 (4-5).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	Yes	---	All samples at solids percentage above 30%.	No

Project Name/No. Michigan Project
SDG: TF28027
Lab: SHEALY
Media TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Slight temperature exceedance for two of the three coolers.	The samples were received at 4.3°C, 4.5°C, and 8.5°C. Although one of the coolers was received at 8.5°C, above the project limit of 4°C, the cooler was received within 24 hours from sample collection. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Beryllium, boron, magnesium, titanium, selenium in TA-SED-T9-2 (0-1) MS/MSD.	The MS/MSD analysis was performed for TA-SED-T9-2 (0-1) for all metals. The MS/MSD recoveries were within the QAPP limits of 75-125% for all metals with the following exceptions. MS and/or MSD recoveries for aluminum (4140%/3890%), iron (104%/136%), and titanium (176%/177%) exceeded the project limits. MS and/or MSD recoveries for beryllium (43%/43%), boron (45%/45%), magnesium (70%/62%), selenium (71%/73%) were below the QAPP limits. The RPDs between MS and MSD were within the QAPP limit of 50% for all metals. The post digest spike recoveries for selenium and titanium were within the 75-125% limits, while the post digest spike recoveries for aluminum, beryllium, boron, iron, and magnesium were outside the 75-125% limits (-445%, 50%, 44%, -16%, 43%). The original sample concentrations were above 4 times the spike concentrations for aluminum and iron. Therefore, no action was taken for aluminum or iron based on the MS/MSD results. The beryllium and magnesium detected results in TA-SED-T9-2 (0-1) were qualified J-. Boron or selenium was not detected in TA-SED-T9-2 (0-1), and the non-detect results were qualified UJ. The titanium detection in TA-SED-T9-2 (0-1) was qualified J.	Yes
Method Blank	No	Boron (TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T7-1 (4.2-5.2), TA-SED-T7-1 (6.4-7.4), TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T8-3 (3-4), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1), TA-SED-T9-2 (2-3), TA-SED-T9-2 (4-5), TA-SED-T9-2 (5-6)).	No metal TCLs were detected in the method blank except that boron was detected in the method blank in Batch 76996 at 2.7 mg/kg, below the RL of 13 mg/kg. Boron was detected in TA-SED-T7-1 (4.2-5.2) at 3.1 mg/kg, below the RL of 16 mg/kg; in TA-SED-T6-2 (6.4-7.4) at 3.3 mg/kg, below the RL of 17 mg/kg; in TA-SED-T8-3 (3-4) at 4.8 mg/kg, below the RL of 22 mg/kg. Boron was not detected in the other impacted soil samples (i.e., TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T7-1 (2-3), TA-SED-T8-3 (0-1), TA-SED-T8-3 (1.5-2.5), TA-SED-T8-3DUP (1.5-2.5), TA-SED-T8-1 (0-1), TA-SED-T8-1 (1.5-2.5), TA-SED-T8-1 (4-5), TA-SED-T9-2 (0-1), TA-SED-T9-2 (2-3), TA-SED-T9-2 (4-5), TA-SED-T9-2 (5-6)). The boron results for TA-SED-T7-1 (4.2-5.2), TA-SED-T7-1 (6.4-7.4), and TA-SED-T8-3 (3-4) were reported as non-detects at the respective RLs and qualified UB. No action was taken upon the other impacted samples.	Yes
Instrument Blank	No	Boron, iron, silver in multiple instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibration blanks) with the following exceptions. Boron was detected in ICB1, CCB1, CCB2, CCB3, CCB4, CCB5 (Run #MS2071018B.6 on 7/10/2018) at 1.441 ug/L, 1.509 ug/L, 2.923 ug/L, 1.789 ug/L, 2.001 ug/L, 3.009 ug/L, below the RL of 25 ug/L. Iron was detected in CCB2 and CCB5 (Run #MS2071018B.6 on 7/10/2018) at 10.090 ug/L and 10.230 ug/L, below the RL of 25 ug/L. Iron was detected in ICB1, CCB1, CCB2, CCB4 (Run #MS2071118A.6 on 7/11/2018) at 13.940 ug/L, 21.840 ug/L, 12.760 ug/L, 10.02 ug/L, below the RL of 25 ug/L. Silver was detected in CCB2 (Run #MS2071118A.6 on 7/11/2018) at 0.319 ug/L, ug/L, ug/L, below the RL of 0.5 ug/L. No project sample results were impacted by the iron or silver detections in ICB and CCBs in Run #MS2071118A.6 on 7/11/2018. The samples impacted by the iron detection in CCBs in Run #MS2071018B.6 on 7/10/2018 include TA-SED-T6-2 (0-1), TA-SED-T6-2 (2-3), TA-SED-T6-2 (3.6-4.6), TA-SED-T7-1 (0-1), TA-SED-T9-2 (0-1), TA-SED-T9-2 (2-3), TA-SED-T9-2 (4-5), TA-SED-T9-2 (5-6). The iron detects in the above referenced samples were at least 100 times higher than the RLs; no action was taken based on the instrument blank results. All boron results in this SDG were impacted by the boron detects in the CCBs and ICB (note the three trip blanks were not analyzed for boron). Boron was either not detected or detected below the RLs in the samples in this SDG. All boron detects were qualified as non-detects (UB) and raised to the respective RLs, while no action was required for the non-detect results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The elevated laboratory reporting limits for aluminum, magnesium, selenium, and sodium were noted by the QAPP. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No

Project Name/No. Michigan Project
SDG: TF28027
Lab: SHEALY
Media TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	For chromium, a 5-point calibration was performed on 7/31/2018, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 7/6/2018, and the correlation coefficients were greater than 0.99. A 4-point initial calibration was conducted for all metals but mercury on 7/10/2018, and the correlation coefficients were greater than the QAPP limit (0.99998 vs. 0.99).	No
Continuing Calibration/Calibration Verification	No	Boron in CCV4 of Run #MS2071118A (no samples in this SDG were impacted).	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1) of the QAPP, except that boron in CCV4 in Run #MS2071118A was slightly below the limit (89% vs. 90%). CRQL Check Standard recoveries for mercury were within the project limits (70-130%). No project samples were associated with Run #MS2071118A; therefore no action was taken based on the CCV results. Note: multiple percent recovery values for thallium were incorrect on Form 2a.	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Magnesium and zinc in TA-SED-T9-2 (0-1).	A serial dilution was performed for TA-SED-T9-2 (0-1). The %D serial dilution results for all metals but arsenic (17%), beryllium (100%), boron (652%), cadmium (25%), cobalt (10.8%), copper (19%), magnesium (27%), thallium (269%), and zinc (21%) exceeded the 10% project limit. Among the above referenced metals, arsenic, beryllium, boron, cadmium, cobalt, copper, and thallium had original sample concentrations below 50 times of the sample detection limits. The magnesium and zinc detections in TA-SED-T9-2 (0-1) were qualified J.	Yes
Internal Standard	Yes	---	%RI within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	Yes	---	All samples at solids percentage above 30%.	No
Field Duplicate Analysis	Yes	---	For all metals, either the RPD values between TA-SED-T8-3 (1.5-2.5) and the corresponding field duplicate TA-SED-T8-3 (1.5-2.5) were below the project limit of 50%, or were not detected in either sample. Silver was detected in TA-SED-T8-3DUP (1.5-2.5) below the RL, but was not detected in TA-SED-T8-3 (1.5-2.5).	No

Project Name/No. Michigan Project
SDG: TF28027
Laboratory: SHEALY
Media TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Slight temperature exceedance for two of the three coolers.	The samples were received at 4.3°C, 4.5°C, and 8.5°C. Although one of the coolers was received at 8.5°C, above the project limit of 4°C, the cooler was received within 24 hours from sample collection. All samples were analyzed per the analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes). No action was taken.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Hexavalent chromium, cyanide, sulfate, nitrate-nitrite in TA-SED-T9-2 (0-1); ammonia in TA-SED-T6-2 (6.4-7.4)	The MS/MSD analysis was performed for TA-SED-T7-1 (0-1) for hexavalent chromium analysis. The MS/MSD recoveries were within the project limits of 75-125%, and the RPD between the MS/MSD results was below 50%. The MS/MSD analysis was performed for TA-SED-T9-2 (0-1) for hexavalent chromium analysis. The MS/MSD recoveries were below 75% (4.3%/9.9%), while the RPD was within 50%. The non-detected hexavalent chromium result for TA-SED-T9-2 (0-1) was qualified "UR". The MS/MSD analysis was performed for TA-SED-T9-2 (0-1) for total cyanide analysis. The MS/MSD recoveries (45%/43%) were below the project limit of 75%, while the RPD was within 50%. The total cyanide result for TA-SED-T9-2 (0-1) was qualified J-. The MS/MSD analysis was performed for TA-SED-T6-2 (0-1) and TA-SED-T9-2 (0-1) for phosphorus analysis. The MS/MSD recoveries were within the project limits of 75-125% (114%/100%) for TA-SED-T6-2 (0-1) while the MS/MSD recoveries for TA-SED-T9-2 (0-1) were below the project limits (61%/20%). The original phosphorus concentration in TA-SED-T9-2 (0-1) was greater than 4 times of the spike concentration; no action was taken. The RPDs of the MS/MSD results were within the project limit of 50%. MS/MSD analysis was performed for TA-SED-T9-2 (0-1) for nitrate-nitrite analysis. The MS/MSD results were below the project limits of 75-125% at 62%/69%, while the RPD was within 50%. The nitrate-nitrite detected result for TA-SED-T9-2 (0-1) was qualified J- based on the MS/MSD results. MS/MSD analysis was performed for TA-SED-T6-2 (6.4-7.4) for ammonia analysis. The MS recovery was below the limits while the MSD recovery was above the limits (20%/80%), while the RPD was within 50%. The ammonia result for TA-SED-T6-2 (6.4-7.4) was qualified J-. MS/MSD analysis was performed for TA-SED-T9-2 (0-1) for ammonia analysis. The MS/MSD recoveries for TA-SED-T9-2 (0-1) were lower than the project limits (reported as 24%/-10% by the laboratory), while the RPD was within the control limit (50%). The ammonia concentration for TA-SED-T9-2 (0-1) was greater than 4 times the spike concentration; no action was taken based on the MS/MSD results. MS/MSD analysis was performed for TA-SED-T9-2 (0-1) for sulfate analysis. The MS/MSD results were below the project limit of 75% (62%/62%), and the RPD was within 50%. The sulfate result for TA-SED-T9-2 (0-1) was qualified J-. MS/MSD analysis was performed for TA-SED-T9-2 (0-1) for chloride analysis. The MS/MSD results were within the project limits of 75-125% (88%/83%), and the RPD was within 50%. Note the percent recoveries for certain MS/MSD results for phosphorus, chloride, and ammonia were incorrect in the laboratory report.	Yes
Method Blank	No	Cyanide detected in method blanks.	Total cyanide was detected in the method blanks at 0.0073 mg/kg, 0.017 mg/kg, below the RL of 0.12 mg/kg. Total cyanide was detected in all samples submitted for analysis in this SDG below the RLs. The total cyanide results in all samples were qualified as non-detects (UB) at the respective RLs. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	No	Nitrite detected in ICB 7/13/2018 2:04:55 PM.	No TCLs were detected in any instrument blank. There was a QC Fail noted for the ICB performed on 7/13/2018 2:04:55 PM for nitrite analysis. No additional information was provided. As a conservative approach, no action was taken.	No
Reported Quantitation Limits	No	Multiple inorganic non-metal analytes.	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and the correlation coefficients were greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV, and CRQL Check Standard recoveries are within the project limits (90-110%, specified in Table D.1.1 of the QAPP) with the following exceptions: CCV for hexavalent chromium on July 25 07:45:30 had %D slightly below the limit (-100%). No samples in this SDG were impacted by this CCV.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	Yes	---	All samples at solids percentage above 30%.	No

Project Name/No. Michigan Project
SDG: TF28027
Laboratory: SHEALY
Media TA-TB-01, TA-TB-02, and TA-TB-03 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Field Duplicate Analysis	Yes	---	The RPD values for all target analytes between TA-SED-T8-3 (1.5-2.5) and corresponding duplicate TA-SED-T8-3 (1.5-2.5) were within the project limit of 50%, except for cyanide (72%). Cyanide was detected below the RL in both samples. No action was taken based on the field duplicate results.	No

Project Name/No. Michigan Project
SDG: TF26016
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 2.2°C, 3.4°C, and 4.3°C. All samples were extracted within the holding time limits specified in the QAPP. TA-SED-T7-2 (0-1) and TA-SED-T7-2 (1-2) were extracted on the 6th day from sample collection and the rest of the samples in this SDG were extracted on the 7th day from sample collection, meeting the 14-day extraction requirement. TA-SED-T2-2 (0-1), TA-SED-T2-2DUP (0-1), TA-SED-T2-2 (2-3), TA-SED-T2-2 (4-5), TA-SED-T5-1 (1-2) were analyzed within 14 days from extraction, while the rest of the samples (TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-3 (3.8-4.8), TA-SED-T7-2 (0-1), TA-SED-T7-2 (1-2)) were analyzed on the 16th or 17th day from extraction, which meets the 40 day requirement from extraction to analysis.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries were within the laboratory established limits.	No
Matrix Spike/Matrix Spike Duplicates	No	MS/MSD recoveries for 3,3'-dichlorobenzidine, 2,4-dinitrotoluene, hexachlorocyclopentadiene, hexachloroethane, 2-nitrophenol, phenol, 4,6-dinitro-2-methylphenol, and pentachlorophenol for TA-SED-T7-2 (0-1).	A MS/MSD analysis was conducted for TA-SED-T7-2 (0-1) and the MS/MSD recoveries were within the laboratory established limits for all analytes except that the MS/MSD recovery for 3,3'-dichlorobenzidine (0%/0%), 2,4-dinitrotoluene (0%/0%), hexachlorocyclopentadiene (0%/0%), hexachloroethane (0%/0%), 2-nitrophenol (0%/0%), phenol (0%/0%) were below the laboratory established limits, and the MS/MSD recoveries for 4,6-dinitro-2-methylphenol (144%/140%) and pentachlorophenol (222%/211%) were above the laboratory established limits. None of the above referenced analytes were detected in the original sample. The non-detected 3,3'-dichlorobenzidine, 2,4-dinitrotoluene, hexachlorocyclopentadiene, hexachloroethane, 2-nitrophenol, and phenol results in TA-SED-T7-2 (0-1) were rejected. The non-detected 4,6-dinitro-2-methylphenol and pentachlorophenol results were not qualified based on the MS and/or MSD results. The MS/MSD RPDs for all the analytes were below 50%.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Reporting Limits	No	Multiple SVOCs in multiple samples.	Multiple SVOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	No	Phenanthrene in TA-SED-T2-2 (0-1) and TA-SED-T2-2DUP (0-1).	A field duplicate pair (TA-SED-T2-2 (0-1) and TA-SED-T2-2DUP (0-1)) was collected for this SDG. The RPD values for all target analytes were within 50% except for fluorene and phenanthrene. Fluorene was detected in TA-SED-T2-2 (0-1) below the RL, but was not detected in TA-SED-T2-2DUP (0-1); no action was taken based on the duplicate results. The RPD for phenanthrene results between TA-SED-T2-2 (0-1) and TA-SED-T2-2DUP (0-1) was above 50% at 103%, and the absolute difference between the duplicate results was greater than the reporting limit. The phenanthrene results in TA-SED-T2-2 (0-1) and TA-SED-T2-2DUP (0-1) were qualified J.	Yes
Initial Calibration	Yes	---	Initial calibration was conducted on 7/18/2018 09:19:30 and 7/5/2018 20:57:30. For all target analytes, the initial calibration %RSDs were below 20% or R2 was greater than 0.99.	No

Project Name/No. Michigan Project
SDG: TF26016
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/ Calibration Verification	Yes	---	A CCV was performed on 7/19/2018 08:58:30 and 09:22:30. The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
	No	Benzidine in CCV on 20:42:30 (TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-3 (3.8-4.8), TA-SED-T7-2 (1-2)).	A CCV was performed on 7/8/2018 19:17:30 and 20:42:30. The CCV %D did not exceed the project limit of 25% for any target analytes except benzidine (-27%). RRFs were all above 0.01. All benzidine results in the associated samples (i.e., TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-3 (3.8-4.8), TA-SED-T7-2 (1-2)) were qualified (detects were qualified J-, and non-detects were qualified UJ).	Yes
	Yes	---	A CCV was performed on 7/20/2018 10:07:30 and 10:32:30. The CCV %D did not exceed the project limit of 25% for any target analytes. RRFs were all above 0.01.	No
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: acenaphthene, fluorene, anthracene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, in TA-SED-T2-2 (0-1), phenanthrene, anthracene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-T2-2DUP (0-1), anthracene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-T2-2 (2-3), naphthalene, 2-methylnaphthalene, fluorene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, benzo(k)fluoranthene, benzo(a)pyrene in TA-SED-T2-2 (4-5), naphthalene, benzo(a)anthracene, benzo(a)pyrene in TA-SED-T5-1 (1-2), benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-T5-3 (0-1), naphthalene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene in TA-SED-T5-3 (2-3), phenanthrene, pyrene in TA-SED-T5-3 (4-5), phenanthrene, benzo(a)anthracene, chrysene, benzo(k)fluoranthene in TA-SED-T5-2 (1.7-2.7), phenanthrene, benzo(a)anthracene, chrysene in TA-SED-T5-2 (3.7-4.7), benzo(a)anthracene, benzo(b)fluoranthene in TA-SED-T6-1 (0-1), phenanthrene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-T6-3 (2-3), fluoranthene in TA-SED-T6-3 (3.8-4.8)	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all internal standards in all samples in this SDG were within the project limit (i.e., 50%-200% of standard).	No
Solids Percentage	No	TA-SED-T7-2 (0-1) solids percentage below project limit (30%).	All samples at solids percentage above 30% except for TA-SED-T7-2 (0-1) (26.5%). All results for TA-SED-T7-2 (0-1) were qualified (detects were qualified J, and non-detects were qualified UJ).	Yes

Project Name/No. Michigan Project
SDG: TF26016
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	Yes	---	The samples were received at 2.2°C, 3.4°C, and 4.3°C. All samples were processed and analyzed within the 14-day holding time limit specified in the QAPP.	No
Surrogate Recovery	No	Bromofluorobenzene in TA-SED-T6-1 (2.5-3.5) and TA-SED-T6-3 (0-1).	All VOC surrogate recoveries met the required criteria of 70-130%, except that bromofluorobenzene recoveries in TA-SED-T6-1 (2.5-3.5) and TA-SED-T6-3 (0-1) were slightly below 70% at 69% and 65%. The VOC results in TA-SED-T6-1 (2.5-3.5) and TA-SED-T6-3 (0-1) were qualified (detects were qualified J-, and non-detects were qualified UJ).	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Cyclohexane (Batches 77071 and 77135, TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T7-2 (0-1), TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-3 (3.8-4.8), TA-SED-T7-2 (1-2)).	For Batches 77071 and 77135, the LCS recoveries for cyclohexane were slightly above the limit of 130% at 138% and 138%. All other LCS recoveries were wthin the project limits of 70-130%. The associated samples in Batch 77071 include TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T7-2 (0-1). The associated samples in Batch 77135 include TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-3 (3.8-4.8), TA-SED-T7-2 (1-2). Cyclohexane was not detected in any of the above samples; no action was taken based on the elevated LCS recoveries for cyclohexane.	No
Matrix Spike/Matrix Spike Duplicates	No	Cyclohexane, dichlorodifluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane recoveries in TA-SED-T7-2 (0-1)MS and/or MSD.	Cyclohexane recovery in TA-SED-T7-2 (0-1)MSD was above the project limit (135% vs. 130%). Cyclohexane was not detected in the original sample; no action was taken based on the MS result for cyclohexane. Dichlorodifluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane recoveries in TA-SED-T7-2 (0-1)MS and/or MSD were below the limit (24%/26%, 60%/64%, and 69%/74% vs. 70%). The non-detected dichlorodifluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane, and trichlorofluoromethane results in the original sample TA-SED-T7-2 (0-1) was qualified UJ. All MS/MSD %RSDs were below 50%.	Yes
Method Blank	Yes	---	The method blank results show no detections of target VOC analytes.	No
Field/Trip Blank	No	Acetone and methylene chloride in TA-TB-01 (6/26/2018) (associated samples - TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T5-3 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-2 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (3.8-4.8)).	Two trip blanks (TA-TB-01 (6/25/18) and TA-TB-01 (6/26/2018)) were collected for this SDG. Acetone was detected in TA-TB-01 (6/26/2018) at 2.5 ug/L, below the RL of 2.0 ug/L, and methylene chloride was detected in TA-TB-01 (6/26/2018) at 1.0 ug/L, at the RL of 1.0 ug/L. No other VOCs were detected in the trip blank, and no VOCs were detected in the trip blank TA-TB-01 (6/25/2018). It is difficult to assess the impacts of trip blank to the project samples. No action was taken based on the trip blank results.	No
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	Yes	---	A field duplicate pair (TA-SED-T2-2 (0-1) and TA-SED-T2-2DUP (0-1)) was collected for this SDG. The RPD values for all target analytes were within 50%. Carbon disulfide was detected in TA-SED-T2-2DUP (0-1) below the RL, but was not detected in TA-SED-T2-2 (0-1). No action was taken based on the duplicate results.	No
Initial Calibration	Yes	---	The initial calibration was performed on 7/5/2018 23:48:30 and 7/7/2018 10:23:30, and the results for all target analytes met the limits of either %RSD below 30% or R2 greater than 0.995.	No

Project Name/No. Michigan Project
SDG: TF26016
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration/Calibration Verification (CCV)	Yes	---	An ICV was performed on 7/7/2018 13:23:30, and the %D values were within 25% for all target analytes.	No
	No	Dichlorodifluoromethane in ICV on 7/6/2018 02:55:30.	An ICV was performed on 7/6/2018 02:55:30 and the %D values were within 25%, except that the dichlorodifluoromethane recovery drift (43%) was above 25%. All soil samples in this SDG were analyzed followng this ICV. Dichlorodifluoromethane was not detected in any of the associated samples; no action was taken.	No
	No	Acetone in CCV on 7/8/2018 11:18:30 (TA-TB-01 (6/25/2018) and TA-TB-01 (6/26/2018)).	A CCV was performed on 7/8/2018 11:18:30. The %D values were all below 25%, except for acetone (37%). The RRFs for all target analytes were greater than 0.01. Acetone was not detected in the impacted sample TA-TB-01 (6/25/2018), but was detected in TA-TB-01 (6/26/2018). The trip blank samples were not used for site characterization purposes, and no action was taken for the trip blank samples.	No
	No	Dichlorodifluoromethane in CCV on 7/7/2018 11:05:30 (TA-SED-T2-2 (0-1), TA-SED-T2-2DUP (0-1), TA-SED-T2-2 (2-3), TA-SED-T2-2 (4-5), TA-SED-T5-1 (1-2)).	A CCV was performed on 7/7/2018 11:05:30. The %D values were all below 25%, except for dichlorodifluoromethane (25.3%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (TA-SED-T2-2 (0-1), TA-SED-T2-2DUP (0-1), TA-SED-T2-2 (2-3), TA-SED-T2-2 (4-5), TA-SED-T5-1 (1-2)); the non-detected results were not qualified.	No
	No	Cyclohexane in CCV on 7/8/2018 08:37:30 (TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T7-2 (0-1)).	A CCV was performed on 7/8/2018 08:37:30. The %D values were all below 25%, except for cyclohexane (29%). The RRFs for all target analytes were greater than 0.01. Cyclohexane was not detected in the impacted samples (TA-SED-T5-3 (0-1), TA-SED-T5-3 (2-3), TA-SED-T5-3 (4-5), TA-SED-T5-3 (6-7), TA-SED-T5-2 (0-1), TA-SED-T5-2 (1.7-2.7), TA-SED-T7-2 (0-1)); the non-detected results were not qualified.	No
	No	Dichlorodifluoromethane in CCV on 7/9/2018 09:03:30 (TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-1 (3.8-4.8), TA-SED-T7-2 (1-2)).	CCV was performed on 7/9/2018 09:03:30. The %D values were all below 25%, except for dichlorodifluoromethane (52%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (TA-SED-T5-2 (3.7-4.7), TA-SED-T6-1 (0-1), TA-SED-T6-1 (2.5-3.5), TA-SED-T6-1 (4.1-5.1), TA-SED-T6-3 (0-1), TA-SED-T6-3 (2-3), TA-SED-T6-1 (3.8-4.8), TA-SED-T7-2 (1-2)); the non-detected results were not qualified.	No
Target Analyte Identification	No	1,2-Dichlorobenzene in TA-SED-T5-3 (4-5) and methylene chloride in TA-SED-T7-2 (1-2).	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: 1,2-dichlorobenzene in TA-SED-T5-3 (4-5) and methylene chloride in TA-SED-T7-2 (1-2).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	No	TA-SED-T7-2 (0-1) solids percentage below project limit (30%).	All samples at solids percentage above 30% except for TA-SED-T7-2 (0-1) (26.5%). All results for TA-SED-T7-2 (0-1) were qualified (detects were qualified J, and non-detects were qualified UJ).	Yes

Project Name/No. Michigan Project
SDG: TF26016
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	Yes	---	The samples were received at 2.2°C, 3.4°C, and 4.3°C. All samples were processed and analyzed within the holding time limits specified in the QAPP. Metal samples were analyzed within 6 months from sample collection.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Barium, titanium, selenium, zinc in TA-SED-T7-2 (0-1) MS/MSD.	The MS/MSD analysis was performed for TA-SED-T7-2 (0-1) for all metals. The MS/MSD recoveries were within the QAPP limits of 75-125% for all metals with the following exceptions. MS and/or MSD recoveries for aluminum (5750%/5090%), barium (153%/160%), iron(292%/414%), and titanium (216%/188%) exceeded the project limits. MS and/or MSD recoveries for selenium (71%/73%) and zinc (55%/53%) were below the QAPP limits. The RPDs between MS and MSD were within the QAPP limit of 50% for all metals. With the exception of aluminum (338%) and iron (159%), the post digest spike recoveries were within the control limits (75-125%). The original sample concentrations were above 4 times of the spike concentrations for aluminum and iron. Therefore, no action was taken for aluminum or iron based on the MS/MSD results. The barium and titanium detects in TA-SED-T7-2 (0-1) were qualified J. Selenium was not detected in TA-SED-T7-2 (0-1); the non-detected selenium result was qualified UJ. The detected zinc result in TA-SED-T7-2 (0-1) was qualified J.	Yes
Method Blank	Yes	---	No metal TCLs were detected in the method blank; no action was taken based on the method blank results.	No
Instrument Blank	No	Boron detected in multiple instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Boron was detected in CCB1, CCB2, CCB3, CCB4, CCB5, CCB6, CCB7, CCB8 (Run #MS2070918B.6 on 7/9/2018) at 1.167 ug/L, 1.908 ug/L, 1.028 ug/L, 0.780 ug/L, 1.099 ug/L, 1.092 ug/L, 0.916 ug/L, 1.555 ug/L, below the RL of 50 ug/L. Boron was detected in ICB1, CCB1, CCB2 (Run #MS2071018B.6 on 7/10/2018) at 1.441 ug/L, 1.509 ug/L, 2.923 ug/L, below the RL of 50 ug/L. Iron was detected in CCB2 (Run #MS2071018B.6 on 7/10/2018) at 10.090 ug/L, below the RL of 50 ug/L. No project sample results were impacted by the iron detect in CCB2. All boron results in this SDG were impacted by the boron detects in the CCBs and ICB (note the two trip blanks were not analyzed for boron). All boron detections were below the RLs; all boron detections were raised to the respective RLs and qualified as non-detect (UB), while no action was taken for non-detect results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The laboratory reporting limits for aluminum, magnesium, selenium, and sodium were elevated above the MDEQ target detection limits. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No
Initial Calibration	Yes	---	For chromium, a 5-point calibration was performed on 7/31/2018, and the correlation coefficients were greater than 0.99. For mercury, a 5-point calibration was performed on 7/6/2018, and the correlation coefficients were greater than 0.99. For the other metals, a 4-point calibration was performed on 7/9/2018, and the correlation coefficients were all greater than 0.99. Initial calibration was conducted for all metals but mercury on 7/11/2018, and the correlation coefficient was greater than the QAPP limit (0.99998 vs. 0.99).	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No

Project Name/No. Michigan Project
SDG: TF26016
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
ICP Serial Dilution	No	Boron, lead, vanadium, and zinc in TA-SED-T7-2 (0-1).	A serial dilution was performed for TA-SED-T7-2 (0-1). The %D serial dilution results for all metals but boron (135%), lead (11%), vanadium (18%), and zinc (21%) met the QAPP limit (i.e., either serial dilution results lower than 10% or the original sample concentrations were below 50 times of the sample detection limits). The lead, vanadium, and zinc detects in TA-SED-T7-2 (0-1) were qualified J. Boron was qualified as non-detect based on the blank contamination; no action was taken.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	No	TA-SED-T7-2 (0-1) solids percentage below project limit (30%).	All samples at solids percentage above 30% except for TA-SED-T7-2 (0-1) (26.5%). All results for TA-SED-T7-2 (0-1) were qualified (detects were qualified J, and non-detects were qualified UJ).	Yes
Field Duplicate Analysis	No	Aluminum, iron, magnesium, nickel, titanium, and vanadium in TA-SED-T2-2 (0-1) and corresponding field duplicate TA-SED-T2DUP (0-1).	The RPD values for aluminum (78%), cobalt (58%), iron (72%), magnesium (95%), nickel (74%), titanium (103%), and vanadium (55%) between TA-SED-T2-2 (0-1) and the corresponding field duplicate TA-SED-T2DUP (0-1) were above the project limit of 50%. For cobalt, the detected results were within five times the RLs and the absolute difference was less than the RL. Therefore, no action was taken based on the cobalt results for the duplicate pair. The aluminum, iron, magnesium, nickel, titanium, and vanadium results for TA-SED-T2-2 (0-1) and field duplicate TA-SED-T2DUP (0-1) were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TF26016
Laboratory: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	Yes	---	The samples were received at 2.2°C, 3.4°C, and 4.3°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	MS for TA-SED-T7-2 (0-1) for hexavalent chromium. MS/MSD for TA-SED-T7-2 (0-1) for total cyanide. MS/MSD performed on TA-SED-T2-2 (2-3) and TA-SED-T7-2 (0-1) for nitrate-nitrite. MS/MSD performed for TA-SED-T7-2 (0-1) for sulfate.	The MS analysis was performed twice for TA-SED-T7-2 (0-1) for hexavalent chromium analysis. The amount of spike added were different for the two analyses. The MS recovery for the sample spiked with 38 mg/kg hexavalent chromium was within the QAPP limits of 75-125%, while the MS recovery for the sample spiked with 3000 mg/kg hexavalent chromium was below the QAPP limit (32% vs. 75%). Hexavalent chromium was not detected in TA-SED-T7-2 (0-1); no action was taken based on the MS results. The MS/MSD analysis was performed for TA-SED-T5-2 (0-1) for hexavalent chromium analysis, and the results were within the QAPP limits of 75-125%. The MS/MSD analysis was performed for TA-SED-T7-2 (0-1) for total cyanide analysis. The MS/MSD recoveries (44%/40%) were below the project limit of 75%, while the RPD was within 50%. The total cyanide result for TA-SED-T7-2 (0-1) was qualified J-. The MS/MSD analysis was performed for TA-SED-T5-3 (0-1) and for TA-SED-T7-2 (0-1) for phosphorus analysis. The MS/MSD recoveries for TA-SED-T5-3 (0-1) were below the project limit of 75% (68%/68%); while the original sample concentration was greater than 4 times of the spike concentration. The MS/MSD recoveries for TA-SED-T7-2 (0-1) were within the QAPP limits of 75-125%. The RPDs between the MS/MSD results were within the project limit of 50%. MS/MSD analysis was performed for TA-SED-T2-2 (2-3) and TA-SED-T7-2 (0-1) for nitrate/nitrite analysis. The MS/MSD results were below the project limits of 75-125% at 68%/61% and 47%/47%, while the RPDs were within 50%. Based on the MS/MSD results, the nitrate-nitrite non-detected result for TA-SED-T2-2 (2-3) was qualified UJ, while the nitrate-nitrite result for TA-SED-T7-2 (0-1) was qualified J-. MS/MSD analysis was performed for TA-SED-T5-1 (1-2) and TA-SED-T7-2 (0-1) for ammonia analysis. The MS/MSD results were within the project limits of 75-125%, while the RPD was within 50% for TA-SED-T5-1 (1-2). The MS/MSD recoveries for TA-SED-T7-2 (0-1) were lower than the project limits (37%/39%), while the RPD was within the limit. The ammonia concentration for TA-SED-T7-2 (0-1) was greater than 4 times of the spike concentration; no action was taken based on the MS/MSD results. MS/MSD analysis was performed for TA-SED-T2-2 (2-3) and TA-SED-T7-2 (0-1) for sulfate analysis. The MS/MSD results for TA-SED-T2-2 (2-3) were within the project limits of 75-125%, and the RPD was within 50%. The MS/MSD recoveries for TA-SED-T7-2 (0-1) were below the project limit (43%/49%), while the RPD was within the project limit of 50%. The sulfate result for TA-SED-T7-2 (0-1) was qualified J-. MS/MSD analysis was performed for TA-SED-T2-2 (2-3) and TA-SED-T7-2 (0-1) for chloride analysis. The MS/MSD results for TA-SED-T2-2 (2-3) were within the project limits of 75-125%, and the RPD was within 50%. The MS/MSD recoveries for TA-SED-T7-2 (0-1) were below the project limit (40%/39%), while the RPD was within the project limit of 50%. The chloride concentration for TA-SED-T7-2 (0-1) was greater than 4 times the spiked concentration; no action was taken based on the MS/MSD results for chloride. Note the %recoveries for certain MS/MSD results for phosphorus, chloride, and ammonia were incorrect in the laboratory report.	Yes
Method Blank	No	Total cyanide in multiple method blanks.	Total cyanide was detected in the method blanks at 0.0039 mg/kg, 0.0075 mg/kg, 0.0073 mg/kg, and 0.017 mg/kg, below the RL of 0.12 mg/kg. Total cyanide was not detected in TA-SED-T2-2 (4-5), but was detected in all the other samples below the RLs. The total cyanide results in all samples but TA-SED-T2-2 (4-5) were qualified as non-detects and reported at the respective RLs. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	Yes	---	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and the correlation coefficients were greater than the QAPP limit of 0.99.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV, and CRQL Check Standard recoveries are within the project limits (90%-110%, specified in Table D.1.1 of the QAPP).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No

Project Name/No. Michigan Project
SDG: TF26016
Laboratory: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Solids Percentage	No	TA-SED-T7-2 (0-1) solids percentage below project limit (30%).	All samples had a solids percentage above 30%, except for TA-SED-T7-2 (0-1) (26.5%). All results for TA-SED-T7-2 (0-1) were qualified (detects were qualified J, and non-detects were qualified UJ).	Yes
Field Duplicate Analysis	No	Nitrate-nitrite in TA-SED-T2-2 (0-1) and corresponding duplicate TA-SED-T2-2DUP (0-1).	The RPD values for all target analytes between TA-SED-T2-2 (0-1) and its duplicate TA-SED-T2-2DUP (0-1) were within the project limit of 50%, except for nitrate-nitrite (81%). The nitrate-nitrite results for TA-SED-T2-2 (0-1) and corresponding duplicate TA-SED-T2-2DUP (0-1) were qualified J.	Yes

Project Name/No. Michigan Project
SDG: TF22021
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Temperature above 4°C, but below 10°C.	The samples were received at 2.2°C, 5.8°C and 4.4°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (14 days from sample collection to extraction, 40 days from extraction to analysis). TA-SED-T4-1 (0-1), TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1) were extracted on the 5th day from sample collection; TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3) were extracted on the 7th day from sample collection. TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (4-5), TA-SED-T3-2 (6.2-7.2), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5) were extracted on the 8th day from sample collection. The samples were analyzed within 40 days from extraction.	No
Surrogate Recovery	Yes	---	All SVOC surrogate recoveries met the laboratory established limits.	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	2,4-Dimethylphenol and 3+4-methylphenol for Batch 76395 (TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (4-5), TA-SED-T3-2 (6.2-7.2), TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3)). 2,4-Dimethylphenol for Batch 76450 (TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5), TA-SED-T4-1 (0-1), TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1)).	The LCS recoveries for 2,4-dimethylphenol and 3+4-methylphenol for Batch 76395 were above the laboratory established limit (145% vs. 123% and 112% vs. 108%). The detected 2,4-dimethylphenol and 3+4-methylphenol results in the impacted samples (TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (4-5), TA-SED-T3-2 (6.2-7.2), TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3)) were qualified J+, and the non-detect results were not qualified. The LCS recovery for 2,4-dimethylphenol for Batch 76450 was above the laboratory established limit (139% vs. 123%). 2,4-Dimethylphenol was not detected in any of the impacted samples (TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5), TA-SED-T4-1 (0-1), TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1)); no action was taken.	Yes
Matrix Spike/Matrix Spike Duplicates	No	MS/MSD recoveries for 2,4-dimethylphenol, 2-methylphenol, 3+4-methylphenol, and hexachlorocyclopentadiene; and the MS recovery for 2-chloropheonl for TA-SED-T4-1 (0-1). The MS/MSD RPD for hexachlorocyclopentadiene for TA-SED-T4-1 (0-1).	A MS/MSD analysis was conducted for TA-SED-T4-1 (0-1), and the MS/MSD recoveries were within the laboratory established limits for all analytes except that the MS/MSD recoveries for 2,4-dimethylphenol, 2-methylphenol, 3+4-methylphenol were above the control limits (137%/143% vs. 123%, 145%/125% vs. 107%, 124%/122% vs. 108%), the MS recovery for 2-chloropheonl was above the limit (109% vs. 106%), and the MS/MSD recoveries for hexachlorocyclopentadiene were below the limit (3.5%/1.6% vs. 18%). None of the above referenced analytes were detected in the original sample. The non-detected hexachlorocyclopentadiene result in TA-SED-T4-1 (0-1) was rejected, qualified UR. The other results were not qualified based on the MS and/or MSD results. The MS/MSD RPD for hexachlorocyclopentadiene was above 50%, while the RPDs for all the other analytes were below 50%.	Yes
Method Blank	Yes	---	The method blank results show no detections of target SVOC analytes.	No
Field Blank	NA	---	No field blank was collected for SVOC analysis for this SDG.	No
Quantitation Limits	No	Atrazine, hexachlorobutadiene, and pentachlorophenol in TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (4-5), TA-SED-T2-3 (4-5), TA-SED-T4-1 (0-1), TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), and TA-SED-T5-1 (0-1) and multiple SVOCs in the rest of the samples due to dilution.	Atrazine, hexachlorobutadiene, and pentachlorophenol in TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (4-5), TA-SED-T2-3 (4-5), TA-SED-T4-1 (0-1), TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), and TA-SED-T5-1 (0-1) had RLs above the MDEQ target detection limits listed in Table A.7.8 in the QAPP. However, all MDLs are below the MDEQ target detection limits except that the MDLs for pentachlorophenol were slightly above the MDEQ target detection limit of 20 ug/kg. Multiple SVOCs in the rest of the samples had elevated RLs due to dilution.	No
Field Duplicate Analysis	NA	---	No field duplicate was collected for this SDG.	No
Initial Calibration	Yes	---	Initial calibration was conducted on 6/28/201813:45:30 and 7/5/2018 20:57:30. For all target analytes, the initial calibration %RSDs were below 20% or R^2 was greater than 0.99.	No

Project Name/No. Michigan Project
SDG: TF22021
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Continuing Calibration	Yes	---	An initial calibration verification was performed on 6/28/2018 at 17:27:30 and 21:10:30. The ICV %D values were within 25% of the spiked concentrations.	No
	No	Nitrobenzene-d5, nitrobenzene, 2,4-dinitrophenol, and 4,6-dinitro-2-methylphenol for CCV performed on 7/10/2018 08:26:30 (TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (4-5), TA-SED-T2-1 (2-3)).	A CCV was performed on 7/10/2018 08:26:30 and 8:50:30. The CCV %D exceeded the project limit of 25% for the surrogate nitrobenzene-d5 (31%), nitrobenzene (32%), 4,6-dinitro-2-methylphenol (36%). Nitrobenzene and 4,6-dinitro-2-methylphenol was not detected in the associated samples (TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (4-5), TA-SED-T2-1 (2-3)); no action was taken. The RRFs for all target analytes were above 0.01.	No
	Yes	---	A CCV was performed on 7/10/2018 10:03 and 10:28:30. The CCV %D did not exceed the project limit of 25% for any target analytes. The RRFs for all target analytes were above 0.01.	No
	No	Butylbenzylphthalate for CCV performed on 7/11/2018 08:59:30. Hexachlorocyclopentadiene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene for CCV performed on 7/11/2018 20:38:30. Associated samples - TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (6.2-7.2), TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5), TA-SED-T2-1 (4-5).	A CCV was performed on 7/11/2018 08:59:30 and 09:24:30 (instrument msd11). The CCV %D exceeded the project limit of 25% for butylbenzylphthalate (25.1%). A CCV was performed on 7/11/2018 20:38:30 and 21:04:30 (msd11). The CCV %D exceeded the project limit of 25% for hexachlorocyclopentadiene (-36%), indeno(1,2,3-c,d)pyrene (-37%), dibenzo(a,h)anthracene (-37%), benzo(g,h,i)perylene (-47%). Butylbenzylphthalate was not detected in the associated samples (TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (6.2-7.2), TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5). Note: the analysis run log was missing TA-SED-T2-1 (4-5), but the results summary page indicated it was analyzed on 7/11/2018 16:28); TA-SED-T2-1 (4-5) was considered associated with the above CCV. The hexachlorocyclopentadiene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene results for the same associated samples were qualified (detects were qualified J-, and non-detects were qualified UJ). The RRFs for all target analytes were above 0.01.	Yes
Target Analyte Identification	No	Various target analytes in multiple samples.	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-T3-3 (0-1), m+p-cresol, dibenzofuran, diethylphthalate, benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene in TA-SED-T3-3 (2-3), benzo(a)anthracene, chrysene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-T3-2 (0-1.2), benzo(a)anthracene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-T3-2 (1.7-2.7), m+p-cresol, diethylphthalate, fluorene, anthracene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-T3-2 (4-5), phenanthrene, benzo(a)anthracene in TA-SED-T3-2 (6.2-7.2), benzo(a)anthracene, chrysene in TA-SED-T3-1A (2-3), anthracene, benzo(a)anthracene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-T2-1 (0-1), phenanthrene and benzo(a)anthracene in TA-SED-T2-1 (2-3), benzo(a)anthracene, chrysene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-T2-3 (0-1), benzo(a)anthracene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-T2-3 (2-3), phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(a)pyrene, indeno(123-cd)pyrene, benzo(g,h,i)perylene in TA-SED-T2-3 (4-5), anthracene, benzo(a)anthracene, benzo(k)fluoranthene, indeno(123-cd)pyrene in TA-SED-T4-1 (0-1), m+p-cresol, naphthalene, fluorene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene, benzo(g,h,i)perylene in TA-SED-T4-1 (2.5-3.5), fluorene, anthracene, benzo(a)anthracene, chrysene, benzo(a)pyrene, benzo(g,h,i)perylene in TA-SED-T4-1 (3.5-4.5), phenanthrene, benzo(a)anthracene, chrysene in TA-SED-T5-1 (0-1).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No

Project Name/No. Michigan Project
SDG: TF22021
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: SVOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Internal Standard Responses & Retention Time	No	IS-6 (perylene-d12) - associated with di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene results for samples TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (6.2-7.2), TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5).	The internal standard (ISTD) responses for IS-6 (perylene-d12) for samples TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (6.2-7.2), TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5) were below the project limit (i.e., 50% of standard) but were all above 20% of standard. The affected samples were all re-analyzed and the reanalysis results were reported; no action was taken.	No
Solids Percentage	No	TA-SED-T3-1A (0-1) solids percentage below project limit (30%).	Solids percentage for TA-SED-T3-1A (0-1) was below 30% at 27%; all results for TA-SED-T3-1A (0-1) were qualified (detects were qualified J and non-detects were qualified UJ). No action was taken for the other samples.	Yes

Project Name/No. Michigan Project
SDG: TF22021
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation	No	Temperature above 4°C, but below 10°C. Holding time exceedance for 2nd analysis of TA-SED-T3-3 (0-1), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (6.2-7.2).	The samples were received at 2.2°C, 5.8°C and 4.4°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (including those analyzed on the 14th day from sample collection) with the following exceptions: 2nd analysis of TA-SED-T3-3 (0-1) (performed on 7/9/2018), TA-SED-T3-2 (0-1.2) (7/9/2018), TA-SED-T3-2 (6.2-7.2) (7/9/2018) were analyzed on the 18th day from sample collection. The VOC results for the 7/9/2018 analysis of TA-SED-T3-3 (0-1), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (6.2-7.2) were qualified (detections were qualified J- and non-detects were qualified UJ).	Yes
Surrogate Recovery	No	Toluene-d8 in TA-SED-T3-3 (0-1), 1,2-dichloroethane-d4 and toluene-d8 in TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (4-5), and the 7/5/2018 analysis of TA-SED-T3-2 (6.2-7.2).	All VOC surrogate recoveries met the required criteria of 70-130% except that toluene-d8 recoveries in TA-SED-T3-3 (0-1) were below the limit (64% vs. 70%); 1,2-dichloroethane-d4 and toluene-d8 recoveries in TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (4-5), and TA-SED-T3-2 (6.2-7.2) (both analyses) were above the limit (152%/135% for TA-SED-T3-2 (0-1.2), 160%/138% for TA-SED-T3-2 (4-5), 135%/136% for both analyses of TA-SED-T3-2 (6.2-7.2) vs. 130%). The surrogate recoveries for TA-SED-T3-2 (6.2-7.2) analyzed on 7/9/2018 had all recoveries within the project limits. All detected results of TA-SED-T3-3 (0-1) were qualified J-, and all non-detects were qualified UJ. Note that no information was provided for the 2nd analysis for TA-SED-T3-3 (0-1) on 7/9/2018 in the laboratory reports. Results for both analyses were qualified. All VOC detected results for TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (4-5), and both analyses of TA-SED-T3-2 (6.2-7.2) (analyzed 7/5/2018 and 7/9/2018) were qualified J+, while no qualification was required for non-detects. Note that no information was provided for the 2nd analysis for TA-SED-T3-2 (0-1.2) on 7/9/2018 in the laboratory reports. Results for both analyses were qualified.	Yes
Laboratory Control Spike/Laboratory Control Spike Duplicates	No	Acetone and cyclohexane for Batch 76808 (TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (4-5), TA-SED-T3-2 (6.2-7.2) (1st run on 7/5/2018), TA-SED-T3-1A (0-1). Cyclohexane for Batch 77071 (TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1)). Acetone and cyclohexane for Batch 77134 (TA-SED-T3-2 (6.2-7.2) (2nd run on 7/9/2018).	For Batch 76625, the LCS/LCSD (TQ76625-002/003) recoveries for all analytes were within 70-130%. The LCS/LCSD RPDs were within 50% for all analytes. For Batch 76808, the LCS (TQ76808-002) recoveries for acetone (194%) and cyclohexane (136%) were above the project limit of 130%, while the LCS recoveries for all the other analytes were within 70-130%. Acetone detects in TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (6.2-7.2) (1st run on 7/5/2018), TA-SED-T3-1A (0-1) were qualified J+. Cyclohexane was not detected in any impacted samples and no action was taken. No action was taken for acetone non-detects in the impacted samples. For Batch 77071, the cyclohexane recovery for LCS (TQ77071-002) was above the limit (138% vs. 130%). Cyclohexane was not detected in any of the impacted samples (TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1)), and no action was taken based on the LCS results. For Batch 77134, the LCS (TQ77134-002) recoveries for acetone (194%) and cyclohexane (136%) were above the project limit of 130%, while the LCS recoveries for all the other analytes were within 70-130%. The detected result for acetone in TA-SED-T3-2 (6.2-7.2) (2nd run on 7/9/2018) was qualified J+. Cyclohexane was not detected in the impacted sample, and no action was taken.	Yes
Matrix Spike/Matrix Spike Duplicates	No	Trichloroethene in TA-SED-T4-1 (0-1)MS and dichlorodifluoromethane in TA-SED-T4-1 (0-1)MSD.	Trichloroethene recovery in TA-SED-T4-1 (0-1)MS was above the project limit (134% vs. 130%). Trichloroethene was not detected in the original sample; no action was taken based on the MS result for trichloroethene. Dichlorodifluoromethane recovery in TA-SED-T4-1 (0-1)MSD was below the limit (68% vs. 70%). The non-detected dichlorodifluoromethane result in the original sample TA-SED-T4-1 (0-1) was qualified UJ. All MS/MSD RPDs were below the project limit (50%).	Yes
Method Blank	No	Carbon disulfide in TQ76808-001, TQ76913-001, and TQ77134-001 (associated samples include TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (4-5), TA-SED-T3-2 (6.2-7.2) (both analyses on 7/5/2018 and 7/9/2018), TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3)).	The method blank results show no detections of target VOC analytes except that carbon disulfide was detected below the RL (21 ug/kg vs. 50 ug/kg) in TQ76808-001, TQ76913-001, and TQ77134. Carbon disulfide was either not detected or detected at or below RLs in the impacted samples (TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (1.7-2.7), TA-SED-T3-2 (4-5), TA-SED-T3-2 (6.2-7.2) (both analyses on 7/5/2018 and 7/9/2018), TA-SED-T3-1A (0-1), TA-SED-T3-1A (2-3)). The detects were qualified (UB) and reported at the respective RLs.	Yes
Field/Trip Blank	Yes	---	A trip blank TA-TB-01 (6/22/18) was collected for this SDG, and no VOCs were detected.	No

Project Name/No. Michigan Project
SDG: TF22021
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Quantitation Limits	No	Multiple VOCs in multiple samples.	Multiple VOCs had RLs in all samples in this SDG above the MDEQ target detection limits listed in Table A.7.8 in the QAPP.	No
Field Duplicate Analysis	NA	---	No field duplicate was collected for this SDG.	No
Initial Calibration	Yes	---	The initial calibration was performed on 6/28/2018 and 7/5/2018 and the results for all target analytes met the limits of either %RSD below 30% or R^2 greater than 0.995.	No
Continuing Calibration/Calibration Verification (CCV)	No	Dichlorodifluoromethane in ICV on 7/5/2018 (TA-SED-T3-2 (6.2-7.2) and TA-SED-T3-1A (0-1)).	An ICV was performed on 7/5/2018 18:45:30, and the percent drift (%D) values were all within 25%, except that the dichlorodifluoromethane recovery drift (34%) was above 25%. Dichlorodifluoromethane was not detected in the impacted samples (TA-SED-T3-2 (6.2-7.2) and TA-SED-T3-1A (0-1)), and the non-detected results were not qualified.	No
	No	Dichlorodifluoromethane in ICV on 7/6/2018 (TA-SED-T3-1A (2-3), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5), TA-SED-T4-1 (0-1)).	An ICV was performed on 7/6/2018 02:55:30, and the %D values were all within 25%, except that the dichlorodifluoromethane recovery drift (43%) was above 25%. Dichlorodifluoromethane was not detected in the impacted samples (TA-SED-T3-1A (2-3), TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5), TA-SED-T4-1 (0-1)); the non-detected results were not qualified.	No
	No	Acetone in CCV on 7/2/2018 (TA-TB-01 (6/22/18)).	A CCV was performed on 7/2/2018 21:24:30. The %D values were all below 25%, except for acetone (25.3%). The RRFs for all target analytes were greater than 0.01. Acetone was not detected in the impacted sample (TA-TB-01 (6/22/18)), the associated non-detected results were not qualified.	No
	No	Carbon disulfide, 2-hexanone in CCV on 7/3/2018 (TA-TB-01 (6/22/18)).	A CCV was performed on 7/3/2018 08:21:30. The %D values were all below 25%, except for carbon disulfide (26%) and 2-hexanone (25.9%). The RRFs for all target analytes were greater than 0.01. None of the above referenced VOCs were detected in the impacted sample TA-TB-01 (6/22/18), the associated non-detected results were not qualified.	No
	No	Acetone, methyl acetate, 2-butanone, cyclohexane, 4-methyl-2-pentanone, 2-hexanone, 1,2-dibromo-3-chloroprop in CCV on 7/5/2018 (impacted samples include TA-SED-T3-3 (0-1), TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (1.7-2.7), and TA-SED-T3-2 (4-5)).	A CCV was performed on 7/5/2018 07:07:30. The %D values were all below 25%, except for acetone (158%), methyl acetate (30%), 2-butanone (48%), cyclohexane (42%), 4-methyl-2-pentanone (37%), 2-hexanone (41%), 1,2-dibromo-3-chloroprop (29%). The RRFs for all target analytes were greater than 0.01. The acetone, methyl acetate, 2-butanone, cyclohexane, 4-methyl-2-pentanone, 2-hexanone, and 1,2-dibromo-3-chloropropdetects for the associated samples (i.e., TA-SED-T3-3 (0-1) 1st analysis on 7/5/2018, TA-SED-T3-3 (2-3), TA-SED-T3-3 (5-6), TA-SED-T3-2 (0-1.2) 1st analysis on 7/5/2018, TA-SED-T3-2 (1.7-2.7), and TA-SED-T3-2 (4-5)) were qualified J+, while no action was required for the non-detect results.	Yes
	No	Dichlorodifluoromethane in CCV on 7/6/2018 (TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5), TA-SED-T4-1 (0-1)).	A CCV was performed on 7/6/2018 11:47:30. The %D values were all below 25%, except for dichlorodifluoromethane (44%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (TA-SED-T3-1A (5-6), TA-SED-T2-1 (0-1), TA-SED-T2-1 (2-3), TA-SED-T2-1 (4-5), TA-SED-T2-3 (0-1), TA-SED-T2-3 (2-3), TA-SED-T2-3 (4-5), TA-SED-T4-1 (3.5-4.5)) and the associated results were not qualified.	No
	No	Cyclohexane in CCV on 7/8/2018 (TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1)).	A CCV was performed on 7/8/2018 08:37:30. The %D values were all below 25%, except for cyclohexane (29%). The RRFs for all target analytes were greater than 0.01. Cyclohexane was not detected in the impacted samples (TA-SED-T4-1 (2.5-3.5), TA-SED-T4-1 (3.5-4.5), TA-SED-T5-1 (0-1)); the non-detected results were not qualified.	No
	No	Dichlorodifluoromethane in CCV on 7/9/2018 (TA-SED-T3-3 (0-1), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (6.2-7.2)).	A CCV was performed on 7/9/2018 09:03:30. The %D values were all below 25%, except for dichlorodifluoromethane (52%). The RRFs for all target analytes were greater than 0.01. Dichlorodifluoromethane was not detected in any of the impacted samples (TA-SED-T3-3 (0-1), TA-SED-T3-2 (0-1.2), TA-SED-T3-2 (6.2-7.2)); the non-detected results were not qualified.	No

Project Name/No. Michigan Project
SDG: TF22021
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: VOCs

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Target Analyte Identification	No	Carbon disulfide in TA-SED-T3-2 (1.7-2.7) and TA-SED-T2-1 (0-1). 2-Hexanone in TA-SED-T4-1 (0-1) and TA-SED-T4-1 (2.5-3.5).	The difference between the sample spectrum and the reference spectrum is generally within 20% with the following exceptions: carbon disulfide in TA-SED-T3-2 (1.7-2.7) and TA-SED-T2-1 (0-1), 2-hexanone in TA-SED-T4-1 (0-1) and TA-SED-T4-1 (2.5-3.5).	No
Instrument Performance Check	Yes	---	All instrument performance checks met the laboratory established criteria.	No
Internal Standard Responses & Retention Time	Yes	---	The internal standard (ISTD) responses for all samples were within the acceptance criteria.	No
Solids Percentage	No	TA-SED-T3-1A (0-1) solids percentage below project limit (30%).	Solids percentage for TA-SED-T3-1A (0-1) was below 30% at 27%; all results for TA-SED-T3-1A (0-1) were qualified (detects were qualified J and non-detects were qualified UJ). No action was taken for the other samples.	Yes

Project Name/No. Michigan Project
SDG: TF22021
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, Preservation, & Solids Percentage	No	Temperature above 4°C, but below 10°C.	The samples were received at 2.2°C, 5.8°C and 4.4°C. All samples were processed and analyzed within the holding time limits specified in the QAPP (6 months from sample collection to analysis for TAL metals, 28 days for mercury).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all metals were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	Sodium, antimony, arsenic, beryllium, boron, cobalt, copper, nickel, selenium, titanium, and zinc in the MS/MSD performed on TA-SED-T4-1 (0-1).	A MS/MSD analysis was performed for TA-SED-T4-1 (0-1) for all metals. The MS/MSD recoveries were within the QAPP limits of 75-125% for all metals with the following exceptions. MS and/or MSD recoveries for aluminum (1980%/2340%), iron (234%/111%), magnesium (339%/320%), sodium(173%/170%) exceeded the upper project control limit (125%). MS and/or MSD recoveries for antimony (74%/77%%), arsenic (72%/76%), beryllium (38%/43%), boron (68%/75%), cobalt (72%/76%), copper (66%/70%), nickel (66%/70%), selenium (67%/71%), titanium (19%/52%), and zinc (76%/74%) were below the lower QAPP limit (75%). The RPDs between MS and MSD were within the QAPP limit of 50% for all metals. With the exception of aluminum (-178%), beryllium (59%), iron (14%), magnesium (35%), and titanium (67%), the post digest spike recoveries were within 75-125% limits. The original sample concentrations were above 4 times of the spike concentrations for aluminum, iron, and magnesium. Therefore, no action was taken for aluminum, iron, and magnesium based on the MS/MSD results. The arsenic, boron, cobalt, copper, nickel, sodium, and zinc detect in TA-SED-T4-1 (0-1) was qualified J. Antimony or selenium was not detected in TA-SED-T4-1 (0-1); the non-detected results were qualified UJ. The detected beryllium and titanium results in TA-SED-T4-1 (0-1) were qualified J-.	Yes
Method Blank	Yes	---	No metal TCLs were detected in the method blank; no action was taken based on the method blank results.	No
Instrument Blank	No	Boron and iron detected in multiple instrument blanks.	No TCLs were detected in any instrument blank (including initial and continuing calibrations blanks) with the following exceptions. Boron was detected in ICB1, CCB1, CCB2, CCB3, CCB4, CCB5, CCB6, CCB7 (Run #MS2070318A.6 on 7/3/2018) at 0.785 ug/L, 1.723 ug/L, 2.173 ug/L, 2.185 ug/L, 0.984 ug/L, 1.310 ug/L, 1.259 ug/L, 1.217 ug/L, below the RL of 50 ug/L. Iron was detected in CCB7 (Run #MS2070318A.6 on 7/3/2018) at 10.740 ug/L, below the RL of 50 ug/L. Boron was detected in ICB1, CCB1, CCB2 (Run #MS2070518A.6 on 7/5/2018) at 0.746 ug/L, 2.211 ug/L, 3.009 ug/L, below the RL of 50 ug/L. Iron was detected in ICB1, CCB1, CCB2 (Run #MS2070518A.6 on 7/5/2018) at 11.03 ug/L, 13.05 ug/L, 12.92 ug/L, below the RL of 50 ug/L. No project sample results were impacted by the boron and iron detects in ICB or CCBs in Run #MS2070518A.6 on 7/5/2018. All boron and iron results for the project samples were impacted by the boron and iron detects in ICB and/or CCBs in Run #MS2070318A.6 on 7/3/2018. All boron detections were below the RLs and all iron detections were above the RLs (with raw data checked). All boron detections were qualified as non-detects ("UB") and raised to the RLs, while no action was required for non-detects. No action was taken for the iron results.	Yes
Reported Quantitation Limits	No	Multiple metals in multiple samples.	The laboratory reporting limits were elevated and above the MDEQ target detection limits listed in Table A.7.8 in the QAPP for multiple metals in multiple samples. The laboratory reporting limits for aluminum, magnesium, selenium, and sodium were elevated above the MDEQ target detection limits. Elevated reporting limits were also noted for other metals such as antimony, arsenic, barium, boron, cadmium, cobalt, copper, iron, molybdenum, nickel, silver, thallium, titanium, vanadium, and zinc due to dilution.	No

Project Name/No. Michigan Project
SDG: TF22021
Lab: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: Metals (including mercury)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Initial Calibration	Yes	---	For chromium, a 5-point calibration was performed on 7/31/2018. For mercury, a 5-point calibration was performed on 7/2/2018 and 8/1/2018, and the correlation coefficients were greater than 0.99. For the other metals, a 4-point calibration was performed on 7/31/2018, and the correlation coefficients were all greater than 0.99. Initial calibration was conducted for all metals but mercury on 7/11/2018, and correlation coefficient was greater than the QAPP limit (0.99998 vs. 0.99). Initial calibration was conducted for mercury on 7/13/2018, and correlation coefficient was greater than the QAPP limit (0.99991 vs. 0.99).	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV recoveries were within the project limits (90-110%, specified in Table D.1.1 of the QAPP), and CRQL Check Standard recoveries for mercury were within the project limits (70-130%).	No
Interference Check Sample	Yes	---	The interference check recoveries were within the limits specified in the QAPP (80-120%).	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
ICP Serial Dilution	No	Aluminum and magnesium in TA-SED-T4-1 (0-1).	For chromium, a serial dilution was performed for sample TA-SED-T3-3 (2-3). Chromium was not detected in the original sample. For all metals including chromium, a serial dilution was performed for TA-SED-T4-1. The %D serial dilution results for all metals but aluminum and magnesium met the QAPP limit (i.e., either serial dilution results lower than 10% or the original sample concentrations were below 50 times of the sample detection limits). The serial dilution results for aluminum (15.8%) and magnesium (17.8%) were above 10% while the original sample concentrations were above 50 times of the detection limits. The aluminum and magnesium detects in TA-SED-T4-1 (0-1) were qualified J.	Yes
Internal Standard	Yes	---	The %RI was within 60-125% of the response in the calibration blank.	No
ICP Linear Range	Yes	---	All sample results in this SDG were within the ICP linear range.	No
Solids Percentage	No	TA-SED-T3-1A (0-1) solids percentage below project limit (30%).	Solids percentage for TA-SED-T3-1A (0-1) was below 30% at 27%; all results for TA-SED-T3-1A (0-1) were qualified (detections were qualified J and non-detects were qualified UJ). No action was taken for the other samples.	Yes
Field Duplicate Analysis	NA	---	No field duplicate sample was collected for any samples in this SDG.	No

Project Name/No. Michigan Project
SDG: TF22021
Laboratory: SHEALY
Media TA-TB-01 (aqueous), all other soil
Fraction: Non-Metals (ammonia, chloride, cyanide, hexavalent chromium, nitrate/nitrite, phosphorus, sulfate)

Criteria	Did analyses meet all criteria as specified in the SOPS?	If no, specify sample IDs which do not meet criteria	Comments/Qualifying Actions	Qualifiers Added?
Data Completeness, Holding Times, & Preservation	No	Temperature above 4°C, but below 10°C.	The samples were received at 2.2°C, 5.8°C and 4.4°C. All samples were analyzed per analytical methods specified in the QAPP Table B.3.2. All samples were analyzed within the holding time requirements specified in the QAPP (i.e., 14 days for cyanide, 30 days for hexavalent chromium, and 28 days for the other analytes).	No
Laboratory Control Spike/Laboratory Control Spike Duplicates	Yes	---	The LCS recoveries for all analytes were within the limits specified in the QAPP (80-120%).	No
Matrix Spike/Matrix Spike Duplicates	No	MS/MSD performed on TA-SED-T4-1 (0-1) and TA-SED-T5(0-1) for nitrate-nitrite. MS/MSD performed for TA-SED-T3-3 (2-3) and TA-SED-T3-1A (2-3) for ammonia.	A MS analysis was performed twice for TA-SED-T5-1 (0-1) for hexavalent chromium analysis. The spike concentrations were different between the two analyses. The MS recoveries were within the QAPP limits of 75-125% for hexavalent chromium. The laboratory report noted 200% RPD for the two MS results. However, GZA did not treat the two MS results as MS and MSD results. A MS/MSD analysis was performed for TA-SED-T4-1 (0-1) for total cyanide analysis. The MS/MSD recoveries were within the project limits of 75-125%, and the RPD was within 50%. The MS/MSD analysis was performed for TA-SED-T3-1A (0-1) and TA-SED-T4-1 (0-1) for phosphorus analysis. The MSD recovery for TA-SED-T4-1 (0-1) was below the project limit of 75%, while the MS/MSD recoveries for TA-SED-T3-1A (0-1) were within the QAPP limits of 75-125% for inorganics. Note the %recoveries for all MS/MSD analysis for phosphorus were calculated incorrectly in the laboratory report. The RPDs between the MS/MSD results were within the project limit of 50%. The original phosphorus concentration in TA-SED-T4-1 (0-1) was above 4 times the spike concentration; no action was taken based on the MS/MSD results. A MS/MSD analysis was performed for TA-SED-T4-1 (0-1) and TA-SED-T5-1 (0-1) for chloride; the MS/MSD results were within the project limits of 75-125% and the RPD was within 50%. A MS/MSD analysis was performed for TA-SED-T4-1 (0-1) and TA-SED-T5(0-1) for sulfate; the MS/MSD results were within the project limits of 75-125% and the RPD was within 50%. A MS/MSD analysis was performed for TA-SED-T4-1 (0-1) and TA-SED-T5(0-1) for nitrate-nitrite analysis; the MS/MSD results were below the project limits of 75-125% at 27%/29% and 39%/44% while the RPDs were within 50%. The nitrate-nitrite results for TA-SED-T4-1 (0-1) and TA-SED-T5-1 (0-1) were qualified J- based on the MS/MSD results. A MS/MSD analysis was performed for TA-SED-T3-3 (2-3) and TA-SED-T3-1A (2-3) for ammonia analysis; the MS/MSD results were below the project limits of 75-125% at 56%/50% and 63%/64% (recoveries shown in the laboratory report were incorrect) while the RPDs were within 50%. The ammonia results for TA-SED-T3-3 (2-3) and TA-SED-T3-1A (2-3) were qualified J- based on the MS/MSD results. The MS/MSD results for TA-SED-T4-1 (0-1) for ammonia were within the limits.	Yes
Method Blank	No	Total cyanide in multiple blanks.	Total cyanide was detected in the method blanks at 0.013 mg/kg, 0.022 mg/kg, and 0.0039 mg/kg, below the RL of 0.12 mg/kg. Total cyanide was not detected in TA-SED-T2-1 (0-1) but was detected in all the other samples below the RLs. The total cyanide results in all samples but TA-SED-T2-1 (0-1) were qualified as non-detect at the respective RLs. No other TCLs were detected in the method blank; no action was taken based on the method blank results for the other TCLs.	Yes
Instrument Blank	Yes	---	No TCLs were detected in any instrument blank.	No
Reported Quantitation Limits	No	---	A comparison of the laboratory reporting limits to the MDEQ target detection limits for solid samples is provided in Table A.7.8 in the QAPP. The laboratory reporting limits in this SDG were generally consistent with those listed in the QAPP, except when dilution was necessary.	No
Initial Calibration	Yes	---	Initial calibration was conducted for the non-metal inorganics, and the correlation coefficients for all target analytes were greater than the QAPP limit of 0.995.	No
Continuing Calibration/Calibration Verification	Yes	---	All ICV and CCV, and CRQL Check Standard recoveries are within the project limits (90%-110%, specified in Table D.1.1 of the QAPP) with the following exceptions: CCV for hexavalent chromium on 7/19/2018 03:13:30 and 04:40:30 had %Ds slightly below limit (-14% and -12% vs. 10%). No samples in this SDG were impacted by this CCV.	No
Laboratory Duplicate Analysis	NA	---	No information is available for laboratory duplicate analysis.	No
Solids Percentage	No	TA-SED-T3-1A (0-1) solids percentage below project limit (30%).	Solids percentage for TA-SED-T3-1A (0-1) was below 30% at 27%; all results for TA-SED-T3-1A (0-1) were qualified (detects were qualified J and non-detects were qualified UJ). No action was taken for the other samples.	Yes
Field Duplicate Analysis	NA	---	No field duplicate sample was collected for any samples in this SDG.	No

Appendix G – XRF Data for Selected Metals

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
15:43:52	0-1	30.6	4	30	<LOD	33.3	<LOD	172	76,985	<LOD	<LOD	<LOD	8	10,465	5,411	418	<LOD
15:46:27	1-2	37.8	<LOD	834	<LOD	344	<LOD	235	32,756	<LOD	<LOD	<LOD	27	12,053	5,038	209	<LOD
15:48:46	2-3	PD <LOD	56	712	<LOD	1,429	<LOD	309	25,957	<LOD	342	<LOD	31	18,763	8,313	332	<LOD
15:51:04	7-8	PD <LOD	24	393	<LOD	595	<LOD	260	50,911	<LOD	<LOD	<LOD	25	14,859	8,193	321	3.5
15:53:37	8-9	PD 26.8	18	287	<LOD	317	<LOD	255	48,076	<LOD	355	<LOD	50	36,275	13,082	646	<LOD
15:56:03	9-10	PD 33.1	4.6	33	<LOD	16.3	<LOD	147	20,744	<LOD	<LOD	<LOD	10	11,149	6,233	376	3.4

Note: Same as TA-GW-03

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-01

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:43:52	0-1	30.6	<LOD	<LOD	34.1	7,217	<LOD	<LOD	<LOD	125	1,084	107.1	150
15:46:27	1-2	37.8	13	<LOD	38.7	4,193	<LOD	<LOD	<LOD	148	862	87.2	176
15:48:46	2-3	PD <LOD	23	<LOD	42.6	7,916	<LOD	<LOD	<LOD	180	1,774	160	197
15:51:04	7-8	PD <LOD	20	<LOD	47.9	4,205	<LOD	<LOD	<LOD	163	1,558	113	156
15:53:37	8-9	PD 26.8	<LOD	<LOD	32.1	88,505	<LOD	<LOD	128	160	1,664	223	145
15:56:03	9-10	PD 33.1	<LOD	<LOD	38.2	19,397	<LOD	<LOD	<LOD	109	915	24.2	88

Note: Same as TA-GW-03

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
16:41:49	0-1	33	11.2	151	<LOD	78.6	<LOD	250	57,175	<LOD	<LOD	<LOD	22	13,476	7,027	428
16:45:18	1-2	28.8	31	401	<LOD	658	<LOD	267	42,248	<LOD	<LOD	<LOD	40	16,397	6,822	332
16:47:47	2-3	30.2	<LOD	404	<LOD	1,304	<LOD	277	31,053	<LOD	<LOD	<LOD	32	16,699	5,689	255
16:50:08	6-7	PD 41.8	<LOD	501	4	941	<LOD	359	28,797	<LOD	278	<LOD	47	18,343	8,284	201
16:54:08	7-8	PD 60.7	3.1	46	<LOD	22.6	<LOD	191	14,204	<LOD	<LOD	<LOD	9	9,417	6,170	204
16:57:30	10-11	PD 65.8	<LOD	37	<LOD	14.5	<LOD	180	32,987	<LOD	216	<LOD	7.1	8,176	5,283	272
16:59:51	11-12	PD 32.2	15.9	43	<LOD	8.7	<LOD	315	6,726	<LOD	566	<LOD	11	46,122	18,623	400
17:02:28	12-13	PD 44.5	<LOD	31	<LOD	10	<LOD	185	35,348	<LOD	<LOD	<LOD	<LOD	5,977	6,371	122
17:08:10	13-14	PD 52.6	<LOD	27	<LOD	9.1	<LOD	151	20,662	<LOD	<LOD	<LOD	<LOD	5,376	4,472	102
17:10:58	14-15	PD 49.9	2.1	25	<LOD	8.4	<LOD	177	41,804	<LOD	<LOD	<LOD	<LOD	8,935	6,536	134
17:13:16	15-16	PD 22.6	<LOD	26	<LOD	9.2	<LOD	160	36,322	<LOD	<LOD	<LOD	<LOD	4,631	5,226	139

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-02

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:41:49	0-1	33	<LOD	<LOD	<LOD	39.9	3,086	<LOD	<LOD	<LOD	134	1,159	138	153
16:45:18	1-2	28.8	<LOD	14	<LOD	31.2	6,128	<LOD	<LOD	<LOD	143	1,438	245	97
16:47:47	2-3	30.2	<LOD	13	<LOD	35.2	2,389	<LOD	<LOD	96	164	1,134	539	154
16:50:08	6-7	PD 41.8	<LOD	<LOD	<LOD	38.1	8,843	<LOD	<LOD	<LOD	150	2,103	337	149
16:54:08	7-8	PD 60.7	<LOD	<LOD	<LOD	47.6	7,208	<LOD	<LOD	<LOD	101.8	1,278	35.8	209
16:57:30	10-11	PD 65.8	<LOD	<LOD	<LOD	36.1	3,319	<LOD	<LOD	<LOD	90	1,147	22.7	135
16:59:51	11-12	PD 32.2	<LOD	16	<LOD	40.9	6,517	<LOD	<LOD	<LOD	121	1,928	49.3	161
17:02:28	12-13	PD 44.5	<LOD	<LOD	<LOD	49.4	<LOD	<LOD	<LOD	<LOD	123	982	11.1	198
17:08:10	13-14	PD 52.6	<LOD	<LOD	<LOD	48.6	<LOD	<LOD	<LOD	<LOD	125	495	8.7	221
17:10:58	14-15	PD 49.9	<LOD	<LOD	<LOD	40.6	6,877	<LOD	<LOD	<LOD	134	978	8.7	108
17:13:16	15-16	PD 22.6	<LOD	<LOD	<LOD	45.8	<LOD	<LOD	<LOD	<LOD	129	718	6.2	144

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-03

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:30:04	0-1	30.6	6	49	<LOD	21.9	<LOD	234	21,606	<LOD	<LOD	<LOD	12	16,109	7,090	787	<LOD
11:35:58	1-2	37.8	4.6	62	<LOD	33	<LOD	147	71,683	<LOD	<LOD	<LOD	9	11,557	3,635	251	<LOD
11:38:22	2-3	51.8	4.9	38	<LOD	33.2	<LOD	161	68,027	<LOD	<LOD	<LOD	8	8,214	3,963	256	<LOD
11:41:24	3-4	PD <LOD	2.6	32	<LOD	29.8	<LOD	239	96,432	<LOD	<LOD	<LOD	13	8,713	6,674	333	<LOD
11:46:44	4-5	48.7	2.7	63	<LOD	27.5	<LOD	184	79,105	<LOD	<LOD	<LOD	13	9,296	3,979	298	<LOD
11:49:16	5-6	PD <LOD	<LOD	37	<LOD	33	<LOD	202	78,020	<LOD	<LOD	<LOD	12	7,948	5,413	289	<LOD
11:51:58	6-7	PD <LOD	3.5	82	<LOD	40.5	<LOD	208	79,530	<LOD	<LOD	<LOD	14	9,055	7,157	309	<LOD
11:54:17	7-8	PD <LOD	3.4	41	<LOD	37.7	<LOD	189	82,697	<LOD	228	<LOD	12	9,863	6,260	276	<LOD
11:56:51	9-10	PD <LOD	4.8	36	<LOD	53.5	<LOD	230	87,336	<LOD	312	<LOD	12	9,924	6,743	295	<LOD
11:59:31	10-11	PD <LOD	4	37	<LOD	51.5	<LOD	221	97,130	<LOD	<LOD	<LOD	29	10,508	7,571	325	<LOD
12:04:55	11-12	PD <LOD	3.1	41	<LOD	40.3	<LOD	198	77,380	<LOD	680	<LOD	13	10,551	6,681	301	<LOD
12:07:55	12-13	PD <LOD	4	1,623	<LOD	24.5	<LOD	164	222,875	<LOD	1,950	<LOD	42	30,733	7,886	332	5.4

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-03

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:30:04	0-1	30.6	<LOD	<LOD	49.1	<LOD	<LOD	<LOD	<LOD	106	1,358	58	186
11:35:58	1-2	37.8	<LOD	<LOD	26.5	6,098	<LOD	<LOD	<LOD	134	829	80.2	70
11:38:22	2-3	51.8	<LOD	<LOD	29.3	8,303	<LOD	<LOD	<LOD	152	1,029	80.1	89
11:41:24	3-4	PD <LOD	25	<LOD	33.5	13,812	<LOD	<LOD	<LOD	192	1,127	80.3	100
11:46:44	4-5	48.7	<LOD	<LOD	29.9	5,405	<LOD	<LOD	<LOD	146	703	81.4	113
11:49:16	5-6	PD <LOD	13	<LOD	34.8	10,647	<LOD	<LOD	<LOD	190	843	87.8	130
11:51:58	6-7	PD <LOD	<LOD	<LOD	37.3	8,856	<LOD	<LOD	<LOD	146	1,273	111	122
11:54:17	7-8	PD <LOD	<LOD	<LOD	37.8	12,001	<LOD	<LOD	<LOD	150	984	125	98
11:56:51	9-10	PD <LOD	<LOD	<LOD	44.5	13,454	<LOD	<LOD	<LOD	159	1,172	122	112
11:59:31	10-11	PD <LOD	14	<LOD	35.7	12,093	<LOD	<LOD	<LOD	160	1,252	142	154
12:04:55	11-12	PD <LOD	<LOD	<LOD	38.7	13,277	<LOD	<LOD	<LOD	151	1,007	119	121
12:07:55	12-13	PD <LOD	18	<LOD	20.3	43,477	<LOD	<LOD	<LOD	185	759	195	69

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-04

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
9:49:52	0-1	39.5	8	53	<LOD	18.6	<LOD	281	7,378	<LOD	<LOD	<LOD	<LOD	20,033	9,565	996	<LOD	<LOD
9:52:24	1-2	43.2	2.7	139	<LOD	30.5	<LOD	182	32,507	<LOD	<LOD	<LOD	16	9,168	6,788	390	<LOD	16
9:55:59	2-3	60	<LOD	21	<LOD	7.9	<LOD	123	4,077	<LOD	<LOD	<LOD	<LOD	2,562	2,012	72	<LOD	<LOD
9:59:37	3-4	66.8	<LOD	32	<LOD	5.9	<LOD	146	4,887	<LOD	<LOD	<LOD	<LOD	3,885	2,912	129	<LOD	<LOD
10:04:02	6-7	PD 20.5	<LOD	38	<LOD	6.7	<LOD	157	17,567	<LOD	<LOD	<LOD	<LOD	5,069	4,253	146	<LOD	<LOD
10:08:19	7-8	PD 19.6	<LOD	46	<LOD	7.8	<LOD	147	9,763	<LOD	<LOD	<LOD	6	7,393	5,231	189	<LOD	<LOD
10:14:16	8-9	PD 27.6	<LOD	35	<LOD	8.1	<LOD	140	12,084	<LOD	<LOD	<LOD	<LOD	5,493	3,878	149	<LOD	<LOD
10:16:54	9-10	PD 13.1	<LOD	39	<LOD	6.3	<LOD	119	9,910	<LOD	<LOD	<LOD	<LOD	5,005	3,774	129	<LOD	11
10:19:36	12-13	PD 31.8	3.7	48	<LOD	23.2	<LOD	220	58,741	<LOD	<LOD	<LOD	10	9,412	8,313	254	<LOD	17
10:22:40	13-14	DTT Clay	<LOD	30	<LOD	9.1	<LOD	207	54,300	<LOD	<LOD	<LOD	<LOD	6,914	7,315	194	<LOD	12
10:25:18	14-15	DTT Clay	<LOD	31	<LOD	8.8	<LOD	186	89,215	<LOD	<LOD	<LOD	8	8,221	7,353	244	<LOD	<LOD

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-04

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:49:52	0-1	39.5	<LOD	60.8	<LOD	<LOD	<LOD	<LOD	93.4	1,886	47.4	241
9:52:24	1-2	43.2	<LOD	40.5	<LOD	<LOD	<LOD	<LOD	110	1,135	50.6	185
9:55:59	2-3	60	<LOD	28.2	<LOD	<LOD	<LOD	<LOD	67.3	322	4.5	91.3
9:59:37	3-4	66.8	<LOD	30.1	<LOD	<LOD	<LOD	<LOD	58	617	6.6	96
10:04:02	6-7	PD 20.5	<LOD	28.8	2,190	<LOD	<LOD	<LOD	65.9	492	22.8	88.7
10:08:19	7-8	PD 19.6	<LOD	33.9	2,073	<LOD	<LOD	<LOD	57	912	24.8	115
10:14:16	8-9	PD 27.6	<LOD	30.9	<LOD	<LOD	<LOD	<LOD	77.8	578	9.8	79.1
10:16:54	9-10	PD 13.1	<LOD	29.7	<LOD	<LOD	<LOD	<LOD	63.1	668	8.8	62.6
10:19:36	12-13	PD 31.8	<LOD	44.1	<LOD	<LOD	<LOD	<LOD	139	1,162	35.7	187
10:22:40	13-14	DTT Clay	<LOD	44.4	<LOD	<LOD	<LOD	<LOD	128	1,015	13.2	182
10:25:18	14-15	DTT Clay	<LOD	40.3	<LOD	<LOD	<LOD	<LOD	137	1,194	15.4	225

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-05

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
10:42:47	0-1	28.6	2.4	38	<LOD	15.4	<LOD	161	31,045	<LOD	<LOD	<LOD	<LOD	5,901	3,598	204	<LOD	<LOD
10:47:35	1-2	43.3	8.8	36	<LOD	18.7	<LOD	187	57,324	<LOD	<LOD	<LOD	17	51,464	8,364	378	<LOD	<LOD
10:50:19	2-3	PD <LOD	4.9	54	<LOD	40.4	<LOD	221	45,289	<LOD	234	<LOD	56	10,185	6,688	200	<LOD	<LOD
10:55:36	6-7	PD <LOD	<LOD	31	<LOD	9.8	<LOD	124	24,832	<LOD	<LOD	<LOD	<LOD	5,621	3,569	143	<LOD	<LOD
11:02:02	7-8	PD <LOD	6.9	107	<LOD	17.4	<LOD	232	58,047	<LOD	<LOD	<LOD	<LOD	11,068	6,182	262	<LOD	<LOD
11:04:20	8-9	PD 21.6	4.1	68	<LOD	20.6	<LOD	208	4,340	<LOD	383	<LOD	<LOD	13,517	7,213	169	<LOD	<LOD
11:06:54	9-10	PD 8.4	5.7	50	<LOD	12.8	<LOD	294	8,507	<LOD	<LOD	<LOD	8	19,651	9,955	249	<LOD	21
11:09:27	10-11	PD 12.5	2.5	35	<LOD	11.9	<LOD	236	69,794	<LOD	<LOD	<LOD	12	11,572	9,751	280	<LOD	<LOD
11:11:48	11-12	PD 14.9	<LOD	41	<LOD	10	<LOD	203	63,038	<LOD	<LOD	<LOD	<LOD	8,737	7,972	252	<LOD	<LOD
11:14:37	12-13	DTT	2.9	25	<LOD	9.1	<LOD	166	96,649	<LOD	<LOD	<LOD	8	8,840	7,899	267	<LOD	<LOD
11:17:24	13-14	DTT	3.6	32	<LOD	8.9	<LOD	177	99,666	<LOD	<LOD	<LOD	<LOD	9,504	8,107	269	<LOD	<LOD
11:19:54	14-15	DTT	2.3	29	<LOD	9.6	<LOD	188	97,493	<LOD	<LOD	<LOD	<LOD	9,403	8,352	254	<LOD	12

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-05

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:42:47	0-1	28.6	<LOD	35.4	<LOD	<LOD	<LOD	<LOD	97	615	33.9	94
10:47:35	1-2	43.3	<LOD	20.9	<LOD	<LOD	<LOD	<LOD	120	638	51.1	73
10:50:19	2-3	PD <LOD	<LOD	30.7	6,786	<LOD	<LOD	<LOD	132	887	83.7	76
10:55:36	6-7	PD <LOD	<LOD	29.8	<LOD	<LOD	<LOD	<LOD	85.7	766	18.4	86
11:02:02	7-8	PD <LOD	<LOD	34.4	7,821	<LOD	<LOD	<LOD	124	773	115	51.8
11:04:20	8-9	PD 21.6	<LOD	36.1	4,992	<LOD	<LOD	<LOD	85.8	1,455	39.8	121
11:06:54	9-10	PD 8.4	<LOD	50.1	<LOD	<LOD	<LOD	<LOD	109	1,740	27	123
11:09:27	10-11	PD 12.5	<LOD	52.2	<LOD	<LOD	<LOD	<LOD	153	1,297	21.3	202
11:11:48	11-12	PD 14.9	<LOD	49.8	<LOD	<LOD	<LOD	<LOD	149	1,126	17.6	210
11:14:37	12-13	DTT	<LOD	41.9	<LOD	<LOD	<LOD	<LOD	140	1,372	17.9	222
11:17:24	13-14	DTT	<LOD	43.4	<LOD	<LOD	<LOD	<LOD	139	1,303	17.8	202
11:19:54	14-15	DTT	<LOD	46	<LOD	<LOD	<LOD	<LOD	147	1,354	19.8	209

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-06

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:29:46	0-1	43.2	<LOD	36	<LOD	53.6	<LOD	178	67,071	<LOD	<LOD	<LOD	12	8,856	5,811	290	<LOD
14:32:21	1-2	57.8	4.6	39	<LOD	33	<LOD	161	64,910	<LOD	<LOD	<LOD	9	8,958	4,416	252	<LOD
14:34:43	2-3	PD <LOD	4.3	34	<LOD	37.3	<LOD	227	92,624	<LOD	<LOD	<LOD	14	9,870	7,503	348	<LOD
14:37:02	3-4	PD <LOD	3.2	36	<LOD	50.7	<LOD	220	74,309	<LOD	<LOD	<LOD	13	8,671	6,907	288	<LOD
14:39:17	5-6	PD <LOD	3	40	<LOD	35.6	<LOD	183	84,560	<LOD	<LOD	<LOD	7	8,687	5,164	263	6.9
14:41:34	6-7	PD <LOD	4.1	76	<LOD	39.8	<LOD	231	96,662	<LOD	<LOD	<LOD	24	12,194	7,878	334	<LOD
14:44:15	7-8	PD <LOD	4.6	106	<LOD	53.9	<LOD	240	87,957	<LOD	<LOD	<LOD	19	12,302	7,992	348	<LOD

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-06

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:29:46	0-1	43.2	<LOD	<LOD	31	8,494	<LOD	<LOD	<LOD	189	927	93.4	108
14:32:21	1-2	57.8	<LOD	<LOD	30.2	7,157	<LOD	<LOD	<LOD	133	784	97.2	108
14:34:43	2-3	PD <LOD	<LOD	<LOD	35.8	9,501	<LOD	<LOD	<LOD	164	1,203	109	99
14:37:02	3-4	PD <LOD	20	<LOD	34.2	9,157	<LOD	<LOD	<LOD	137	1,037	97.6	92
14:39:17	5-6	PD <LOD	<LOD	<LOD	35.4	6,123	<LOD	<LOD	<LOD	141	748	77.7	103
14:41:34	6-7	PD <LOD	22	<LOD	41.6	5,595	<LOD	<LOD	<LOD	164	1,337	314	118
14:44:15	7-8	PD <LOD	27	<LOD	34.7	9,117	<LOD	<LOD	<LOD	155	1,541	135	156

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-07

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:49:53	0-1	38.2	<LOD	37	<LOD	27.4	<LOD	199	56,297	<LOD	<LOD	<LOD	9	7,921	4,516	285	<LOD

Date	Instrument SN	Sample ID
August 6, 2018	512294	TA-SB-07

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
8:55:21	0-1	32.3	3.8	35	<LOD	31.7	<LOD	141	64,393	<LOD	<LOD	<LOD	8.1	7,725	7,380	260	<LOD
8:58:31	1-2	50	<LOD	46	<LOD	13.4	<LOD	114	49,972	<LOD	<LOD	<LOD	11.4	7,906	5,633	160	<LOD
9:01:05	2-3	66.4	<LOD	78	<LOD	41.5	<LOD	114	81,747	<LOD	<LOD	<LOD	13	7,517	5,437	396	<LOD
9:04:04	3-4	40.6	<LOD	185	<LOD	189.4	<LOD	162	45,459	<LOD	<LOD	<LOD	13	9,192	6,971	230	<LOD
9:06:50	8-9	PD 38.3	4.7	1,899	2.7	29.5	<LOD	146	83,866	<LOD	<LOD	<LOD	18.8	16,451	6,829	368	<LOD
9:13:49	9-10	PD 30.3	5.6	1,730	<LOD	50	<LOD	182	108,395	<LOD	251	<LOD	16.2	18,629	7,411	340	<LOD

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-07

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:49:53	0-1	38.2	<LOD	<LOD	33	4,330	<LOD	<LOD	<LOD	107	937	73.5	138

Date	Instrument SN	Sample ID
August 6, 2018	512294	TA-SB-07

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:55:21	0-1	32.3	21	<LOD	33.7	531	<LOD	<LOD	<LOD	112.4	1,091	82.8	128
8:58:31	1-2	50	13	<LOD	26.1	709	<LOD	<LOD	<LOD	159	515	39.6	87.7
9:01:05	2-3	66.4	12	<LOD	23.2	2,635	<LOD	1.2	<LOD	129	836	91.6	95.4
9:04:04	3-4	40.6	18	<LOD	32.2	2,800	<LOD	<LOD	<LOD	109.4	1,106	112.6	104.4
9:06:50	8-9	PD 38.3	20	<LOD	31.4	5,267	<LOD	<LOD	<LOD	125	981	113.6	99
9:13:49	9-10	PD 30.3	30	<LOD	23.6	5,635	<LOD	<LOD	<LOD	117	1,043	105.7	66.2

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-08

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:50:28	0-1	29.5	<LOD	46	<LOD	21.7	<LOD	215	18,076	<LOD	<LOD	<LOD	<LOD	8,675	6,822	329	<LOD
11:57:06	1-2	44.4	<LOD	26	<LOD	9.9	<LOD	158	7,317	<LOD	<LOD	<LOD	<LOD	3,202	5,526	88	<LOD
11:59:51	2-3	56.4	<LOD	22	<LOD	6.8	<LOD	146	1,367	<LOD	<LOD	<LOD	<LOD	2,569	4,117	94	<LOD
12:03:05	3-4	60.4	27.9	78	<LOD	200	<LOD	170	17,940	<LOD	<LOD	<LOD	76	11,429	5,532	209	<LOD
12:05:46	6-7	PD 26.7	18	75	<LOD	581	<LOD	232	22,656	<LOD	434	<LOD	57	85,854	16,235	352	6.1
12:08:06	7-8	PD 54.6	19.3	369	<LOD	41.1	<LOD	254	25,894	<LOD	<LOD	<LOD	13	16,665	7,735	249	<LOD
12:11:59	8-9	PD 44.8	4	31	<LOD	12.1	<LOD	225	21,546	<LOD	<LOD	<LOD	<LOD	10,503	6,585	237	<LOD
12:14:41	9-10	PD 15.7	2.8	19	<LOD	7.9	<LOD	193	3,324	<LOD	<LOD	<LOD	<LOD	10,081	7,534	172	<LOD
12:16:57	10-11	PD 17.9	<LOD	27	<LOD	12.7	<LOD	119	16,887	<LOD	<LOD	<LOD	<LOD	5,866	3,720	101	<LOD
12:19:34	11-12	PD 17.3	1.9	20	<LOD	8.5	<LOD	194	5,446	<LOD	<LOD	<LOD	<LOD	7,773	6,009	129	<LOD
12:25:48	12-13	PD 12.6	<LOD	27	<LOD	7.4	<LOD	183	1,915	<LOD	<LOD	<LOD	<LOD	9,377	5,772	112	<LOD
12:28:15	13-14	PD 18.2	4.1	53	<LOD	12.9	<LOD	320	35,547	<LOD	<LOD	<LOD	8	21,816	12,001	268	<LOD
12:30:38	14-15	PD 19.1	2.8	36	<LOD	9.2	<LOD	190	53,318	<LOD	379	<LOD	<LOD	7,149	6,985	166	<LOD

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-08

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:50:28	0-1	29.5	<LOD	<LOD	48.4	<LOD	<LOD	<LOD	<LOD	106	1,343	52	183
11:57:06	1-2	44.4	<LOD	<LOD	46	<LOD	<LOD	<LOD	<LOD	91.1	257	15.3	168
11:59:51	2-3	56.4	<LOD	<LOD	45.7	<LOD	<LOD	<LOD	<LOD	81.7	307	4	168
12:03:05	3-4	60.4	<LOD	<LOD	37.2	7,262	<LOD	<LOD	64	107	862	288	124
12:05:46	6-7	PD 26.7	<LOD	<LOD	39.8	26,653	<LOD	<LOD	1,329	129	1,328	689	95
12:08:06	7-8	PD 54.6	<LOD	<LOD	51.9	9,327	<LOD	<LOD	<LOD	110	1,523	191	126
12:11:59	8-9	PD 44.8	<LOD	<LOD	49.7	4,863	<LOD	<LOD	<LOD	87.4	1,503	35	160
12:14:41	9-10	PD 15.7	<LOD	<LOD	39.3	2,500	<LOD	<LOD	<LOD	84.7	1,918	20.1	199
12:16:57	10-11	PD 17.9	<LOD	<LOD	20.7	3,757	<LOD	<LOD	<LOD	62.9	646	12.6	52.3
12:19:34	11-12	PD 17.3	<LOD	<LOD	38.9	1,720	<LOD	<LOD	<LOD	83.8	1,401	16.7	173
12:25:48	12-13	PD 12.6	<LOD	<LOD	32.3	<LOD	<LOD	<LOD	<LOD	68.8	1,356	13.7	124
12:28:15	13-14	PD 18.2	<LOD	<LOD	44.9	<LOD	<LOD	<LOD	<LOD	144	1,587	26.5	136
12:30:38	14-15	PD 19.1	12	<LOD	45.2	<LOD	<LOD	<LOD	<LOD	132	978	11.8	167

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-09

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:52:10	0-1	42.8	3.4	50	<LOD	19.5	<LOD	217	11,045	<LOD	<LOD	<LOD	<LOD	8,669	5,590	421	<LOD
14:54:31	1-2	34.1	<LOD	17	<LOD	6.8	<LOD	113	1,324	<LOD	<LOD	<LOD	<LOD	2,455	4,717	95	<LOD
14:56:59	2-3	48.4	<LOD	21	<LOD	7.9	<LOD	156	2,557	<LOD	<LOD	<LOD	<LOD	2,833	4,786	92	<LOD
14:59:33	3-4	51.4	<LOD	19	<LOD	10.2	<LOD	153	1,871	<LOD	<LOD	<LOD	<LOD	3,574	4,527	88	<LOD
15:01:48	4-5	52.2	<LOD	24	<LOD	9.8	<LOD	146	2,451	<LOD	<LOD	<LOD	<LOD	3,167	4,433	80	<LOD
15:04:10	5-6	43.2	<LOD	13	<LOD	8.6	<LOD	160	1,913	<LOD	<LOD	<LOD	<LOD	3,035	6,678	62	<LOD
15:06:41	6-7	PD <LOD	<LOD	21	<LOD	10.3	<LOD	201	3,860	<LOD	<LOD	<LOD	<LOD	3,411	7,342	108	<LOD
15:08:55	7-8	PD <LOD	<LOD	22	<LOD	9.6	<LOD	165	4,935	<LOD	<LOD	<LOD	<LOD	2,995	7,074	122	<LOD
15:14:05	8-9	PD <LOD	<LOD	24	<LOD	10.4	<LOD	191	2,197	<LOD	<LOD	<LOD	<LOD	3,274	6,851	92	<LOD
15:16:29	9-10	PD <LOD	4.6	43	<LOD	18.7	<LOD	231	7,951	<LOD	<LOD	<LOD	11	15,197	10,220	151	<LOD
15:18:56	10-11	DTT	3.6	40	<LOD	9.9	<LOD	233	47,140	<LOD	<LOD	<LOD	7	16,977	10,225	283	<LOD
15:21:18	11-12	DTT	2.9	27	<LOD	9.2	<LOD	211	58,792	<LOD	<LOD	<LOD	9	10,012	8,423	243	<LOD
15:23:45	12-13	PD <LOD	<LOD	28	<LOD	13.2	<LOD	176	4,798	<LOD	<LOD	<LOD	<LOD	5,152	6,215	103	<LOD
15:26:18	13-14	DTT Clay	<LOD	34	<LOD	10.6	<LOD	197	55,430	<LOD	<LOD	<LOD	<LOD	10,807	8,725	226	<LOD
15:28:41	14-15	DTT Clay	2.5	40	<LOD	10.4	<LOD	216	71,012	<LOD	<LOD	<LOD	7	12,251	9,341	266	<LOD
15:30:54	15-16	DTT Clay	2.7	53	<LOD	10.2	<LOD	225	69,895	<LOD	<LOD	<LOD	7	12,130	8,941	268	<LOD

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-09

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:52:10	0-1	42.8	<LOD	<LOD	47.4	<LOD	<LOD	<LOD	<LOD	99.2	1,181	42.3	215
14:54:31	1-2	34.1	<LOD	<LOD	43.9	<LOD	<LOD	<LOD	<LOD	69.5	304	2.9	113
14:56:59	2-3	48.4	<LOD	<LOD	53.8	<LOD	<LOD	<LOD	<LOD	94.4	370	3.6	144
14:59:33	3-4	51.4	<LOD	<LOD	54.3	<LOD	<LOD	<LOD	<LOD	94.8	356	6.2	200
15:01:48	4-5	52.2	<LOD	<LOD	46.7	<LOD	<LOD	<LOD	<LOD	84.6	298	4.1	147
15:04:10	5-6	43.2	<LOD	<LOD	55.5	<LOD	<LOD	<LOD	<LOD	89.3	401	3.8	125
15:06:41	6-7	PD <LOD	<LOD	<LOD	65.1	<LOD	<LOD	<LOD	<LOD	112	359	6.3	166
15:08:55	7-8	PD <LOD	<LOD	<LOD	62	<LOD	<LOD	<LOD	<LOD	108	437	4.1	116
15:14:05	8-9	PD <LOD	<LOD	<LOD	58.3	<LOD	<LOD	<LOD	<LOD	102.1	410	6	112
15:16:29	9-10	PD <LOD	17	<LOD	56.4	2,464	<LOD	<LOD	<LOD	96.6	1,109	37.8	210
15:18:56	10-11	DTT	<LOD	<LOD	42.5	<LOD	<LOD	<LOD	<LOD	114	1,405	27.6	170
15:21:18	11-12	DTT	<LOD	<LOD	48.3	<LOD	<LOD	<LOD	<LOD	130	1,447	20.8	198
15:23:45	12-13	PD <LOD	<LOD	<LOD	60.3	<LOD	<LOD	<LOD	<LOD	120	843	12.9	180
15:26:18	13-14	DTT Clay	<LOD	<LOD	48.3	<LOD	<LOD	<LOD	<LOD	138	1,284	25.8	208
15:28:41	14-15	DTT Clay	14	<LOD	46.7	<LOD	<LOD	<LOD	<LOD	157	1,337	23.2	147
15:30:54	15-16	DTT Clay	18	<LOD	45.8	<LOD	<LOD	<LOD	<LOD	155	1,277	26.9	148

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-10

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:40:27	0-1	41.5	1.9	22	<LOD	8.6	<LOD	155	35,016	<LOD	<LOD	<LOD	10	7,541	5,390	227	<LOD
11:43:08	1-2	PD 10.1	<LOD	45	<LOD	66.9	<LOD	248	5,348	<LOD	324	<LOD	10	9,545	7,460	215	<LOD
11:45:24	2-3	PD 19.3	<LOD	33	<LOD	17.4	<LOD	220	3,612	<LOD	<LOD	<LOD	<LOD	6,308	6,597	162	<LOD
11:50:35	4-5	PD 7.1	2.9	19	<LOD	7.8	<LOD	184	14,965	<LOD	249	<LOD	6	7,104	6,158	159	<LOD
11:54:14	5-6	PD 9.3	<LOD	16	<LOD	4.9	<LOD	103	994	<LOD	394	<LOD	<LOD	3,064	3,472	82	<LOD
11:56:51	6-7	PD 15.7	<LOD	25	<LOD	6.2	<LOD	163	6,784	<LOD	174	<LOD	<LOD	8,795	3,261	115	<LOD
11:59:43	7-8	PD 6.3	2.2	21	<LOD	6.3	<LOD	128	30,809	<LOD	<LOD	<LOD	<LOD	6,262	3,487	121	<LOD

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-10

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:40:27	0-1	41.5	13	<LOD	28.9	2,155	<LOD	<LOD	<LOD	88.1	754	18	184
11:43:08	1-2	PD 10.1	<LOD	<LOD	51.6	2,050	<LOD	<LOD	<LOD	116	2,265	57.4	320
11:45:24	2-3	PD 19.3	<LOD	<LOD	50.6	<LOD	<LOD	<LOD	<LOD	91.4	1,487	17.9	255
11:50:35	4-5	PD 7.1	<LOD	<LOD	35.1	11,185	<LOD	1.2	<LOD	66	1,284	10.4	131
11:54:14	5-6	PD 9.3	<LOD	<LOD	27.6	<LOD	<LOD	<LOD	<LOD	55.3	744	<LOD	75.7
11:56:51	6-7	PD 15.7	<LOD	<LOD	29.2	<LOD	<LOD	<LOD	<LOD	59	1,120	5.7	116
11:59:43	7-8	PD 6.3	<LOD	<LOD	33.4	<LOD	<LOD	<LOD	<LOD	101	438	11	74.1

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-11

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
14:43:26	0-1	PD <LOD	3.1	49	<LOD	18.9	<LOD	187	29,791	<LOD	512	<LOD	<LOD	9,694	3,126	295
14:46:06	1-2	PD <LOD	3.9	78	<LOD	28.8	<LOD	271	13,951	<LOD	2,402	<LOD	7	13,986	8,666	235
14:48:24	2-3	PD 10.3	<LOD	49	<LOD	13.2	<LOD	340	23,312	<LOD	2,720	<LOD	<LOD	18,239	9,269	325
14:57:48	5-6	PD <LOD	<LOD	20	<LOD	6.8	<LOD	101	20,345	<LOD	<LOD	<LOD	<LOD	2,886	1,776	83
15:02:12	6-7	PD <LOD	2	19	<LOD	10.7	<LOD	147	87,202	<LOD	243	<LOD	9	8,441	5,516	398
15:05:14	7-8	PD <LOD	8.6	26	<LOD	8.5	<LOD	186	93,147	<LOD	356	<LOD	18	34,954	10,993	1,410

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-11

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:43:26	0-1	PD <LOD	<LOD	<LOD	<LOD	31.2	2,634	<LOD	<LOD	<LOD	97	558	27.3	88
14:46:06	1-2	PD <LOD	<LOD	<LOD	<LOD	49.9	<LOD	<LOD	<LOD	<LOD	128	2,066	53.8	241
14:48:24	2-3	PD 10.3	<LOD	<LOD	<LOD	47.5	<LOD	<LOD	<LOD	<LOD	96	1,825	28	253
14:57:48	5-6	PD <LOD	<LOD	<LOD	<LOD	22	<LOD	<LOD	<LOD	<LOD	55.5	231	<LOD	55.4
15:02:12	6-7	PD <LOD	<LOD	12	<LOD	27.4	<LOD	<LOD	<LOD	<LOD	85.5	718	25.9	88
15:05:14	7-8	PD <LOD	<LOD	22	<LOD	26.7	<LOD	<LOD	<LOD	<LOD	93	682	41.6	49.2

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-12

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
15:56:35	0-1	PD 34.6	25.3	1,151	<LOD	198	<LOD	320	14,785	<LOD	<LOD	<LOD	38	10,979	3,405	184
15:59:49	1-2	PD 64.3	2.5	21	<LOD	5.9	<LOD	146	30,347	<LOD	<LOD	<LOD	<LOD	7,852	3,438	259
16:02:05	4-5	DTT Clay	2.1	41	<LOD	9.8	<LOD	234	67,604	<LOD	411	<LOD	8	14,145	11,042	337
16:05:30	5-6	DTT Clay	<LOD	41	<LOD	10.5	<LOD	238	73,347	<LOD	438	<LOD	9	12,081	11,576	295
16:11:07	6-7	DTT Clay	<LOD	43	<LOD	12.3	<LOD	225	69,890	<LOD	311	<LOD	6	11,664	10,419	260
16:13:35	7-8	DTT Clay	2.3	43	<LOD	10.7	<LOD	250	71,893	<LOD	<LOD	<LOD	9	11,808	10,286	293

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-12

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:56:35	0-1	PD 34.6	<LOD	<LOD	<LOD	37.1	4,335	<LOD	<LOD	<LOD	146	1,822	295	169
15:59:49	1-2	PD 64.3	<LOD	<LOD	<LOD	27.3	<LOD	<LOD	<LOD	<LOD	73.3	883	12.3	99
16:02:05	4-5	DTT Clay	<LOD	19	<LOD	55	<LOD	<LOD	<LOD	<LOD	120	1,706	25.6	201
16:05:30	5-6	DTT Clay	<LOD	<LOD	<LOD	54.5	<LOD	<LOD	<LOD	<LOD	132	1,696	24.5	207
16:11:07	6-7	DTT Clay	<LOD	21	<LOD	57.1	<LOD	<LOD	<LOD	<LOD	139	1,579	24.6	197
16:13:35	7-8	DTT Clay	<LOD	23	<LOD	58.1	<LOD	<LOD	<LOD	<LOD	138	1,603	23.9	208

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-13

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
14:08:49	0-1	35.1	<LOD	22	<LOD	16.8	<LOD	86	13,323	<LOD	<LOD	<LOD	<LOD	3,846	2,219	128
14:11:02	1-2	48.9	<LOD	32	<LOD	14.5	<LOD	178	2,366	<LOD	<LOD	<LOD	<LOD	7,661	4,267	286
14:13:15	2-3	26.9	<LOD	18	<LOD	5.4	<LOD	79	<LOD	<LOD	<LOD	<LOD	<LOD	2,066	1,620	44
14:15:34	5-6	41.8	<LOD	32	<LOD	10.3	<LOD	147	10,432	<LOD	<LOD	<LOD	<LOD	6,476	3,251	130
14:17:47	6-7	PD 7.4	8.6	66	<LOD	13.3	<LOD	342	92,620	<LOD	319	<LOD	22	32,668	13,658	955
14:24:22	7-8	PD 33.9	6.2	31	<LOD	8.9	<LOD	141	68,927	<LOD	<LOD	<LOD	9	14,155	6,220	340

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-13

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:08:49	0-1	35.1	<LOD	<LOD	<LOD	28.4	<LOD	<LOD	<LOD	<LOD	102.3	383	21.7	108
14:11:02	1-2	48.9	<LOD	<LOD	<LOD	37	<LOD	<LOD	<LOD	<LOD	80.9	1,634	29.5	195
14:13:15	2-3	26.9	<LOD	<LOD	<LOD	25.2	<LOD	<LOD	<LOD	<LOD	45.1	217	<LOD	53.5
14:15:34	5-6	41.8	<LOD	<LOD	<LOD	27.4	<LOD	<LOD	<LOD	<LOD	56.1	562	17.4	68.5
14:17:47	6-7	PD 7.4	<LOD	25	<LOD	36.1	<LOD	<LOD	1.3	<LOD	275	2,420	72.7	106
14:24:22	7-8	PD 33.9	<LOD	<LOD	<LOD	31.6	<LOD	<LOD	<LOD	<LOD	118	730	28.5	73

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-14

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
13:28:11	0-1	68.3	2.2	65	<LOD	11.9	<LOD	158	86,384	<LOD	801	<LOD	9	12,950	4,954	262	<LOD
13:37:01	1-2	PD <LOD	<LOD	38	<LOD	13.3	<LOD	277	3,860	<LOD	<LOD	<LOD	<LOD	12,008	8,080	1,124	<LOD
13:39:20	4-5	DTT Clay	<LOD	57	<LOD	13.3	<LOD	315	35,875	<LOD	246	<LOD	12	17,704	13,122	226	<LOD
13:41:41	5-6	PD <LOD	<LOD	39	<LOD	10.5	<LOD	258	23,199	<LOD	560	<LOD	8	10,101	9,595	218	<LOD
13:44:08	6-7	PD <LOD	<LOD	29	<LOD	10.6	<LOD	211	51,655	<LOD	520	<LOD	<LOD	7,189	6,567	259	<LOD
13:46:36	7-8	DTT Clay	<LOD	25	<LOD	9.8	<LOD	214	78,042	<LOD	<LOD	<LOD	<LOD	9,212	7,415	259	<LOD

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-14

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
13:28:11	0-1	68.3	<LOD	<LOD	31.9	5,948	<LOD	<LOD	<LOD	148	842	75.5	94
13:37:01	1-2	PD <LOD	<LOD	<LOD	50.1	<LOD	<LOD	<LOD	<LOD	120	1,849	41.8	273
13:39:20	4-5	DTT Clay	18	<LOD	72.4	<LOD	<LOD	<LOD	<LOD	88.6	2,145	34.2	178
13:41:41	5-6	PD <LOD	<LOD	<LOD	60	<LOD	<LOD	<LOD	<LOD	148	1,605	22.8	346
13:44:08	6-7	PD <LOD	<LOD	<LOD	50.5	<LOD	<LOD	<LOD	<LOD	142	1,273	17.4	279
13:46:36	7-8	DTT Clay	<LOD	<LOD	40.4	<LOD	<LOD	<LOD	<LOD	126	1,471	24.1	281

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-15

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
14:29:19	0-1	61.9	5	77	<LOD	37.7	<LOD	214	5,283	<LOD	<LOD	<LOD	<LOD	10,173	5,223	406	<LOD	<LOD
14:31:33	1-2	47.6	<LOD	27	<LOD	6.9	<LOD	154	1,286	<LOD	<LOD	<LOD	<LOD	6,154	3,193	99	<LOD	<LOD
14:33:47	2-3	32.1	<LOD	24	<LOD	8.5	<LOD	126	705	<LOD	<LOD	<LOD	<LOD	2,814	3,356	60	<LOD	<LOD
14:38:26	6-7	47.2	2.4	31	<LOD	6	<LOD	163	26,101	<LOD	<LOD	<LOD	<LOD	5,107	4,365	93	<LOD	<LOD
14:40:45	7-8	PD 23.1	5.2	27	<LOD	10.7	<LOD	183	98,911	<LOD	<LOD	<LOD	13	17,221	8,189	379	<LOD	<LOD

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-15

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:29:19	0-1	61.9	<LOD	38.7	<LOD	<LOD	<LOD	<LOD	76.6	1,447	57	173
14:31:33	1-2	47.6	<LOD	31.9	<LOD	<LOD	<LOD	<LOD	60.2	797	13.7	153
14:33:47	2-3	32.1	<LOD	36.7	<LOD	<LOD	<LOD	<LOD	58.6	663	4.5	72.3
14:38:26	6-7	47.2	<LOD	38.3	<LOD	<LOD	<LOD	<LOD	102.4	490	9.7	80.2
14:40:45	7-8	PD 23.1	<LOD	37.5	<LOD	<LOD	<LOD	<LOD	205	748	30.3	68

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-16

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:03:37	0-1	29	8.4	31	<LOD	11.7	<LOD	218	3,295	<LOD	<LOD	<LOD	<LOD	10,959	6,900	673	<LOD
16:08:50	1-2	34.3	<LOD	23	<LOD	9.4	<LOD	153	450	<LOD	<LOD	<LOD	<LOD	3,299	4,331	117	<LOD
16:11:47	2-3	55.3	3.7	38	<LOD	10.5	<LOD	165	27,683	<LOD	<LOD	<LOD	<LOD	10,444	4,126	307	<LOD
16:14:30	6-7	PD 12.3	2.9	50	<LOD	16.5	<LOD	249	29,144	<LOD	<LOD	<LOD	8	14,567	8,908	324	<LOD
16:16:55	7-8	PD 20.3	3.2	64	<LOD	27.4	<LOD	225	25,576	<LOD	<LOD	<LOD	12	13,865	7,701	262	<LOD

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-16

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:03:37	0-1	29	<LOD	<LOD	47.8	<LOD	<LOD	<LOD	<LOD	90.4	1,142	27.8	173
16:08:50	1-2	34.3	13	<LOD	49.8	<LOD	<LOD	<LOD	<LOD	69.8	390	8.6	118
16:11:47	2-3	55.3	<LOD	<LOD	29.3	<LOD	<LOD	<LOD	<LOD	110	915	26.2	66.8
16:14:30	6-7	PD 12.3	14	<LOD	48.3	<LOD	<LOD	<LOD	<LOD	105	1,476	39.5	159
16:16:55	7-8	PD 20.3	<LOD	<LOD	37.8	<LOD	<LOD	<LOD	<LOD	108	1,600	52	144

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-17

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
16:45:50	0-1	10.1	16.1	55	<LOD	17.7	<LOD	301	5,562	<LOD	<LOD	<LOD	<LOD	21,626	9,923	1,463
16:48:50	1-2	53.5	<LOD	81	<LOD	31.7	<LOD	210	13,750	<LOD	<LOD	<LOD	14	7,564	5,418	204
16:59:16	2-3	26.8	4	70	<LOD	14.1	<LOD	271	30,403	<LOD	<LOD	<LOD	17	14,212	9,816	253
17:21:31	7.5-8	PD 37.9	2.8	59	<LOD	14.9	<LOD	209	8,937	<LOD	<LOD	<LOD	9	9,470	5,306	213
17:24:09	8-9	PD 29.4	<LOD	43	<LOD	10.3	<LOD	215	59,663	<LOD	<LOD	<LOD	7	11,713	10,178	268
17:26:36	9-10	PD 63.1	<LOD	48	<LOD	9.4	<LOD	163	38,948	<LOD	<LOD	<LOD	<LOD	5,793	7,232	152
17:34:45	10-11	PD 30.1	<LOD	24	<LOD	5.8	<LOD	173	36,596	<LOD	<LOD	<LOD	<LOD	5,782	6,947	164
17:37:16	11-12	PD 54.9	2.2	30	<LOD	7.1	<LOD	179	46,457	<LOD	<LOD	<LOD	<LOD	5,470	6,611	142

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-17

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:45:50	0-1	10.1	<LOD	<LOD	<LOD	59.5	<LOD	<LOD	<LOD	<LOD	91	1,928	52.1	337
16:48:50	1-2	53.5	<LOD	<LOD	<LOD	41.4	<LOD	<LOD	<LOD	<LOD	87.6	929	37.5	138
16:59:16	2-3	26.8	<LOD	<LOD	<LOD	57.6	<LOD	<LOD	<LOD	<LOD	116	1,835	35.5	226
17:21:31	7.5-8	PD 37.9	<LOD	<LOD	<LOD	46.7	<LOD	<LOD	<LOD	<LOD	107	1,014	22.4	134
17:24:09	8-9	PD 29.4	<LOD	<LOD	<LOD	57	<LOD	<LOD	<LOD	<LOD	138	1,472	31.2	206
17:26:36	9-10	PD 63.1	<LOD	<LOD	<LOD	51.6	<LOD	<LOD	<LOD	<LOD	144	957	15.2	221
17:34:45	10-11	PD 30.1	<LOD	<LOD	<LOD	42.3	<LOD	<LOD	<LOD	<LOD	115	1,069	11.6	194
17:37:16	11-12	PD 54.9	<LOD	<LOD	<LOD	46.1	<LOD	<LOD	<LOD	<LOD	130	819	12.9	184

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-18

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
15:58:59	0-1	27.6	<LOD	31	<LOD	9.5	<LOD	205	2,180	<LOD	<LOD	<LOD	<LOD	7,218	6,582	197	<LOD	<LOD
16:01:16	1-2	30.7	<LOD	20	<LOD	6.1	<LOD	117	505	<LOD	<LOD	<LOD	<LOD	2,242	3,086	87	<LOD	<LOD

Note: Hand auger on July 13, 2018

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-18

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
15:46:14	0-1	24.2	<LOD	27	<LOD	11.5	<LOD	205	2,266	<LOD	<LOD	<LOD	<LOD	7,583	6,262	303	<LOD	<LOD
15:49:38	1-2	68	<LOD	23	<LOD	7	<LOD	144	6,993	<LOD	<LOD	<LOD	<LOD	2,702	3,824	94	<LOD	<LOD
15:52:44	2-3	31.8	<LOD	38	<LOD	13.3	<LOD	264	15,538	<LOD	<LOD	<LOD	7	7,603	5,161	192	<LOD	<LOD
15:55:34	5-6	45.1	<LOD	21	<LOD	6.9	<LOD	153	8,216	<LOD	<LOD	<LOD	<LOD	4,927	3,662	127	<LOD	<LOD
15:57:56	6-7	36.6	<LOD	37	<LOD	8.7	<LOD	185	16,665	<LOD	224	<LOD	<LOD	6,491	5,817	334	<LOD	12
16:00:42	7-8	PD 54.6	<LOD	25	<LOD	15.8	<LOD	213	6,554	<LOD	<LOD	<LOD	8	15,549	7,782	273	<LOD	<LOD
16:03:21	8-9	63.9	3	43	<LOD	9	<LOD	253	41,332	<LOD	<LOD	<LOD	15	13,337	10,684	267	<LOD	19
16:09:23	9-10	46.1	<LOD	39	<LOD	10.4	<LOD	260	53,375	<LOD	<LOD	<LOD	9	12,647	11,393	282	<LOD	17

Note: Geoprobe on July 18, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-18

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:58:59	0-1	27.6	<LOD	44.7	<LOD	<LOD	<LOD	<LOD	69.9	1,076	16	145
16:01:16	1-2	30.7	<LOD	38	<LOD	<LOD	<LOD	<LOD	70.4	332	7.1	139

Note: Hand auger on July 13, 2018

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-18

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:46:14	0-1	24.2	<LOD	46.2	<LOD	<LOD	<LOD	<LOD	84.9	997	19.2	164
15:49:38	1-2	68	<LOD	41.9	<LOD	<LOD	<LOD	<LOD	77.5	185	8.5	137
15:52:44	2-3	31.8	<LOD	44.2	<LOD	<LOD	<LOD	<LOD	124	1,132	17	106
15:55:34	5-6	45.1	<LOD	30.1	<LOD	<LOD	<LOD	<LOD	72.3	530	7	73.3
15:57:56	6-7	36.6	<LOD	32.3	<LOD	<LOD	<LOD	<LOD	88.8	1,008	13.1	77.5
16:00:42	7-8	PD 54.6	<LOD	57.8	<LOD	<LOD	<LOD	<LOD	131	1,350	87.1	210
16:03:21	8-9	63.9	<LOD	61.6	<LOD	<LOD	<LOD	<LOD	111	1,829	25.2	215
16:09:23	9-10	46.1	<LOD	59	<LOD	<LOD	<LOD	<LOD	119	1,941	26.1	209

Note: Geoprobe on July 18, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-19

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
15:27:42	0-1	30.8	2.7	<LOD	<LOD	10.5	<LOD	255		<LOD		<LOD	<LOD	8,061		308	<LOD
15:30:09	1-2	32.1	<LOD	11	<LOD	8.8	<LOD	138	1,965	<LOD	<LOD	<LOD	<LOD	3,068	4,682	94	<LOD
15:32:40	2-3	PD 31.3	2.1	31	<LOD	7.8	<LOD	211	16,433	<LOD	1,267	<LOD	<LOD	12,692	7,139	155	<LOD
15:35:02	3-4	PD 36.9	<LOD	21	<LOD	9.8	<LOD	154	3,306	<LOD	<LOD	<LOD	<LOD	4,937	4,427	119	<LOD
15:37:33	5-6	PD 66.4	2	49	<LOD	15.3	<LOD	180	12,603	<LOD	290	<LOD	25	11,127	5,124	410	<LOD
15:43:18	6-7	PD 37.2	3.7	58	<LOD	14.6	<LOD	191	4,430	<LOD	<LOD	<LOD	23	10,224	5,968	265	<LOD
15:45:51	7-8	PD 18.7	2.4	22	<LOD	7.9	<LOD	131	56,014	<LOD	<LOD	<LOD	<LOD	7,168	4,676	222	<LOD
15:48:18	8-9	DTT Clay	<LOD	36	<LOD	9.5	<LOD	228	63,969	<LOD	<LOD	<LOD	7	10,241	9,449	294	<LOD
15:50:54	9-10	DTT Clay	<LOD	46	<LOD	13.3	<LOD	255	58,854	<LOD	<LOD	<LOD	13	20,335	11,671	313	<LOD
15:53:24	10-11	DTT Clay	<LOD	60	<LOD	9.3	<LOD	218	66,411	<LOD	386	<LOD	7	10,882	10,552	256	<LOD
15:55:49	11-12	DTT Clay	<LOD	58	<LOD	11.1	<LOD	245	67,625	<LOD	<LOD	<LOD	8	11,453	10,361	283	<LOD

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-19

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:27:42	0-1	30.8	<LOD		47.8		<LOD	<LOD	<LOD	78.7	1,432	21.5	185
15:30:09	1-2	32.1	<LOD	<LOD	41	<LOD	<LOD	<LOD	<LOD	68.2	368	7.8	124
15:32:40	2-3	PD 31.3	<LOD	<LOD	41.6	<LOD	<LOD	<LOD	<LOD	99	1,062	18.1	123
15:35:02	3-4	PD 36.9	<LOD	<LOD	43	1,952	<LOD	<LOD	<LOD	78.2	575	20.9	121
15:37:33	5-6	PD 66.4	<LOD	<LOD	41.7	<LOD	<LOD	<LOD	<LOD	106	987	32.6	171
15:43:18	6-7	PD 37.2	<LOD	<LOD	44.9	<LOD	<LOD	<LOD	<LOD	96.7	1,391	27.6	246
15:45:51	7-8	PD 18.7	<LOD	<LOD	43	5,817	<LOD	<LOD	<LOD	105	562	19.1	115
15:48:18	8-9	DTT Clay	23	<LOD	51.6	<LOD	<LOD	<LOD	<LOD	131	1,513	24.2	192
15:50:54	9-10	DTT Clay	28	<LOD	58.8	<LOD	<LOD	<LOD	<LOD	130	1,540	33.2	194
15:53:24	10-11	DTT Clay	<LOD	<LOD	53.3	<LOD	<LOD	<LOD	<LOD	131	1,497	24.3	202
15:55:49	11-12	DTT Clay	22	<LOD	56.4	4,343	<LOD	<LOD	<LOD	141	1,398	29.6	205

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-20

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
8:52:47	0-1	26.5	11.6	56	<LOD	17.6	<LOD	318	11,716	<LOD	<LOD	<LOD	12	25,745	10,642	2,216	<LOD
8:55:25	1-2	34.9	12.6	114	<LOD	66	<LOD	217	39,057	<LOD	<LOD	<LOD	21	14,130	7,057	332	<LOD
9:01:08	2-2.8	PD 14.8	17.8	432	3.2	198	<LOD	301	30,969	<LOD	<LOD	<LOD	122	17,612	8,792	292	<LOD
9:03:40	5-6	72.9	13.1	3295	<LOD	150.9	<LOD	146	13,138	14	168	<LOD	143	10,208	1,765	464	6.8
9:06:05	6-7	PD 19.1	14.1	624	<LOD	62.1	<LOD	302	5,464	<LOD	278	74	90	27,695	9,285	214	<LOD
9:08:47	7-8	PD <LOD	6	93	<LOD	19.3	<LOD	384	5,069	<LOD	<LOD	<LOD	9	24,910	11,844	257	<LOD

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-20

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:52:47	0-1	26.5	<LOD	<LOD	60.2	<LOD	<LOD	<LOD	<LOD	96	1,907	56	273
8:55:25	1-2	34.9	<LOD	<LOD	37.9	<LOD	<LOD	<LOD	<LOD	109	1,237	97.6	105
9:01:08	2-2.8	PD 14.8	<LOD	<LOD	41.2	2,401	<LOD	<LOD	31	181	1,630	355	137
9:03:40	5-6	72.9	<LOD	<LOD	18.8	3,402	<LOD	<LOD	<LOD	63.4	267	842	47.4
9:06:05	6-7	PD 19.1	<LOD	<LOD	44	5,821	<LOD	<LOD	<LOD	102	2,037	1,791	162
9:08:47	7-8	PD <LOD	15	<LOD	45.2	<LOD	<LOD	<LOD	<LOD	134	2,262	79.3	178

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-21

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:11:48	0-1	26.2	6.6	44	<LOD	35.3	<LOD	203	42,745	<LOD	<LOD	<LOD	<LOD	11,283	6,687	579	<LOD
9:14:35	1-2	32.5	<LOD	44	<LOD	10.2	<LOD	136	15,179	<LOD	<LOD	<LOD	<LOD	4,579	4,748	162	<LOD
9:17:33	2-3	50.9	<LOD	24	<LOD	7.8	<LOD	153	31,807	<LOD	<LOD	<LOD	<LOD	5,460	4,994	167	<LOD
9:20:03	6-7	31.6	2.3	23	<LOD	6.6	<LOD	115	19,499	<LOD	<LOD	<LOD	<LOD	3,763	3,152	122	<LOD
9:22:33	7-8	64.2	<LOD	22	<LOD	8.7	<LOD	165	29,848	<LOD	<LOD	<LOD	<LOD	5,483	5,448	137	<LOD

Note: Geoprobe (54DT) on July 11, 2018

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-21

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:04:37	6-7	PD <LOD	2.8	33	<LOD	9.2	<LOD	189	61,373	<LOD	<LOD	<LOD	<LOD	8,697	7,624	261	<LOD
16:10:10	7-8	PD <LOD	2	34	<LOD	10.1	<LOD	208	49,140	<LOD	<LOD	<LOD	<LOD	6,650	7,385	202	<LOD
16:12:27	8-9	PD <LOD	<LOD	39	<LOD	10.3	<LOD	174	23,495	<LOD	<LOD	<LOD	<LOD	8,149	7,725	193	<LOD
16:14:46	9-10	PD <LOD	4.3	34	<LOD	6.6	<LOD	234	2,379	<LOD	<LOD	<LOD	<LOD	12,683	8,209	118	<LOD
16:17:08	10-11	PD 27.3	3.1	58	<LOD	14	<LOD	294	2,872	<LOD	<LOD	<LOD	10	17,234	11,391	170	<LOD
16:19:34	11-12	PD 9.6	<LOD	42	<LOD	9.3	<LOD	213	2,265	<LOD	<LOD	<LOD	<LOD	8,926	7,338	128	<LOD
16:21:55	12-13	PD 9.3	<LOD	31	<LOD	6.6	<LOD	154	13,552	<LOD	<LOD	<LOD	<LOD	4,219	5,659	139	<LOD
16:24:15	13-14	PD <LOD	<LOD	27	<LOD	9.8	<LOD	176	39,736	<LOD	<LOD	<LOD	<LOD	4,830	6,552	167	<LOD
16:26:49	14-15	PD <LOD	2.9	25	<LOD	13.3	<LOD	223	49,393	<LOD	<LOD	<LOD	12	22,860	9,482	312	<LOD

Note: Geoprobe on July 26, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-21

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:11:48	0-1	26.2	<LOD	<LOD	39.8	3,284	<LOD	<LOD	<LOD	116	1,125	70.3	111
9:14:35	1-2	32.5	<LOD	<LOD	40.1	<LOD	<LOD	<LOD	<LOD	94.8	598	58.9	172
9:17:33	2-3	50.9	<LOD	<LOD	37.6	<LOD	<LOD	<LOD	<LOD	91.5	648	14.1	220
9:20:03	6-7	31.6	<LOD	<LOD	32	<LOD	<LOD	<LOD	<LOD	88.8	514	10.5	120
9:22:33	7-8	64.2	<LOD	<LOD	45.4	<LOD	<LOD	<LOD	<LOD	113	546	12.8	189

Note: Geoprobe (54DT) on July 11, 2018

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-21

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:04:37	6-7	PD <LOD	17	<LOD	44.8	<LOD	<LOD	<LOD	<LOD	118	1,122	16.6	186
16:10:10	7-8	PD <LOD	15	<LOD	46	<LOD	<LOD	<LOD	<LOD	110	1,019	14.9	251
16:12:27	8-9	PD <LOD	14	<LOD	44.2	<LOD	<LOD	<LOD	<LOD	81.7	1,317	16.1	124
16:14:46	9-10	PD <LOD	17	<LOD	32.1	<LOD	<LOD	<LOD	<LOD	78.4	1,143	15.3	75.5
16:17:08	10-11	PD 27.3	<LOD	<LOD	71.6	<LOD	<LOD	<LOD	<LOD	122	1,930	28.5	257
16:19:34	11-12	PD 9.6	<LOD	<LOD	49.4	<LOD	<LOD	<LOD	<LOD	104	878	10.6	153
16:21:55	12-13	PD 9.3	<LOD	<LOD	38.3	<LOD	<LOD	<LOD	<LOD	123	810	6.2	127
16:24:15	13-14	PD <LOD	<LOD	<LOD	43.5	<LOD	<LOD	<LOD	<LOD	145	786	7.8	173
16:26:49	14-15	PD <LOD	14	<LOD	40.9	<LOD	<LOD	<LOD	<LOD	157	2,177	31.1	243

Note: Geoprobe on July 26, 2018

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-22

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
16:34:08	0-1	29.9	1.9	29	<LOD	8.9	<LOD	188	2,430	<LOD	<LOD	<LOD	<LOD	6,872	5,719	322
16:40:06	1-2	36.3	2.2	122	<LOD	5.1	<LOD	139	121,633	<LOD	564	<LOD	<LOD	8,489	3,240	241
16:42:58	2-3	41.8	<LOD	28	<LOD	9.7	<LOD	176	18,462	<LOD	<LOD	<LOD	<LOD	6,677	6,215	141
16:45:20	3-4	32.8	<LOD	13	<LOD	5.5	<LOD	122	2,164	<LOD	<LOD	<LOD	<LOD	2,868	3,039	90
16:47:44	6-7	37.2	<LOD	28	<LOD	5.3	<LOD	121	10,230	<LOD	<LOD	<LOD	<LOD	4,614	3,194	114
16:49:59	7-8	59.7	3.6	65	<LOD	18	<LOD	189	17,046	<LOD	<LOD	<LOD	<LOD	8,405	4,415	192
16:52:21	8-9	PD <LOD	4.1	110	5.2	23.6	<LOD	257	8,237	<LOD	<LOD	<LOD	20	12,610	5,725	251
16:54:53	9-10	PD <LOD	<LOD	17	<LOD	8.2	<LOD	129	9,442	<LOD	<LOD	<LOD	<LOD	3,646	2,949	95
16:57:09	10-11	PD <LOD	<LOD	33	<LOD	7.1	<LOD	133	16,088	<LOD	<LOD	<LOD	<LOD	4,782	3,674	114
16:59:24	11-12	17.8	<LOD	23	<LOD	9.2	<LOD	150	14,111	<LOD	<LOD	<LOD	<LOD	4,630	4,336	107
17:04:37	12-13	PD <LOD	9.1	27	<LOD	10.1	<LOD	225	10,644	<LOD	<LOD	<LOD	<LOD	20,376	9,560	192
17:07:08	13-14	PD <LOD	18	56	<LOD	8.7	<LOD	214	102,814	<LOD	982	<LOD	<LOD	48,313	14,438	453
17:13:52	14-15	PD <LOD	<LOD	29	<LOD	11.1	<LOD	166	40,029	<LOD	202	<LOD	<LOD	4,146	5,683	140

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-22

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:34:08	0-1	29.9	<LOD	<LOD	<LOD	45.3	<LOD	<LOD	<LOD	<LOD	78.1	985	13.8	181
16:40:06	1-2	36.3	<LOD	<LOD	<LOD	25.4	5,116	<LOD	<LOD	<LOD	110	560	21.3	64.2
16:42:58	2-3	41.8	<LOD	<LOD	<LOD	49.9	<LOD	<LOD	<LOD	<LOD	99	807	14.5	154
16:45:20	3-4	32.8	<LOD	<LOD	<LOD	34.4	<LOD	<LOD	<LOD	<LOD	88.8	400	3.7	107
16:47:44	6-7	37.2	<LOD	<LOD	<LOD	33.1	<LOD	<LOD	<LOD	<LOD	74.2	543	9.9	112
16:49:59	7-8	59.7	<LOD	<LOD	<LOD	41.3	<LOD	<LOD	<LOD	<LOD	93	815	27.5	143
16:52:21	8-9	PD <LOD	3.6	<LOD	<LOD	40.7	2,382	<LOD	<LOD	<LOD	124	1,658	46.5	175
16:54:53	9-10	PD <LOD	<LOD	<LOD	<LOD	37	<LOD	<LOD	<LOD	<LOD	81.3	343	6.4	85.3
16:57:09	10-11	PD <LOD	<LOD	<LOD	<LOD	31.9	<LOD	<LOD	<LOD	<LOD	86.2	679	7.1	106
16:59:24	11-12	17.8	<LOD	<LOD	<LOD	37	3,647	<LOD	<LOD	<LOD	82.3	712	8.7	93
17:04:37	12-13	PD <LOD	<LOD	<LOD	<LOD	44.1	4,688	<LOD	<LOD	<LOD	101	1,352	16.7	142
17:07:08	13-14	PD <LOD	<LOD	<LOD	<LOD	33.3	10,187	<LOD	<LOD	<LOD	115	1,342	19.5	175
17:13:52	14-15	PD <LOD	<LOD	<LOD	<LOD	51.3	<LOD	<LOD	<LOD	<LOD	144	534	6.5	193

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-23

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl
11:03:31	0-1	23.9	2.2	26	<LOD	8	<LOD	167	1,229	<LOD	<LOD
11:05:51	1-2	27.5	<LOD	26	<LOD	9.7	<LOD	145	1,673	<LOD	<LOD

Date	Instrument SN	Sample ID
August 7, 2018	512294	TA-SB-23

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl
9:15:52	0-1	23.9	4.6	37.9	<LOD	10.5	<LOD	129	2,279	<LOD	<LOD
9:18:10	1-1.5	30.1	<LOD	25.1	<LOD	6.6	<LOD	96	2,046	<LOD	<LOD
9:20:24	3-3,5	43.8	5.3	3,744	<LOD	11.3	<LOD	132	46,652	<LOD	135
9:25:39	5-6	63.9	17.6	10,017	<LOD	18.2	<LOD	290	52,250	<LOD	192
9:28:07	6-7	PD 19.7	31.8	91,337	7.9	61.8	<LOD	1,034	5,972	<LOD	<LOD
9:31:30	7-8	PD 28.6	39.2	76,951	9.2	23	<LOD	1,018	12,262	<LOD	<LOD
9:33:49	8-9	89.4	44.1	90,309	<LOD	46.4	<LOD	804	2,965	<LOD	<LOD
9:36:10	9-10	PD 43.0	71.9	102,630	<LOD	41.2	<LOD	1,026	8,568	<LOD	<LOD
9:38:37	10-11	PD 16.5	3.1	44,008	<LOD	8.1	<LOD	476	4,549	<LOD	<LOD
9:41:06	12-13	PD 37.4	2.8	5,049	<LOD	12.3	<LOD	187	66,734	<LOD	148
9:43:46	14-15	PD 12.1	<LOD	36,135	<LOD	8.8	<LOD	302	5,483	<LOD	<LOD
9:46:31	15-16	PD 37.1	<LOD	2,885	2.1	8.1	<LOD	141	17,537	<LOD	<LOD
9:53:35	16-17	PD <LOD	<LOD	587	<LOD	8.6	<LOD	126	63,654	<LOD	<LOD

Note: Geoprobe on August 6, 2018

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-23

Time	Depth Interval	Moisture	Co	Cu	Fe	K	Mn	Mo	Ni	P	Rb	S
11:03:31	0-1	23.9	<LOD	<LOD	4,814	5,009	222	<LOD	<LOD	<LOD	43.2	<LOD
11:05:51	1-2	27.5	<LOD	<LOD	3,047	4,470	89	<LOD	<LOD	<LOD	43	<LOD

Date	Instrument SN	Sample ID
August 7, 2018	512294	TA-SB-23

Time	Depth Interval	Moisture	Co	Cu	Fe	K	Mn	Mo	Ni	P	Rb	S
9:15:52	0-1	23.9	<LOD	5	7,782	7,506	462	<LOD	16	<LOD	44.4	<LOD
9:18:10	1-1.5	30.1	<LOD	<LOD	2,888	7,647	80	<LOD	<LOD	<LOD	37.9	<LOD
9:20:24	3-3,5	43.8	<LOD	21.4	9,446	6,217	304	<LOD	20	<LOD	33.3	1,136
9:25:39	5-6	63.9	<LOD	42.7	20,228	4,770	337	<LOD	32	<LOD	40.8	1,420
9:28:07	6-7	PD 19.7	<LOD	59	23,670	7,564	633	4	62	4,751	60.1	14,681
9:31:30	7-8	PD 28.6	<LOD	65	26,317	7,127	653	8.3	62	<LOD	65.6	25,317
9:33:49	8-9	89.4	<LOD	14.1	18,219	5,754	967	<LOD	14	5,148	30	27,009
9:36:10	9-10	PD 43.0	<LOD	22.9	28,025	4,534	988	2.6	43	7,073	21.9	38,835
9:38:37	10-11	PD 16.5	<LOD	5	7,216	7,428	262	<LOD	22	<LOD	33.9	11,611
9:41:06	12-13	PD 37.4	<LOD	5.5	11,496	11,397	228	<LOD	22	<LOD	34.9	4,268
9:43:46	14-15	PD 12.1	<LOD	<LOD	2,675	7,681	<LOD	<LOD	12	<LOD	39.7	11,886
9:46:31	15-16	PD 37.1	<LOD	<LOD	5,870	8,395	132	<LOD	14	<LOD	39	1,723
9:53:35	16-17	PD <LOD	<LOD	5.2	12,245	9,343	263	<LOD	23	<LOD	39.9	976

Note: Geoprobe on August 6, 2018

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-23

Time	Depth Interval	Moisture	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:03:31	0-1	23.9	<LOD	<LOD	<LOD	68.3	745	8.5	144
11:05:51	1-2	27.5	<LOD	<LOD	<LOD	76.1	308	9.6	104

Date	Instrument SN	Sample ID
August 7, 2018	512294	TA-SB-23

Time	Depth Interval	Moisture	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:15:52	0-1	23.9	<LOD	<LOD	<LOD	76.9	964	20	153
9:18:10	1-1.5	30.1	<LOD	<LOD	<LOD	62.2	355	7.8	94.6
9:20:24	3-3,5	43.8	<LOD	<LOD	<LOD	104.9	1,651	50.2	130
9:25:39	5-6	63.9	<LOD	<LOD	<LOD	158	1,323	40.7	98.1
9:28:07	6-7	PD 19.7	<LOD	1.3	<LOD	312	2,103	132	182
9:31:30	7-8	PD 28.6	<LOD	<LOD	<LOD	274	2,394	329	243
9:33:49	8-9	89.4	<LOD	<LOD	<LOD	68.5	799	532	105
9:36:10	9-10	PD 43.0	<LOD	<LOD	76	93.4	272	1,537	95
9:38:37	10-11	PD 16.5	<LOD	<LOD	<LOD	105.8	852	33.5	134
9:41:06	12-13	PD 37.4	<LOD	<LOD	<LOD	103.3	1,296	45.5	97.1
9:43:46	14-15	PD 12.1	<LOD	<LOD	<LOD	96.5	433	11.7	110.4
9:46:31	15-16	PD 37.1	<LOD	<LOD	<LOD	111.7	789	18.4	148
9:53:35	16-17	PD <LOD	<LOD	<LOD	<LOD	138	1,177	13.2	178

Note: Geoprobe on August 6, 2018

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-24

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:45:29	0-1	19.6	<LOD	4,483	<LOD	21.5	<LOD	237	124,754	<LOD	<LOD	<LOD	16	9,607	3,797	251	4
10:47:56	1-2	43.8	6.3	442	<LOD	41.5	<LOD	209	18,136	<LOD	<LOD	<LOD	23	12,541	5,532	258	<LOD
10:50:23	2-3	30.9	<LOD	88	23.4	24.7	<LOD	425	6,236	<LOD	365	<LOD	72	51,845	10,968	162	18.7
10:57:16	5-6	PD 24.7	<LOD	211	14.7	27.5	<LOD	382	47,683	<LOD	362	<LOD	50	91,246	15,387	303	12.9
11:00:22	6-7	PD 19.2	<LOD	69	<LOD	12.2	<LOD	162	17,882	<LOD	<LOD	<LOD	<LOD	9,978	6,292	128	<LOD
11:02:43	7-8	PD 51.4	4.6	35	<LOD	21.1	<LOD	187	19,990	<LOD	<LOD	<LOD	12	10,292	5,147	215	<LOD

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-24

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:45:29	0-1	19.6	<LOD	<LOD	30.6	7,183	<LOD	<LOD	<LOD	248	549	95.4	71
10:47:56	1-2	43.8	<LOD	<LOD	38.5	<LOD	<LOD	<LOD	<LOD	140	1,167	69.1	104
10:50:23	2-3	30.9	57	<LOD	85.4	7,445	<LOD	1.3	<LOD	275	3,079	106	167
10:57:16	5-6	PD 24.7	20	<LOD	70.4	4,938	<LOD	<LOD	<LOD	177	2,622	190	127
11:00:22	6-7	PD 19.2	<LOD	<LOD	45.1	12,611	<LOD	<LOD	<LOD	94.1	1,000	26.6	191
11:02:43	7-8	PD 51.4	<LOD	<LOD	40	4,271	<LOD	<LOD	<LOD	91.7	1,164	101.1	147

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-25

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
15:38:58	0-1	26.7	<LOD	31	<LOD	9.4	<LOD	160	1,721	<LOD	<LOD	<LOD	<LOD	4,597	4,734	191
15:41:30	1-2	58.9	4	198	<LOD	20.5	<LOD	165	17,265	<LOD	<LOD	<LOD	19	6,806	3,913	164
15:43:50	2-3	65.2	2.5	116	<LOD	26.7	<LOD	154	5,628	<LOD	<LOD	<LOD	10.3	6,858	4,292	170
15:46:15	3-4	63.7	<LOD	<LOD	<LOD	<LOD	<LOD	29	15,034	<LOD	<LOD	<LOD	<LOD	2,882	<LOD	58
15:48:37	6-7	41.6	2.4	123	<LOD	17.6	<LOD	180	11,884	<LOD	<LOD	<LOD	8.4	7,710	4,629	402
15:54:09	7-8	PD 64.5	<LOD	18	<LOD	5.4	<LOD	40	9,542	<LOD	<LOD	<LOD	27.1	1,952	<LOD	83
15:56:46	8-9	59.8	<LOD	23	<LOD	9.3	<LOD	128	23,692	<LOD	<LOD	<LOD	<LOD	3,827	3,977	106
15:59:03	9-10	65.1	<LOD	32	<LOD	8.5	<LOD	181	57,207	<LOD	<LOD	<LOD	10	5,883	7,583	177

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-25

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:38:58	0-1	26.7	3.5	<LOD	<LOD	42.8	<LOD	<LOD	<LOD	<LOD	75.9	757	8.2	127
15:41:30	1-2	58.9	<LOD	<LOD	<LOD	37.7	3,722	<LOD	1.2	<LOD	83	822	33.4	114
15:43:50	2-3	65.2	<LOD	<LOD	<LOD	36.1	2,510	<LOD	<LOD	<LOD	88.8	1,058	30.3	139
15:46:15	3-4	63.7	3.8	<LOD	<LOD	7	4,164	<LOD	<LOD	<LOD	68.5	111	14.1	8.1
15:48:37	6-7	41.6	<LOD	<LOD	<LOD	36.1	3,155	<LOD	<LOD	<LOD	80.1	816	26	144
15:54:09	7-8	PD 64.5	2.3	<LOD	<LOD	19.2	4,784	<LOD	3.7	<LOD	55.9	218	5.9	28.3
15:56:46	8-9	59.8	<LOD	<LOD	<LOD	40.9	<LOD	<LOD	<LOD	<LOD	89.2	680	6.1	115
15:59:03	9-10	65.1	<LOD	<LOD	<LOD	46.1	<LOD	<LOD	<LOD	<LOD	135	1,125	11.2	244

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-26

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
8:41:51	0-1	16.6	4	32	<LOD	9.9	<LOD	153	96,705	<LOD	<LOD	<LOD	<LOD	7,829	6,123	219	<LOD	<LOD
8:45:00	1-2	36.4	3.4	58	3	12.6	<LOD	182	32,286	<LOD	<LOD	<LOD	<LOD	6,625	6,566	156	<LOD	<LOD
8:47:24	2-3	34.6	2.6	33	<LOD	9.7	<LOD	160	6,963	<LOD	<LOD	<LOD	<LOD	7,159	5,832	214	<LOD	12
8:50:01	5-6	39.2	7.9	538	3	22.6	<LOD	296	15,150	<LOD	<LOD	<LOD	21	15,099	7,179	252	<LOD	22
8:52:34	6-7	41.8	3.6	43	<LOD	10.3	<LOD	176	45,305	<LOD	<LOD	<LOD	<LOD	8,841	6,158	323	<LOD	<LOD
8:55:26	7-8	PD 30.3	<LOD	35	<LOD	11.5	<LOD	149	4,668	<LOD	<LOD	<LOD	<LOD	10,694	5,638	284	<LOD	<LOD
8:59:34	8-8.5	PD 38.3	<LOD	42	<LOD	12.2	<LOD	196	3,790	<LOD	<LOD	<LOD	<LOD	8,788	5,534	214	<LOD	<LOD
9:01:54	8.5	47	<LOD	23	<LOD	10.5	<LOD	135	3,783	15	<LOD	<LOD	<LOD	8,232	2,818	354	<LOD	<LOD
9:04:14	10-11	37.8	3.7	27	<LOD	10.3	<LOD	188	29,414	<LOD	<LOD	<LOD	<LOD	8,222	7,059	328	<LOD	<LOD
9:10:13	11-12	37.3	2.7	42	<LOD	8.6	<LOD	227	68,351	<LOD	<LOD	<LOD	<LOD	10,337	8,806	230	<LOD	<LOD
9:13:52	12-13	30.9	<LOD	32	<LOD	10.4	<LOD	195	56,823	<LOD	<LOD	<LOD	<LOD	7,368	7,258	202	<LOD	<LOD
9:17:01	13-14	55	<LOD	79	<LOD	8.7	<LOD	182	61,161	<LOD	<LOD	<LOD	7	6,967	7,511	211	<LOD	<LOD
9:19:18	14-15	58.5	<LOD	21	<LOD	8.6	<LOD	168	34,057	<LOD	<LOD	<LOD	<LOD	4,612	4,713	137	<LOD	<LOD

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-26

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:41:51	0-1	16.6	<LOD	43.1	3,397	<LOD	<LOD	<LOD	128	895	15.4	130
8:45:00	1-2	36.4	<LOD	44.1	<LOD	<LOD	<LOD	<LOD	140	670	15.2	181
8:47:24	2-3	34.6	<LOD	45.1	<LOD	<LOD	<LOD	<LOD	77.4	1,051	18.6	158
8:50:01	5-6	39.2	<LOD	46.4	<LOD	<LOD	<LOD	<LOD	144	1,863	42.2	182
8:52:34	6-7	41.8	<LOD	40	<LOD	<LOD	<LOD	<LOD	110	939	20.5	187
8:55:26	7-8	PD 30.3	<LOD	34.1	3,585	<LOD	<LOD	<LOD	99.6	1,256	24	160
8:59:34	8-8.5	PD 38.3	<LOD	44	4,622	<LOD	<LOD	<LOD	81.7	1,037	26.4	166
9:01:54	8.5	47	<LOD	47.5	9,551	<LOD	<LOD	<LOD	65.5	659	21	122
9:04:14	10-11	37.8	<LOD	45.7	<LOD	<LOD	<LOD	<LOD	126	1,153	11.2	201
9:10:13	11-12	37.3	<LOD	45.4	<LOD	<LOD	<LOD	<LOD	135	1,167	16.4	194
9:13:52	12-13	30.9	<LOD	47.9	<LOD	<LOD	<LOD	<LOD	135	939	15.4	226
9:17:01	13-14	55	<LOD	53.7	<LOD	<LOD	<LOD	<LOD	144	1,027	13.7	203
9:19:18	14-15	58.5	<LOD	44	<LOD	<LOD	<LOD	<LOD	117	675	7.2	158

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-27

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:21:39	0-1	23.5	3.6	24	<LOD	9	<LOD	184	8,042	<LOD	<LOD	<LOD	<LOD	8,484	7,075	429	<LOD
9:24:13	1-2	29.9	<LOD	18	<LOD	7.4	<LOD	115	4,380	<LOD	<LOD	<LOD	<LOD	3,180	3,893	105	<LOD
9:26:39	2.5	52.5	<LOD	104	<LOD	10.5	<LOD	128	45,632	<LOD	<LOD	<LOD	<LOD	6,487	2,920	146	<LOD

Note: Geoprobe on July 20, 2018

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-27

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:29:20	0-1	23.3	5.2	34	<LOD	11.2	<LOD	241	7,424	<LOD	<LOD	<LOD	<LOD	10,802	6,688	611	<LOD
9:31:47	1-2	29.9	<LOD	16	<LOD	6.3	<LOD	91	11,687	<LOD	<LOD	<LOD	<LOD	4,619	3,101	93	<LOD
9:39:35	2-3	34.5	<LOD	20	<LOD	6.1	<LOD	120	2,519	<LOD	<LOD	<LOD	<LOD	2,434	2,369	83	<LOD
9:43:06	3-4	41.8	<LOD	27	<LOD	4.8	<LOD	114	875	<LOD	<LOD	<LOD	<LOD	2,449	1,548	68	<LOD
9:45:37	5-6	34.1	2.2	37	<LOD	5.9	<LOD	145	12,704	<LOD	<LOD	<LOD	<LOD	5,820	5,229	283	3.6
9:48:37	6-7	40.4	<LOD	31	<LOD	6.8	<LOD	115	9,376	<LOD	<LOD	<LOD	<LOD	3,436	2,653	97	<LOD
9:51:14	7-8	47.8	<LOD	20	<LOD	4.1	<LOD	114	652	<LOD	<LOD	<LOD	<LOD	1,938	1,933	81	<LOD
9:54:24	8-9	58.1	4.9	6,383	<LOD	27.3	<LOD	357	44,670	<LOD	<LOD	<LOD	77	28,684	8,369	343	15.3
9:56:52	9-10	54.2	<LOD	90	<LOD	10.4	<LOD	187	66,665	<LOD	<LOD	<LOD	<LOD	7,342	6,943	227	<LOD
9:59:51	10-11	PD <LOD	<LOD	122	<LOD	6.5	<LOD	192	4,736	<LOD	<LOD	<LOD	<LOD	4,660	5,374	119	<LOD
10:02:18	11-12	PD <LOD	<LOD	256	<LOD	7.7	<LOD	162	10,028	<LOD	<LOD	<LOD	<LOD	5,881	5,259	158	<LOD
10:07:51	12-13	PD <LOD	2.3	746	<LOD	8	<LOD	144	15,071	<LOD	<LOD	<LOD	12	5,026	3,198	116	<LOD
10:10:30	13-14	60.2	<LOD	82	<LOD	9.3	<LOD	185	55,114	<LOD	<LOD	<LOD	8	6,348	6,450	205	<LOD
10:13:05	14-15	63.4	<LOD	23	<LOD	7.8	<LOD	168	28,775	<LOD	<LOD	<LOD	<LOD	3,452	4,912	110	<LOD

Note: Geoprobe on July 20, 2018

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-27

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:21:39	0-1	23.5	<LOD	<LOD	46.6	<LOD	<LOD	<LOD	<LOD	76.2	957	13.8	163
9:24:13	1-2	29.9	<LOD	<LOD	38	<LOD	<LOD	<LOD	<LOD	71.3	237	5.9	77.2
9:26:39	2.5	52.5	<LOD	<LOD	26.4	23,899	<LOD	<LOD	<LOD	80.9	494	39.8	68.9

Note: Geoprobe on July 20, 2018

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-27

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:29:20	0-1	23.3	<LOD	<LOD	47.7	<LOD	<LOD	<LOD	<LOD	106	1,049	21.4	143
9:31:47	1-2	29.9	<LOD	<LOD	31.2	<LOD	<LOD	<LOD	<LOD	67.9	306	7	99
9:39:35	2-3	34.5	<LOD	<LOD	31.6	<LOD	<LOD	<LOD	<LOD	67.2	318	<LOD	73.2
9:43:06	3-4	41.8	<LOD	<LOD	27.9	1,526	<LOD	<LOD	<LOD	47.2	218	3.7	96.2
9:45:37	5-6	34.1	<LOD	<LOD	32.6	<LOD	<LOD	<LOD	<LOD	86.7	642	12.7	90
9:48:37	6-7	40.4	<LOD	<LOD	31.5	<LOD	<LOD	<LOD	<LOD	115	264	4.7	85
9:51:14	7-8	47.8	<LOD	<LOD	28.7	1,335	<LOD	<LOD	<LOD	59.6	205	3.3	81.8
9:54:24	8-9	58.1	24	<LOD	32	15,924	<LOD	<LOD	<LOD	129	1,574	356	181
9:56:52	9-10	54.2	19	<LOD	45.1	<LOD	<LOD	<LOD	<LOD	136	970	22.7	250
9:59:51	10-11	PD <LOD	16	<LOD	38.1	3,496	<LOD	<LOD	<LOD	66.9	1,033	18.2	84.9
10:02:18	11-12	PD <LOD	12	<LOD	31.9	4,719	<LOD	<LOD	<LOD	71.5	824	50.5	108
10:07:51	12-13	PD <LOD	<LOD	<LOD	28.5	7,198	<LOD	<LOD	<LOD	66.4	579	91.6	76.7
10:10:30	13-14	60.2	12	<LOD	46.3	2,620	<LOD	<LOD	<LOD	138	1,006	17.8	210
10:13:05	14-15	63.4	<LOD	<LOD	45.4	<LOD	<LOD	<LOD	<LOD	127	351	5.9	223

Note: Geoprobe on July 20, 2018

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-28

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:11:09	0-1	27.1	2	26	<LOD	5.4	<LOD	158	1,327	<LOD	<LOD	<LOD	<LOD	3,428	4,124	125	<LOD
11:13:28	1-2	32.7	<LOD	27	<LOD	7.3	<LOD	117	1,560	<LOD	<LOD	<LOD	<LOD	2,854	3,127	99	<LOD
11:16:00	2-3	49.9	1.8	26	<LOD	7.8	<LOD	150	1,545	<LOD	<LOD	<LOD	<LOD	6,423	4,216	221	<LOD
11:21:15	5-6	27.8	<LOD	30	<LOD	8.5	<LOD	148	2,109	<LOD	<LOD	<LOD	<LOD	4,048	5,206	121	4.3
11:23:54	6-7	57.9	<LOD	30	<LOD	7.5	<LOD	112	17,098	<LOD	<LOD	<LOD	<LOD	3,939	3,369	113	<LOD
11:26:58	7-8	PD < LOD	3	37	<LOD	7.9	<LOD	160	118,664	<LOD	<LOD	<LOD	11	17,083	7,551	317	<LOD
11:29:22	8-9	PD 34.1	2.7	21	<LOD	10.4	<LOD	186	66,176	<LOD	<LOD	<LOD	<LOD	9,917	8,228	239	<LOD
11:31:35	9-10	64.4	2.5	32	<LOD	9.5	<LOD	200	63,508	<LOD	<LOD	<LOD	<LOD	8,123	7,945	181	<LOD

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-28

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:11:09	0-1	27.1	<LOD	<LOD	42.1	<LOD	<LOD	<LOD	<LOD	74.2	530	8.8	125
11:13:28	1-2	32.7	<LOD	<LOD	39.1	<LOD	<LOD	<LOD	<LOD	66.3	544	9.6	122
11:16:00	2-3	49.9	<LOD	<LOD	39.5	<LOD	<LOD	<LOD	<LOD	86.4	784	88	275
11:21:15	5-6	27.8	<LOD	<LOD	45.3	<LOD	<LOD	<LOD	<LOD	79.5	476	9.3	102
11:23:54	6-7	57.9	<LOD	<LOD	31	<LOD	<LOD	<LOD	<LOD	71.4	611	23.9	102
11:26:58	7-8	PD < LOD	21	<LOD	22.4	<LOD	<LOD	<LOD	<LOD	104	835	27.8	71
11:29:22	8-9	PD 34.1	<LOD	<LOD	45.2	<LOD	<LOD	<LOD	<LOD	150	1,151	19.8	173
11:31:35	9-10	64.4	18	<LOD	48.8	<LOD	<LOD	<LOD	<LOD	142	1,290	15.3	252

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-29

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
15:33:07	0-1	28.1	4.6	58	<LOD	13.2	<LOD	210	3,698	<LOD	<LOD	<LOD	<LOD	10,773	6,578	534	<LOD
15:35:36	1-2	25.2	<LOD	22	<LOD	4.7	<LOD	113	5,031	<LOD	<LOD	<LOD	<LOD	2,745	2,978	101	<LOD
15:42:08	2-3	27.9	<LOD	26	<LOD	5.3	<LOD	129	2,397	<LOD	<LOD	<LOD	<LOD	2,897	3,029	113	<LOD
15:44:35	5-6	37.2	<LOD	30	<LOD	5.8	<LOD	140	2,038	<LOD	<LOD	<LOD	<LOD	3,871	4,354	409	<LOD
15:46:55	6-7	41.8	3.8	47	<LOD	10.7	<LOD	234	3,599	<LOD	<LOD	<LOD	<LOD	16,095	6,884	299	<LOD
15:50:03	7-8	60.6	<LOD	30	<LOD	13.6	<LOD	187	35,023	<LOD	<LOD	<LOD	<LOD	6,006	6,183	155	<LOD
15:52:23	8-9	57.1	<LOD	28	<LOD	7.6	<LOD	152	22,097	<LOD	<LOD	<LOD	<LOD	3,407	3,429	140	<LOD
15:54:47	9-10	65.3	<LOD	29	<LOD	8.2	<LOD	157	37,711	<LOD	<LOD	<LOD	<LOD	4,494	5,282	131	<LOD
15:57:02	10-11	63.4	<LOD	33	<LOD	7.1	<LOD	129	20,859	<LOD	<LOD	<LOD	<LOD	2,768	2,801	105	<LOD
16:00:00	11-12	63.2	<LOD	24	<LOD	7.9	<LOD	157	60,702	<LOD	<LOD	<LOD	<LOD	6,127	6,677	163	<LOD

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-29

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:33:07	0-1	28.1	<LOD	<LOD	50.9	<LOD	<LOD	<LOD	<LOD	80.1	1,004	27.5	188
15:35:36	1-2	25.2	<LOD	<LOD	34.6	<LOD	<LOD	<LOD	<LOD	70.4	459	2.9	105
15:42:08	2-3	27.9	<LOD	<LOD	38.3	<LOD	<LOD	<LOD	<LOD	73.4	415	3.6	116
15:44:35	5-6	37.2	<LOD	<LOD	33.7	<LOD	<LOD	<LOD	<LOD	64	467	6.7	117
15:46:55	6-7	41.8	<LOD	<LOD	31.8	<LOD	<LOD	<LOD	<LOD	211	1,283	28.4	82
15:50:03	7-8	60.6	13	<LOD	55.3	<LOD	<LOD	<LOD	<LOD	123	808	12.5	184
15:52:23	8-9	57.1	<LOD	<LOD	41.4	<LOD	<LOD	<LOD	<LOD	100.5	514	5.1	145
15:54:47	9-10	65.3	<LOD	<LOD	43	<LOD	<LOD	<LOD	<LOD	136	639	10.6	217
15:57:02	10-11	63.4	<LOD	<LOD	40.6	<LOD	<LOD	<LOD	<LOD	119	353	4.7	222
16:00:00	11-12	63.2	28	<LOD	40.2	<LOD	<LOD	<LOD	<LOD	136	967	12	235

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-30

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:31:34	0-1	24.3	5.3	50	<LOD	27.7	<LOD	223	41,697	<LOD	<LOD	<LOD	11	11,644	6,475	586	<LOD
10:34:34	1-2	27.6	<LOD	32	<LOD	13.6	<LOD	106	22,577	<LOD	<LOD	<LOD	<LOD	3,973	2,648	127	<LOD
10:37:19	2-3	33.2	5.7	117	<LOD	68	<LOD	184	23,185	<LOD	<LOD	<LOD	36	17,022	4,758	258	<LOD
10:39:42	7-8	31.6	3.2	48	<LOD	12.6	<LOD	127	29,488	<LOD	<LOD	<LOD	7	8,870	4,004	290	<LOD
10:42:30	8-9	PD 28.4	6.6	70	<LOD	11.7	<LOD	262	7,863	<LOD	<LOD	<LOD	7	14,211	9,127	565	<LOD
10:45:27	9-10	64.2	14.1	28	<LOD	9.8	<LOD	206	23,931	<LOD	<LOD	<LOD	<LOD	9,518	7,375	347	<LOD
10:51:30	10-11	54.4	3.6	49	<LOD	15.4	<LOD	194	16,921	<LOD	<LOD	<LOD	<LOD	10,415	6,025	434	<LOD
10:53:59	11-12	63.1	2.5	36	<LOD	8.3	<LOD	184	19,422	<LOD	<LOD	<LOD	<LOD	6,781	4,495	250	<LOD
10:56:25	12-13	54	2.1	27	<LOD	9.5	<LOD	150	36,747	<LOD	<LOD	<LOD	<LOD	5,412	4,823	150	<LOD
10:58:39	13-14	54	<LOD	53	<LOD	9.2	<LOD	139	28,830	<LOD	<LOD	<LOD	<LOD	3,464	4,594	114	<LOD
11:00:59	14-15	56.2	<LOD	15	<LOD	7.9	<LOD	143	42,076	<LOD	<LOD	<LOD	<LOD	4,393	4,892	131	<LOD

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-30

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:31:34	0-1	24.3	<LOD	<LOD	36.4	3,150	<LOD	<LOD	<LOD	102	1,054	61.2	136
10:34:34	1-2	27.6	<LOD	<LOD	28	<LOD	<LOD	<LOD	<LOD	84.2	528	19.1	64.2
10:37:19	2-3	33.2	<LOD	<LOD	45.7	<LOD	<LOD	<LOD	<LOD	105	722	163	96
10:39:42	7-8	31.6	<LOD	<LOD	32	<LOD	<LOD	<LOD	<LOD	79.6	662	26.3	120
10:42:30	8-9	PD 28.4	<LOD	<LOD	60.5	<LOD	<LOD	<LOD	<LOD	135	1,564	23	262
10:45:27	9-10	64.2	12	<LOD	54	<LOD	<LOD	<LOD	<LOD	131	826	11.8	246
10:51:30	10-11	54.4	<LOD	<LOD	42.5	<LOD	<LOD	<LOD	<LOD	103	1,114	29.2	146
10:53:59	11-12	63.1	<LOD	<LOD	45.1	<LOD	<LOD	<LOD	<LOD	116	882	11.9	225
10:56:25	12-13	54	<LOD	<LOD	42.8	<LOD	<LOD	<LOD	<LOD	120	598	7.8	205
10:58:39	13-14	54	<LOD	<LOD	44.4	<LOD	<LOD	<LOD	<LOD	119	603	4.8	192
11:00:59	14-15	56.2	<LOD	<LOD	40.3	<LOD	<LOD	1.4	<LOD	121	716	7.1	174

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-31

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:16:26	0-1	31.2	2.9	42	<LOD	33.4	<LOD	198	37,579	<LOD	<LOD	<LOD	18	10,110	5,400	412	<LOD
14:19:07	1-2	36	5.1	48	<LOD	19.7	<LOD	181	75,286	<LOD	<LOD	<LOD	12	17,153	5,955	404	<LOD
14:21:49	2-3	51.2	20.2	158	<LOD	194	<LOD	292	42,691	<LOD	<LOD	<LOD	60	15,996	6,568	242	<LOD
14:24:43	3-4	55.9	53.3	43	<LOD	29.6	<LOD	172	132,480	<LOD	1,081	<LOD	12	11,489	1,746	228	<LOD
14:31:01	7-8	PD 16.6	40	259	<LOD	317	<LOD	284	38,098	<LOD	727	<LOD	78	54,715	17,773	525	<LOD
14:33:21	8-9	PD 15.2	3.6	44	<LOD	18.5	<LOD	196	4,428	<LOD	<LOD	<LOD	<LOD	12,103	5,908	147	<LOD
14:42:34	9-10	PD 15.6	5.4	62	<LOD	16.7	<LOD	387	5,437	<LOD	235	<LOD	17	28,252	15,453	298	<LOD
14:45:55	13-14	DTT Clay	3	38	<LOD	11.1	<LOD	254	84,752	<LOD	<LOD	<LOD	7	11,767	9,245	354	<LOD
14:49:16	14-15	DTT Clay	2.3	38	<LOD	8.9	<LOD	200	54,811	<LOD	<LOD	<LOD	14	9,402	7,372	204	<LOD

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-31

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:16:26	0-1	31.2	<LOD	<LOD	40.2	4,619	<LOD	<LOD	<LOD	122	1,011	73.3	174
14:19:07	1-2	36	<LOD	<LOD	29.8	<LOD	<LOD	<LOD	<LOD	89	995	39.1	84
14:21:49	2-3	51.2	<LOD	<LOD	39.1	10,697	<LOD	<LOD	38	180	1,449	290	127
14:24:43	3-4	55.9	<LOD	<LOD	19.6	7,449	<LOD	<LOD	<LOD	125	1,056	68.2	124
14:31:01	7-8	PD 16.6	30	<LOD	54	50,800	<LOD	<LOD	262	133	2,357	611	217
14:33:21	8-9	PD 15.2	<LOD	<LOD	37.5	6,735	<LOD	<LOD	<LOD	85.7	1,738	41.2	166
14:42:34	9-10	PD 15.6	28	<LOD	62.4	2,613	<LOD	<LOD	<LOD	155	2,618	37.7	251
14:45:55	13-14	DTT Clay	<LOD	<LOD	46.2	<LOD	<LOD	<LOD	<LOD	132	1,477	25.8	174
14:49:16	14-15	DTT Clay	<LOD	<LOD	44.8	<LOD	<LOD	<LOD	<LOD	135	1,151	17.5	165

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-32

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:51:31	0-1	38.9	<LOD	39	<LOD	14.2	<LOD	205	3,845	<LOD	<LOD	<LOD	<LOD	5,732	5,932	225	<LOD
14:54:03	1-2	54.6	<LOD	38	<LOD	7.8	<LOD	170	4,671	<LOD	<LOD	<LOD	<LOD	4,458	5,277	93	<LOD
14:56:45	2-3	48.3	2.3	23	<LOD	8.3	<LOD	153	2,805	<LOD	<LOD	<LOD	<LOD	3,147	5,442	73	<LOD
14:59:07	6-7	56.5	<LOD	31	<LOD	7.6	<LOD	138	3,305	<LOD	<LOD	<LOD	<LOD	5,083	4,584	89	3.5
15:01:39	7-8	64.4	2.6	18	<LOD	11.7	<LOD	171	1,484	<LOD	<LOD	<LOD	<LOD	3,961	5,239	130	<LOD
15:04:00	8-9	PD <LOD	1.9	28	<LOD	8.8	<LOD	185	2,529	<LOD	<LOD	<LOD	<LOD	5,673	6,621	123	<LOD
15:11:23	9-10	PD <LOD	4.7	72	3.8	17.6	<LOD	375	13,951	<LOD	427	<LOD	16	26,750	14,322	264	<LOD
15:14:58	10-11	66.6	2.3	32	<LOD	7.5	<LOD	174	90,007	<LOD	<LOD	<LOD	<LOD	9,316	7,829	342	<LOD
15:17:31	11-12	DTT Clay	2.5	45	<LOD	8.7	<LOD	215	59,661	<LOD	<LOD	<LOD	<LOD	12,281	8,403	277	<LOD
15:20:15	12-13	DTT Clay	2.4	42	<LOD	9.6	<LOD	213	65,580	<LOD	<LOD	<LOD	<LOD	12,614	9,011	273	<LOD
15:22:54	13-14	DTT Clay	<LOD	38	<LOD	12.3	<LOD	198	66,799	<LOD	<LOD	<LOD	8	14,710	10,205	285	<LOD
15:25:14	14-15	DTT Clay	2.1	39	<LOD	9.1	<LOD	220	56,992	<LOD	<LOD	<LOD	<LOD	11,463	7,756	250	<LOD
15:27:30	15-16	DTT Clay	2.8	45	<LOD	9.8	<LOD	248	60,577	<LOD	<LOD	<LOD	<LOD	12,494	9,603	292	<LOD
15:29:54	16-17	68.9	2.2	45	<LOD	9.6	<LOD	248	65,696	<LOD	<LOD	<LOD	10	12,152	10,117	276	<LOD
15:32:59	17-18	PD <LOD	<LOD	25	<LOD	6.3	<LOD	172	52,961	<LOD	<LOD	<LOD	<LOD	7,958	5,756	337	<LOD
15:38:54	18-19	DTT Clay	1.9	50	<LOD	9.3	<LOD	233	61,176	<LOD	<LOD	<LOD	7	11,215	9,246	280	<LOD
15:41:22	19-20	DTT Clay	<LOD	36	<LOD	9.7	<LOD	246	67,254	<LOD	<LOD	<LOD	<LOD	12,094	9,625	294	<LOD

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-32

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:51:31	0-1	38.9	<LOD	<LOD	52.1	<LOD	<LOD	<LOD	<LOD	93.8	834	18.7	204
14:54:03	1-2	54.6	<LOD	<LOD	47.3	<LOD	<LOD	<LOD	<LOD	95.9	648	7.2	125
14:56:45	2-3	48.3	<LOD	<LOD	52.5	<LOD	<LOD	<LOD	<LOD	90.8	409	3.7	196
14:59:07	6-7	56.5	<LOD	<LOD	47.5	<LOD	<LOD	<LOD	<LOD	87.9	379	8.7	160
15:01:39	7-8	64.4	<LOD	<LOD	56.1	<LOD	<LOD	<LOD	<LOD	97.2	457	7.4	196
15:04:00	8-9	PD <LOD	<LOD	<LOD	49	1,814	<LOD	<LOD	<LOD	111	1,187	10	189
15:11:23	9-10	PD <LOD	29	<LOD	61.3	2,753	<LOD	<LOD	<LOD	122	2,284	41.1	217
15:14:58	10-11	66.6	<LOD	<LOD	42	<LOD	<LOD	<LOD	<LOD	117	1,221	28	151
15:17:31	11-12	DTT Clay	<LOD	<LOD	51.1	<LOD	<LOD	<LOD	<LOD	146	1,303	25.2	188
15:20:15	12-13	DTT Clay	<LOD	<LOD	53.2	<LOD	<LOD	<LOD	<LOD	149	1,397	23.4	203
15:22:54	13-14	DTT Clay	14	<LOD	58.1	<LOD	<LOD	<LOD	<LOD	146	1,524	27.3	164
15:25:14	14-15	DTT Clay	14	<LOD	42	<LOD	<LOD	<LOD	<LOD	117	1,170	24.6	133
15:27:30	15-16	DTT Clay	<LOD	<LOD	52.1	<LOD	<LOD	<LOD	<LOD	138	1,512	25.7	162
15:29:54	16-17	68.9	27	<LOD	55	<LOD	<LOD	1.4	<LOD	161	1,508	25.9	189
15:32:59	17-18	PD <LOD	<LOD	<LOD	29.7	2,514	<LOD	<LOD	<LOD	118	1,197	7.6	74.5
15:38:54	18-19	DTT Clay	16	<LOD	50.9	<LOD	<LOD	<LOD	<LOD	156	1,610	21.8	148
15:41:22	19-20	DTT Clay	13	<LOD	49.7	<LOD	<LOD	<LOD	<LOD	152	1,480	23.1	163

Date	Instrument SN	Sample ID
July 20, 2018	511051	TA-SB-33

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
8:29:13	0-1	25.2	<LOD	22	<LOD	21.4	<LOD	156	4,969	<LOD	<LOD	<LOD	<LOD	4,173	5,321	112	<LOD
8:32:03	1-2	61.1	33.8	733	7.4	153	<LOD	480	12,596	<LOD	205	<LOD	100	25,308	8,720	568	<LOD
8:34:21	7-8	PD <LOD	71	4,579	21	41	<LOD	468	22,238	<LOD	3,196	<LOD	129	427,721	67,182	2,379	6
8:40:49	8-9	PD 34.9	3	74	<LOD	14	<LOD	172	12,544	<LOD	<LOD	<LOD	<LOD	7,504	4,976	199	<LOD
8:43:13	9-10	PD 38.1	6.1	25	<LOD	12	<LOD	201	13,627	<LOD	557	<LOD	<LOD	14,461	6,835	238	<LOD

Date	Instrument SN	Sample ID
July 20, 2018	511051	TA-SB-33

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:29:13	0-1	25.2	<LOD	<LOD	44.1	<LOD	<LOD	<LOD	<LOD	84.6	478	12.8	137
8:32:03	1-2	61.1	58	<LOD	55.9	4,694	27	1.9	<LOD	309	1,919	875	124
8:34:21	7-8	PD <LOD	39	<LOD	22.2	57,698	<LOD	<LOD	<LOD	154	2,641	4,098	78
8:40:49	8-9	PD 34.9	<LOD	<LOD	37.6	4,551	<LOD	<LOD	<LOD	88.4	732	59.7	124
8:43:13	9-10	PD 38.1	<LOD	<LOD	43.2	6,697	<LOD	<LOD	<LOD	86.4	1,633	30.9	146

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-34

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
16:35:47	0-1	26.3	8.6	60	<LOD	28	<LOD	250	22,274	<LOD	<LOD	<LOD	7	15,457	9,586	531
16:38:09	1-2	62.4	4.1	75	<LOD	30	<LOD	229	26,845	<LOD	<LOD	<LOD	8	10,671	6,329	202
16:43:57	2-3	64.7	5	85	<LOD	22.7	<LOD	174	17,979	<LOD	<LOD	<LOD	14	10,809	4,488	145
16:46:24	3-4	PD <LOD	100	819	30	250	<LOD	1,170	34,351	<LOD	2,155	<LOD	556	257,552	51,505	881
16:49:30	6-7	PD 43.7	24	385	4.2	146	<LOD	277	26,172	<LOD	<LOD	<LOD	19	16,675	7,730	242
16:52:03	7-8	PD 20.6	6.9	290	<LOD	14.1	<LOD	211	16,364	<LOD	448	<LOD	<LOD	8,283	6,643	178

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-34

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:35:47	0-1	26.3	<LOD	<LOD	<LOD	51.4	<LOD	<LOD	<LOD	<LOD	115	1,660	56.3	212
16:38:09	1-2	62.4	<LOD	<LOD	<LOD	41.7	4,161	<LOD	<LOD	<LOD	96.9	1,037	52	141
16:43:57	2-3	64.7	<LOD	<LOD	<LOD	39	4,784	<LOD	<LOD	<LOD	119	1,391	43.4	120
16:46:24	3-4	PD <LOD	28	59	<LOD	37.9	137,804	<LOD	2.1	2,003	447	6,573	1,497	154
16:49:30	6-7	PD 43.7	<LOD	<LOD	<LOD	44	11,269	<LOD	<LOD	<LOD	162	1,846	454	153
16:52:03	7-8	PD 20.6	<LOD	<LOD	<LOD	45.7	3,338	<LOD	<LOD	<LOD	92.7	1,301	31.2	144

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-35

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:07:54	0-1	26.8	8.5	76	<LOD	27.7	<LOD	254	9,116	<LOD	<LOD	<LOD	15	17,402	8,814	965	<LOD
9:10:57	1-2	43.2	14.7	328	<LOD	174	<LOD	275	27,930	<LOD	<LOD	<LOD	67	17,736	7,315	273	<LOD
9:13:23	2-3	PD 15.5	<LOD	295	6.8	2,561	<LOD	408	39,692	<LOD	<LOD	<LOD	71	20,599	8,875	569	<LOD
9:16:03	4-5	PD 15.5	36	204	4.9	374	<LOD	345	25,376	<LOD	208	<LOD	68	19,703	8,078	330	5.2
9:18:30	6-7	PD 30.4	8.2	432	<LOD	18.8	<LOD	234	9,161	<LOD	<LOD	<LOD	6.6	9,857	5,500	172	<LOD
9:22:45	7-8	PD 22.9	3	21	<LOD	14.1	<LOD	143	6,085	<LOD	<LOD	<LOD	<LOD	8,098	3,440	144	<LOD

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-35

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:07:54	0-1	26.8	<LOD	<LOD	54.7	2,261	<LOD	<LOD	<LOD	89.9	1,707	72	208
9:10:57	1-2	43.2	20	<LOD	42.2	5,802	<LOD	<LOD	43	134	1,487	301	132
9:13:23	2-3	PD 15.5	14	<LOD	48	12,440	<LOD	<LOD	37	233	1,921	863	187
9:16:03	4-5	PD 15.5	27	<LOD	49.2	5,607	<LOD	<LOD	57	217	2,081	543	172
9:18:30	6-7	PD 30.4	<LOD	<LOD	46.6	2,810	<LOD	<LOD	<LOD	91.1	1,524	55.4	183
9:22:45	7-8	PD 22.9	<LOD	<LOD	35.3	3,250	<LOD	<LOD	<LOD	73	909	31.4	177

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-36

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:20:30	0-1	22.8	4.2	51	<LOD	21.1	<LOD	236	14,074	<LOD	<LOD	<LOD	9	10,473	7,902	483	<LOD
10:22:47	1-2	27.7	3	246	<LOD	23.6	<LOD	193	31,053	<LOD	<LOD	<LOD	10	10,575	6,122	239	<LOD
10:29:45	2-3	63.1	12	711	<LOD	428	<LOD	302	34,602	<LOD	<LOD	<LOD	48	18,657	8,052	257	<LOD
10:33:09	3-4	PD 15.7	44	303	14.7	244	<LOD	1,194	12,555	<LOD	661	<LOD	212	80,010	17,117	280	16.6
10:35:30	5-6	PD 24.8	5.3	142	<LOD	32.7	<LOD	237	27,450	<LOD	<LOD	<LOD	17	12,147	4,712	161	<LOD
10:38:13	6-7	67.4	<LOD	17	<LOD	3.2	<LOD	83	1,785	<LOD	<LOD	<LOD	<LOD	1,332	414	68	<LOD
10:40:49	7-8	PD 28.3	2.8	18	<LOD	8.3	<LOD	158	7,285	<LOD	<LOD	<LOD	<LOD	9,044	3,896	155	<LOD

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-36

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:20:30	0-1	22.8	<LOD	<LOD	47.7	<LOD	<LOD	<LOD	<LOD	97.1	1,618	53	180
10:22:47	1-2	27.7	<LOD	<LOD	44.4	<LOD	<LOD	<LOD	<LOD	154	814	53	147
10:29:45	2-3	63.1	18	<LOD	35	3,846	<LOD	<LOD	65	178	1,692	484	159
10:33:09	3-4	PD 15.7	110	<LOD	83.9	7,859	<LOD	2.1	136	708	5,729	899	226
10:35:30	5-6	PD 24.8	<LOD	<LOD	31.9	7,689	<LOD	<LOD	<LOD	138	1,219	200	111
10:38:13	6-7	67.4	<LOD	<LOD	27.4	1,762	<LOD	<LOD	<LOD	55.9	85	5.3	47
10:40:49	7-8	PD 28.3	<LOD	<LOD	38.3	3,578	<LOD	<LOD	<LOD	73.3	893	27.1	188

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-37

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:40:46	0-1	27.5	3.2	62	<LOD	32.5	<LOD	247	26,102	<LOD	<LOD	<LOD	10	11,032	6,612	361	<LOD
10:43:03	1-2	54.4	24	82	<LOD	572	<LOD	247	10,489	<LOD	<LOD	<LOD	23	15,595	6,192	283	<LOD
10:45:26	2-3	65.8	<LOD	56	<LOD	60.6	<LOD	235	6,651	<LOD	<LOD	<LOD	22	8,902	4,376	220	<LOD
10:48:19	6-7	PD <LOD	33	295	4.8	420	<LOD	620	57,923	<LOD	650	<LOD	85	73,684	21,119	694	8.2
10:50:36	7-8	PD 23.8	20	375	<LOD	49.2	<LOD	306	19,615	<LOD	<LOD	<LOD	16	18,742	8,806	273	<LOD

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-37

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:40:46	0-1	27.5	<LOD	<LOD	46.9	<LOD	<LOD	<LOD	<LOD	172	1,401	68.7	169
10:43:03	1-2	54.4	12	<LOD	40.2	2,884	<LOD	<LOD	<LOD	125	1,547	138	144
10:45:26	2-3	65.8	<LOD	<LOD	37	1,878	<LOD	<LOD	<LOD	123	1,528	79.8	173
10:48:19	6-7	PD <LOD	44	<LOD	61.9	30,828	36	2.8	151	482	4,200	1,360	201
10:50:36	7-8	PD 23.8	<LOD	<LOD	63.1	5,451	<LOD	<LOD	55	119	1,805	119	244

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-38

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
8:19:27	0-1	25.4	8.4	1,366	<LOD	104.4	<LOD	253	18,574	<LOD	<LOD	<LOD	59	27,343	10,001	319	<LOD
8:21:47	1-2	27.4	4.5	519	<LOD	85.1	<LOD	237	23,106	<LOD	<LOD	<LOD	24	10,340	5,254	268	<LOD
8:24:08	2-3	51.7	2.5	48	<LOD	13.7	<LOD	201	15,977	<LOD	<LOD	<LOD	<LOD	8,914	4,734	246	<LOD
8:26:27	3-4	46.8	<LOD	49	<LOD	14.2	<LOD	199	12,226	<LOD	<LOD	<LOD	7.2	8,074	4,876	193	<LOD
8:35:17	5-6	PD 27.7	15.4	202	<LOD	237	<LOD	324	67,280	<LOD	438	<LOD	47	23,100	10,867	475	<LOD
8:38:50	6-7	PD 67.8	10.7	662	4.5	27.7	<LOD	208	34,899	<LOD	<LOD	<LOD	<LOD	11,264	7,020	324	<LOD
8:41:29	7-8	PD 51.4	3.6	102	<LOD	13.4	<LOD	222	22,997	<LOD	<LOD	<LOD	7	10,078	6,756	238	<LOD

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-38

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:19:27	0-1	25.4	<LOD	<LOD	41.9	<LOD	<LOD	<LOD	25	123	1,711	208	153
8:21:47	1-2	27.4	<LOD	<LOD	37	<LOD	<LOD	<LOD	<LOD	108	1,591	209	163
8:24:08	2-3	51.7	<LOD	<LOD	34.3	<LOD	<LOD	<LOD	<LOD	63.1	1,210	29.2	105
8:26:27	3-4	46.8	13	<LOD	33.4	<LOD	<LOD	<LOD	<LOD	71	1,176	22.4	139
8:35:17	5-6	PD 27.7	<LOD	<LOD	47	12,466	<LOD	1.6	44	207	2,139	472	173
8:38:50	6-7	PD 67.8	<LOD	<LOD	49.1	7,033	<LOD	<LOD	<LOD	124	1,427	57.2	163
8:41:29	7-8	PD 51.4	<LOD	<LOD	47.1	4,902	<LOD	<LOD	<LOD	98.5	1,550	36.4	178

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-39

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:35:11	0-1	32.1	3.5	52	<LOD	30.8	<LOD	212	35,391	<LOD	<LOD	<LOD	8	9,717	5,993	379	<LOD
9:40:33	1-2	38.2	3.9	76	<LOD	25.1	<LOD	194	42,832	<LOD	<LOD	<LOD	12	11,253	6,964	274	<LOD
9:43:02	2-3	36.6	<LOD	27	<LOD	10.7	<LOD	146	19,997	<LOD	<LOD	<LOD	<LOD	6,658	5,457	190	<LOD
9:45:39	5-6	PD 11.7	6.5	39	<LOD	19	<LOD	178	22,905	<LOD	<LOD	<LOD	10	15,456	7,296	285	<LOD
9:48:11	6-7	PD 9.6	9.1	184	3.1	31.9	<LOD	276	17,122	<LOD	457	<LOD	12	11,385	8,223	324	<LOD
9:50:29	7-8	PD 22.8	3.4	30	<LOD	16.1	<LOD	268	26,394	<LOD	789	<LOD	8	13,459	7,735	304	<LOD

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-39

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:35:11	0-1	32.1	<LOD	<LOD	48.2	3,270	<LOD	<LOD	<LOD	141	1,072	86.8	151
9:40:33	1-2	38.2	<LOD	<LOD	37.5	<LOD	<LOD	<LOD	<LOD	168	1,288	59.4	119
9:43:02	2-3	36.6	<LOD	<LOD	36	<LOD	<LOD	<LOD	<LOD	100.7	966	17.1	138
9:45:39	5-6	PD 11.7	13	<LOD	33.9	<LOD	<LOD	<LOD	<LOD	103	1,210	29.6	226
9:48:11	6-7	PD 9.6	<LOD	<LOD	47.4	2,298	<LOD	<LOD	<LOD	119	1,748	87.4	179
9:50:29	7-8	PD 22.8	<LOD	<LOD	50	3,449	<LOD	<LOD	<LOD	111	1,762	47.5	220

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-40

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:55:57	0-1	20.3	4.3	36	<LOD	17.8	<LOD	245	8,498	<LOD	<LOD	<LOD	<LOD	11,987	8,915	549	<LOD
10:58:51	1-2	28.3	<LOD	34	<LOD	12.7	<LOD	125	936	<LOD	<LOD	<LOD	<LOD	2,464	2,655	90	<LOD
11:01:08	2-3	43.6	28	272	4.2	373	<LOD	378	18,207	<LOD	252	<LOD	463	26,287	7,302	249	<LOD
11:03:30	3-4	PD 26.3	20	422	5.7	449	<LOD	532	38,497	<LOD	358	<LOD	226	56,826	10,799	764	<LOD
11:06:20	6-7	PD 43.4	52	270	5	1,035	<LOD	465	14,501	<LOD	1,047	<LOD	69	105,029	19,383	1,248	<LOD
11:08:41	7-8	PD 43.4	3	39	<LOD	13.8	<LOD	220	2,855	<LOD	<LOD	<LOD	7	11,371	8,685	228	<LOD

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-40

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:55:57	0-1	20.3	<LOD	<LOD	58.3	<LOD	<LOD	<LOD	<LOD	111	1,630	34.9	240
10:58:51	1-2	28.3	<LOD	<LOD	32.7	<LOD	<LOD	<LOD	<LOD	64.1	355	13.3	94
11:01:08	2-3	43.6	24	<LOD	41.8	2,454	<LOD	2.9	33	235	1,761	1,458	137
11:03:30	3-4	PD 26.3	26	<LOD	37.1	5,389	<LOD	2.3	100	361	2,912	783	134
11:06:20	6-7	PD 43.4	<LOD	<LOD	20.2	22,407	<LOD	4	<LOD	121	1,965	1,278	72
11:08:41	7-8	PD 43.4	17	<LOD	56.3	2,955	<LOD	<LOD	<LOD	117	1,822	26.3	208

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-41

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
16:21:32	0-1	23.3	3.3	43	<LOD	17.6	<LOD	236	9,471	<LOD	<LOD	<LOD	7	11,622	8,853	498
16:23:49	1-2	42.8	4.3	77	<LOD	28.4	<LOD	196	22,502	<LOD	<LOD	<LOD	14	8,999	6,928	185
16:26:09	2-3	45.3	3.5	25	<LOD	33.3	<LOD	166	3,290	<LOD	<LOD	<LOD	16	9,398	5,096	121
16:28:31	5-6	PD 22.0	5.5	49	3.2	15.2	<LOD	284	2,578	<LOD	<LOD	<LOD	17	18,919	12,825	306
16:30:58	6-7	PD 33.4	5.1	60	<LOD	13.2	<LOD	315	2,678	<LOD	234	<LOD	18	17,936	12,729	392
16:33:22	7-8	PD 28.0	3.7	44	<LOD	12.2	<LOD	289	2,841	<LOD	<LOD	<LOD	12	14,255	10,585	256

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-41

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:21:32	0-1	23.3	<LOD	<LOD	<LOD	56.5	<LOD	<LOD	<LOD	<LOD	120	1,774	32.8	219
16:23:49	1-2	42.8	<LOD	14	<LOD	51.1	<LOD	<LOD	<LOD	<LOD	113	755	49.4	166
16:26:09	2-3	45.3	<LOD	17	<LOD	39.9	3,587	<LOD	<LOD	<LOD	101.4	1,291	50.4	182
16:28:31	5-6	PD 22.0	<LOD	14	<LOD	77.6	<LOD	<LOD	<LOD	<LOD	134	2,318	48.1	216
16:30:58	6-7	PD 33.4	<LOD	24	<LOD	69.6	<LOD	<LOD	<LOD	<LOD	128	2,275	35.2	245
16:33:22	7-8	PD 28.0	<LOD	17	<LOD	63.3	<LOD	<LOD	<LOD	<LOD	132	1,647	29.9	287

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-42

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
17:16:07	0-1	23.9	8.8	51	<LOD	21	<LOD	232	29,579	<LOD	<LOD	<LOD	9	18,403	9,428	1,050
17:18:28	1-2	32.1	<LOD	25	<LOD	8.5	<LOD	121	28,231	<LOD	<LOD	<LOD	<LOD	5,528	3,299	130
17:20:58	6-7	68.9	<LOD	18	<LOD	5.2	<LOD	101	12,143	<LOD	<LOD	<LOD	<LOD	3,812	891	135
17:23:12	7-8	69.6	<LOD	15	<LOD	5.7	<LOD	98	20,897	<LOD	<LOD	<LOD	<LOD	2,830	1,346	134

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-42

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
17:16:07	0-1	23.9	<LOD	<LOD	<LOD	47.1	2,220	<LOD	<LOD	<LOD	116	1,605	45.5	202
17:18:28	1-2	32.1	<LOD	<LOD	<LOD	46.4	<LOD	<LOD	<LOD	<LOD	110	618	10.4	183
17:20:58	6-7	68.9	<LOD	13	<LOD	23.4	<LOD	<LOD	<LOD	<LOD	60.9	330	5.6	124
17:23:12	7-8	69.6	<LOD	11	<LOD	26.1	<LOD	<LOD	<LOD	<LOD	69.1	388	2.7	124

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-43

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:21:22	0-1	23.2	6.2	120	<LOD	61	<LOD	284	31,008	<LOD	<LOD	<LOD	26	15,924	6,960	327	<LOD
10:23:46	1-2	24.6	<LOD	60	<LOD	131	<LOD	229	25,420	<LOD	<LOD	<LOD	24	11,721	7,294	277	<LOD
10:26:58	2-3	55	3.9	248	<LOD	22.4	<LOD	184	14,818	<LOD	<LOD	<LOD	<LOD	7,219	4,234	181	<LOD
10:29:22	7-8	48.8	<LOD	83	<LOD	99.3	<LOD	169	10,982	<LOD	<LOD	<LOD	<LOD	10,270	4,323	157	<LOD
10:31:55	8-9	60.7	4	94	<LOD	32.8	<LOD	127	7,680	<LOD	<LOD	<LOD	<LOD	8,109	2,533	133	<LOD
10:34:25	9-10	59.5	3.3	45	<LOD	10.8	<LOD	206	4,795	<LOD	<LOD	<LOD	<LOD	9,409	4,386	129	<LOD

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-43

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:21:22	0-1	23.2	<LOD	<LOD	44.2	<LOD	<LOD	<LOD	<LOD	84.1	1,253	113	128
10:23:46	1-2	24.6	<LOD	<LOD	60.1	<LOD	<LOD	<LOD	<LOD	105	1,384	141	167
10:26:58	2-3	55	<LOD	<LOD	36.5	2,129	<LOD	<LOD	<LOD	104.2	1,134	41.4	145
10:29:22	7-8	48.8	<LOD	<LOD	33.5	2,667	<LOD	<LOD	<LOD	80.4	743	40.8	147
10:31:55	8-9	60.7	<LOD	<LOD	28.8	2,256	<LOD	<LOD	<LOD	58.3	754	76	95.4
10:34:25	9-10	59.5	<LOD	<LOD	39.5	2,651	<LOD	<LOD	<LOD	79.9	1,065	21.4	167

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-44

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:54:26	0-1	24.3	<LOD	<LOD	<LOD	56.7	<LOD	<LOD	<LOD	<LOD	98	1,794	71.8	199
16:57:40	1-2	27.3	<LOD	<LOD	<LOD	33.1	3,782	<LOD	<LOD	<LOD	184	1,149	108	101
17:01:03	2-3	38.8	<LOD	<LOD	<LOD	37.7	1,753	<LOD	<LOD	27	78.5	1,253	39.1	103
17:03:21	3-4	37.1	<LOD	<LOD	<LOD	41.9	<LOD	<LOD	<LOD	<LOD	63.7	241	<LOD	102
17:05:37	5-6	64.1	<LOD	<LOD	<LOD	33.7	<LOD	<LOD	<LOD	<LOD	52.8	419	11.7	179
17:10:52	6-7	61.3	<LOD	<LOD	<LOD	12.3	<LOD	<LOD	<LOD	<LOD	60.8	294	13.9	47.2
17:13:29	7-8	PD <LOD	<LOD	<LOD	<LOD	21.1	<LOD	<LOD	<LOD	<LOD	108	768	17.8	67.9

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-45

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:34:06	0-1	27.8	2	25	<LOD	9.3	<LOD	192	1,822	<LOD	<LOD	<LOD	<LOD	8,768	5,354	375	<LOD
14:36:30	1-2	32.7	<LOD	41	<LOD	89.5	<LOD	141	20,500	<LOD	<LOD	<LOD	35	4,349	4,205	136	<LOD
14:39:26	2-3	43.1	<LOD	75	<LOD	434	<LOD	292	7,815	<LOD	<LOD	<LOD	84	13,449	5,827	113	<LOD
14:42:33	3-4	45.2	<LOD	36	<LOD	11	<LOD	188	3,081	<LOD	<LOD	<LOD	<LOD	7,503	5,064	109	<LOD
14:44:55	6-7	59.7	2.7	46	<LOD	11.3	<LOD	250	18,503	<LOD	<LOD	<LOD	<LOD	10,000	7,889	539	<LOD
14:50:48	7-8	65.8	3.3	28	<LOD	8.4	<LOD	198	42,507	<LOD	<LOD	<LOD	<LOD	6,513	7,006	292	<LOD
14:53:09	8-9	65.6	2	29	<LOD	8.2	<LOD	154	30,984	<LOD	<LOD	<LOD	<LOD	4,698	4,353	140	<LOD
14:55:37	9-10	62.7	<LOD	19	<LOD	7.3	<LOD	119	17,672	<LOD	<LOD	<LOD	<LOD	2,169	2,955	68	<LOD
14:58:00	11-12	56.4	<LOD	15	<LOD	5.3	<LOD	113	11,639	<LOD	<LOD	<LOD	<LOD	2,002	2,509	62	<LOD
15:00:24	12-13	61.2	<LOD	20	<LOD	8.1	<LOD	128	16,625	<LOD	<LOD	<LOD	<LOD	2,204	3,515	83	<LOD
15:02:54	13-14	68.2	<LOD	24	<LOD	10.2	<LOD	181	39,887	<LOD	<LOD	<LOD	<LOD	7,390	6,141	190	<LOD
15:05:50	14-15	PD 27.1	3.5	40	<LOD	8.8	<LOD	224	67,598	<LOD	<LOD	<LOD	<LOD	9,914	9,525	252	<LOD

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-45

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:34:06	0-1	27.8	<LOD	<LOD	40.7	<LOD	<LOD	<LOD	<LOD	64.1	1,171	11.5	149
14:36:30	1-2	32.7	<LOD	<LOD	34.3	<LOD	<LOD	<LOD	<LOD	94.2	404	62.2	138
14:39:26	2-3	43.1	<LOD	<LOD	60.3	3,544	<LOD	<LOD	<LOD	333	2,517	53.1	218
14:42:33	3-4	45.2	<LOD	<LOD	37.2	1,640	<LOD	<LOD	<LOD	77.4	1,056	15.2	146
14:44:55	6-7	59.7	<LOD	<LOD	50.8	<LOD	<LOD	<LOD	<LOD	116	966	13.7	272
14:50:48	7-8	65.8	14	<LOD	44.7	<LOD	<LOD	<LOD	<LOD	120	958	10.7	236
14:53:09	8-9	65.6	<LOD	<LOD	40.4	<LOD	<LOD	<LOD	<LOD	107	688	7.3	191
14:55:37	9-10	62.7	<LOD	<LOD	39.9	<LOD	<LOD	<LOD	<LOD	99.9	223	3.1	75.6
14:58:00	11-12	56.4	<LOD	<LOD	35.7	<LOD	<LOD	<LOD	<LOD	85.9	181	<LOD	64.9
15:00:24	12-13	61.2	<LOD	<LOD	43	<LOD	<LOD	<LOD	<LOD	106.9	261	<LOD	126
15:02:54	13-14	68.2	<LOD	<LOD	43.7	<LOD	<LOD	<LOD	<LOD	123	962	17.6	199
15:05:50	14-15	PD 27.1	<LOD	<LOD	47.6	<LOD	<LOD	<LOD	<LOD	136	1,560	24.8	197

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-46

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:34:24	0-1	24.5	2	19	<LOD	12.5	<LOD	177	2,929	<LOD	<LOD	<LOD	<LOD	7,075	7,006	292	<LOD
11:36:42	1-2	29.8	<LOD	22	<LOD	7.6	<LOD	150	2,411	<LOD	<LOD	<LOD	<LOD	3,586	4,492	107	<LOD
11:38:59	2-3	29.7	<LOD	22	<LOD	7.3	<LOD	165	5,159	<LOD	<LOD	<LOD	<LOD	5,872	4,527	135	<LOD
11:41:25	3-4	27.7	<LOD	15	<LOD	6.4	<LOD	124	4,875	<LOD	<LOD	<LOD	<LOD	3,272	3,990	101	<LOD
11:46:42	6-7	27.1	2.5	27	<LOD	7.1	<LOD	169	3,112	<LOD	<LOD	<LOD	<LOD	6,275	5,305	294	<LOD
11:49:12	7-8	48.7	<LOD	34	<LOD	8.4	<LOD	134	21,057	<LOD	<LOD	<LOD	<LOD	3,711	2,859	108	<LOD
11:51:31	8-9	41.8	1.9	24	<LOD	6.3	<LOD	136	43,114	<LOD	<LOD	<LOD	<LOD	6,328	4,084	194	<LOD
11:53:48	9-10	PD 9.5	5.8	40	<LOD	8.1	<LOD	165	165,152	<LOD	<LOD	<LOD	13	17,564	7,952	875	<LOD

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-46

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:34:24	0-1	24.5	<LOD	<LOD	51.2	<LOD	<LOD	<LOD	<LOD	78.8	949	14.6	200
11:36:42	1-2	29.8	<LOD	<LOD	37.9	<LOD	<LOD	<LOD	<LOD	76.8	527	5.8	160
11:38:59	2-3	29.7	<LOD	<LOD	42.1	<LOD	<LOD	<LOD	<LOD	72.9	521	7	137
11:41:25	3-4	27.7	<LOD	<LOD	34.8	<LOD	<LOD	<LOD	<LOD	73.1	619	4.5	102
11:46:42	6-7	27.1	<LOD	<LOD	39.4	<LOD	<LOD	<LOD	<LOD	74	911	10.8	154
11:49:12	7-8	48.7	<LOD	<LOD	30.6	<LOD	<LOD	<LOD	<LOD	70	320	24.7	80.7
11:51:31	8-9	41.8	<LOD	<LOD	30.4	<LOD	<LOD	<LOD	<LOD	72	554	26.3	100
11:53:48	9-10	PD 9.5	18	<LOD	23.9	<LOD	<LOD	<LOD	<LOD	124	1,041	38.8	90

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-47

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:25:53	0-1	24.8	3	26	<LOD	9.7	<LOD	164	2,059	<LOD	<LOD	<LOD	<LOD	7,063	5,565	350	<LOD
16:32:16	1-2	26.4	<LOD	17	<LOD	7.7	<LOD	120	6,438	<LOD	<LOD	<LOD	<LOD	3,523	3,181	120	<LOD
16:34:36	2-3	31.5	<LOD	45	<LOD	16.7	<LOD	140	3,592	<LOD	<LOD	<LOD	<LOD	3,303	3,277	95	<LOD
16:37:02	3-4	59.9	6.6	91	<LOD	113	<LOD	148	73,786	<LOD	<LOD	<LOD	11	10,776	3,138	276	<LOD
16:39:54	5-6	59	<LOD	52	<LOD	17.1	<LOD	211	10,023	<LOD	<LOD	<LOD	8	6,692	4,686	123	<LOD
16:42:12	6-7	41.8	1.9	31	<LOD	13	<LOD	129	5,367	<LOD	<LOD	<LOD	<LOD	7,072	3,715	148	<LOD
16:44:31	7-8	40.2	2.4	33	<LOD	6.3	<LOD	154	18,571	<LOD	<LOD	<LOD	<LOD	5,378	3,148	126	<LOD

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-47

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:25:53	0-1	24.8	<LOD	<LOD	45.8	<LOD	<LOD	<LOD	<LOD	76.6	849	15.8	113
16:32:16	1-2	26.4	<LOD	<LOD	38.7	<LOD	<LOD	<LOD	<LOD	61.5	312	5	101
16:34:36	2-3	31.5	<LOD	<LOD	39	<LOD	<LOD	<LOD	<LOD	80.6	333	13.6	102
16:37:02	3-4	59.9	<LOD	<LOD	20.1	<LOD	<LOD	<LOD	<LOD	142	710	137	85
16:39:54	5-6	59	<LOD	<LOD	36.2	1,751	<LOD	<LOD	<LOD	91.4	987	172	143
16:42:12	6-7	41.8	<LOD	<LOD	27	<LOD	<LOD	<LOD	<LOD	65.2	596	22.3	109
16:44:31	7-8	40.2	<LOD	<LOD	31.4	<LOD	<LOD	<LOD	<LOD	90.3	467	11.4	67.3

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-48

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
17:06:48	0-1	23.6	2.6	23	<LOD	8.6	<LOD	169	2,592	<LOD	<LOD	<LOD	<LOD	6,328	5,798	311	<LOD
17:09:13	1-2	41.8	<LOD	32	<LOD	24.9	<LOD	164	3,715	<LOD	<LOD	<LOD	<LOD	6,109	4,081	221	<LOD
17:11:54	2-3	46.6	<LOD	30	<LOD	7.4	<LOD	138	588	<LOD	<LOD	<LOD	<LOD	4,637	2,901	95	<LOD
17:17:42	5-6	41.8	<LOD	21	<LOD	6.2	<LOD	114	1,448	<LOD	<LOD	<LOD	<LOD	2,973	2,805	106	<LOD
17:20:19	6-7	69.7	<LOD	16	<LOD	5.5	<LOD	126	587	<LOD	<LOD	<LOD	<LOD	3,322	2,783	118	<LOD
17:22:50	7-8	67.3	<LOD	29	<LOD	7.8	<LOD	124	630	<LOD	562	<LOD	<LOD	5,149	3,231	163	<LOD
17:25:59	9-10	69	<LOD	24	<LOD	5.1	<LOD	123	998	<LOD	308	<LOD	<LOD	3,666	3,553	96	<LOD
17:28:26	10-11	61.8	<LOD	21	<LOD	5.9	<LOD	125	7,800	<LOD	328	<LOD	<LOD	2,583	3,403	163	<LOD
17:30:52	11-12	30.3	<LOD	18	<LOD	4.8	<LOD	74	11,602	<LOD	<LOD	<LOD	<LOD	1,596	1,029	73	<LOD

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-48

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
17:06:48	0-1	23.6	<LOD	<LOD	44.7	<LOD	<LOD	<LOD	<LOD	77.3	598	10.7	153
17:09:13	1-2	41.8	<LOD	<LOD	36.5	<LOD	<LOD	<LOD	<LOD	73.9	947	28	192
17:11:54	2-3	46.6	<LOD	<LOD	31	<LOD	<LOD	<LOD	<LOD	58.5	445	6.5	75.2
17:17:42	5-6	41.8	<LOD	<LOD	29.1	<LOD	<LOD	<LOD	<LOD	52.9	396	7	69.9
17:20:19	6-7	69.7	<LOD	<LOD	28.3	<LOD	<LOD	<LOD	<LOD	77.4	252	5.7	71
17:22:50	7-8	67.3	<LOD	<LOD	30.6	<LOD	<LOD	<LOD	<LOD	48.4	431	7.9	57.1
17:25:59	9-10	69	<LOD	<LOD	36.6	<LOD	<LOD	<LOD	<LOD	77.9	316	7.2	58.6
17:28:26	10-11	61.8	<LOD	<LOD	33.4	<LOD	<LOD	<LOD	<LOD	55.4	114	3.8	69.4
17:30:52	11-12	30.3	<LOD	<LOD	28.5	<LOD	<LOD	<LOD	<LOD	53.3	165	<LOD	54

Date	Instrument SN	Sample ID
July 20, 2018	511051	TA-SB-49

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:36:18	0-1	16.4	7.9	35	<LOD	12.9	<LOD	247	3,710	<LOD	<LOD	<LOD	7	12,970	8,849	753	<LOD
9:38:59	1-2	22.8	<LOD	20	<LOD	6.7	<LOD	135	402	<LOD	<LOD	<LOD	<LOD	2,633	4,647	82	<LOD
9:41:19	2-3	23.6	<LOD	16	<LOD	7	<LOD	138	1,282	<LOD	<LOD	<LOD	<LOD	2,922	3,804	100	<LOD
9:43:56	3-4	25.6	<LOD	24	<LOD	7.8	<LOD	150	2,354	<LOD	<LOD	<LOD	<LOD	5,896	4,286	81	<LOD
9:46:39	5-6	25.7	<LOD	21	<LOD	8.9	<LOD	167	1,649	<LOD	<LOD	<LOD	<LOD	5,605	4,501	93	<LOD
9:49:10	6-7	24.1	<LOD	18	<LOD	3.3	<LOD	96	617	<LOD	<LOD	<LOD	<LOD	3,381	1,962	72	<LOD
9:51:47	7-8	26.3	1.6	13	<LOD	3.6	<LOD	116	3,499	<LOD	<LOD	<LOD	<LOD	3,512	1,188	79	<LOD
9:58:12	9-10	25	3.4	27	<LOD	6.4	<LOD	128	43,836	<LOD	<LOD	<LOD	<LOD	6,460	4,365	406	<LOD
10:01:08	10-11	34.7	3.7	27	<LOD	7.5	<LOD	111	74,741	<LOD	<LOD	<LOD	9	12,306	3,650	304	<LOD
10:03:31	11-12	32.1	2.3	25	<LOD	8.6	<LOD	204	44,954	<LOD	<LOD	<LOD	<LOD	7,508	7,005	212	<LOD

Date	Instrument SN	Sample ID
July 20, 2018	511051	TA-SB-49

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:36:18	0-1	16.4	<LOD	<LOD	55.4	<LOD	<LOD	<LOD	<LOD	91	1,415	26.7	237
9:38:59	1-2	22.8	<LOD	<LOD	47	<LOD	<LOD	<LOD	<LOD	68.8	329	<LOD	127
9:41:19	2-3	23.6	<LOD	<LOD	43	<LOD	<LOD	<LOD	<LOD	65.6	306	4.4	107
9:43:56	3-4	25.6	<LOD	<LOD	37.6	<LOD	<LOD	<LOD	<LOD	78.1	939	22.2	156
9:46:39	5-6	25.7	<LOD	<LOD	43.4	<LOD	<LOD	<LOD	<LOD	81.4	791	12.9	184
9:49:10	6-7	24.1	<LOD	<LOD	23.3	<LOD	<LOD	<LOD	<LOD	38.3	351	<LOD	65.8
9:51:47	7-8	26.3	<LOD	<LOD	22.1	<LOD	<LOD	<LOD	<LOD	78.5	243	5.9	63.4
9:58:12	9-10	25	<LOD	<LOD	34	<LOD	<LOD	<LOD	<LOD	107	565	13.3	74.1
10:01:08	10-11	34.7	<LOD	<LOD	23.3	<LOD	<LOD	<LOD	<LOD	131	418	23.4	51.2
10:03:31	11-12	32.1	<LOD	<LOD	48.4	<LOD	<LOD	<LOD	<LOD	128	1,059	14.3	196

Date	Instrument SN	Sample ID
July 20, 2018	511051	TA-SB-50

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:06:17	0-1	19.7	7.9	39	<LOD	14.4	<LOD	216	4,345	<LOD	<LOD	<LOD	7	11,699	8,310	657	<LOD
10:08:49	1-2	19.6	<LOD	28	<LOD	9.7	<LOD	173	1,552	<LOD	<LOD	<LOD	<LOD	4,147	4,143	112	<LOD
10:11:26	2-3	25.8	2.9	24	<LOD	14.2	<LOD	201	3,997	<LOD	<LOD	<LOD	<LOD	10,261	4,939	226	<LOD
10:13:56	3-4	22.4	<LOD	22	<LOD	8.7	<LOD	162	1,274	<LOD	<LOD	<LOD	<LOD	5,178	4,784	125	<LOD
10:16:46	4-5	24	<LOD	30	<LOD	6.3	<LOD	138	2,543	<LOD	<LOD	<LOD	<LOD	3,856	4,290	114	<LOD
10:19:25	5-6	26.2	<LOD	20	<LOD	5.6	<LOD	138	413	<LOD	<LOD	<LOD	<LOD	2,338	4,163	118	<LOD
10:24:43	6-7	25.2	<LOD	27	<LOD	6.7	<LOD	107	12,707	<LOD	<LOD	<LOD	<LOD	3,622	3,531	79	<LOD
10:27:09	7-8	37	<LOD	22	<LOD	8.1	<LOD	178	44,362	<LOD	<LOD	<LOD	<LOD	6,377	5,269	199	<LOD

Date	Instrument SN	Sample ID
July 20, 2018	511051	TA-SB-50

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:06:17	0-1	19.7	<LOD	<LOD	56.4	<LOD	<LOD	<LOD	<LOD	95.8	1,235	22.4	313
10:08:49	1-2	19.6	<LOD	<LOD	40.2	<LOD	<LOD	<LOD	<LOD	77.1	516	5.7	111
10:11:26	2-3	25.8	<LOD	<LOD	37	<LOD	<LOD	<LOD	<LOD	92	1,006	27.5	119
10:13:56	3-4	22.4	<LOD	<LOD	44.4	<LOD	<LOD	<LOD	<LOD	73.8	766	12.4	158
10:16:46	4-5	24	<LOD	<LOD	35.9	<LOD	<LOD	<LOD	<LOD	77.5	586	3.4	90
10:19:25	5-6	26.2	<LOD	<LOD	39.7	<LOD	<LOD	<LOD	<LOD	55.9	325	4.1	65.6
10:24:43	6-7	25.2	<LOD	<LOD	33.9	<LOD	<LOD	<LOD	<LOD	67.6	280	7.6	63.9
10:27:09	7-8	37	<LOD	<LOD	35.5	<LOD	<LOD	<LOD	<LOD	112	761	11.7	172

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-51

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:31:27	0-1	27.7	7.7	39	<LOD	9.4	<LOD	188	3,146	<LOD	<LOD	<LOD	<LOD	11,285	6,531	647	<LOD
10:35:03	1-2	33.9	3.9	47	<LOD	46.5	<LOD	236	16,739	<LOD	<LOD	<LOD	8	7,560	5,121	447	<LOD
10:38:48	2-3	43.7	2.5	28	<LOD	8.4	<LOD	168	1,695	<LOD	<LOD	<LOD	<LOD	6,106	5,091	180	<LOD
10:46:20	5-6	39.6	1.9	31	<LOD	9.5	<LOD	161	1,889	<LOD	<LOD	<LOD	<LOD	7,773	5,518	257	<LOD
10:48:44	6-7	47.9	6.8	30	<LOD	5	<LOD	140	937	<LOD	<LOD	<LOD	<LOD	6,344	3,439	150	<LOD
10:51:01	7-8	39.2	<LOD	25	<LOD	4.7	<LOD	109	1,411	<LOD	<LOD	<LOD	<LOD	3,356	2,604	87	<LOD
10:53:23	9-10	38.3	<LOD	14	<LOD	6.2	<LOD	135	6,224	<LOD	<LOD	<LOD	<LOD	1,576	4,075	49	<LOD
10:56:10	10-11	31.7	<LOD	14	<LOD	3.1	<LOD	90	16,572	<LOD	<LOD	<LOD	<LOD	1,244	1,253	55	<LOD
10:58:25	11-12	54.2	19.6	<LOD	<LOD	3.6	<LOD	82	96,111	<LOD	<LOD	<LOD	<LOD	22,334	5,327	205	<LOD

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-51

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:31:27	0-1	27.7	<LOD	<LOD	47.4	<LOD	<LOD	<LOD	<LOD	76.8	1,029	21.7	194
10:35:03	1-2	33.9	<LOD	<LOD	43.5	<LOD	<LOD	<LOD	<LOD	99	888	146	130
10:38:48	2-3	43.7	<LOD	<LOD	38.5	<LOD	<LOD	<LOD	<LOD	83.1	1,040	14.8	181
10:46:20	5-6	39.6	<LOD	<LOD	36.6	<LOD	<LOD	<LOD	<LOD	164	847	18.6	153
10:48:44	6-7	47.9	<LOD	<LOD	27.8	<LOD	<LOD	<LOD	<LOD	78.1	644	11.9	75.6
10:51:01	7-8	39.2	<LOD	<LOD	24	<LOD	<LOD	<LOD	<LOD	60.5	615	4.5	70
10:53:23	9-10	38.3	<LOD	<LOD	37.8	<LOD	<LOD	<LOD	<LOD	57.4	130	<LOD	58.3
10:56:10	10-11	31.7	<LOD	<LOD	22.1	<LOD	<LOD	<LOD	<LOD	60.6	146	<LOD	65.9
10:58:25	11-12	54.2	<LOD	<LOD	13	<LOD	<LOD	<LOD	<LOD	104	253	13.6	44.7

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-52

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
15:08:08	0-1	24.4	11.7	53	<LOD	19.3	<LOD	298	5,925	<LOD	<LOD	<LOD	10	22,214	10,532	1,292
15:11:15	1-2	27.6	8.1	87	<LOD	81.3	<LOD	267	26,826	<LOD	<LOD	<LOD	27	16,536	7,584	378
15:13:46	2-3	31	26.7	29	<LOD	25.1	<LOD	246	3,015	<LOD	220	<LOD	16	30,807	11,071	228
15:16:48	4-5	41.5	5.6	39	<LOD	9.1	<LOD	293	2,368	<LOD	<LOD	<LOD	11	11,774	9,534	218
15:19:06	5-6	68.3	<LOD	41	<LOD	11	<LOD	268	29,971	<LOD	<LOD	<LOD	7	10,341	9,794	187
15:21:28	6-7	55.7	18.1	59	<LOD	10.4	<LOD	363	41,520	<LOD	<LOD	<LOD	15	22,992	11,455	331
15:27:58	7-8	36.2	2.7	22	<LOD	7.6	<LOD	247	38,671	<LOD	<LOD	<LOD	11	20,596	10,782	273
15:30:46	8-9	60.9	<LOD	35	<LOD	9.4	<LOD	176	34,294	<LOD	<LOD	<LOD	<LOD	6,731	6,175	146
15:34:20	9-10	53.6	<LOD	13	<LOD	6.4	<LOD	134	32,457	<LOD	<LOD	<LOD	<LOD	4,001	2,343	93
15:36:36	10-11	41.1	<LOD	18	<LOD	5.2	<LOD	111	26,949	<LOD	<LOD	<LOD	<LOD	3,991	1,698	82
15:38:58	11-12	48.6	<LOD	29	<LOD	5.7	<LOD	149	141,209	<LOD	<LOD	<LOD	<LOD	5,592	4,569	160

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-52

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:08:08	0-1	24.4	<LOD	<LOD	<LOD	63.5	<LOD	<LOD	<LOD	<LOD	98	1,814	48.4	214
15:11:15	1-2	27.6	<LOD	<LOD	<LOD	53.1	4,478	<LOD	<LOD	<LOD	108	1,175	177	153
15:13:46	2-3	31	<LOD	16	<LOD	44.5	<LOD	<LOD	<LOD	<LOD	114	1,148	68.1	196
15:16:48	4-5	41.5	<LOD	20	<LOD	55	<LOD	<LOD	<LOD	<LOD	117	1,606	23.4	208
15:19:06	5-6	68.3	<LOD	25	<LOD	59.2	<LOD	<LOD	<LOD	<LOD	106	1,831	24.1	219
15:21:28	6-7	55.7	<LOD	13	<LOD	45.7	<LOD	<LOD	<LOD	<LOD	254	2,623	36.5	175
15:27:58	7-8	36.2	<LOD	13	<LOD	61.6	<LOD	<LOD	<LOD	<LOD	162	2,453	40.6	165
15:30:46	8-9	60.9	<LOD	<LOD	<LOD	46.4	<LOD	<LOD	<LOD	<LOD	140	822	13.9	205
15:34:20	9-10	53.6	<LOD	<LOD	<LOD	30.6	<LOD	<LOD	<LOD	<LOD	118	341	7.3	116
15:36:36	10-11	41.1	<LOD	<LOD	<LOD	21.5	<LOD	<LOD	<LOD	<LOD	109	238	8.7	71.5
15:38:58	11-12	48.6	<LOD	21	<LOD	20.4	<LOD	<LOD	<LOD	<LOD	164	864	15.5	33.5

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-53

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:10:13	0-1	34.7	19.3	195	4.8	101.8	<LOD	551	21,461	<LOD	224	<LOD	89	27,169	8,744	292	<LOD
16:12:38	1-2	PD 8.0	8.1	118	8.3	54.9	<LOD	854	50,836	<LOD	354	<LOD	88	30,079	11,715	410	<LOD
16:15:30	7-8	PD 19.1	6.7	165	3.4	43.7	<LOD	453	47,064	<LOD	<LOD	<LOD	41	15,916	7,498	253	<LOD
16:17:50	8-9	PD 28.6	<LOD	95	<LOD	54.6	<LOD	220	16,884	<LOD	<LOD	<LOD	12	10,335	4,513	176	<LOD
16:20:26	9-10	PD <LOD	<LOD	42	<LOD	10.2	<LOD	144	34,061	<LOD	<LOD	<LOD	<LOD	4,827	4,178	209	<LOD

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-53

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:10:13	0-1	34.7	18	<LOD	50.8	2,696	<LOD	<LOD	<LOD	502	3,197	202	176
16:12:38	1-2	PD 8.0	42	<LOD	71.9	4,101	<LOD	<LOD	<LOD	872	4,919	86	247
16:15:30	7-8	PD 19.1	46	<LOD	38.7	7,541	<LOD	<LOD	<LOD	250	4,186	108	254
16:17:50	8-9	PD 28.6	<LOD	<LOD	34.1	7,677	<LOD	<LOD	<LOD	103.9	1,392	155	220
16:20:26	9-10	PD <LOD	<LOD	<LOD	39.4	<LOD	<LOD	<LOD	<LOD	115	597	16.6	96

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-54

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:51:04	0-1	32.8	14.9	51	4.4	215	<LOD	221	19,201	<LOD	213	<LOD	62	27,284	6,532	354	<LOD
9:53:23	1-2	63.5	<LOD	24	<LOD	11.2	<LOD	113	952	<LOD	208	<LOD	<LOD	2,782	1,825	83	<LOD
9:55:50	2-3	63.3	<LOD	22	<LOD	4.1	<LOD	106	88	<LOD	207	<LOD	<LOD	1,477	2,328	51	<LOD
9:59:57	3-4	67.2	<LOD	21	<LOD	7	<LOD	141	549	<LOD	<LOD	25	<LOD	7,491	2,449	162	<LOD
10:02:23	6-7	57.3	<LOD	32	<LOD	9.7	<LOD	125	6,525	<LOD	354	<LOD	<LOD	3,381	2,992	91	<LOD
10:05:05	7-8	45.4	<LOD	24	<LOD	7.8	<LOD	150	48,436	<LOD	<LOD	<LOD	<LOD	5,071	2,671	183	<LOD
10:07:34	8-9	60	3.7	28	<LOD	9.8	<LOD	159	49,551	<LOD	<LOD	<LOD	<LOD	14,854	5,419	228	<LOD
10:10:43	9-10	43.7	<LOD	30	<LOD	5.2	<LOD	104	28,610	<LOD	<LOD	<LOD	<LOD	3,141	1,559	121	<LOD

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-54

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:51:04	0-1	32.8	16	<LOD	39.9	3,519	<LOD	<LOD	<LOD	190	1,044	275	147
9:53:23	1-2	63.5	<LOD	<LOD	26.4	<LOD	<LOD	<LOD	<LOD	46.7	404	14.3	81.8
9:55:50	2-3	63.3	<LOD	<LOD	27.8	<LOD	<LOD	<LOD	<LOD	40.8	156	5.1	58.8
9:59:57	3-4	67.2	<LOD	<LOD	29.9	<LOD	30	<LOD	<LOD	60.2	834	5.8	557
10:02:23	6-7	57.3	<LOD	<LOD	26.8	<LOD	<LOD	<LOD	<LOD	62.4	442	12.4	61.1
10:05:05	7-8	45.4	<LOD	<LOD	28.2	<LOD	<LOD	<LOD	<LOD	81.5	594	18.5	39.5
10:07:34	8-9	60	<LOD	<LOD	24.4	<LOD	<LOD	<LOD	<LOD	75	534	18.4	85
10:10:43	9-10	43.7	<LOD	<LOD	24.2	<LOD	<LOD	<LOD	<LOD	94.6	522	9	69.6

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-55

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:03:27	0-1	23.7	<LOD	28	<LOD	29.2	<LOD	144	11,323	<LOD	<LOD	<LOD	<LOD	4,902	4,672	160	<LOD
9:06:15	1-2	35.5	14.2	49	<LOD	120	<LOD	230	11,171	<LOD	183	<LOD	31	17,898	6,917	316	<LOD
9:08:30	2-3	PD 50.4	<LOD	37	<LOD	19.5	<LOD	220	3,291	<LOD	209	<LOD	8	11,477	5,333	168	<LOD
9:10:58	5-6	47.7	<LOD	35	<LOD	65.8	<LOD	184	5,304	<LOD	399	<LOD	16	11,079	4,767	222	<LOD
9:13:17	6-7	54	5	42	<LOD	9	<LOD	239	62,812	<LOD	<LOD	<LOD	7	18,533	10,599	363	<LOD
9:15:51	7-8	40.2	<LOD	44	<LOD	11.2	<LOD	282	61,522	<LOD	<LOD	<LOD	11	13,013	10,405	291	<LOD
9:21:14	8-9	56.9	<LOD	47	<LOD	15.7	<LOD	308	76,130	<LOD	257	<LOD	13	23,014	16,585	397	<LOD
9:23:52	9-10	53.6	<LOD	57	<LOD	12.2	<LOD	285	70,643	<LOD	<LOD	<LOD	16	19,285	14,222	363	<LOD

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-55

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:03:27	0-1	23.7	<LOD	<LOD	35.9	<LOD	<LOD	<LOD	<LOD	86	531	31.4	104
9:06:15	1-2	35.5	13	<LOD	43.6	<LOD	<LOD	<LOD	<LOD	96.5	1,298	141	129
9:08:30	2-3	PD 50.4	<LOD	<LOD	41.9	<LOD	<LOD	<LOD	<LOD	80.6	1,172	35.9	309
9:10:58	5-6	47.7	<LOD	<LOD	37	<LOD	<LOD	<LOD	<LOD	83	1,071	61.2	143
9:13:17	6-7	54	<LOD	<LOD	61.5	<LOD	<LOD	<LOD	<LOD	113	2,422	35.9	172
9:15:51	7-8	40.2	28	<LOD	57.7	<LOD	<LOD	<LOD	<LOD	149	1,916	31.7	201
9:21:14	8-9	56.9	29	<LOD	80.3	<LOD	<LOD	<LOD	<LOD	150	2,469	43.8	150
9:23:52	9-10	53.6	31	<LOD	81.2	<LOD	<LOD	<LOD	<LOD	147	2,275	43.1	150

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-56

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:26:35	0-1	36.5	9.5	49	3.6	102.5	<LOD	198	46,302	<LOD	<LOD	<LOD	54	20,258	7,169	316	<LOD
9:29:57	1-2	31.8	17	47	<LOD	388	<LOD	212	26,071	<LOD	<LOD	<LOD	566	36,290	9,310	338	<LOD
9:32:29	2-3	43.7	<LOD	26	<LOD	5.4	<LOD	107	5,513	<LOD	<LOD	<LOD	<LOD	2,274	1,910	117	<LOD
9:35:20	3-4	46.9	<LOD	20	<LOD	4.5	<LOD	120	3,681	<LOD	<LOD	<LOD	<LOD	2,161	2,393	61	<LOD
9:37:34	6-7	89.9	<LOD	60	<LOD	83.4	<LOD	290	22,608	<LOD	<LOD	<LOD	50	14,233	8,660	398	5.2
9:39:55	7-8	46.8	2	23	<LOD	3.8	<LOD	92	64,314	<LOD	<LOD	<LOD	<LOD	4,532	1,837	139	<LOD
9:42:19	8-9	49.5	2.8	25	<LOD	9.8	<LOD	156	68,919	<LOD	270	<LOD	7	14,166	5,334	364	<LOD
9:48:24	9-10	PD 19.9	13	<LOD	<LOD	12.3	<LOD	157	131,177	<LOD	<LOD	<LOD	10	22,389	10,025	690	<LOD

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-56

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:26:35	0-1	36.5	14	<LOD	46	3,940	<LOD	<LOD	<LOD	124	1,261	156	119
9:29:57	1-2	31.8	<LOD	<LOD	34.6	6,225	34	<LOD	65	114	976	239	98
9:32:29	2-3	43.7	<LOD	<LOD	28.6	<LOD	<LOD	<LOD	<LOD	54.4	165	8.5	64.8
9:35:20	3-4	46.9	<LOD	<LOD	35	<LOD	<LOD	<LOD	<LOD	53.6	275	3.7	86.2
9:37:34	6-7	89.9	<LOD	<LOD	46	3,836	<LOD	<LOD	<LOD	113	1,403	88.9	124
9:39:55	7-8	46.8	<LOD	<LOD	23.8	<LOD	<LOD	<LOD	<LOD	106	187	13.9	50
9:42:19	8-9	49.5	<LOD	<LOD	46.2	<LOD	<LOD	<LOD	<LOD	105	800	35.8	85
9:48:24	9-10	PD 19.9	22	<LOD	47.7	<LOD	<LOD	<LOD	<LOD	146	847	39.5	93

Date	Instrument SN	Sample ID
July 20, 2018	511051	TA-SB-57

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:29:36	0-1	17	4.2	29	<LOD	8.2	<LOD	198	5,269	<LOD	<LOD	<LOD	<LOD	7,840	5,660	491	<LOD
10:31:50	1-2	23.2	6.7	25	<LOD	89.9	<LOD	199	18,785	<LOD	<LOD	<LOD	13	9,564	5,465	581	<LOD
10:34:31	2-3	20.8	2.5	25	<LOD	12.3	<LOD	149	1,572	<LOD	<LOD	<LOD	<LOD	10,268	5,380	304	<LOD
10:37:10	5-6	23.7	8.9	16	<LOD	14.4	<LOD	119	68,444	<LOD	<LOD	<LOD	12	19,305	6,516	483	<LOD
10:39:36	6-7	23.5	5.8	22	<LOD	10	<LOD	133	101,510	<LOD	<LOD	<LOD	<LOD	11,157	5,287	505	<LOD
10:43:00	7-8	23.1	3.3	29	<LOD	6.4	<LOD	184	77,602	<LOD	<LOD	<LOD	<LOD	7,493	4,874	299	<LOD

Date	Instrument SN	Sample ID
July 20, 2018	511051	TA-SB-57

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:29:36	0-1	17	<LOD	<LOD	36.6	<LOD	<LOD	<LOD	<LOD	77	1,030	15.1	136
10:31:50	1-2	23.2	<LOD	<LOD	39.1	1,890	<LOD	<LOD	<LOD	98	1,122	60.9	187
10:34:31	2-3	20.8	<LOD	<LOD	36.9	<LOD	<LOD	<LOD	<LOD	74.1	944	16.4	177
10:37:10	5-6	23.7	<LOD	<LOD	30.4	<LOD	<LOD	<LOD	<LOD	71.5	593	18.4	63
10:39:36	6-7	23.5	<LOD	<LOD	34.8	<LOD	<LOD	<LOD	<LOD	109	575	28.7	58.1
10:43:00	7-8	23.1	<LOD	<LOD	27.6	<LOD	<LOD	<LOD	<LOD	108	388	14	50.3

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-58

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:04:04	0-1	24.8	5.2	40	<LOD	10.3	<LOD	174	2,856	<LOD	<LOD	<LOD	<LOD	9,906	8,105	615	<LOD
16:06:22	1-2	26.3	<LOD	29	<LOD	8.3	<LOD	161	1,886	<LOD	<LOD	<LOD	<LOD	6,077	4,932	134	<LOD
16:08:43	2-3	26.9	<LOD	19	<LOD	5.8	<LOD	105	678	<LOD	<LOD	<LOD	<LOD	3,745	2,455	101	<LOD
16:10:59	3-4	26.2	<LOD	18	<LOD	4.1	<LOD	107	669	<LOD	<LOD	<LOD	<LOD	2,246	1,844	90	<LOD
16:13:23	4-5	26.8	<LOD	16	<LOD	4.9	<LOD	91	667	<LOD	<LOD	<LOD	<LOD	2,416	2,894	105	<LOD
16:19:13	5-6	32.7	<LOD	12	<LOD	3.7	<LOD	109	666	<LOD	<LOD	<LOD	<LOD	2,094	2,742	88	<LOD

Note: Refusal hit at six feet

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-58

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:28:50	0-1	26.2	8	37	<LOD	15.2	<LOD	239	3,274	<LOD	<LOD	<LOD	<LOD	15,411	7,649	885	<LOD
11:31:22	1-2	24.4	<LOD	13	<LOD	6.3	<LOD	147	1,804	<LOD	<LOD	<LOD	<LOD	3,260	3,991	109	<LOD
11:37:05	2-3	24.5	<LOD	18	<LOD	5	<LOD	131	725	<LOD	<LOD	<LOD	<LOD	2,456	2,818	91	<LOD
11:39:38	3-4	25.5	<LOD	20	<LOD	4.8	<LOD	127	593	<LOD	<LOD	<LOD	<LOD	2,233	2,266	95	<LOD
11:42:05	8-9	25.9	<LOD	29	<LOD	7.1	<LOD	173	3,147	<LOD	<LOD	<LOD	<LOD	5,153	4,528	131	<LOD
11:44:52	9-10	27.6	<LOD	15	<LOD	4.3	<LOD	102	540	<LOD	<LOD	<LOD	<LOD	2,707	1,874	104	<LOD

Note: Geoprobe hydraulics problem

Date	Instrument SN	Sample ID
August 6, 2018	512294	TA-SB-58

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
13:34:55	0-1	25.2	11.1	62	<LOD	11.8	<LOD	229	4,787	<LOD	<LOD	<LOD	10	20,404	9,994	1520	<LOD
13:37:19	1-2	24.8	2	27.9	<LOD	6.3	<LOD	129	1,987	<LOD	90	<LOD	5	6,376	7,614	145	<LOD
13:39:37	2-3	26.2	<LOD	29	<LOD	5.8	<LOD	106	1467	<LOD	83	<LOD	3	3,256	5,809	113	<LOD
13:41:56	3-4	25.5	7	38	<LOD	10.4	<LOD	170	3443	<LOD	<LOD	<LOD	6	12,088	7,973	854	<LOD
13:44:16	4-5	26.1	<LOD	28	<LOD	6.7	<LOD	86	2,373	<LOD	<LOD	<LOD	<LOD	3,710	6,319	192	<LOD
13:46:45	5-6	26.3	1.5	24.9	<LOD	3.9	<LOD	72	1,861	<LOD	<LOD	<LOD	<LOD	2,049	5,134	87	<LOD

13:49:10	7-8	45.6	4	35	<LOD	56.5	<LOD	150	30,368	<LOD	103	<LOD	11	8,995	7,342	300	<LOD
13:51:34	8-9	54.6	<LOD	24.1	<LOD	4.8	<LOD	64	16076	<LOD	76	<LOD	<LOD	2,189	4,275	71	<LOD
13:57:28	9-10	63.7	<LOD	29.6	<LOD	7.9	<LOD	97	32439	<LOD	166	<LOD	<LOD	3,367	5,428	104	<LOD
13:59:45	10-11	60.2	<LOD	29.7	<LOD	6	<LOD	118	43,602	<LOD	<LOD	<LOD	<LOD	3,490	8,595	126	<LOD
14:02:08	11-12	46.8	3	40	<LOD	7.2	<LOD	131	61,596	<LOD	<LOD	<LOD	6	6,203	10,384	190	<LOD
14:04:24	12-13	64.6	3	36	<LOD	7	<LOD	132	57,645	<LOD	<LOD	<LOD	6	5,988	9,812	161	<LOD
14:06:40	13-14	53.3	<LOD	34	<LOD	9.3	<LOD	134	65049	<LOD	130	<LOD	6	6,234	11,062	170	<LOD
14:09:10	14-15	43.4	3	33	<LOD	7.7	<LOD	132	51987	<LOD	114	<LOD	6	6,367	8,713	172	<LOD

Note: Geoprobe on August 6, 2018

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-58

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:04:04	0-1	24.8	<LOD	<LOD	50.6	<LOD	<LOD	<LOD	<LOD	86.5	1,247	20.6	197
16:06:22	1-2	26.3	<LOD	<LOD	43.4	<LOD	<LOD	<LOD	<LOD	74.9	751	9.2	145
16:08:43	2-3	26.9	<LOD	<LOD	30	<LOD	<LOD	<LOD	<LOD	49	361	3.3	95
16:10:59	3-4	26.2	<LOD	<LOD	28.8	<LOD	<LOD	<LOD	<LOD	58.8	232	3.4	76.8
16:13:23	4-5	26.8	<LOD	<LOD	28.9	<LOD	<LOD	<LOD	<LOD	61	327	3.8	67.3
16:19:13	5-6	32.7	<LOD	<LOD	31	<LOD	<LOD	<LOD	<LOD	58.1	298	3.6	61.8

Note: Refusal hit at six feet

Date	Instrument SN	Sample ID
July 23, 2018	511051	TA-SB-58

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:28:50	0-1	26.2	<LOD	<LOD	53.2	<LOD	<LOD	<LOD	<LOD	79.9	1,381	31.2	259
11:31:22	1-2	24.4	<LOD	<LOD	34.9	<LOD	<LOD	<LOD	<LOD	60.3	407	3.3	100
11:37:05	2-3	24.5	<LOD	<LOD	30	<LOD	<LOD	<LOD	<LOD	68.8	195	<LOD	71.9
11:39:38	3-4	25.5	<LOD	<LOD	25.9	<LOD	<LOD	<LOD	<LOD	57.2	308	3.4	70.5
11:42:05	8-9	25.9	<LOD	<LOD	39.7	<LOD	<LOD	<LOD	<LOD	76.2	497	6.7	121
11:44:52	9-10	27.6	<LOD	<LOD	27.4	<LOD	<LOD	<LOD	<LOD	51.5	213	<LOD	70.4

Note: Geoprobe hydraulics problem

Date	Instrument SN	Sample ID
August 6, 2018	512294	TA-SB-58

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
13:34:55	0-1	25.2	25	<LOD	46.3	<LOD	<LOD	<LOD	<LOD	72.6	2,164	42.9	155
13:37:19	1-2	24.8	13	<LOD	41.6	<LOD	<LOD	<LOD	<LOD	65.4	595	9.1	166
13:39:37	2-3	26.2	10	<LOD	28.3	<LOD	<LOD	<LOD	<LOD	62.2	432	7	70.7
13:41:56	3-4	25.5	21	<LOD	41.8	<LOD	<LOD	<LOD	<LOD	72.9	1134	29.2	147
13:44:16	4-5	26.1	13	<LOD	30.8	<LOD	<LOD	<LOD	<LOD	66.9	386	8.3	87.3
13:46:45	5-6	26.3	11	<LOD	26.5	<LOD	<LOD	<LOD	<LOD	54.7	272	5.9	65.4

13:49:10	7-8	45.6	25	<LOD	31.4	<LOD	<LOD	<LOD	<LOD	146	1022	62.7	137
13:51:34	8-9	54.6	10	<LOD	22.7	<LOD	<LOD	<LOD	<LOD	67.4	299	5	51.5
13:57:28	9-10	63.7	10	<LOD	27.8	<LOD	<LOD	<LOD	<LOD	88.7	517	13.9	98.8
13:59:45	10-11	60.2	14	<LOD	33.4	<LOD	<LOD	<LOD	<LOD	109	607	9.7	102.1
14:02:08	11-12	46.8	24	<LOD	39.2	<LOD	<LOD	<LOD	<LOD	120	1,020	14.8	196
14:04:24	12-13	64.6	21	<LOD	36.7	<LOD	<LOD	<LOD	<LOD	118.8	905	12.7	188
14:06:40	13-14	53.3	20	<LOD	40.9	<LOD	<LOD	<LOD	<LOD	122.6	1011	14	169
14:09:10	14-15	43.4	17	<LOD	38.4	<LOD	<LOD	<LOD	<LOD	125.9	916	12.5	183

Note: Geoprobe on August 6, 2018

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-59

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:31:27	0-1	33.4	6.7	66	<LOD	43	<LOD	218	14,119	<LOD	<LOD	<LOD	12	13,252	7,155	308	<LOD
16:37:11	1-2	35.1	18.5	300	<LOD	147	<LOD	181	57,727	<LOD	<LOD	<LOD	25	15,826	6,129	503	<LOD
16:39:30	2-3	53	16	901	6.2	330	<LOD	366	43,405	<LOD	<LOD	<LOD	62	17,134	6,441	291	<LOD
16:41:54	5-6	PD 39.7	10.2	123	<LOD	43.7	<LOD	215	28,873	<LOD	240	<LOD	14	14,533	7,450	229	<LOD
16:44:11	6-7	PD 35.8	7.4	312	<LOD	17.3	<LOD	231	21,272	<LOD	<LOD	<LOD	10	9,938	6,319	423	<LOD
16:46:28	7-8	PD 52.7	<LOD	32	<LOD	12.9	<LOD	181	29,868	<LOD	<LOD	<LOD	<LOD	9,658	5,949	288	<LOD
16:49:01	9-10	PD 20.6	2.4	24	<LOD	10.4	<LOD	163	27,496	<LOD	<LOD	<LOD	<LOD	6,351	5,507	161	<LOD
16:51:31	10-11	PD 34.0	2.4	24	<LOD	6.1	<LOD	127	12,497	<LOD	<LOD	<LOD	<LOD	6,471	2,922	99	<LOD
16:54:01	11-12	PD 68.2	3.9	21	<LOD	5.2	<LOD	110	35,310	<LOD	353	<LOD	<LOD	14,063	4,646	234	<LOD
16:56:47	13-14	41.8	<LOD	31	<LOD	9.1	<LOD	179	56,630	<LOD	<LOD	<LOD	<LOD	6,774	7,112	193	<LOD
17:03:56	14-15	52.9	<LOD	34	<LOD	6.7	<LOD	196	75,960	<LOD	<LOD	<LOD	<LOD	7,866	7,132	243	<LOD
17:06:14	15-16	52.9	<LOD	29	<LOD	8.7	<LOD	197	70,932	<LOD	<LOD	<LOD	7	8,638	8,887	223	<LOD

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-SB-59

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:31:27	0-1	33.4	12	<LOD	45.9	<LOD	<LOD	<LOD	<LOD	111	1,431	69	158
16:37:11	1-2	35.1	13	<LOD	28.9	<LOD	<LOD	<LOD	82	138	1,018	130	101
16:39:30	2-3	53	38	<LOD	50.7	4,915	<LOD	1.5	43	222	1,783	267	133
16:41:54	5-6	PD 39.7	<LOD	<LOD	51.8	6,137	<LOD	<LOD	<LOD	134	1,113	153	169
16:44:11	6-7	PD 35.8	<LOD	<LOD	52.6	4,384	<LOD	<LOD	<LOD	106.6	1,314	34.2	225
16:46:28	7-8	PD 52.7	<LOD	<LOD	38.9	2,524	<LOD	<LOD	<LOD	94.9	1,126	25.4	159
16:49:01	9-10	PD 20.6	<LOD	<LOD	39.5	8,285	<LOD	<LOD	<LOD	92.2	929	14.5	122
16:51:31	10-11	PD 34.0	<LOD	<LOD	28.8	9,326	<LOD	<LOD	<LOD	83.9	668	10.2	161
16:54:01	11-12	PD 68.2	<LOD	<LOD	21.3	37,466	<LOD	<LOD	<LOD	112.3	569	20.6	75.5
16:56:47	13-14	41.8	12	<LOD	43.3	<LOD	<LOD	<LOD	<LOD	147	1,069	10.8	214
17:03:56	14-15	52.9	14	<LOD	42.7	<LOD	<LOD	<LOD	<LOD	153	1,120	15	234
17:06:14	15-16	52.9	15	<LOD	44.3	3,693	31	<LOD	<LOD	147	1,358	13.3	190

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-60

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K
17:55:39	0-1	39.9	4.8	62	<LOD	60	<LOD	239	12,524	<LOD	<LOD	<LOD	16	13,211	6,727
17:57:59	1-2	45.4	2.3	30	<LOD	15	<LOD	171	20,884	<LOD	<LOD	<LOD	<LOD	8,691	4,800
18:00:43	2-3	PD 17.3	4.6	42	<LOD	24.5	<LOD	205	19,744	<LOD	387	<LOD	<LOD	10,856	7,238
18:03:52	7-8	PD <LOD	97	35	<LOD	1,407	<LOD	460	62,392	<LOD	1,020	<LOD	32	28,485	10,910
18:06:08	8-9	PD 45.4	5.5	34	<LOD	136.1	<LOD	266	12,784	<LOD	550	<LOD	7	12,385	6,708
18:08:24	9-10	DTT Clay	4	61	<LOD	13.7	<LOD	322	5,317	<LOD	216	<LOD	8	19,345	13,633

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-60

Time	Depth Interval	Moisture	Mn	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
17:55:39	0-1	39.9	397	<LOD	<LOD	<LOD	48.2	<LOD	<LOD	<LOD	<LOD	92.6	1,361	96.6	192
17:57:59	1-2	45.4	307	<LOD	<LOD	<LOD	36.1	<LOD	<LOD	<LOD	<LOD	86.7	822	31.5	112
18:00:43	2-3	PD 17.3	298	<LOD	14	<LOD	49.5	2,282	<LOD	<LOD	<LOD	83.3	1,259	44.6	168
18:03:52	7-8	PD <LOD	1,205	<LOD	<LOD	<LOD	37.3	16,701	<LOD	<LOD	<LOD	96	1,020	289	120
18:06:08	8-9	PD 45.4	223	<LOD	<LOD	<LOD	46.2	6,171	<LOD	<LOD	<LOD	94.3	1,523	49	164
18:08:24	9-10	DTT Clay	260	<LOD	21	<LOD	77.4	<LOD	<LOD	<LOD	<LOD	126	2,639	46.7	246

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-61

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:46:22	0-1	27.7	3.6	93	<LOD	28.4	<LOD	178	20,747	<LOD	<LOD	<LOD	8	8,988	5,405	215	<LOD
14:48:48	1-2	27.3	<LOD	258	<LOD	25	<LOD	149	64,213	<LOD	<LOD	<LOD	7	8,756	3,681	170	<LOD
14:51:09	5-6	99.9	<LOD	1,189	<LOD	136.5	<LOD	186	9,844	<LOD	450	<LOD	50	15,618	4,414	251	<LOD
14:53:25	6-7	PD 45.9	3.6	39	<LOD	12.9	<LOD	225	3,708	<LOD	<LOD	<LOD	7	11,843	7,351	172	<LOD
14:59:02	7-8	DTT Clay	3.6	47	<LOD	17	<LOD	357	3,804	<LOD	<LOD	<LOD	12	18,619	13,592	220	<LOD

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-61

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:46:22	0-1	27.7	<LOD	<LOD	39.4	<LOD	<LOD	<LOD	<LOD	104	881	54.2	150
14:48:48	1-2	27.3	<LOD	<LOD	26	2,888	<LOD	<LOD	<LOD	147	568	439	110
14:51:09	5-6	99.9	<LOD	<LOD	26.2	2,658	<LOD	<LOD	22	89.9	1,167	707	169
14:53:25	6-7	PD 45.9	<LOD	<LOD	49.3	<LOD	<LOD	<LOD	<LOD	121	1,583	31.2	217
14:59:02	7-8	DTT Clay	24	<LOD	82.6	<LOD	<LOD	<LOD	<LOD	98.9	2,330	37.3	206

Date	Instrument SN	Sample ID
July 11-12, 2018	511051	TA-SB-62

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
14:24:56	0-1	31.2	4.7	50	<LOD	14.3	<LOD	195	28,546	<LOD	<LOD	<LOD	<LOD	10,842	6,301	306
14:27:13	1-2	27.7	5.5	135	<LOD	45.3	<LOD	242	26,382	<LOD	<LOD	<LOD	14	11,400	5,728	294
14:29:30	2-3	35.3	4.6	84	<LOD	35.5	<LOD	208	9,229	<LOD	<LOD	<LOD	20	8,326	5,034	163
14:31:58	3-4	40.2	6	265	<LOD	46.8	<LOD	198	10,166	<LOD	<LOD	<LOD	23	18,834	6,224	193
14:34:30	4-4.7	51.8	9	390	<LOD	126	<LOD	202	8,946	<LOD	231	<LOD	108	15,475	4,848	912
10:43:17	5-6	PD 37.8	<LOD	141	<LOD	59.6	<LOD	222	15,882	<LOD	<LOD	<LOD	39	16,382	6,532	696
10:46:28	6-7	DTT Clay	5.6	53	<LOD	13.9	<LOD	320	36,785	<LOD	869	<LOD	12	19,509	13,761	290
10:48:58	7-8	DTT Clay	6.3	31	<LOD	12.4	<LOD	270	55,835	<LOD	<LOD	<LOD	9	22,251	14,259	310

Date	Instrument SN	Sample ID
July 11-12, 2018	511051	TA-SB-62

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:24:56	0-1	31.2	<LOD	<LOD	<LOD	45.9	<LOD	<LOD	1.2	<LOD	89	907	47.9	102
14:27:13	1-2	27.7	<LOD	14	<LOD	41.7	2,484	<LOD	<LOD	<LOD	123	1,454	90.2	140
14:29:30	2-3	35.3	<LOD	<LOD	<LOD	39	<LOD	<LOD	<LOD	<LOD	102.1	1,367	81.6	170
14:31:58	3-4	40.2	<LOD	<LOD	<LOD	35.5	2,023	<LOD	<LOD	<LOD	87.6	1,058	98.5	115
14:34:30	4-4.7	51.8	<LOD	<LOD	<LOD	34	2,198	<LOD	<LOD	<LOD	165	1,410	1,057	130
10:43:17	5-6	PD 37.8	<LOD	<LOD	<LOD	51.1	<LOD	<LOD	<LOD	<LOD	107	1,560	514	169
10:46:28	6-7	DTT Clay	<LOD	20	<LOD	73.6	<LOD	<LOD	<LOD	<LOD	90.9	2,178	42.4	192
10:48:58	7-8	DTT Clay	<LOD	<LOD	<LOD	66.6	<LOD	30	<LOD	<LOD	84.1	1,872	36.9	130

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-63

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
15:01:16	0-1	37	4.3	76	<LOD	29.3	<LOD	192	27,909	<LOD	<LOD	<LOD	11	9,556	5,504	299	<LOD
15:03:30	1-2	36.4	<LOD	90	<LOD	36.2	<LOD	220	6,186	<LOD	<LOD	<LOD	12	8,098	5,775	141	<LOD
15:05:50	2-3	31.9	3	94	<LOD	25.1	<LOD	196	8,724	<LOD	<LOD	<LOD	8	9,385	5,485	219	<LOD
15:08:07	6-7	40.6	11.6	141	3.4	90.5	<LOD	345	11,246	<LOD	<LOD	<LOD	34	10,250	5,300	232	<LOD
15:10:22	7-8	40.6	<LOD	647	<LOD	15.6	<LOD	209	12,195	<LOD	<LOD	<LOD	81	9,901	5,744	410	<LOD

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-63

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:01:16	0-1	37	<LOD	<LOD	40.3	<LOD	<LOD	<LOD	<LOD	121	955	71.5	129
15:03:30	1-2	36.4	<LOD	<LOD	45.1	1,923	<LOD	<LOD	<LOD	115	1,226	38.2	190
15:05:50	2-3	31.9	<LOD	<LOD	41.9	<LOD	<LOD	<LOD	<LOD	119	1,391	44.3	196
15:08:07	6-7	40.6	21	<LOD	45.6	1,933	<LOD	1.5	<LOD	167	2,064	50.3	177
15:10:22	7-8	40.6	<LOD	<LOD	47.6	<LOD	28	<LOD	<LOD	127	1,526	265	378

Date	Instrument SN	Sample ID
July 10, 2018	512294	TA-SB-64

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
15:12:33	0-1	31	94.5	1162	<LOD	44	<LOD	171	26,489	<LOD	<LOD	<LOD	30.1	15,159	6,542	479	<LOD	20
15:14:54	1-2	27.7	13.9	258	<LOD	24	<LOD	136	26,393	<LOD	124	<LOD	15.4	7,690	7,396	273	<LOD	18

Note: Hand auger on July 10, 2018

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
11:09:21	0-1	28.1	2.6	38	<LOD	11.6	<LOD	154	11,119	<LOD	<LOD	<LOD	<LOD	6,117	4,072	196	<LOD	<LOD
11:11:44	1-2	27.5	4.6	165	<LOD	42.1	<LOD	241	30,765	<LOD	<LOD	<LOD	38	12,429	5,795	221	<LOD	<LOD
11:13:59	2-3	26.7	4.6	129	<LOD	97.2	<LOD	231	15,094	<LOD	<LOD	<LOD	13	9,266	6,116	281	<LOD	13
11:16:19	4-4.5	29.5	6.4	327	<LOD	94	<LOD	191	19,424	<LOD	<LOD	<LOD	24	11,992	5,513	265	<LOD	<LOD

Note: Geoprobe on July 11, 2018

Date	Instrument SN	Sample ID
July 10, 2018	512294	TA-SB-64

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:12:33	0-1	31	<LOD	33.2	899	<LOD	<LOD	<LOD	101.1	1,285	195	131
15:14:54	1-2	27.7	<LOD	34.1	317	<LOD	<LOD	<LOD	84	899	66.2	144

Note: Hand auger on July 10, 2018

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:09:21	0-1	28.1	<LOD	36.6	<LOD	<LOD	<LOD	<LOD	80	677	24.8	166
11:11:44	1-2	27.5	<LOD	35.4	<LOD	<LOD	<LOD	<LOD	163	1,101	84.2	155
11:13:59	2-3	26.7	<LOD	40.7	<LOD	<LOD	<LOD	<LOD	120	1,284	98.7	163
11:16:19	4-4.5	29.5	<LOD	43	2,947	<LOD	<LOD	<LOD	113	1,361	360	166

Note: Geoprobe on July 11, 2018

Date	Instrument SN	Sample ID
July 10, 2018	512294	TA-SB-65

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
10:47:20	0-1	28.1	5.1	133	<LOD	19.9	<LOD	151	21,630	<LOD	<LOD	<LOD	14.8	10,960	7,194	342	<LOD	18
10:51:43	1-2	37.5	3.5	1024	<LOD	44.3	<LOD	145	8,341	<LOD	<LOD	<LOD	13.7	7,687	6,250	243	<LOD	20
10:58:27	2-3	47.2	3.3	116	<LOD	18.9	<LOD	139	6,355	<LOD	<LOD	<LOD	5.9	7,942	6,525	225	<LOD	17
11:01:31	3-4	42.9	<LOD	1283	<LOD	126.4	<LOD	122	14,174	<LOD	146	<LOD	28.6	7,932	4,562	215	<LOD	7
11:08:03	4-5	46.4	10.9	3253	<LOD	147.3	<LOD	132	10,063	<LOD	119	<LOD	23.8	9,444	3,436	270	<LOD	11
11:12:50	5-6	59.1	5.7	831	<LOD	62.3	<LOD	120	6,380	<LOD	131	<LOD	16.5	6,168	3,620	228	<LOD	7.7
11:36:39	6-7	31	2.6	99	<LOD	16.6	<LOD	157	3,191	<LOD	84	<LOD	4.2	9,291	5,719	177	<LOD	13

Date	Instrument SN	Sample ID
July 10, 2018	512294	TA-SB-65

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:47:20	0-1	28.1	<LOD	32.6	<LOD	<LOD	<LOD	<LOD	86.8	1,105	62.3	107.4
10:51:43	1-2	37.5	<LOD	34	364	<LOD	<LOD	<LOD	78.1	1,172	102.4	134
10:58:27	2-3	47.2	<LOD	36.7	<LOD	<LOD	<LOD	<LOD	90.4	1,269	43.7	246
11:01:31	3-4	42.9	<LOD	23.7	627	<LOD	<LOD	22	72.3	912	151	103.9
11:08:03	4-5	46.4	<LOD	23.4	642	<LOD	<LOD	<LOD	62.7	761	635	78.1
11:12:50	5-6	59.1	<LOD	23.2	754	<LOD	<LOD	24	69.3	911	399	115.4
11:36:39	6-7	31	<LOD	41.1	332	<LOD	<LOD	<LOD	106.7	789	51.5	173

Date	Instrument SN	Sample ID
July 10, 2018	511051	TA-SB-66

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
16:01:36	0-1	27.8	9.1	365	<LOD	63.3	<LOD	220	28,737	<LOD	<LOD	<LOD	22	12,266	6,840	301	<LOD	<LOD
16:03:55	1-2	29.6	3.6	227	<LOD	41	<LOD	197	55,606	<LOD	<LOD	<LOD	20	27,743	7,531	374	<LOD	19
16:06:14	2-3	36.6	39	1,620	<LOD	308	<LOD	294	32,161	<LOD	<LOD	<LOD	44	17,763	5,069	298	3.6	<LOD

Note: Geoprobe on July 10, 2018

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-66

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
16:50:10	7-8	PD 63.1	5.2	260	<LOD	16.6	<LOD	268	6,882	<LOD	273	<LOD	14	14,220	7,436	710	<LOD	<LOD
16:52:35	8-9	DTT Clay	<LOD	46	<LOD	13.2	<LOD	282	57,413	<LOD	<LOD	<LOD	7	11,948	10,367	310	3.8	21
16:55:07	9-10	DTT Clay	2.8	43	<LOD	11.4	<LOD	250	64,815	<LOD	<LOD	<LOD	8	10,737	9,868	296	<LOD	16

Note: Geoprobe on July 16, 2018

Date	Instrument SN	Sample ID
July 10, 2018	511051	TA-SB-66

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:01:36	0-1	27.8	<LOD	39.9	<LOD	<LOD	<LOD	<LOD	106	1,083	174	149
16:03:55	1-2	29.6	<LOD	34.6	<LOD	<LOD	<LOD	<LOD	122	1,173	78.5	137
16:06:14	2-3	36.6	<LOD	27.9	6,264	<LOD	<LOD	<LOD	109	1,023	773	84

Note: Geoprobe on July 10, 2018

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-66

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:50:10	7-8	PD 63.1	<LOD	67	<LOD	<LOD	<LOD	<LOD	109	1,723	119	286
16:52:35	8-9	DTT Clay	<LOD	56.3	<LOD	<LOD	<LOD	<LOD	127	1,690	32.7	190
16:55:07	9-10	DTT Clay	<LOD	53.2	<LOD	<LOD	<LOD	<LOD	127	1,585	28	203

Note: Geoprobe on July 16, 2018

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-67

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
8:02:38	0-1	26.6	4.4	93	3.2	38.7	<LOD	229	15,945	<LOD	<LOD	<LOD	37	14,331	6,280	362	<LOD
8:05:44	1-2	39.7	3.1	36	<LOD	13.3	<LOD	258	3,704	<LOD	<LOD	<LOD	<LOD	9,732	7,517	281	<LOD
8:08:09	4-5	50.9	3.4	25	<LOD	6.3	<LOD	77	101,140	<LOD	<LOD	<LOD	7	7,538	2,569	214	<LOD
8:11:35	5-6	DTT Clay	<LOD	41	<LOD	12.7	<LOD	271	66,474	<LOD	<LOD	<LOD	7	12,185	10,386	308	<LOD
8:13:59	6-7	DTT Clay	<LOD	37	<LOD	12.9	<LOD	248	69,966	<LOD	<LOD	<LOD	7	11,782	10,396	260	<LOD
8:16:47	7-8	DTT Clay	2.7	35	<LOD	9.5	<LOD	252	68,563	<LOD	<LOD	<LOD	7	11,038	9,936	267	<LOD

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-67

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:02:38	0-1	26.6	<LOD	<LOD	42	2,414	<LOD	<LOD	<LOD	99	1,087	56.8	203
8:05:44	1-2	39.7	18	<LOD	62	<LOD	<LOD	<LOD	<LOD	143	1,713	27.9	285
8:08:09	4-5	50.9	<LOD	<LOD	29.8	<LOD	<LOD	<LOD	<LOD	89.9	506	17.8	96
8:11:35	5-6	DTT Clay	<LOD	<LOD	54.6	<LOD	<LOD	<LOD	<LOD	128	1,560	29.4	191
8:13:59	6-7	DTT Clay	17	<LOD	54.9	<LOD	<LOD	<LOD	<LOD	132	1,620	35.9	196
8:16:47	7-8	DTT Clay	<LOD	<LOD	53.7	<LOD	<LOD	1.2	<LOD	127	1,554	29.7	206

Date	Instrument SN	Sample ID
July 9, 2018	512294	TA-SB-68

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:12:35	0-1	41.2	7.5	233	<LOD	97.5	<LOD	148	14,150	<LOD	<LOD	<LOD	14.6	8,700	6,025	267	<LOD
14:29:18	1-2	PD <LOD	13.7	223	<LOD	117.8	<LOD	230	23,091	<LOD	<LOD	<LOD	32.3	13,111	6,263	288	<LOD
14:44:08	2-3	PD <LOD	11.6	79	<LOD	14.8	17	247	18,971	14	112	<LOD	46.8	13,556	2,790	85	<LOD
14:46:34	3-3.8	PD 26.1	11.8	367	<LOD	28.1	15	201	21,992	9	<LOD	<LOD	54.9	10,118	2,133	117	<LOD

Note: Geoprobe on July 9, 2018

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-68

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
14:06:39	0-1	37.6	4.6	106	<LOD	56.1	<LOD	251	22,269	<LOD	<LOD	<LOD	19	13,121	5,566	371	<LOD
14:09:14	1-2	PD <LOD	13.4	305	<LOD	88.1	<LOD	353	26,591	<LOD	<LOD	<LOD	51	14,260	5,821	249	<LOD
14:12:12	2-3	PD 19.3	7.2	164	<LOD	68.6	<LOD	298	37,311	<LOD	<LOD	<LOD	26	11,247	4,098	215	<LOD
14:14:52	4-5	PD 24.1	<LOD	144	5.8	609	<LOD	418	23,000	<LOD	350	<LOD	55	20,380	3,466	1,600	<LOD
14:17:51	5-6	PD 21.4	9.1	90	<LOD	34.7	<LOD	407	3,911	<LOD	526	<LOD	25	42,202	10,742	486	<LOD
14:20:28	6-7	PD <LOD	5	39	<LOD	16.4	<LOD	396	4,895	<LOD	<LOD	<LOD	7	20,518	12,712	339	<LOD
14:26:48	7-8	PD DTT Clay	3.9	53	<LOD	16.1	<LOD	387	4,315	<LOD	<LOD	<LOD	12	19,642	14,392	213	<LOD

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 9, 2018	512294	TA-SB-68

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:12:35	0-1	41.2	16	<LOD	31.6	538	<LOD	<LOD	<LOD	84.1	1,023	124.5	121.6
14:29:18	1-2	PD <LOD	43	<LOD	39.5	1,542	<LOD	<LOD	<LOD	120.3	1,465	161	119.7
14:44:08	2-3	PD <LOD	70	<LOD	36.3	1,937	<LOD	1.6	<LOD	212	1,150	32.5	47.8
14:46:34	3-3.8	PD 26.1	59	<LOD	28	1,464	<LOD	<LOD	<LOD	193	873	168.9	52

Note: Geoprobe on July 9, 2018

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-68

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:06:39	0-1	37.6	<LOD	<LOD	34.7	2,961	<LOD	<LOD	<LOD	92.9	1,091	103.4	138
14:09:14	1-2	PD <LOD	23	<LOD	53.5	6,995	<LOD	<LOD	<LOD	183	1,326	316	193
14:12:12	2-3	PD 19.3	<LOD	<LOD	38.9	6,647	<LOD	<LOD	<LOD	196	1,037	368	149
14:14:52	4-5	PD 24.1	55	<LOD	46.6	13,770	<LOD	5.4	<LOD	260	1,304	77.3	63
14:17:51	5-6	PD 21.4	<LOD	<LOD	52.7	9,257	<LOD	2.1	<LOD	132	1,961	117	157
14:20:28	6-7	PD <LOD	12	<LOD	67.9	3,475	<LOD	<LOD	<LOD	123	2,960	29.3	271
14:26:48	7-8	PD DTT Clay	25	<LOD	79.9	<LOD	<LOD	<LOD	<LOD	129	2,497	34.1	287

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 9, 2018	512294	TA-SB-69

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
15:15:10	0-1	33.1	13.8	366	4.5	49	<LOD	447	9,266	<LOD	<LOD	<LOD	78.2	25,433	8,516	197	<LOD
15:24:07	1-2	29.8	17.3	154	6	25.3	<LOD	553	2,774	12	<LOD	<LOD	92	28,646	7,725	113	<LOD
15:34:13	2-3	PD 22.7	20.7	1041	8.6	102.2	<LOD	576	5,779	<LOD	<LOD	<LOD	357	28,228	8,461	185	<LOD
15:36:45	3-4	51.5	5.2	108	<LOD	20	<LOD	204	7,236	<LOD	<LOD	<LOD	83.1	18,364	6,261	237	<LOD
16:09:07	4-4.3	46.5	<LOD	81	1.9	13.7	<LOD	98	2,929	<LOD	84	<LOD	7.2	5,073	5,864	169	<LOD

Date	Instrument SN	Sample ID
July 9, 2018	512294	TA-SB-69

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:15:10	0-1	33.1	108	<LOD	66.1	334	<LOD	<LOD	<LOD	207	2,578	312	147
15:24:07	1-2	29.8	138	<LOD	76.5	477	<LOD	<LOD	<LOD	272	2,794	224	148
15:34:13	2-3	PD 22.7	124	<LOD	72.1	1,021	<LOD	1.1	24	268	2,933	581	166
15:36:45	3-4	51.5	38	<LOD	42.2	<LOD	<LOD	<LOD	30	112.8	987	745	136
16:09:07	4-4.3	46.5	15	<LOD	32.7	<LOD	<LOD	<LOD	<LOD	68	591	280	119.9

Date	Instrument SN	Sample ID
July 9, 2018	512294	TA-SB-70

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
13:28:04	0-1	48.1	10.4	204	9.8	28.6	<LOD	355	6,146	<LOD	<LOD	<LOD	32.4	9,723	5,248	189	2.6
13:51:30	1-2	53.2	28.7	119	22.4	24.1	10	474	2,963	<LOD	90	<LOD	59	11,480	2,949	103	3.7
13:54:44	2-3	39.3	5.5	108	7.1	12.6	<LOD	357	3,338	12	<LOD	<LOD	52.4	9,044	3,297	95	<LOD
13:57:16	3-4	48.2	2.9	37.8	<LOD	4.9	<LOD	116	1,649	<LOD	<LOD	<LOD	7	2,464	4,829	69	<LOD
14:06:10	4-5	PD 43.3	2.6	46.6	<LOD	6.3	<LOD	92	917	<LOD	81	<LOD	<LOD	2,567	3,736	87	<LOD

Note: Hand auger on July 9, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-70

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:57:01	0-1	26.1	8.8	944	<LOD	69	<LOD	284	23,778	<LOD	<LOD	<LOD	40	18,623	8,761	471	<LOD
10:02:48	1-2	36.6	<LOD	102	<LOD	32.9	<LOD	418	4,115	<LOD	<LOD	<LOD	57	8,304	1,857	102	3.2
10:05:21	2-2.6	PD 53.3	15.6	59	5.4	24.7	<LOD	354	6,076	<LOD	<LOD	<LOD	49	9,868	816	115	3.1
10:07:44	5-6	66.8	18.3	74	5.3	129.9	<LOD	257	3,322	<LOD	<LOD	<LOD	31	9,139	3,073	130	<LOD
10:10:26	6-7	58.5	2.7	38	<LOD	12.3	<LOD	255	3,098	<LOD	<LOD	<LOD	<LOD	11,587	8,591	132	<LOD
10:12:54	7-8	DTT Clay	6.5	56	<LOD	13.8	<LOD	351	3,323	<LOD	<LOD	<LOD	18	19,503	12,690	222	<LOD
10:15:12	8-9	DTT Clay	<LOD	48	<LOD	12.1	<LOD	245	45,254	<LOD	<LOD	<LOD	<LOD	11,738	9,597	311	<LOD
10:17:34	9-10	DTT Clay	<LOD	40	<LOD	11.6	<LOD	244	42,348	<LOD	<LOD	<LOD	6	8,720	8,563	215	<LOD
10:20:50	10-11	DTT Clay	<LOD	48	<LOD	9.8	<LOD	238	73,071	<LOD	<LOD	<LOD	<LOD	12,349	9,011	294	<LOD
10:23:14	11-12	DTT Clay	2.4	63	<LOD	11.5	<LOD	223	77,185	<LOD	<LOD	<LOD	10	12,414	11,979	279	<LOD

Note: Geoprobe on July 12, 2018

Date	Instrument SN	Sample ID
July 9, 2018	512294	TA-SB-70

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
13:28:04	0-1	48.1	46	<LOD	35.5	411	<LOD	<LOD	<LOD	192	1,306	134.5	123
13:51:30	1-2	53.2	67	<LOD	37.4	757	<LOD	1.3	<LOD	383	2,182	147.8	152
13:54:44	2-3	39.3	118	<LOD	49.2	438	<LOD	1.1	<LOD	408	3,322	130.2	192
13:57:16	3-4	48.2	16	<LOD	31.7	<LOD	<LOD	<LOD	<LOD	76.8	599	79.2	83.1
14:06:10	4-5	PD 43.3	10	<LOD	33.2	<LOD	<LOD	<LOD	<LOD	55	295	98.5	102.2

Note: Hand auger on July 9, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-70

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:57:01	0-1	26.1	19	<LOD	47.7	<LOD	<LOD	<LOD	<LOD	137	1,371	621	101
10:02:48	1-2	36.6	16	<LOD	51.4	2,127	<LOD	2.2	<LOD	279	2,924	39.3	196
10:05:21	2-2.6	PD 53.3	11	<LOD	31.9	3,828	<LOD	5.9	<LOD	259	1,711	243	93
10:07:44	5-6	66.8	11	<LOD	33.9	4,602	<LOD	3.5	<LOD	88.2	1,801	1,059	168
10:10:26	6-7	58.5	<LOD	<LOD	51.6	2,368	35	<LOD	<LOD	112	1,624	26.3	196
10:12:54	7-8	DTT Clay	25	<LOD	73.3	<LOD	<LOD	<LOD	<LOD	117	2,399	37.6	289
10:15:12	8-9	DTT Clay	<LOD	<LOD	55.7	<LOD	<LOD	<LOD	<LOD	116	1,662	28.2	201
10:17:34	9-10	DTT Clay	11	<LOD	55.3	<LOD	<LOD	<LOD	<LOD	133	1,574	24.4	212
10:20:50	10-11	DTT Clay	<LOD	<LOD	53.4	<LOD	<LOD	<LOD	<LOD	136	1,473	33.5	174
10:23:14	11-12	DTT Clay	19	<LOD	56.7	<LOD	<LOD	<LOD	<LOD	135	1,970	35.7	204

Note: Geoprobe on July 12, 2018

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-71

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
8:43:09	0-1	40.2	2.9	42	<LOD	10	<LOD	213	47,965	<LOD	<LOD	<LOD	7	11,019	6,873	306	<LOD
8:46:27	1-2	49.4	13.2	72	<LOD	139	<LOD	213	33,655	<LOD	280	<LOD	106	36,158	9,088	417	<LOD
8:48:52	2-3	53.1	<LOD	21	<LOD	10.2	<LOD	143	11,641	<LOD	<LOD	<LOD	<LOD	5,547	3,393	167	<LOD
9:00:03	3-4	PD 19.3	2.3	42	<LOD	12.8	<LOD	283	7,087	<LOD	658	<LOD	<LOD	10,990	7,655	320	<LOD
9:02:49	4-5	PD 65.2	<LOD	21	<LOD	6.9	<LOD	142	829	<LOD	343	<LOD	<LOD	3,379	4,806	165	<LOD
9:05:11	5-6	PD 49.8	<LOD	13	<LOD	6.9	<LOD	142	9,771	<LOD	438	<LOD	<LOD	3,502	5,227	164	<LOD
9:08:11	6-7	DTT Clay	2.7	46	2.9	10.5	<LOD	250	63,881	<LOD	<LOD	<LOD	10	10,104	9,685	263	<LOD
9:10:38	7-8	DTT Clay	<LOD	54	<LOD	11.3	<LOD	228	61,254	<LOD	228	<LOD	<LOD	10,536	9,704	258	<LOD

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-71

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:43:09	0-1	40.2	<LOD	<LOD	35.9	<LOD	<LOD	<LOD	<LOD	121	874	27.1	117
8:46:27	1-2	49.4	<LOD	<LOD	37.3	5,579	<LOD	<LOD	<LOD	119	1,122	95	71
8:48:52	2-3	53.1	<LOD	<LOD	37.6	<LOD	<LOD	<LOD	<LOD	76.5	1,047	10	176
9:00:03	3-4	PD 19.3	<LOD	<LOD	49.4	<LOD	<LOD	<LOD	<LOD	110	2,033	20.7	176
9:02:49	4-5	PD 65.2	<LOD	<LOD	44	<LOD	<LOD	<LOD	<LOD	66.8	371	7	106
9:05:11	5-6	PD 49.8	<LOD	<LOD	44.9	<LOD	<LOD	<LOD	<LOD	71.7	427	5.9	154
9:08:11	6-7	DTT Clay	<LOD	<LOD	52.3	<LOD	<LOD	<LOD	<LOD	132	1,429	23.8	228
9:10:38	7-8	DTT Clay	<LOD	<LOD	55	<LOD	<LOD	<LOD	<LOD	124	1,575	26.2	249

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-72

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:20:52	0-1	26	4.9	47	<LOD	15.4	<LOD	257	35,209	<LOD	<LOD	<LOD	16	18,544	8,715	412	<LOD
9:23:25	1-2	24.9	6.6	258	<LOD	168	<LOD	240	11,057	<LOD	<LOD	<LOD	33	11,451	5,855	403	<LOD
9:25:43	2-3	41.8	2.7	241	4.7	25.7	<LOD	569	3,965	<LOD	<LOD	49	130	11,641	3,895	104	<LOD
9:28:06	3-4	47.8	3.7	172	<LOD	21	<LOD	208	6,596	<LOD	<LOD	<LOD	<LOD	11,183	5,190	340	<LOD
9:36:38	5-6	PD NR	2.8	30	<LOD	8.7	<LOD	230	23,611	<LOD	<LOD	<LOD	<LOD	11,397	6,723	448	<LOD
9:39:12	6-7	PD NR	<LOD	19	<LOD	8.3	<LOD	157	11,263	<LOD	<LOD	<LOD	<LOD	5,631	5,044	125	<LOD
9:41:29	7-8	DTT Clay	2.2	43	<LOD	11.1	<LOD	276	62,455	<LOD	<LOD	<LOD	10	10,945	9,944	263	<LOD

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-72

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:20:52	0-1	26	17	<LOD	44.7	<LOD	<LOD	<LOD	<LOD	136	1,248	37.7	141
9:23:25	1-2	24.9	<LOD	<LOD	44	2,105	<LOD	<LOD	<LOD	132	1,789	429	176
9:25:43	2-3	41.8	49	<LOD	75.3	3,962	<LOD	1.2	<LOD	490	2,363	138	193
9:28:06	3-4	47.8	<LOD	<LOD	42.6	<LOD	<LOD	<LOD	<LOD	90	1,309	45.5	174
9:36:38	5-6	PD NR	<LOD	<LOD	47	<LOD	<LOD	<LOD	<LOD	96.2	1,396	16.7	280
9:39:12	6-7	PD NR	<LOD	<LOD	42.4	<LOD	<LOD	<LOD	<LOD	79.5	777	12.8	357
9:41:29	7-8	DTT Clay	26	<LOD	58	<LOD	<LOD	<LOD	<LOD	134	1,557	32.5	236

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-73

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:48:34	0-1	24	3.6	46	<LOD	12.1	<LOD	186	40,536	<LOD	<LOD	<LOD	13	17,400	6,632	355	<LOD
9:50:58	1-2	27.9	6.9	139	4.3	51.2	<LOD	537	3,897	<LOD	<LOD	<LOD	45	33,646	7,725	244	<LOD
10:10:45	2-3	PD 40.4	3.5	55	<LOD	18.5	<LOD	313	5,879	<LOD	<LOD	<LOD	19	18,012	8,181	518	<LOD
10:15:17	4-5	PD 45.1	<LOD	39	<LOD	10.1	<LOD	191	32,896	<LOD	<LOD	<LOD	<LOD	8,882	5,888	148	<LOD
10:20:46	5-6	PD 66.3	<LOD	20	<LOD	6	<LOD	131	6,592	<LOD	<LOD	<LOD	<LOD	2,729	3,347	87	<LOD
10:23:45	6-7	DTT Clay	3.1	46	<LOD	10.8	<LOD	256	61,432	<LOD	<LOD	<LOD	6	13,770	10,885	439	<LOD
10:30:23	7-8	DTT Clay	2.4	44	<LOD	11.2	<LOD	261	65,033	<LOD	223	<LOD	11	11,088	9,686	248	<LOD

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-73

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:48:34	0-1	24	<LOD	<LOD	41.5	<LOD	<LOD	<LOD	<LOD	126	1,194	40.8	125
9:50:58	1-2	27.9	<LOD	<LOD	103.2	5,638	<LOD	<LOD	<LOD	463	2,467	102	234
10:10:45	2-3	PD 40.4	<LOD	<LOD	50.1	1,849	<LOD	<LOD	<LOD	106	1,961	38	255
10:15:17	4-5	PD 45.1	<LOD	<LOD	44.9	<LOD	<LOD	<LOD	<LOD	101	1,106	17.4	261
10:20:46	5-6	PD 66.3	<LOD	<LOD	38.4	<LOD	<LOD	<LOD	<LOD	62.5	301	10.7	217
10:23:45	6-7	DTT Clay	22	<LOD	56.7	<LOD	<LOD	<LOD	<LOD	126	1,615	29.5	208
10:30:23	7-8	DTT Clay	26	<LOD	55.6	2,785	<LOD	<LOD	<LOD	131	1,602	27.4	195

Date	Instrument SN	Sample ID
July 11, 2018	512294	TA-SB-74

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
8:56:22	0-1	28.3	3.3	40	<LOD	47.5	<LOD	137	54,111	<LOD	<LOD	<LOD	14.2	9,223	6,994	261	<LOD	21
8:59:34	1-2	27.4	13.6	354	2.7	52.5	9	340	2,906	<LOD	<LOD	<LOD	50.2	34,170	3,407	353	<LOD	39
9:05:26	2-3	30.8	<LOD	255	6.9	73.9	9	366	2,064	<LOD	<LOD	<LOD	362	40,882	3,068	283	<LOD	73
9:20:37	5-6	PD <LOD	2.3	32.3	<LOD	10	<LOD	148	2,572	<LOD	110	<LOD	5.8	7,267	8,694	113	<LOD	21
9:27:42	6-7	PD <LOD	4.6	46	<LOD	11.1	<LOD	191	32,340	<LOD	<LOD	<LOD	12.1	15,069	10,526	396	<LOD	25
9:30:59	7-8	<LOD	<LOD	51	<LOD	10.6	<LOD	189	46,948	<LOD	<LOD	<LOD	7.1	11,109	11,835	257	<LOD	26

Date	Instrument SN	Sample ID
July 11, 2018	512294	TA-SB-74

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:56:22	0-1	28.3	<LOD	30.1	498	<LOD	<LOD	<LOD	113.7	936	69.4	131
8:59:34	1-2	27.4	<LOD	29.6	789	<LOD	<LOD	<LOD	314	2,637	208	146
9:05:26	2-3	30.8	<LOD	51.7	983	<LOD	<LOD	<LOD	442	1,578	301	132
9:20:37	5-6	PD <LOD	<LOD	46.7	<LOD	<LOD	<LOD	<LOD	98.8	1,028	361	293
9:27:42	6-7	PD <LOD	<LOD	56.5	<LOD	<LOD	<LOD	<LOD	109.5	1,733	39.9	247
9:30:59	7-8	<LOD	<LOD	50.9	<LOD	<LOD	<LOD	<LOD	99.4	1,627	33.2	204

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-75

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
15:44:54	0-1	25	6.4	704	<LOD	41.9	<LOD	198	71,477	<LOD	<LOD	<LOD	27	19,566	8,144	405
15:48:18	1-2	29	<LOD	908	<LOD	62.8	<LOD	228	25,096	<LOD	<LOD	<LOD	33	14,687	8,090	319
15:54:01	2-3	27.4	5.2	373	<LOD	52.4	<LOD	178	19,358	<LOD	<LOD	<LOD	19	12,046	5,680	287
15:57:01	3-4	27.9	6.5	376	9	24.3	<LOD	644	10,720	<LOD	226	<LOD	122	32,549	11,390	197
16:05:09	4-5	58.4	18.9	580	<LOD	240	<LOD	275	7,095	<LOD	169	<LOD	110	19,471	3,614	239
16:29:05	5-6	PD 40.7	39.9	1310	10.6	204	<LOD	589	7,515	<LOD	412	<LOD	227	35,291	6,158	212
16:33:39	6-7	PD 53.6	20.5	945	<LOD	107.4	<LOD	354	3,118	<LOD	280	<LOD	120	18,922	3,177	134
16:39:49	7-8	PD <LOD	5.7	318	<LOD	25.6	<LOD	353	4,108	<LOD	<LOD	<LOD	14	16,366	10,700	214
16:42:41	8-9	PD 17.6	4.8	379	<LOD	23	<LOD	262	46,150	<LOD	380	<LOD	20	14,640	9,445	367

Note: Hand auger on July 11, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-75

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
10:28:46	9-10	75.3	6.2	226	<LOD	21.2	<LOD	295	23,834	<LOD	256	<LOD	16	17,215	8,324	262
10:31:00	10-11	68.2	3	84	<LOD	9.7	<LOD	283	57,633	<LOD	<LOD	<LOD	<LOD	14,151	9,967	309
10:33:13	11-12	65.3	<LOD	40	<LOD	10.1	<LOD	207	61,024	<LOD	<LOD	<LOD	10	11,328	8,674	256

Note: Geoprobe on July 12, 2018

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-75

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:44:54	0-1	25	<LOD	14	<LOD	37	<LOD	<LOD	<LOD	<LOD	92	1,095	119	122
15:48:18	1-2	29	<LOD	<LOD	<LOD	37.8	<LOD	<LOD	<LOD	<LOD	97	1,224	123	126
15:54:01	2-3	27.4	<LOD	<LOD	<LOD	34.4	<LOD	<LOD	<LOD	<LOD	95.6	1,205	81.1	132
15:57:01	3-4	27.9	<LOD	131	<LOD	127.5	6,910	<LOD	1.4	<LOD	358	2,726	70.4	180
16:05:09	4-5	58.4	<LOD	33	<LOD	43.5	3,907	<LOD	<LOD	<LOD	185	1,112	535	81.8
16:29:05	5-6	PD 40.7	5.9	107	<LOD	34.8	10,410	<LOD	7.9	<LOD	418	1,350	1,849	78
16:33:39	6-7	PD 53.6	2.9	56	<LOD	40.3	10,423	<LOD	4.9	<LOD	245	1,156	301	78.6
16:39:49	7-8	PD <LOD	<LOD	<LOD	<LOD	45.1	6,549	<LOD	<LOD	<LOD	125	2,409	85.1	157
16:42:41	8-9	PD 17.6	<LOD	<LOD	<LOD	34.9	5,058	<LOD	<LOD	<LOD	104	1,732	95.8	104

Note: Hand auger on July 11, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-75

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:28:46	9-10	75.3	<LOD	26	<LOD	48.6	<LOD	<LOD	1.2	<LOD	104	1,689	67.4	159
10:31:00	10-11	68.2	<LOD	21	<LOD	53.5	<LOD	<LOD	<LOD	<LOD	125	1,527	30.6	198
10:33:13	11-12	65.3	<LOD	14	<LOD	52.9	<LOD	<LOD	<LOD	<LOD	127	1,477	28.8	246

Note: Geoprobe on July 12, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-76

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:36:08	0-1	22.7	<LOD	36	<LOD	12	<LOD	102	25,240	<LOD	<LOD	<LOD	<LOD	3,916	2,978	138	<LOD
10:38:44	1-2	27.5	15.6	716	8.9	175	<LOD	641	9,427	<LOD	<LOD	<LOD	94	26,007	9,424	174	<LOD
10:41:15	7-8	66.1	<LOD	2,040	<LOD	1,025	<LOD	701	6,844	<LOD	<LOD	<LOD	413	8,872	1,525	139	<LOD
10:43:41	10-11	PD 16.8	<LOD	62	<LOD	22.1	<LOD	196	64,874	<LOD	446	<LOD	11	10,073	6,434	449	<LOD
10:46:16	11-12	PD 26.2	<LOD	29	<LOD	12	<LOD	203	63,235	<LOD	513	<LOD	7	18,590	9,070	508	<LOD

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-76

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:36:08	0-1	22.7	<LOD	<LOD	64.1	<LOD	<LOD	<LOD	<LOD	126	332	13.6	91
10:38:44	1-2	27.5	59	<LOD	59.6	4,590	<LOD	1.3	<LOD	155	2,964	303	93
10:41:15	7-8	66.1	<LOD	<LOD	15.5	5,019	35	<LOD	30	49.9	3,935	696	44.2
10:43:41	10-11	PD 16.8	<LOD	<LOD	30.6	<LOD	<LOD	<LOD	<LOD	105	819	144	101
10:46:16	11-12	PD 26.2	15	<LOD	43	<LOD	<LOD	<LOD	<LOD	145	1,266	34.2	153

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-77

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
12:03:01	0-1	26.2	2.5	80	<LOD	27.4	<LOD	188	22,148	<LOD	<LOD	<LOD	8	9,285	4,986	243	<LOD
12:08:47	1-2	33.8	<LOD	24	<LOD	6.1	<LOD	126	11,848	<LOD	<LOD	<LOD	<LOD	3,885	2,059	192	<LOD
12:11:11	2-3	PD 50.9	47.2	366	19.5	66.8	<LOD	296	29,445	<LOD	<LOD	<LOD	16	15,599	8,468	369	<LOD
12:13:41	5-6	PD 47.0	2.9	39	<LOD	12.6	<LOD	192	17,877	<LOD	<LOD	<LOD	<LOD	9,318	6,780	271	<LOD
12:16:52	6-7	PD 51.6	6.6	20	<LOD	12.5	<LOD	212	5,664	<LOD	<LOD	<LOD	<LOD	16,916	6,088	175	<LOD
12:19:31	7-8	PD 18.3	2.5	31	<LOD	9.6	<LOD	239	4,647	<LOD	258	<LOD	<LOD	16,298	9,410	206	<LOD

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-77

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
12:03:01	0-1	26.2	<LOD	<LOD	31	2,750	<LOD	<LOD	<LOD	91.5	744	53	98
12:08:47	1-2	33.8	<LOD	<LOD	26	<LOD	<LOD	<LOD	<LOD	75.5	340	10.4	61.5
12:11:11	2-3	PD 50.9	<LOD	<LOD	57.4	6,731	<LOD	<LOD	<LOD	146	2,109	106	270
12:13:41	5-6	PD 47.0	<LOD	<LOD	39.7	5,850	<LOD	<LOD	<LOD	92.2	1,316	27.5	172
12:16:52	6-7	PD 51.6	<LOD	<LOD	38.7	10,869	<LOD	<LOD	<LOD	75.5	1,754	40.1	153
12:19:31	7-8	PD 18.3	<LOD	<LOD	35.5	6,295	<LOD	<LOD	<LOD	97.2	1,872	21.2	89

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-78

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:42:38	0-1	27	10.9	253	<LOD	47.4	<LOD	222	29,666	<LOD	<LOD	<LOD	23	16,271	8,421	385	<LOD
16:44:57	1-2	36.5	9.3	197	<LOD	69.1	<LOD	234	22,246	<LOD	<LOD	<LOD	29	13,896	7,922	339	<LOD

Note: Hand auger on July 12, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-78

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
12:33:38	0-1	41.8	39	232	<LOD	570	<LOD	302	16,892	<LOD	<LOD	<LOD	82	20,446	5,399	241	<LOD
12:36:30	1-2	PD 66.9	7.4	160	<LOD	49.1	<LOD	189	28,780	<LOD	<LOD	<LOD	<LOD	8,816	4,661	212	<LOD
12:39:11	5-6	PD 50.9	36.8	1,158	3.1	44.8	<LOD	246	25,318	<LOD	<LOD	<LOD	11	14,110	7,234	480	<LOD
12:41:37	6-7	PD 54.6	99	1,479	<LOD	32	<LOD	175	45,267	<LOD	<LOD	<LOD	29	9,322	4,233	325	<LOD
12:47:58	7-8	PD 23.7	2.7	26	<LOD	8.3	<LOD	142	15,809	<LOD	<LOD	<LOD	<LOD	6,119	3,751	142	<LOD
12:50:29	9-10	PD 20.6	<LOD	21	<LOD	5.9	<LOD	111	6,596	<LOD	<LOD	<LOD	<LOD	7,057	3,523	104	<LOD
12:53:05	10-11	PD 56.3	<LOD	23	<LOD	8.5	<LOD	172	4,695	<LOD	184	<LOD	<LOD	7,417	5,381	137	<LOD
12:55:30	11-12	PD 25.6	<LOD	36	<LOD	8.2	<LOD	165	10,248	<LOD	<LOD	<LOD	<LOD	10,528	4,787	174	<LOD

Note: Geoprobe on July 12, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-78

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:42:38	0-1	27	<LOD	<LOD	40.7	<LOD	<LOD	<LOD	<LOD	113	1,359	106	132
16:44:57	1-2	36.5	<LOD	<LOD	43.2	<LOD	<LOD	<LOD	<LOD	110	1,348	98.5	145

Note: Hand auger on July 12, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-78

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
12:33:38	0-1	41.8	15	<LOD	34.1	2,016	<LOD	<LOD	63	167	1,429	378	141
12:36:30	1-2	PD 66.9	<LOD	<LOD	31.5	3,685	<LOD	<LOD	<LOD	82.4	1,072	88.7	119
12:39:11	5-6	PD 50.9	<LOD	<LOD	53.1	3,130	<LOD	<LOD	<LOD	91.4	1,784	82.3	200
12:41:37	6-7	PD 54.6	<LOD	<LOD	32.6	5,232	<LOD	<LOD	<LOD	93.9	904	79.5	118
12:47:58	7-8	PD 23.7	<LOD	<LOD	32.4	2,000	<LOD	<LOD	<LOD	82.1	748	17.9	129
12:50:29	9-10	PD 20.6	<LOD	<LOD	25.8	6,329	<LOD	<LOD	<LOD	95.1	524	11.5	63.4
12:53:05	10-11	PD 56.3	<LOD	<LOD	42.7	6,535	<LOD	<LOD	<LOD	113	856	18	182
12:55:30	11-12	PD 25.6	<LOD	<LOD	33.5	<LOD	<LOD	<LOD	<LOD	97.3	1,208	16.3	154

Note: Geoprobe on July 12, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-79

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:48:02	0-1	26.5	4.2	185	<LOD	31.6	<LOD	165	21,349	<LOD	<LOD	<LOD	13	9,153	5,416	227	<LOD
16:50:27	1-2	43.5	7.4	110	<LOD	44.8	<LOD	207	16,018	<LOD	<LOD	<LOD	25	14,334	5,178	258	<LOD

Note: Hand auger on July 12, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-79

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
17:11:24	0-1	26.1	<LOD	125	<LOD	39	<LOD	129	13,917	<LOD	<LOD	<LOD	12	6,723	2,301	190	<LOD
17:13:58	1-2	59.6	11.7	216	<LOD	76.6	<LOD	326	34,172	<LOD	<LOD	<LOD	34	17,253	6,082	524	<LOD
17:16:25	2-3	PD 12.8	<LOD	799	<LOD	3,219	<LOD	470	44,926	<LOD	957	<LOD	112	43,068	14,223	361	<LOD
17:19:28	3-4	PD <LOD	10.8	186	<LOD	181	<LOD	269	85,313	<LOD	901	<LOD	33	17,859	8,386	254	<LOD
17:21:45	4-5	PD 68.3	29.7	910	2.9	81.9	<LOD	256	23,924	<LOD	546	<LOD	19	13,900	6,874	359	<LOD
17:27:02	5-6	PD 52.5	13	262	<LOD	21.8	<LOD	183	14,233	<LOD	203	<LOD	12.3	10,425	6,008	210	<LOD
17:29:28	6-7	PD 44.4	3.6	27	<LOD	6.6	<LOD	155	2,993	<LOD	<LOD	<LOD	<LOD	4,239	3,472	95	<LOD
17:31:50	7-8	PD 62.8	2.6	19	<LOD	9.2	<LOD	128	5,183	<LOD	<LOD	<LOD	<LOD	6,654	4,033	124	<LOD
17:34:09	9-10	PD 39.7	2.3	<LOD	<LOD	7.5	<LOD	119	7,510	<LOD	151	<LOD	<LOD	7,325	2,663	159	<LOD
17:36:22	10-11	PD 21.2	<LOD	21	<LOD	9.1	<LOD	160	1,626	<LOD	<LOD	<LOD	<LOD	3,881	4,169	82	<LOD
17:38:47	11-12	PD 14.6	4.6	36	<LOD	10.5	<LOD	248	5,252	<LOD	<LOD	<LOD	<LOD	14,741	8,687	142	<LOD

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-79

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:48:02	0-1	26.5	<LOD	<LOD	34.3	<LOD	<LOD	<LOD	<LOD	79.9	823	72.7	114
16:50:27	1-2	43.5	<LOD	<LOD	41	2,076	<LOD	<LOD	<LOD	124	1,296	85	159

Note: Hand auger on July 12, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-79

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
17:11:24	0-1	26.1	<LOD	<LOD	34.2	<LOD	<LOD	<LOD	<LOD	74.8	564	34.2	68.2
17:13:58	1-2	59.6	33	<LOD	35.9	<LOD	<LOD	<LOD	<LOD	137	1,568	196	121
17:16:25	2-3	PD 12.8	<LOD	<LOD	47.5	#####	<LOD	<LOD	207	242	2,361	761	180
17:19:28	3-4	PD <LOD	<LOD	<LOD	37.8	6,949	<LOD	<LOD	30	179	1,405	897	115
17:21:45	4-5	PD 68.3	<LOD	<LOD	43.8	3,797	<LOD	<LOD	25	95.6	1,537	141	154
17:27:02	5-6	PD 52.5	<LOD	<LOD	49.3	<LOD	<LOD	<LOD	<LOD	90.8	1,326	57	210
17:29:28	6-7	PD 44.4	<LOD	<LOD	39.8	2,331	<LOD	<LOD	<LOD	80.6	541	13.3	149
17:31:50	7-8	PD 62.8	<LOD	<LOD	39.9	2,400	<LOD	<LOD	<LOD	72.5	779	21	157
17:34:09	9-10	PD 39.7	<LOD	<LOD	33.4	3,352	<LOD	<LOD	<LOD	63.9	644	23.7	138
17:36:22	10-11	PD 21.2	<LOD	<LOD	46	2,028	<LOD	<LOD	<LOD	78.7	683	8	110
17:38:47	11-12	PD 14.6	<LOD	<LOD	47.6	1,960	<LOD	1.5	<LOD	128	1,572	24.1	238

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-80

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
16:52:48	0-1	43.8	<LOD	202	<LOD	43.8	<LOD	192	9,719	<LOD	<LOD	<LOD	13	9,391	4,628	377	<LOD	<LOD

Note: Hand auger on July 12, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-80

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
17:54:37	0-1	32.1	4.3	291	<LOD	53.1	<LOD	193	11,626	<LOD	<LOD	<LOD	10	11,095	5,590	368	<LOD	<LOD
17:56:53	1-2	52.1	4	367	<LOD	65.6	<LOD	167	10,105	<LOD	<LOD	<LOD	8.1	7,711	3,064	155	<LOD	<LOD
17:59:30	2-3	PD 20.1	10.4	664	<LOD	58.5	<LOD	102	6,810	<LOD	178	<LOD	<LOD	18,458	4,338	264	<LOD	<LOD
18:04:36	3-4	PD 37.6	15.5	646	4.1	34	<LOD	207	21,847	<LOD	871	<LOD	<LOD	10,105	6,708	277	<LOD	<LOD
18:06:50	5-6	PD 56.7	<LOD	23	<LOD	6.1	<LOD	145	3,378	<LOD	<LOD	<LOD	<LOD	3,753	4,103	93	<LOD	<LOD
18:09:06	6-7	PD 61.4	<LOD	25	<LOD	10.6	<LOD	183	4,175	<LOD	329	<LOD	<LOD	5,214	5,894	111	<LOD	<LOD
18:11:25	7-8	PD 55.8	3.3	23	<LOD	8.4	<LOD	178	6,493	<LOD	231	<LOD	<LOD	9,254	4,959	146	<LOD	<LOD

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-80

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:52:48	0-1	43.8	<LOD	36.2	<LOD	<LOD	<LOD	<LOD	80.4	1,067	92.6	128

Note: Hand auger on July 12, 2018

Date	Instrument SN	Sample ID
July 13, 2018	511051	TA-SB-80

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
17:54:37	0-1	32.1	<LOD	37.6	<LOD	<LOD	<LOD	<LOD	101	1,212	106.4	136
17:56:53	1-2	52.1	<LOD	32.9	3,093	<LOD	<LOD	<LOD	90.1	958	85.4	113
17:59:30	2-3	PD 20.1	<LOD	22.4	12,789	<LOD	<LOD	<LOD	40.8	587	72.5	72.8
18:04:36	3-4	PD 37.6	<LOD	50.4	<LOD	<LOD	<LOD	<LOD	91.5	1,228	56.5	151
18:06:50	5-6	PD 56.7	<LOD	41.2	<LOD	<LOD	<LOD	<LOD	77.2	1,033	11.8	139
18:09:06	6-7	PD 61.4	<LOD	54.5	2,541	<LOD	<LOD	<LOD	99.5	697	18.4	197
18:11:25	7-8	PD 55.8	<LOD	40.1	3,798	<LOD	<LOD	<LOD	75.5	944	29.1	189

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-81

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:55:06	0-1	39	11.8	190	<LOD	47.9	<LOD	206	21,351	<LOD	<LOD	<LOD	17	15,822	5,713	393	<LOD
16:58:29	1-2	PD <LOD	7.1	118	<LOD	37.6	<LOD	320	17,479	<LOD	262	<LOD	16	26,182	11,263	278	<LOD

Note: Hand auger on July 12, 2018

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-81

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
10:12:44	0-1	26.4	7.3	232	<LOD	45	<LOD	190	26,269	<LOD	<LOD	<LOD	20	14,595	5,749	379	<LOD
10:15:37	1-2	50.6	4.9	202	3.1	41.8	<LOD	347	19,379	<LOD	267	<LOD	29	15,209	6,692	252	<LOD
10:18:15	4-5	PD 17.1	11.1	230	<LOD	47.9	<LOD	243	46,216	<LOD	370	<LOD	15	16,630	8,777	320	<LOD
10:20:53	5-6	PD 19.9	24.1	641	8.5	34.5	<LOD	275	24,558	<LOD	<LOD	<LOD	8	15,220	9,867	267	<LOD
10:23:39	6-7	PD 46.8	5.1	24	<LOD	11.5	<LOD	215	10,592	<LOD	<LOD	<LOD	<LOD	13,267	6,602	184	<LOD
10:29:51	7-8	PD 6.9	3	32	<LOD	15.8	<LOD	237	11,936	<LOD	464	<LOD	<LOD	14,200	8,877	180	<LOD
10:32:06	8-9	PD <LOD	<LOD	21	<LOD	3.7	<LOD	129	1,386	<LOD	235	<LOD	<LOD	2,113	1,907	68	<LOD
10:34:29	9-10	PD <LOD	<LOD	23	<LOD	9.8	<LOD	192	3,099	<LOD	240	<LOD	<LOD	5,295	6,265	255	<LOD
10:37:04	10-11	PD <LOD	<LOD	24	<LOD	6.7	<LOD	196	3,407	<LOD	226	<LOD	<LOD	6,272	6,391	292	<LOD
10:39:35	11-12	PD 54.9	1.9	23	<LOD	6.6	<LOD	127	3,560	<LOD	262	<LOD	<LOD	5,398	3,684	87	<LOD

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-81

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:55:06	0-1	39	<LOD	<LOD	55.4	2,441	<LOD	<LOD	<LOD	88.4	1,099	133	164
16:58:29	1-2	PD <LOD	<LOD	<LOD	50.5	<LOD	<LOD	<LOD	<LOD	127	1,837	53.7	168

Note: Hand auger on July 12, 2018

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-81

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:12:44	0-1	26.4	<LOD	<LOD	41.6	<LOD	<LOD	<LOD	<LOD	121	1,030	74.2	136
10:15:37	1-2	50.6	<LOD	<LOD	49.2	2,249	<LOD	<LOD	<LOD	180	1,773	90.3	145
10:18:15	4-5	PD 17.1	<LOD	<LOD	48.5	11,465	<LOD	<LOD	<LOD	137	1,647	116	157
10:20:53	5-6	PD 19.9	<LOD	<LOD	65.4	10,567	<LOD	<LOD	<LOD	106	2,152	84	208
10:23:39	6-7	PD 46.8	<LOD	<LOD	44.6	6,012	<LOD	<LOD	<LOD	85.2	1,535	44.3	202
10:29:51	7-8	PD 6.9	<LOD	<LOD	61.8	9,658	<LOD	<LOD	<LOD	126	1,265	42	306
10:32:06	8-9	PD <LOD	15	<LOD	31.3	1,744	<LOD	<LOD	<LOD	52.9	300	6.5	101
10:34:29	9-10	PD <LOD	<LOD	<LOD	48.8	3,194	<LOD	<LOD	<LOD	95.3	1,103	9.3	203
10:37:04	10-11	PD <LOD	<LOD	<LOD	45.7	2,421	<LOD	<LOD	<LOD	94.2	1,100	9.3	161
10:39:35	11-12	PD 54.9	<LOD	<LOD	34.2	10,167	<LOD	<LOD	<LOD	83.7	504	10.6	141

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-82

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
17:02:37	0-1	46.7	7.1	250	<LOD	82.2	<LOD	270	17,014	<LOD	<LOD	<LOD	25	15,696	6,261	350
17:09:02	1-2	46.4	4.6	139	<LOD	61.4	<LOD	256	19,587	<LOD	<LOD	<LOD	20	14,256	5,517	335
17:11:47	2-3	PD 16.8	3.7	139	<LOD	77.7	<LOD	249	36,337	<LOD	<LOD	<LOD	11	12,592	7,119	232

Note: Hand auger on July 11, 2018

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-82

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
11:03:23	0-1	46	7.8	216	<LOD	84.5	<LOD	258	14,111	<LOD	<LOD	<LOD	38	15,487	5,092	327
11:06:17	1-2	PD 6.8	8	83	<LOD	47.8	<LOD	298	29,201	<LOD	<LOD	<LOD	16	19,776	9,378	259
11:09:05	2-3	PD 13.2	5.3	87	<LOD	46.3	<LOD	264	30,683	<LOD	<LOD	<LOD	20	17,008	8,166	298
11:12:23	4-5	PD 24.5	2.9	121	<LOD	29.5	<LOD	242	15,543	<LOD	<LOD	<LOD	7	15,028	7,661	327
11:18:46	5-6	PD 48.8	3.5	101	<LOD	38	<LOD	264	8,204	<LOD	<LOD	<LOD	13	13,297	7,718	221
11:21:25	6-7	PD 68.4	24	886	9.5	48.2	<LOD	280	33,236	<LOD	289	<LOD	15	15,958	8,740	312
11:24:12	7-8	PD 56.7	3	23	<LOD	9.8	<LOD	188	7,079	<LOD	<LOD	<LOD	<LOD	7,737	5,642	140

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-82

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
17:02:37	0-1	46.7	<LOD	<LOD	<LOD	41.7	2,133	<LOD	<LOD	<LOD	140	1,633	142	173
17:09:02	1-2	46.4	<LOD	<LOD	<LOD	38.8	2,521	<LOD	<LOD	<LOD	137	1,344	84.8	152
17:11:47	2-3	PD 16.8	<LOD	<LOD	<LOD	47.5	<LOD	<LOD	<LOD	<LOD	156	1,496	72	153

Note: Hand auger on July 11, 2018

Date	Instrument SN	Sample ID
July 16, 2018	511051	TA-SB-82

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:03:23	0-1	46	<LOD	<LOD	<LOD	42.2	3,046	<LOD	<LOD	<LOD	130	1,511	151	165
11:06:17	1-2	PD 6.8	<LOD	<LOD	<LOD	45.8	<LOD	<LOD	<LOD	<LOD	132	1,801	70.5	152
11:09:05	2-3	PD 13.2	<LOD	31	<LOD	44.1	<LOD	<LOD	<LOD	<LOD	157	1,902	59.6	213
11:12:23	4-5	PD 24.5	<LOD	<LOD	<LOD	60	2,995	<LOD	<LOD	<LOD	120	1,548	41.9	191
11:18:46	5-6	PD 48.8	<LOD	<LOD	<LOD	49.3	3,027	<LOD	<LOD	<LOD	122	2,182	42.8	297
11:21:25	6-7	PD 68.4	<LOD	<LOD	<LOD	63.1	5,400	<LOD	<LOD	<LOD	113	2,028	101	181
11:24:12	7-8	PD 56.7	<LOD	<LOD	<LOD	47.2	4,043	<LOD	<LOD	<LOD	90.7	907	22.5	187

Note: Geoprobe on July 13, 2018

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-83

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
8:43:08	0-1	24.3	17.2	66	<LOD	136.5	<LOD	187	16,835	<LOD	<LOD	<LOD	51	22,590	5,125	427	<LOD
8:45:26	1-2	35.5	19	37	<LOD	673	<LOD	240	8,381	<LOD	<LOD	<LOD	59	24,824	5,864	657	<LOD
8:47:52	2-3	20.1	<LOD	26	<LOD	12.5	<LOD	198	3,107	<LOD	<LOD	<LOD	<LOD	9,877	5,230	506	<LOD
8:50:19	4-5	59	3.6	67	<LOD	15.4	<LOD	431	11,064	<LOD	<LOD	<LOD	11	22,402	14,704	580	<LOD
8:55:47	5-6	58.8	<LOD	38	<LOD	6.8	<LOD	185	244,423	<LOD	<LOD	<LOD	<LOD	6,622	7,988	663	<LOD
8:58:04	6-7	64.4	<LOD	43	<LOD	12.4	<LOD	312	18,545	<LOD	<LOD	<LOD	6	10,516	9,336	141	<LOD
9:01:01	7-8	40.2	4.8	51	<LOD	11	<LOD	341	35,025	<LOD	<LOD	<LOD	7	17,548	12,727	211	<LOD

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-83

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:43:08	0-1	24.3	<LOD	<LOD	25.8	2,506	<LOD	<LOD	<LOD	105.2	1,239	235	90
8:45:26	1-2	35.5	<LOD	<LOD	35.7	1,970	<LOD	<LOD	27	112	1,354	156	156
8:47:52	2-3	20.1	<LOD	<LOD	43.3	<LOD	<LOD	<LOD	<LOD	74.7	996	18	264
8:50:19	4-5	59	25	<LOD	98.1	<LOD	<LOD	<LOD	<LOD	92.6	2,630	49.8	195
8:55:47	5-6	58.8	<LOD	<LOD	34.2	<LOD	<LOD	<LOD	<LOD	84	814	20.4	74
8:58:04	6-7	64.4	25	<LOD	61.9	<LOD	<LOD	<LOD	<LOD	85.6	2,225	26.4	171
9:01:01	7-8	40.2	26	<LOD	69.9	<LOD	<LOD	<LOD	<LOD	95.1	2,175	36.1	185

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-84

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:05:25	0-1	18.5	4.2	1,224	<LOD	41.5	<LOD	213	15,838	<LOD	<LOD	<LOD	10	17,028	6,270	293	<LOD
11:08:02	1-2	20.6	5.6	4,146	4.4	42.5	<LOD	260	8,293	<LOD	<LOD	<LOD	16	9,691	5,346	243	<LOD
11:10:24	2-3	22.3	16.6	1,382	<LOD	145.1	<LOD	315	11,428	<LOD	<LOD	<LOD	74	19,719	7,182	280	<LOD
11:13:03	7-8	50.6	9	576	<LOD	99	<LOD	244	4,059	<LOD	<LOD	<LOD	29	8,049	2,846	153	<LOD

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-84

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:05:25	0-1	18.5	<LOD	<LOD	38.2	2,185	<LOD	<LOD	<LOD	88.9	1,287	69.6	125
11:08:02	1-2	20.6	<LOD	<LOD	43.4	3,518	<LOD	<LOD	<LOD	114	1,136	73.6	126
11:10:24	2-3	22.3	<LOD	<LOD	55.6	3,633	<LOD	<LOD	<LOD	172	1,651	394	181
11:13:03	7-8	50.6	<LOD	<LOD	31.4	3,483	<LOD	<LOD	<LOD	87.9	1,137	342	156

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-85

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
12:00:53	0-1	39	13.5	462	5.5	31.3	<LOD	361	27,819	<LOD	455	<LOD	37	65,298	14,451	531	<LOD
12:03:14	1-2	27.3	13	232	24.5	30.7	<LOD	674	2,969	<LOD	<LOD	36	96	16,224	4,818	165	<LOD
12:09:07	2-3	29.8	3.3	131	4.5	32.9	<LOD	571	2,357	<LOD	224	<LOD	93	77,222	9,311	187	<LOD
12:11:47	4-5	PD 41.8	<LOD	40	<LOD	44.8	<LOD	223	13,848	<LOD	<LOD	<LOD	<LOD	12,131	7,293	158	<LOD
12:14:19	5-6	PD 50.5	9.4	35	<LOD	83.4	<LOD	220	3,698	<LOD	<LOD	<LOD	8	21,429	9,343	193	<LOD
12:16:39	6-7	PD 67.8	2.8	44	<LOD	13.4	<LOD	259	2,372	<LOD	<LOD	<LOD	<LOD	11,643	8,476	178	<LOD
12:19:02	7-8	DTT Clay	6.3	50	<LOD	19.2	<LOD	338	3,265	<LOD	<LOD	<LOD	21	19,366	12,826	325	<LOD

Date	Instrument SN	Sample ID
July 17, 2018	511051	TA-SB-85

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
12:00:53	0-1	39	27	<LOD	39.6	4,005	<LOD	<LOD	<LOD	147	2,214	173	129
12:03:14	1-2	27.3	88	<LOD	93.8	2,784	<LOD	2.1	<LOD	226	3,280	87.9	264
12:09:07	2-3	29.8	61	<LOD	87.9	4,425	<LOD	2.6	<LOD	358	3,860	109	227
12:11:47	4-5	PD 41.8	<LOD	<LOD	52.9	<LOD	<LOD	<LOD	<LOD	93.3	1,136	96.4	193
12:14:19	5-6	PD 50.5	<LOD	<LOD	52.1	3,722	<LOD	<LOD	405	117	2,052	92.8	288
12:16:39	6-7	PD 67.8	<LOD	<LOD	60.2	<LOD	<LOD	<LOD	<LOD	108	1,972	24.9	239
12:19:02	7-8	DTT Clay	20	<LOD	75.3	<LOD	<LOD	<LOD	<LOD	121	2,675	34.8	265

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-86

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:13:16	0-1	28.5	3.9	59	<LOD	33.4	<LOD	171	48,458	<LOD	<LOD	<LOD	18	16,864	6,588	311	<LOD
11:15:35	1-2	PD 17.7	13.9	51	<LOD	28.9	<LOD	235	19,471	<LOD	373	<LOD	23	38,977	14,565	474	<LOD
11:17:53	6-7	PD 40.4	9.2	36	<LOD	24	<LOD	167	41,638	<LOD	431	<LOD	27	37,728	13,080	396	<LOD
11:20:10	7-8	DTT Clay	<LOD	41	<LOD	10.7	<LOD	237	64,914	<LOD	<LOD	<LOD	8	10,564	8,184	253	<LOD
11:25:16	8-9	DTT Clay	<LOD	43	<LOD	12.1	<LOD	215	71,536	<LOD	<LOD	<LOD	12	14,073	9,924	286	<LOD
11:27:42	9-10	DTT Clay	<LOD	36	<LOD	11.9	<LOD	258	73,607	<LOD	<LOD	<LOD	13	19,338	13,212	305	<LOD

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-86

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:13:16	0-1	28.5	<LOD	<LOD	31.8	2,838	<LOD	<LOD	<LOD	120	829	62.4	100
11:15:35	1-2	PD 17.7	<LOD	<LOD	42.3	3,755	<LOD	<LOD	<LOD	70.4	1,272	38.1	99
11:17:53	6-7	PD 40.4	16	<LOD	31.1	<LOD	<LOD	<LOD	<LOD	75.3	1,056	38.6	86
11:20:10	7-8	DTT Clay	<LOD	<LOD	48.8	<LOD	<LOD	<LOD	<LOD	122	1,416	27.5	206
11:25:16	8-9	DTT Clay	19	<LOD	54.3	<LOD	<LOD	<LOD	<LOD	126	1,549	30.1	173
11:27:42	9-10	DTT Clay	40	<LOD	56.9	<LOD	<LOD	<LOD	<LOD	131	1,718	30.2	199

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-87

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
8:44:32	0-1	31.6	7.1	50	<LOD	40.7	<LOD	156	50,366	<LOD	<LOD	<LOD	26	18,308	7,062	350	<LOD
8:46:53	1-2	30.4	<LOD	43	<LOD	12.5	<LOD	281	7,679	<LOD	<LOD	<LOD	<LOD	13,717	7,177	562	<LOD
8:49:20	2-3	52.8	<LOD	15	<LOD	6.1	<LOD	109	8,417	<LOD	<LOD	<LOD	<LOD	2,472	2,836	87	<LOD
8:54:06	6-7	65.3	4	42	<LOD	13.8	<LOD	224	49,087	<LOD	<LOD	<LOD	11	13,610	9,377	341	<LOD
8:56:41	7-8	DTT Clay	2.7	37	<LOD	9.8	<LOD	282	91,765	<LOD	<LOD	<LOD	8	14,541	12,437	386	<LOD
8:59:04	8-9	DTT Clay	3.7	34	<LOD	18	<LOD	270	76,703	<LOD	241	<LOD	13	15,896	13,577	328	<LOD
9:05:21	9-10	DTT Clay	6.4	39	<LOD	11.4	<LOD	276	83,265	<LOD	<LOD	<LOD	10	16,487	14,592	315	<LOD

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-87

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:44:32	0-1	31.6	<LOD	<LOD	34.4	3,669	<LOD	<LOD	<LOD	79.1	975	53.4	77
8:46:53	1-2	30.4	<LOD	<LOD	45.8	<LOD	<LOD	<LOD	<LOD	126	1,821	30.1	251
8:49:20	2-3	52.8	<LOD	<LOD	30.5	<LOD	<LOD	<LOD	<LOD	65.5	260	4.3	67.7
8:54:06	6-7	65.3	14	<LOD	56.2	<LOD	<LOD	<LOD	<LOD	110	1,444	30.8	149
8:56:41	7-8	DTT Clay	24	<LOD	63.3	<LOD	<LOD	<LOD	<LOD	117	1,589	35.1	150
8:59:04	8-9	DTT Clay	25	<LOD	72.9	<LOD	<LOD	<LOD	<LOD	124	1,645	34.9	149
9:05:21	9-10	DTT Clay	25	<LOD	71.9	<LOD	<LOD	<LOD	<LOD	119	1,771	34.5	144

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-88

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
9:40:06	0-1	26.8	10	1,345	<LOD	150.7	<LOD	274	15,584	<LOD	<LOD	<LOD	22	14,473	6,758	419	<LOD
9:42:32	1-2	42.9	6.9	691	<LOD	95.1	<LOD	241	4,735	<LOD	<LOD	<LOD	188	12,101	5,171	349	<LOD
9:45:12	6-7	67.8	<LOD	66	<LOD	14.6	<LOD	162	1,363	<LOD	<LOD	<LOD	6.6	6,542	4,140	133	<LOD
9:48:01	7-8	DTT Clay	<LOD	45	<LOD	10.8	<LOD	236	55,248	<LOD	<LOD	<LOD	10	13,197	9,514	224	<LOD
9:50:30	8-9	DTT Clay	<LOD	51	<LOD	9.3	<LOD	234	66,323	<LOD	<LOD	<LOD	10	10,764	9,177	232	<LOD
9:53:05	9-10	DTT Clay	<LOD	45	<LOD	11.2	<LOD	255	68,065	<LOD	<LOD	<LOD	11	12,114	10,473	262	<LOD

Date	Instrument SN	Sample ID
July 18, 2018	511051	TA-SB-88

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:40:06	0-1	26.8	<LOD	<LOD	36	2,915	<LOD	<LOD	<LOD	88.4	1,365	217	130
9:42:32	1-2	42.9	<LOD	<LOD	40.9	<LOD	<LOD	<LOD	<LOD	72.1	1,608	316	264
9:45:12	6-7	67.8	<LOD	<LOD	42.9	<LOD	<LOD	<LOD	<LOD	64.6	877	20	231
9:48:01	7-8	DTT Clay	18	<LOD	56.2	<LOD	<LOD	<LOD	<LOD	113	1,579	28.4	250
9:50:30	8-9	DTT Clay	13	<LOD	55.2	<LOD	<LOD	1.9	<LOD	124	1,501	30.5	221
9:53:05	9-10	DTT Clay	15	<LOD	56	<LOD	<LOD	<LOD	<LOD	128	1,621	31.1	203

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-B-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
16:16:46	0-1	25.5	10.8	39	<LOD	15.9	<LOD	260	4,744	<LOD	<LOD	<LOD	7	17,061	9,038	1,084
16:19:06	1-2	26.4	1.8	19	<LOD	7.2	<LOD	148	999	<LOD	<LOD	<LOD	<LOD	3,832	3,457	107

Note: Geoprobe (54DT) on July 12, 2018

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-AOC-B-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
8:47:38	0-1	22.9	7.6	78	<LOD	10.8	<LOD	229	4,620	<LOD	<LOD	<LOD	<LOD	11,403	7,103	733
8:50:14	1-2	47.5	<LOD	17	<LOD	7.9	<LOD	108	19,293	<LOD	<LOD	<LOD	<LOD	3,212	2,868	91
8:52:56	1'7"-1'11"	34.8	3.5	82	<LOD	6.5	<LOD	120	117,622	<LOD	<LOD	<LOD	<LOD	6,669	2,037	153
8:55:26	2-3	48.5	2.8	42	<LOD	10.7	<LOD	178	10,273	<LOD	<LOD	<LOD	<LOD	6,390	5,758	176
8:58:46	7-8	62	<LOD	28	<LOD	10.1	<LOD	179	6,171	<LOD	<LOD	<LOD	<LOD	6,640	5,809	228
9:01:06	8-9	52.5	<LOD	37	<LOD	10.3	<LOD	168	16,984	<LOD	<LOD	<LOD	<LOD	5,054	4,230	120
9:03:37	9-10	53.6	<LOD	26	<LOD	7.9	<LOD	164	32,019	<LOD	<LOD	<LOD	<LOD	5,254	5,623	112

Note: Geoprobe (6620DT) on July 18, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-B-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
16:21:27	0-1	25.6	8.4	39	<LOD	13.8	<LOD	205	2,794	<LOD	<LOD	<LOD	<LOD	11,017	6,599	615
16:23:40	1-2	28.3	<LOD	23	<LOD	5.9	<LOD	128	381	<LOD	<LOD	<LOD	<LOD	2,607	3,047	103
16:26:45	2-3	46.2	<LOD	111	<LOD	16.8	<LOD	182	9,867	<LOD	<LOD	<LOD	<LOD	5,572	4,853	151
16:29:02	4-5	62.1	<LOD	29	<LOD	11.6	<LOD	139	1,562	<LOD	<LOD	<LOD	<LOD	3,078	4,171	66
16:31:51	5-6	64.4	<LOD	34	<LOD	8.9	<LOD	207	6,117	<LOD	<LOD	<LOD	8.5	7,929	7,360	229
16:34:20	6-7	58.6	<LOD	33	<LOD	8.7	<LOD	151	12,390	<LOD	<LOD	<LOD	6.3	3,711	4,344	114
16:40:13	7-8	65.7	<LOD	23	<LOD	8.5	<LOD	148	12,804	<LOD	<LOD	<LOD	<LOD	3,715	5,070	95

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-B-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:16:46	0-1	25.5	<LOD	<LOD	<LOD	54.1	<LOD	<LOD	<LOD	<LOD	85.9	3,971	41.7	247
16:19:06	1-2	26.4	<LOD	<LOD	<LOD	38.3	<LOD	<LOD	<LOD	<LOD	73.8	457	11.2	119

Note: Geoprobe (54DT) on July 12, 2018

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-AOC-B-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:47:38	0-1	22.9	<LOD	<LOD	<LOD	47	<LOD	<LOD	<LOD	<LOD	79.5	1,071	29.5	178
8:50:14	1-2	47.5	<LOD	<LOD	<LOD	30.2	2,091	<LOD	<LOD	<LOD	80.2	316	14.5	93
8:52:56	1'7"-1'11"	34.8	<LOD	<LOD	<LOD	15.9	9,156	<LOD	<LOD	<LOD	99	555	30.4	54.8
8:55:26	2-3	48.5	<LOD	12	<LOD	46.8	<LOD	<LOD	<LOD	<LOD	118	879	19.5	194
8:58:46	7-8	62	<LOD	<LOD	<LOD	48	<LOD	<LOD	<LOD	<LOD	117	1,051	11.4	225
9:01:06	8-9	52.5	<LOD	<LOD	<LOD	43.3	<LOD	<LOD	<LOD	<LOD	110	739	9.1	206
9:03:37	9-10	53.6	<LOD	<LOD	<LOD	44.7	<LOD	<LOD	<LOD	<LOD	125	815	9.4	245

Note: Geoprobe (6620DT) on July 18, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-B-02

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:21:27	0-1	25.6	<LOD	<LOD	<LOD	48	<LOD	<LOD	<LOD	<LOD	76.1	1,194	27.1	153
16:23:40	1-2	28.3	<LOD	<LOD	<LOD	38.9	<LOD	<LOD	<LOD	<LOD	67.9	258	5.7	116
16:26:45	2-3	46.2	<LOD	<LOD	<LOD	42.9	3,223	<LOD	<LOD	<LOD	100.8	850	51.3	170
16:29:02	4-5	62.1	<LOD	<LOD	<LOD	46.2	<LOD	<LOD	<LOD	<LOD	114	351	9.4	213
16:31:51	5-6	64.4	<LOD	<LOD	<LOD	51.3	<LOD	<LOD	<LOD	<LOD	108.4	1,180	18.3	210
16:34:20	6-7	58.6	<LOD	<LOD	<LOD	48.5	<LOD	<LOD	<LOD	<LOD	123	690	10.1	209
16:40:13	7-8	65.7	<LOD	<LOD	<LOD	48.8	<LOD	<LOD	<LOD	<LOD	120	542	10.3	209

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-AOC-C-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
9:32:49	0-1	27.5	16.4	71	<LOD	22.6	<LOD	298	6,051	<LOD	240	<LOD	14	24,717	10,905	1,155
9:35:10	1-2	30.1	13.8	204	<LOD	100	<LOD	230	29,342	<LOD	<LOD	<LOD	101	17,231	7,579	275
9:37:30	2-3	47.3	7.3	109	<LOD	24.7	<LOD	268	14,550	<LOD	<LOD	<LOD	22	17,018	7,633	327
9:40:02	5-6	61.8	6	100	<LOD	28.9	<LOD	241	15,199	<LOD	209	<LOD	21	17,681	8,143	412
9:42:46	6-7	63.2	2.4	49	<LOD	10.9	<LOD	281	14,088	<LOD	<LOD	<LOD	7	14,998	10,428	266
9:45:03	7-8	47	3.1	40	<LOD	11.5	<LOD	312	53,477	<LOD	<LOD	<LOD	<LOD	16,826	11,117	411
9:51:24	8-9	68.7	2.8	43	<LOD	11.6	<LOD	242	23,534	<LOD	<LOD	<LOD	<LOD	12,619	8,142	274
9:53:37	9-10	64	2.3	278	<LOD	10	<LOD	229	51,780	<LOD	<LOD	<LOD	11	10,462	8,078	272
9:56:02	10-11	54.1	2.9	189	<LOD	9	<LOD	219	63,475	<LOD	<LOD	<LOD	<LOD	11,059	9,676	254
9:58:33	11-12	44.6	2.4	586	<LOD	11	<LOD	195	51,523	<LOD	<LOD	<LOD	<LOD	7,937	7,761	220

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-AOC-C-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
10:01:01	0-1	35.4	6.7	412	<LOD	42.6	<LOD	255	11,590	<LOD	<LOD	<LOD	25	12,820	6,939	571
10:03:39	1-2	34.8	13.1	3,200	<LOD	115.7	<LOD	287	43,870	<LOD	<LOD	<LOD	93	16,508	5,397	336
10:06:19	2-3	55.3	2.4	3,288	<LOD	13.9	<LOD	333	5,362	<LOD	<LOD	<LOD	10	12,321	6,412	321
10:08:35	4-5	34	3.9	3,561	<LOD	44.6	<LOD	254	8,752	<LOD	<LOD	<LOD	<LOD	10,646	6,360	214
10:10:49	5-6	53.8	4.3	302	<LOD	12.9	<LOD	297	4,133	<LOD	<LOD	<LOD	<LOD	13,180	9,734	586
10:16:57	6-7	59.7	2.7	47	<LOD	11.9	<LOD	297	11,326	<LOD	<LOD	<LOD	<LOD	14,019	10,624	255
10:19:17	7-8	56.2	3.2	65	<LOD	9.3	<LOD	257	31,732	<LOD	<LOD	<LOD	11	12,286	9,927	275
10:22:03	8-9	53.8	1.9	2,111	<LOD	7.7	<LOD	195	50,986	<LOD	<LOD	<LOD	<LOD	11,512	8,356	262
10:24:20	9-10	27.6	3.1	1,397	<LOD	9.6	<LOD	214	52,166	<LOD	<LOD	<LOD	<LOD	11,093	8,558	259
10:26:34	10-11	39.3	2.8	1,689	<LOD	11	<LOD	384	48,427	<LOD	<LOD	<LOD	8	14,903	10,591	235
10:29:12	11-12	40.3	2.9	436	<LOD	9.7	<LOD	224	62,366	<LOD	<LOD	<LOD	8	10,008	8,536	259

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-AOC-C-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:32:49	0-1	27.5	<LOD	<LOD	<LOD	57	<LOD	<LOD	<LOD	<LOD	84.8	2,200	54.6	220
9:35:10	1-2	30.1	<LOD	<LOD	<LOD	35.1	<LOD	<LOD	<LOD	28	163	1,346	162	86
9:37:30	2-3	47.3	<LOD	<LOD	<LOD	50.6	5,460	<LOD	<LOD	<LOD	108	1,749	97.6	233
9:40:02	5-6	61.8	<LOD	<LOD	<LOD	42.9	5,482	<LOD	<LOD	<LOD	103	1,834	89.5	183
9:42:46	6-7	63.2	<LOD	<LOD	<LOD	58.7	2,491	<LOD	<LOD	<LOD	113	2,115	27.2	244
9:45:03	7-8	47	<LOD	14	<LOD	53.2	<LOD	<LOD	<LOD	<LOD	170	2,022	30.6	223
9:51:24	8-9	68.7	<LOD	21	<LOD	51.4	3,153	<LOD	<LOD	<LOD	113	1,604	30.6	185
9:53:37	9-10	64	<LOD	<LOD	<LOD	49.8	<LOD	<LOD	<LOD	<LOD	132	1,194	22.5	182
9:56:02	10-11	54.1	<LOD	<LOD	<LOD	48.3	<LOD	<LOD	<LOD	<LOD	130	1,529	28.5	187
9:58:33	11-12	44.6	<LOD	<LOD	<LOD	45.6	<LOD	<LOD	<LOD	<LOD	138	1,252	17.1	216

Date	Instrument SN	Sample ID
July 24, 2018	511051	TA-SB-AOC-C-02

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:01:01	0-1	35.4	<LOD	<LOD	<LOD	48.3	2,174	<LOD	<LOD	<LOD	157	1,306	73.4	167
10:03:39	1-2	34.8	<LOD	<LOD	<LOD	31.1	5,301	<LOD	<LOD	<LOD	119	1,702	421	119
10:06:19	2-3	55.3	<LOD	<LOD	<LOD	36.7	13,945	<LOD	<LOD	<LOD	112	1,468	58.9	181
10:08:35	4-5	34	<LOD	<LOD	<LOD	42.5	4,788	<LOD	<LOD	73	78.9	1,044	134	151
10:10:49	5-6	53.8	<LOD	19	<LOD	57.6	2,891	<LOD	<LOD	<LOD	113	1,720	23.1	230
10:16:57	6-7	59.7	<LOD	19	<LOD	59.9	3,538	<LOD	<LOD	<LOD	113	2,121	29.5	226
10:19:17	7-8	56.2	<LOD	<LOD	<LOD	51.9	6,237	<LOD	<LOD	<LOD	119	1,662	25.8	187
10:22:03	8-9	53.8	<LOD	15	<LOD	41.8	<LOD	<LOD	<LOD	<LOD	129	1,500	19.4	176
10:24:20	9-10	27.6	<LOD	13	<LOD	49.1	<LOD	<LOD	<LOD	<LOD	125	1,354	25.6	168
10:26:34	10-11	39.3	<LOD	19	<LOD	60	<LOD	<LOD	<LOD	<LOD	151	1,965	32.3	206
10:29:12	11-12	40.3	<LOD	19	<LOD	47.1	<LOD	<LOD	<LOD	<LOD	133	1,390	25.6	183

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-D-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
8:52:47	0-1	26.5	11.6	56	<LOD	17.6	<LOD	318	11,716	<LOD	<LOD	<LOD	12	25,745	10,642	2,216
15:13:38	0-1	20.2	<LOD	22	<LOD	11.3	<LOD	178	2,703	<LOD	<LOD	<LOD	<LOD	5,874	5,435	310
15:15:52	1-2	27.3	<LOD	21	<LOD	6.7	<LOD	129	703	<LOD	<LOD	<LOD	<LOD	2,225	3,148	99
15:18:05	2-3	39.4	<LOD	32	<LOD	14.6	<LOD	169	13,240	<LOD	<LOD	<LOD	<LOD	10,458	5,169	192
15:23:34	3-4	63.2	11	40	<LOD	12.8	<LOD	321	7,215	<LOD	<LOD	<LOD	<LOD	26,253	10,327	6,711

Note: Geoprobe (54DT) on July 12, 2018

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-AOC-D-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
9:06:17	0-1	25.9	<LOD	31	<LOD	9.5	<LOD	162	1,060	<LOD	<LOD	<LOD	<LOD	4,367	4,096	208
9:11:59	1-2	45.4	1.8	22	<LOD	6	<LOD	123	11,233	<LOD	<LOD	<LOD	<LOD	3,197	4,453	94
9:15:00	2-3	54.9	3.4	26	<LOD	13	<LOD	156	7,078	<LOD	<LOD	<LOD	<LOD	8,095	4,672	240
9:17:44	6-7	25.8	3.1	26	<LOD	8.1	<LOD	182	8,642	<LOD	<LOD	<LOD	<LOD	5,906	5,953	282
9:20:07	7-8	59.1	<LOD	27	<LOD	15.3	<LOD	181	6,206	<LOD	<LOD	<LOD	<LOD	8,145	7,557	210
9:22:37	8-9	59.2	2.4	45	<LOD	17	<LOD	275	16,793	<LOD	<LOD	<LOD	8	11,589	9,432	262
9:27:08	9-10	61.3	4.3	36	<LOD	6.3	<LOD	198	59,737	<LOD	<LOD	<LOD	<LOD	9,709	7,716	244

Note: Geoprobe (6620DT) on July 18, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-D-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
15:25:54	0-1	26.1	2.9	26	<LOD	8.3	<LOD	167	2,135	<LOD	<LOD	<LOD	<LOD	6,282	4,842	221
15:28:25	1-2	33.9	<LOD	17	<LOD	6.6	<LOD	122	761	<LOD	<LOD	<LOD	<LOD	2,412	3,448	98
15:30:59	2-3	68.5	<LOD	42	<LOD	13.1	<LOD	175	16,241	<LOD	<LOD	<LOD	10	8,026	4,909	186
15:33:17	6-7	69.5	2.7	29	<LOD	11.8	<LOD	180	7,593	<LOD	<LOD	<LOD	15	14,531	5,773	515
15:35:35	7-8	61.3	3.3	33	<LOD	8.6	<LOD	251	43,382	<LOD	<LOD	<LOD	10	11,116	8,678	247

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-D-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:52:47	0-1	26.5	<LOD	<LOD	<LOD	60.2	<LOD	<LOD	<LOD	<LOD	96	1,907	56	273
15:13:38	0-1	20.2	<LOD	<LOD	<LOD	44.4	<LOD	<LOD	<LOD	<LOD	75.2	713	17.1	126
15:15:52	1-2	27.3	<LOD	<LOD	<LOD	39.9	<LOD	<LOD	<LOD	<LOD	58.3	473	6	112
15:18:05	2-3	39.4	<LOD	<LOD	<LOD	41.9	<LOD	<LOD	<LOD	<LOD	101	790	23.9	160
15:23:34	3-4	63.2	<LOD	<LOD	<LOD	43.4	<LOD	<LOD	<LOD	<LOD	63.6	1,511	24.7	167

Note: Geoprobe (54DT) on July 12, 2018

Date	Instrument SN	Sample ID
July 19, 2018	511051	TA-SB-AOC-D-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:06:17	0-1	25.9	<LOD	<LOD	<LOD	44.1	<LOD	<LOD	<LOD	<LOD	76.1	481	9.4	172
9:11:59	1-2	45.4	<LOD	<LOD	<LOD	38	<LOD	<LOD	<LOD	<LOD	77.5	412	9.2	120
9:15:00	2-3	54.9	<LOD	<LOD	<LOD	31.8	<LOD	<LOD	<LOD	<LOD	76.6	1,164	25.4	154
9:17:44	6-7	25.8	<LOD	<LOD	<LOD	43.8	<LOD	<LOD	<LOD	<LOD	77.3	577	15.1	135
9:20:07	7-8	59.1	<LOD	<LOD	<LOD	47.9	<LOD	<LOD	<LOD	<LOD	102	1,312	20.5	181
9:22:37	8-9	59.2	<LOD	<LOD	<LOD	49.9	<LOD	<LOD	<LOD	<LOD	119	1,752	27.9	226
9:27:08	9-10	61.3	<LOD	22	<LOD	41.5	<LOD	<LOD	<LOD	<LOD	111	1,357	22	166

Note: Geoprobe (6620DT) on July 18, 2018

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-D-02

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:25:54	0-1	26.1	<LOD	<LOD	<LOD	41.8	<LOD	<LOD	<LOD	<LOD	75	972	16.5	136
15:28:25	1-2	33.9	<LOD	<LOD	<LOD	43.2	<LOD	<LOD	<LOD	<LOD	71.7	269	6.5	112
15:30:59	2-3	68.5	<LOD	<LOD	<LOD	37.4	<LOD	<LOD	<LOD	<LOD	113	1,257	32.9	145
15:33:17	6-7	69.5	<LOD	<LOD	<LOD	38.1	<LOD	<LOD	<LOD	<LOD	95	893	25	145
15:35:35	7-8	61.3	<LOD	22	<LOD	50.6	<LOD	<LOD	<LOD	<LOD	121	1,494	24.3	219

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-AOC-E-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
10:14:04	0-1	24.5	5.5	64	<LOD	33.7	<LOD	210	47,678	<LOD	<LOD	<LOD	7	13,767	5,985	575
10:16:43	1-2	26.1	3.3	55	<LOD	25.2	<LOD	149	28,672	<LOD	<LOD	<LOD	<LOD	5,212	3,859	153
10:19:28	2-3	28.6	<LOD	40	<LOD	24.7	<LOD	125	10,302	<LOD	<LOD	<LOD	11	5,765	4,402	121
11:25:06	3-4	53.3	<LOD	641	6.2	436	<LOD	335	15,190	<LOD	530	<LOD	217	81,921	12,200	1,060
10:22:45	6-7	56	13.6	314	<LOD	165	<LOD	184	29,985	<LOD	445	<LOD	276	95,387	13,455	1,349
10:25:04	7-8	PD 12.2	4.4	44	<LOD	49.6	<LOD	221	10,434	<LOD	<LOD	<LOD	59	10,839	7,526	191
10:27:30	9-10	PD 14.9	3.2	37	<LOD	14.9	<LOD	206	28,014	<LOD	<LOD	<LOD	<LOD	9,098	6,692	213
10:34:32	10-11	PD 14.7	<LOD	30	3.4	8.2	<LOD	166	4,485	<LOD	<LOD	<LOD	<LOD	6,704	4,731	105
10:37:01	11-12	PD 24.2	12	44	<LOD	12.2	<LOD	259	8,345	<LOD	238	<LOD	9	14,201	7,899	155
10:40:17	14-15	PD 17.7	15.3	19	<LOD	7.1	<LOD	118	4,114	<LOD	492	<LOD	<LOD	18,122	6,882	95
10:44:04	14-15	PD 17.7	12.1	21	<LOD	6.6	<LOD	132	90,706	<LOD	246	<LOD	<LOD	10,520	5,956	144
10:46:19	15-16	PD 23.7	<LOD	20	<LOD	8.4	<LOD	169	27,455	<LOD	<LOD	<LOD	<LOD	4,098	5,506	109

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-AOC-E-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
10:48:49	0-1	25	12.1	47	<LOD	24.9	<LOD	265	16,851	<LOD	<LOD	<LOD	12	22,228	9,775	1,283
10:54:39	1-2	26.3	6.8	51	<LOD	46	<LOD	189	61,954	<LOD	<LOD	<LOD	12	10,425	5,307	443
10:57:09	2-3	25.8	<LOD	36	<LOD	26.4	<LOD	135	37,605	<LOD	<LOD	<LOD	<LOD	4,676	3,119	159
10:59:33	3-4	32.2	<LOD	34	<LOD	9	<LOD	152	18,492	<LOD	<LOD	<LOD	<LOD	5,386	4,855	143
11:04:59	5-6	30.3	<LOD	11	<LOD	5.4	<LOD	95	17,626	<LOD	<LOD	<LOD	<LOD	2,114	1,954	109
11:07:40	6-7	48.6	<LOD	15	<LOD	6.1	<LOD	108	22,767	<LOD	<LOD	<LOD	<LOD	2,414	2,092	91
11:10:12	7-8	33.7	<LOD	32	<LOD	5.8	<LOD	112	30,766	<LOD	<LOD	<LOD	<LOD	2,624	1,138	126
11:12:34	9-10	PD 56.9	5.4	184	3.5	46.3	<LOD	164	23,289	<LOD	<LOD	<LOD	16	14,581	3,623	129
11:14:58	10-11	PD 26.7	14.7	74	3.2	19.4	<LOD	243	6,767	<LOD	<LOD	<LOD	8	16,791	7,869	143
11:17:24	12-13	PD <LOD	4	22	<LOD	8.2	<LOD	110	110,328	<LOD	<LOD	<LOD	<LOD	6,134	3,384	159
11:19:39	13-14	PD 16.6	<LOD	42	<LOD	9.1	<LOD	142	32,868	<LOD	<LOD	<LOD	<LOD	4,892	5,409	104
11:22:14	14-15	PD 15.1	<LOD	24	<LOD	10.5	<LOD	188	33,072	<LOD	<LOD	<LOD	<LOD	4,548	5,876	107

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-AOC-E-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:14:04	0-1	24.5	<LOD	<LOD	<LOD	38.2	<LOD	<LOD	<LOD	<LOD	120	1,187	88.5	133
10:16:43	1-2	26.1	<LOD	<LOD	<LOD	32.6	<LOD	<LOD	<LOD	<LOD	103	501	31.5	83
10:19:28	2-3	28.6	<LOD	<LOD	<LOD	34.9	<LOD	<LOD	<LOD	<LOD	73.2	543	27.2	90
11:25:06	3-4	53.3	5	15	<LOD	27	6,708	123	<LOD	102	252	1,785	379	158
10:22:45	6-7	56	12.3	18	<LOD	30.3	5,428	<LOD	<LOD	<LOD	103	872	925	112
10:25:04	7-8	PD 12.2	<LOD	<LOD	<LOD	41	<LOD	<LOD	<LOD	<LOD	94.9	1,388	63.1	107
10:27:30	9-10	PD 14.9	<LOD	<LOD	<LOD	42.8	2,009	<LOD	<LOD	<LOD	79.4	1,304	27.7	206
10:34:32	10-11	PD 14.7	<LOD	12	<LOD	34.5	4,938	<LOD	<LOD	<LOD	76.8	782	12.4	108
10:37:01	11-12	PD 24.2	<LOD	<LOD	<LOD	47.6	7,527	<LOD	1.8	<LOD	125	1,861	32.7	251
10:40:17	14-15	PD 17.7	4	16	<LOD	31.3	104,015	<LOD	2.3	<LOD	84.8	491	11.1	93
10:44:04	14-15	PD 17.7	<LOD	<LOD	<LOD	31.4	32,973	<LOD	1.6	<LOD	107	773	12.1	175
10:46:19	15-16	PD 23.7	<LOD	<LOD	<LOD	42.8	3,910	<LOD	<LOD	<LOD	120	710	8.1	203

Date	Instrument SN	Sample ID
July 26, 2018	511051	TA-SB-AOC-E-02

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:48:49	0-1	25	<LOD	<LOD	<LOD	58.3	<LOD	<LOD	<LOD	<LOD	106	1,890	66.3	238
10:54:39	1-2	26.3	<LOD	<LOD	<LOD	32.4	2,985	<LOD	<LOD	<LOD	122	1,042	89.1	142
10:57:09	2-3	25.8	<LOD	<LOD	<LOD	30.6	3,561	<LOD	1.3	<LOD	104	450	115	83
10:59:33	3-4	32.2	<LOD	<LOD	<LOD	47.8	<LOD	<LOD	<LOD	<LOD	95.6	550	9.7	119
11:04:59	5-6	30.3	<LOD	<LOD	<LOD	28.5	<LOD	<LOD	<LOD	<LOD	67.2	165	2.6	86.3
11:07:40	6-7	48.6	<LOD	<LOD	<LOD	28.9	<LOD	<LOD	<LOD	<LOD	67.8	421	<LOD	83.1
11:10:12	7-8	33.7	<LOD	<LOD	<LOD	22.7	<LOD	<LOD	<LOD	<LOD	68.5	235	4	60.7
11:12:34	9-10	PD 56.9	<LOD	<LOD	<LOD	38.4	3,497	<LOD	<LOD	<LOD	179	1,209	77.6	106
11:14:58	10-11	PD 26.7	<LOD	<LOD	<LOD	43.8	14,391	<LOD	<LOD	<LOD	125	1,557	35.3	249
11:17:24	12-13	PD <LOD	<LOD	<LOD	<LOD	25.8	15,102	<LOD	<LOD	28	116	364	14.4	75
11:19:39	13-14	PD 16.6	<LOD	<LOD	<LOD	41	<LOD	<LOD	<LOD	<LOD	113	903	7.1	178
11:22:14	14-15	PD 15.1	<LOD	<LOD	<LOD	44.6	<LOD	<LOD	<LOD	<LOD	121	995	10.5	246

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-AOC-G-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
11:04:03	0-1	30.3	5.7	53	<LOD	26.5	<LOD	200	51,937	<LOD	<LOD	<LOD	21	14,918	7,143	392
11:06:51	1-2	65.7	19.7	402	10.2	151	<LOD	507	14,182	<LOD	346	<LOD	80	62,520	14,006	427
11:21:48	2-3	PD 24.8	3.1	153	37.1	33.3	<LOD	653	4,291	<LOD	<LOD	<LOD	84	13,986	4,791	218
11:25:35	5-6	PD 22.1	5.3	68	<LOD	36.8	<LOD	208	20,021	<LOD	<LOD	<LOD	<LOD	12,945	7,169	237
11:28:04	6-7	PD 40.1	<LOD	47	<LOD	14.4	<LOD	254	3,525	<LOD	<LOD	<LOD	<LOD	14,163	7,993	192
11:30:29	7-8	DTT Clay	<LOD	44	<LOD	10.7	<LOD	255	96,118	<LOD	256	<LOD	9	13,674	11,013	307

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-AOC-G-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
11:33:30	0-1	40.9	5.7	108	<LOD	52.1	<LOD	220	44,580	<LOD	<LOD	<LOD	20	20,579	7,865	382
11:54:16	1-2	PD 10.5	22.2	975	9.9	160	<LOD	619	13,549	<LOD	1,459	<LOD	98	45,248	12,568	432
11:59:39	2-3	PD 9.2	19.7	287	10	38.9	<LOD	624	6,263	<LOD	902	<LOD	75	20,796	8,314	214
12:02:19	6-7	PD 64.4	4.3	132	<LOD	29.2	<LOD	263	6,920	<LOD	<LOD	<LOD	12	12,641	6,862	253
12:05:06	7-8	PD 63.4	4.8	38	<LOD	14.1	<LOD	291	4,871	<LOD	<LOD	<LOD	7	18,853	9,056	290

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-AOC-G-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:04:03	0-1	30.3	<LOD	<LOD	<LOD	52.7	3,785	<LOD	<LOD	<LOD	206	1,159	66.6	200
11:06:51	1-2	65.7	7.3	47	<LOD	56.2	6,370	<LOD	2.2	<LOD	282	2,812	861	202
11:21:48	2-3	PD 24.8	<LOD	33	<LOD	61.7	4,514	<LOD	1.7	<LOD	312	3,377	264	201
11:25:35	5-6	PD 22.1	<LOD	<LOD	<LOD	47.1	<LOD	<LOD	<LOD	<LOD	103	1,350	374	153
11:28:04	6-7	PD 40.1	<LOD	<LOD	<LOD	44.7	<LOD	<LOD	<LOD	<LOD	122	1,768	46	238
11:30:29	7-8	DTT Clay	<LOD	19	<LOD	52.8	<LOD	<LOD	<LOD	<LOD	111	1,666	32.5	194

Date	Instrument SN	Sample ID
July 11, 2018	511051	TA-SB-AOC-G-02

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:33:30	0-1	40.9	<LOD	<LOD	<LOD	36.3	<LOD	<LOD	<LOD	<LOD	134	1,765	151	181
11:54:16	1-2	PD 10.5	7.4	42	<LOD	70.3	9,035	<LOD	<LOD	<LOD	293	3,182	585	192
11:59:39	2-3	PD 9.2	<LOD	39	<LOD	94.7	2,738	<LOD	1.8	<LOD	341	4,958	106	275
12:02:19	6-7	PD 64.4	<LOD	<LOD	<LOD	42.3	1,965	<LOD	<LOD	<LOD	94	1,927	48.1	242
12:05:06	7-8	PD 63.4	<LOD	<LOD	<LOD	50.2	<LOD	<LOD	<LOD	<LOD	105	2,102	47.5	233

Date	Instrument SN	Sample ID
July 10, 2018	512294	TA-SB-AOC-H-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
8:11:03	0-1	26.4	6	68	<LOD	26.4	<LOD	168	48,504	<LOD	210	<LOD	26	16,470	7,725	388	<LOD	33
8:14:42	1-2	40.7	6.1	85	<LOD	28	<LOD	130	39,223	<LOD	139	<LOD	10.5	7,904	6,500	246	<LOD	15
8:17:24	2-3	<LOD	9.2	205	2.6	37.2	12	284	5,273	<LOD	180	<LOD	37.2	16,483	3,323	123	<LOD	46
8:21:04	3-4	63.4	<LOD	126	<LOD	17.2	<LOD	158	7,415	<LOD	<LOD	<LOD	11.2	7,521	4,792	245	<LOD	15
8:24:21	4-5	57.2	2.4	129	<LOD	17.2	<LOD	152	18,465	<LOD	<LOD	<LOD	10.8	9,049	6,400	254	<LOD	19
8:33:06	5-6	PD <LOD	3.4	71	<LOD	12.5	<LOD	214	3,881	<LOD	<LOD	<LOD	7.1	13,276	11,518	418	<LOD	23
8:35:52	6-7	<LOD	3.7	62	<LOD	10.4	<LOD	264	3,459	<LOD	<LOD	<LOD	13	16,522	13,074	195	<LOD	33
8:39:31	7-8	<LOD	3	65	<LOD	9.9	<LOD	208	28,040	<LOD	<LOD	<LOD	10.1	13,533	12,419	356	<LOD	30

Date	Instrument SN	Sample ID
July 9, 2018	511051	TA-SB-AOC-H-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
16:40:24	0-1	36.2	9.2	103	<LOD	47.3	<LOD	242	42,137	<LOD	<LOD	<LOD	63	19,478	7,057	375	<LOD	13
16:44:13	1-2	44.5	10.1	205	<LOD	69.2	<LOD	251	31,161	<LOD	<LOD	<LOD	45	15,153	6,135	241	<LOD	<LOD
17:27:29	2-3	PD NR	18.3	233	3.5	93.8	<LOD	704	2,266	<LOD	214	84	102	27,373	7,108	164	5.2	122
17:41:29	4-5	PD 20.3	2.9	47	<LOD	14.1	<LOD	312	5,461	<LOD	<LOD	<LOD	<LOD	14,633	9,235	295	<LOD	<LOD
17:46:31	5-6	PD 41.4	3.2	43	<LOD	12	<LOD	302	5,037	<LOD	<LOD	<LOD	<LOD	17,988	9,573	303	<LOD	21
17:48:57	6-7	DTT Clay	<LOD	48	<LOD	10.9	<LOD	254	47,973	<LOD	<LOD	<LOD	11	12,111	9,794	334	<LOD	29
17:53:20	7-8	DTT Clay	<LOD	42	<LOD	11.1	<LOD	232	70,015	<LOD	<LOD	<LOD	<LOD	11,615	9,905	243	<LOD	15
17:59:22	8-9	DTT Clay	<LOD	37	<LOD	12.1	<LOD	256	73,406	<LOD	<LOD	<LOD	10	13,581	11,284	575	<LOD	15
18:01:47	9-10	DTT Clay	3.9	40	<LOD	11.4	<LOD	266	67,869	<LOD	<LOD	<LOD	11	14,451	11,110	250	<LOD	21
18:04:50	10-11	DTT Clay	4.2	45	<LOD	11.9	<LOD	264	68,574	<LOD	325	<LOD	15	18,068	12,224	290	<LOD	18
18:07:13	11-12	DTT Clay	<LOD	35	<LOD	10.3	<LOD	246	65,319	<LOD	<LOD	<LOD	<LOD	10,547	10,157	239	<LOD	<LOD

Date	Instrument SN	Sample ID
July 9, 2018	511051	TA-SB-AOC-H-03

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
16:12:37	0-1	40.3	2.8	821	<LOD	21	<LOD	194	54,161	<LOD	219	<LOD	22	18,309	6,722	352	<LOD	26
16:26:04	1-2	PD 17.0	<LOD	187	<LOD	506	<LOD	307	35,333	<LOD	1,329	<LOD	47	15,398	8,756	327	<LOD	26
16:29:37	2-2.5	PD 18.9	513	9,371	2.5	14,739	<LOD	841	7,423	<LOD	5,341	<LOD	368	22,984	7,663	286	<LOD	63
10:56:07	4-5	PD 42.8	457	11,545	<LOD	7,797	<LOD	289	16,963	<LOD	716	<LOD	32	9,954	4,444	272	<LOD	<LOD
11:07:43	5-6	PD 43.2	3.9	118	<LOD	41.2	<LOD	220	3,472	<LOD	<LOD	<LOD	<LOD	15,121	8,127	177	<LOD	<LOD

Date	Instrument SN	Sample ID
July 10, 2018	512294	TA-SB-AOC-H-01

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:11:03	0-1	26.4	<LOD	37.3	<LOD	<LOD	<LOD	<LOD	144	1,251	46.5	99.6
8:14:42	1-2	40.7	<LOD	28.4	<LOD	<LOD	<LOD	<LOD	96.7	774	32.2	95.1
8:17:24	2-3	<LOD	<LOD	36.7	1,335	<LOD	<LOD	<LOD	233	1,726	82.7	96.8
8:21:04	3-4	63.4	<LOD	29.8	253	<LOD	<LOD	<LOD	87	1,153	27.9	138
8:24:21	4-5	57.2	<LOD	33.3	<LOD	<LOD	<LOD	<LOD	116.6	1,168	31.9	147
8:33:06	5-6	PD <LOD	<LOD	49.5	<LOD	<LOD	<LOD	<LOD	94.7	2,032	27.1	241
8:35:52	6-7	<LOD	<LOD	63.5	<LOD	<LOD	<LOD	<LOD	104.3	2,354	35.3	221
8:39:31	7-8	<LOD	<LOD	56.5	<LOD	<LOD	<LOD	<LOD	100.9	2,001	33.7	229

Date	Instrument SN	Sample ID
July 9, 2018	511051	TA-SB-AOC-H-02

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:40:24	0-1	36.2	<LOD	43.7	<LOD	<LOD	<LOD	<LOD	124	1,400	112	153
16:44:13	1-2	44.5	<LOD	38.5	4,287	<LOD	<LOD	<LOD	124	1,035	104	109
17:27:29	2-3	PD NR	<LOD	75.8	<LOD	<LOD	<LOD	<LOD	430	3,407	212	215
17:41:29	4-5	PD 20.3	<LOD	54.4	<LOD	<LOD	<LOD	<LOD	144	2,550	50.7	285
17:46:31	5-6	PD 41.4	<LOD	57.9	<LOD	<LOD	<LOD	<LOD	130	2,153	33.9	266
17:48:57	6-7	DTT Clay	<LOD	61.2	<LOD	<LOD	<LOD	<LOD	106	1,911	31.6	249
17:53:20	7-8	DTT Clay	<LOD	58.8	<LOD	<LOD	<LOD	<LOD	115	1,671	33.1	232
17:59:22	8-9	DTT Clay	<LOD	57	<LOD	<LOD	<LOD	<LOD	119	1,756	34.3	203
18:01:47	9-10	DTT Clay	<LOD	58.4	<LOD	<LOD	<LOD	<LOD	130	1,570	36.5	204
18:04:50	10-11	DTT Clay	<LOD	56.5	<LOD	<LOD	<LOD	<LOD	121	1,734	37.4	190
18:07:13	11-12	DTT Clay	<LOD	53.9	<LOD	<LOD	<LOD	<LOD	131	1,431	30.5	209

Date	Instrument SN	Sample ID
July 9, 2018	511051	TA-SB-AOC-H-03

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:12:37	0-1	40.3	<LOD	38.6	<LOD	<LOD	<LOD	<LOD	120	1,212	97.4	125
16:26:04	1-2	PD 17.0	<LOD	51.2	3,469	<LOD	<LOD	<LOD	141	1,668	118	165
16:29:37	2-2.5	PD 18.9	<LOD	47.6	28,943	<LOD	<LOD	<LOD	171	5,115	186	351
10:56:07	4-5	PD 42.8	<LOD	33.8	21,245	<LOD	<LOD	<LOD	127	449	184	91
11:07:43	5-6	PD 43.2	<LOD	46.9	<LOD	<LOD	<LOD	<LOD	91.2	1,114	66.1	149

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-J-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
15:38:08	0-1	23.4	5.1	38	<LOD	11	<LOD	223	2,362	<LOD	<LOD	<LOD	<LOD	9,550	7,259	567
15:40:21	1-2	26.5	<LOD	20	<LOD	5.4	<LOD	135	646	<LOD	<LOD	<LOD	<LOD	2,403	3,707	82
15:42:59	2-3	59.5	4.4	35	<LOD	57.4	<LOD	175	64,358	<LOD	<LOD	<LOD	9	11,519	4,907	193
15:48:48	5-6	63.7	5	40	<LOD	10	<LOD	247	11,163	<LOD	<LOD	<LOD	8	22,671	8,743	1,706
15:51:05	6-7	PD 69.0	<LOD	31	<LOD	9.1	<LOD	161	39,051	<LOD	<LOD	<LOD	<LOD	5,348	5,752	125
15:53:55	7-8	PD 40.7	<LOD	27	<LOD	9.7	<LOD	167	35,804	<LOD	<LOD	<LOD	<LOD	4,363	6,104	123

Date	Instrument SN	Sample ID
Multiple	511051	TA-SB-AOC-J-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
15:56:18	0-1	24	8.8	39	<LOD	14	<LOD	231	4,603	<LOD	<LOD	<LOD	<LOD	15,122	8,249	935
15:58:43	1-2	25.8	<LOD	24	<LOD	7.9	<LOD	150	812	<LOD	<LOD	<LOD	<LOD	2,620	4,835	98
16:01:09	2-3	28.5	<LOD	25	<LOD	7.2	<LOD	132	861	<LOD	<LOD	<LOD	<LOD	4,223	4,073	122
16:03:36	3-4	26.3	<LOD	16	<LOD	5.6	<LOD	144	1,828	<LOD	<LOD	<LOD	<LOD	3,110	3,723	95
16:06:13	5-6	26.5	<LOD	20	<LOD	5.8	<LOD	117	3,554	<LOD	<LOD	<LOD	<LOD	2,151	2,413	95
16:08:30	6-7	36.2	<LOD	20	<LOD	5.4	<LOD	103	2,184	<LOD	<LOD	<LOD	<LOD	1,832	1,941	71
16:14:24	7-8	63.2	<LOD	34	<LOD	7.7	<LOD	109	3,978	<LOD	<LOD	<LOD	<LOD	2,387	2,187	81
9:29:48	8-9	43.5	<LOD	17	<LOD	5.4	<LOD	123	12,243	<LOD	<LOD	<LOD	<LOD	6,876	3,883	92
9:32:14	9-10	60.1	<LOD	263	<LOD	8.9	<LOD	106	61,437	<LOD	<LOD	26	7	6,165	775	208
10:46:26	11-12	57.6	2.8	33	<LOD	9.3	<LOD	190	58,847	<LOD	<LOD	<LOD	<LOD	6,992	7,438	170
10:49:34	12-13	59.4	2.3	33	<LOD	9.1	<LOD	193	59,739	<LOD	<LOD	<LOD	<LOD	7,430	7,184	194
10:51:51	13-14	54	5.5	41	<LOD	10.5	<LOD	219	56,360	<LOD	<LOD	<LOD	<LOD	9,001	7,476	212
10:57:21	14-15	38.3	4.1	32	<LOD	9.8	<LOD	207	45,572	<LOD	<LOD	<LOD	8	10,405	7,358	202

Date	Instrument SN	Sample ID
July 12, 2018	511051	TA-SB-AOC-J-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:38:08	0-1	23.4	<LOD	<LOD	<LOD	53.5	<LOD	<LOD	<LOD	<LOD	72.2	1,102	22.4	144
15:40:21	1-2	26.5	<LOD	<LOD	<LOD	40.4	<LOD	<LOD	<LOD	<LOD	66.1	317	4.9	159
15:42:59	2-3	59.5	<LOD	<LOD	<LOD	42.2	4,238	<LOD	<LOD	<LOD	163	1,007	27.9	178
15:48:48	5-6	63.7	<LOD	<LOD	<LOD	45.1	<LOD	<LOD	<LOD	<LOD	86.3	925	21.7	157
15:51:05	6-7	PD 69.0	<LOD	<LOD	<LOD	45.9	<LOD	<LOD	<LOD	<LOD	137	815	14.7	274
15:53:55	7-8	PD 40.7	<LOD	<LOD	<LOD	47.6	<LOD	<LOD	<LOD	<LOD	134	605	12.8	212

Date	Instrument SN	Sample ID
Multiple	511051	TA-SB-AOC-J-02

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:56:18	0-1	24	<LOD	<LOD	<LOD	52.3	<LOD	<LOD	<LOD	<LOD	86.7	1,358	35.6	199
15:58:43	1-2	25.8	<LOD	<LOD	<LOD	51.1	<LOD	<LOD	<LOD	<LOD	77.2	345	6	104
16:01:09	2-3	28.5	<LOD	<LOD	<LOD	44	<LOD	<LOD	<LOD	<LOD	65.1	418	9.9	143
16:03:36	3-4	26.3	<LOD	<LOD	<LOD	42.5	<LOD	<LOD	<LOD	<LOD	73.9	232	4.6	130
16:06:13	5-6	26.5	<LOD	<LOD	<LOD	29.9	<LOD	<LOD	<LOD	<LOD	59.2	241	5	63.9
16:08:30	6-7	36.2	<LOD	<LOD	<LOD	32.1	<LOD	<LOD	<LOD	<LOD	62	184	6.6	78.7
16:14:24	7-8	63.2	<LOD	<LOD	<LOD	33.4	<LOD	<LOD	<LOD	<LOD	75.8	218	29.8	74.7
9:29:48	8-9	43.5	<LOD	<LOD	<LOD	27.6	<LOD	<LOD	<LOD	<LOD	61.1	185	3.6	61.8
9:32:14	9-10	60.1	<LOD	38	<LOD	22.3	3,244	<LOD	<LOD	<LOD	90.8	409	139	53.5
10:46:26	11-12	57.6	<LOD	18	<LOD	44.7	<LOD	<LOD	<LOD	<LOD	133	965	13.1	217
10:49:34	12-13	59.4	<LOD	<LOD	<LOD	43.8	<LOD	<LOD	<LOD	<LOD	126	1,139	12.2	208
10:51:51	13-14	54	<LOD	20	<LOD	47	<LOD	<LOD	<LOD	<LOD	127	1,100	19.2	198
10:57:21	14-15	38.3	<LOD	<LOD	<LOD	48.8	<LOD	<LOD	<LOD	<LOD	123	1,241	20.6	166

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
9:43:48	0-1	PD <LOD	5.7	42	<LOD	48.6	<LOD	221	110,911	<LOD	<LOD	<LOD	13	11,828	7,217	478
9:46:21	1-2	PD <LOD	2.9	37	<LOD	44.3	<LOD	168	87,314	<LOD	<LOD	<LOD	21	10,199	5,447	302
9:49:01	2-3	PD <LOD	5.5	41	<LOD	43	<LOD	206	70,673	<LOD	<LOD	<LOD	16	8,939	5,471	284
9:51:16	6-7	PD <LOD	4.1	48	<LOD	24.4	<LOD	151	165,012	<LOD	390	<LOD	8	8,678	5,428	255
9:53:30	7-8	PD <LOD	6.3	690	<LOD	54.9	<LOD	206	111,948	<LOD	1,111	<LOD	28	13,886	7,576	299
9:56:18	10-11	PD <LOD	17.7	45	<LOD	10.6	<LOD	244	4,647	<LOD	<LOD	<LOD	<LOD	16,733	8,790	188
10:00:44	11-12	PD 15.8	33.8	41	<LOD	11.3	<LOD	350	59,757	<LOD	<LOD	<LOD	11	35,720	16,065	396
10:07:31	13-14	PD <LOD	<LOD	37	<LOD	10.4	<LOD	201	55,522	<LOD	<LOD	<LOD	9	9,163	9,520	207
10:10:14	14-15	PD 7.2	<LOD	35	<LOD	8.7	<LOD	183	49,002	<LOD	<LOD	<LOD	<LOD	7,773	7,555	175
10:12:55	15-16	PD 7.6	<LOD	34	<LOD	10.1	<LOD	194	42,052	<LOD	<LOD	<LOD	<LOD	6,942	6,481	177

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-01

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:43:48	0-1	PD <LOD	<LOD	<LOD	<LOD	40.6	4,665	<LOD	<LOD	<LOD	142	1,231	130	112
9:46:21	1-2	PD <LOD	<LOD	16	<LOD	29.4	11,733	<LOD	<LOD	<LOD	146	1,024	87	96
9:49:01	2-3	PD <LOD	<LOD	<LOD	<LOD	36.6	6,478	<LOD	<LOD	<LOD	139	1,021	92.4	110
9:51:16	6-7	PD <LOD	<LOD	17	<LOD	28.1	7,781	<LOD	<LOD	<LOD	168	1,013	46.5	116
9:53:30	7-8	PD <LOD	<LOD	<LOD	<LOD	31.8	10,628	<LOD	<LOD	<LOD	110	1,770	85.8	122
9:56:18	10-11	PD <LOD	<LOD	<LOD	<LOD	41.8	4,620	<LOD	<LOD	<LOD	93	1,867	16.9	200
10:00:44	11-12	PD 15.8	<LOD	21	<LOD	58.5	<LOD	<LOD	<LOD	<LOD	122	2,707	36.7	178
10:07:31	13-14	PD <LOD	<LOD	16	<LOD	52.6	3,060	<LOD	<LOD	<LOD	144	1,380	16.1	187
10:10:14	14-15	PD 7.2	<LOD	<LOD	<LOD	45.9	2,353	<LOD	<LOD	<LOD	143	1,239	13.4	372
10:12:55	15-16	PD 7.6	<LOD	14	<LOD	47.9	2,359	<LOD	<LOD	<LOD	140	1,005	12.9	311

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
10:58:36	0-1	PD <LOD	9.2	47	<LOD	29	<LOD	251	40,607	<LOD	<LOD	<LOD	8	16,063	8,999	1,052
11:00:54	1-2	PD <LOD	6.4	32	<LOD	53.9	<LOD	238	126,611	<LOD	<LOD	<LOD	19	12,056	8,270	361
11:03:15	2-3	PD <LOD	3.3	59	<LOD	48.3	<LOD	211	97,884	<LOD	<LOD	<LOD	10	11,842	7,158	335
11:05:52	3-4	PD <LOD	3	56	<LOD	40.3	<LOD	144	69,591	<LOD	<LOD	<LOD	11	8,082	5,719	241
11:08:31	6-7	PD <LOD	5.3	52	<LOD	47.7	<LOD	198	87,808	<LOD	<LOD	<LOD	15	10,044	6,147	376
11:11:19	7-8	PD <LOD	32	5,850	<LOD	283	<LOD	318	74,190	<LOD	<LOD	<LOD	59	36,147	12,585	407
11:16:51	9-10	PD <LOD	37.1	256	9.8	49.5	<LOD	435	15,711	<LOD	287	<LOD	37	29,119	12,434	543
11:20:10	10-11	PD <LOD	12.4	61	<LOD	22.6	<LOD	326	20,072	<LOD	<LOD	<LOD	8	17,517	10,255	360
11:22:17	11-12	PD <LOD	3.5	24	<LOD	8.6	<LOD	204	7,676	<LOD	<LOD	<LOD	11	11,495	7,620	183
11:24:33	13-14	PD 13.4	<LOD	41	<LOD	9.8	<LOD	183	65,107	<LOD	<LOD	<LOD	<LOD	4,592	7,966	147
11:27:01	14-15	PD 11.8	<LOD	29	<LOD	11.3	<LOD	204	55,476	<LOD	<LOD	<LOD	<LOD	4,980	6,405	159
11:29:27	15-16	PD 10.5	<LOD	34	<LOD	10.1	<LOD	154	49,016	<LOD	<LOD	<LOD	<LOD	4,574	5,913	158

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-02

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:58:36	0-1	PD <LOD	<LOD	<LOD	<LOD	48.8	2,963	<LOD	<LOD	<LOD	115	1,682	74	180
11:00:54	1-2	PD <LOD	<LOD	19	<LOD	38.9	13,640	<LOD	<LOD	<LOD	145	1,279	123	112
11:03:15	2-3	PD <LOD	<LOD	14	<LOD	36.5	10,062	<LOD	<LOD	<LOD	162	1,060	108	162
11:05:52	3-4	PD <LOD	<LOD	12	<LOD	32.4	8,841	<LOD	<LOD	<LOD	143	846	91.5	100
11:08:31	6-7	PD <LOD	<LOD	12	<LOD	33.9	8,890	<LOD	<LOD	<LOD	161	1,167	106	109
11:11:19	7-8	PD <LOD	<LOD	17	<LOD	31.5	122,493	<LOD	<LOD	<LOD	222	1,556	337	204
11:16:51	9-10	PD <LOD	6.3	47	<LOD	72.1	44,494	<LOD	<LOD	<LOD	211	3,654	123	277
11:20:10	10-11	PD <LOD	<LOD	<LOD	<LOD	72.3	21,847	<LOD	<LOD	<LOD	118	2,131	62	240
11:22:17	11-12	PD <LOD	<LOD	<LOD	<LOD	36.8	12,009	<LOD	<LOD	<LOD	96	1,690	17.5	130
11:24:33	13-14	PD 13.4	<LOD	12	<LOD	54.3	<LOD	<LOD	<LOD	<LOD	161	1,067	8.9	307
11:27:01	14-15	PD 11.8	<LOD	12	<LOD	53.9	<LOD	<LOD	<LOD	<LOD	160	902	9.1	328
11:29:27	15-16	PD 10.5	<LOD	<LOD	<LOD	51.5	<LOD	<LOD	<LOD	<LOD	138	1,029	10.6	391

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-03

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
13:07:27	0-1	PD <LOD	9.9	45	<LOD	50.5	<LOD	262	74,395	<LOD	<LOD	<LOD	14	13,689	7,836	586
13:10:41	1-2	PD <LOD	3.7	34	<LOD	46.4	<LOD	196	87,037	<LOD	<LOD	<LOD	11	9,942	6,476	313
13:17:30	2-3	PD <LOD	4.6	42	<LOD	55.3	<LOD	176	84,123	<LOD	<LOD	<LOD	14	9,542	6,303	303
13:20:35	3-4	PD <LOD	5.2	45	<LOD	50.5	<LOD	184	81,320	<LOD	<LOD	<LOD	14	9,669	5,942	293
13:24:04	5-6	PD <LOD	<LOD	37	<LOD	47.3	<LOD	179	86,025	<LOD	<LOD	<LOD	13	9,812	6,200	304
13:26:20	6-7	PD <LOD	4	55	<LOD	41.2	<LOD	200	86,328	<LOD	<LOD	<LOD	15	8,478	7,209	265
13:29:08	7-8	PD <LOD	9	1,133	2.9	54.7	<LOD	259	31,038	<LOD	<LOD	<LOD	14	14,667	11,896	336
13:31:57	9-10	PD <LOD	73.1	51	<LOD	19.2	<LOD	213	40,905	<LOD	312	<LOD	9	13,630	8,816	520
13:34:25	10-11	PD <LOD	60.5	49	<LOD	19.7	<LOD	274	21,558	<LOD	1,213	<LOD	<LOD	19,388	8,935	377
13:37:01	11-12	PD <LOD	10.3	39	<LOD	7.9	<LOD	205	3,387	<LOD	305	<LOD	<LOD	14,414	7,224	152
13:39:44	13-14	PD <LOD	6.6	34	<LOD	9.6	<LOD	219	71,689	<LOD	<LOD	<LOD	12	13,687	7,613	255
13:45:37	14-15	PD 9.4	<LOD	35	<LOD	10.9	<LOD	219	51,419	<LOD	<LOD	<LOD	7	8,295	7,367	189
13:48:31	15-16	PD <LOD	<LOD	33	<LOD	10.6	<LOD	182	62,111	<LOD	<LOD	<LOD	<LOD	5,136	6,793	169

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-03

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
13:07:27	0-1	PD <LOD	<LOD	13	<LOD	43.2	4,209	<LOD	<LOD	<LOD	131	1,432	111	182
13:10:41	1-2	PD <LOD	<LOD	<LOD	<LOD	35.3	12,284	<LOD	<LOD	<LOD	136	1,140	104	108
13:17:30	2-3	PD <LOD	<LOD	<LOD	<LOD	36.2	10,086	<LOD	<LOD	<LOD	140	1,129	113	153
13:20:35	3-4	PD <LOD	<LOD	16	<LOD	33.7	9,133	<LOD	<LOD	36	143	1,293	116	91
13:24:04	5-6	PD <LOD	<LOD	<LOD	<LOD	36.2	11,596	<LOD	<LOD	<LOD	156	1,093	124	109
13:26:20	6-7	PD <LOD	<LOD	19	<LOD	31.8	11,843	<LOD	<LOD	<LOD	157	1,216	114	127
13:29:08	7-8	PD <LOD	<LOD	25	<LOD	61.8	25,711	<LOD	<LOD	<LOD	167	1,822	85.4	261
13:31:57	9-10	PD <LOD	<LOD	<LOD	<LOD	56.1	14,803	<LOD	<LOD	<LOD	130	1,752	55.3	252
13:34:25	10-11	PD <LOD	<LOD	<LOD	<LOD	50.4	16,902	<LOD	<LOD	<LOD	121	1,595	53.7	234
13:37:01	11-12	PD <LOD	<LOD	<LOD	<LOD	36	<LOD	<LOD	<LOD	<LOD	80.4	1,346	16.8	169
13:39:44	13-14	PD <LOD	<LOD	<LOD	<LOD	40.2	3,141	<LOD	<LOD	<LOD	123	1,704	21.3	194
13:45:37	14-15	PD 9.4	<LOD	<LOD	<LOD	49.9	<LOD	<LOD	<LOD	<LOD	164	1,474	15.7	323
13:48:31	15-16	PD <LOD	<LOD	<LOD	<LOD	49.7	<LOD	<LOD	<LOD	<LOD	154	1,144	8.8	395

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-04

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
13:51:46	0-1	PD <LOD	10.1	45	<LOD	27.4	<LOD	274	34,920	<LOD	<LOD	<LOD	9	16,159	8,986	1,010
13:54:12	1-2	PD <LOD	4.1	42	<LOD	34.2	<LOD	171	60,850	<LOD	<LOD	<LOD	7	8,328	5,447	274
13:56:38	2-3	PD <LOD	3.8	218	<LOD	29.6	<LOD	171	68,363	<LOD	<LOD	<LOD	<LOD	7,150	4,349	263

Note:

Date	Instrument SN	Sample ID
August 7, 2018	512294	TA-SB-MA-04

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
10:10:56	0-1	25.8	10.8	103	<LOD	30.2	<LOD	191	38,357	<LOD	<LOD	<LOD	13.9	14,326	8,954	859
10:13:34	1-2	26.1	4.6	112	<LOD	36.9	<LOD	125	73,284	<LOD	<LOD	<LOD	12	7,088	6,709	260
10:24:06	2-3	26.2	8.9	88	<LOD	25.1	<LOD	199	31,409	<LOD	<LOD	<LOD	11.7	14,722	7,885	948
10:26:43	3-4	31.7	<LOD	62.1	<LOD	6.8	<LOD	94	22,743	<LOD	178	<LOD	<LOD	2,980	6,639	106
10:30:48	4-4.3	41.8	<LOD	133	<LOD	9.8	<LOD	90	33,769	<LOD	118	<LOD	4.1	3,389	6,666	114
10:33:57	8-9	PD 36.7	209	1126	<LOD	19	<LOD	195	27,713	<LOD	<LOD	<LOD	20.5	12,039	10,349	279
10:36:13	10-11	PD 60.9	125.7	571	<LOD	27	<LOD	234	44,029	<LOD	<LOD	<LOD	18.2	16,314	11,228	417
10:38:56	11-12	PD <LOD	36.2	186	<LOD	11.1	<LOD	263	23,741	<LOD	<LOD	<LOD	9.1	38,556	9,676	288
10:45:05	12-13	DTT Clay	2.4	72	<LOD	8.2	<LOD	179	75,612	<LOD	<LOD	<LOD	13	12,354	13,216	274
10:48:43	13-14	DTT Clay	6	83	<LOD	9.1	<LOD	164	55,706	<LOD	<LOD	<LOD	10	10,800	10,527	282
10:51:43	14-15	DTT Clay	7.7	134	3	10.7	<LOD	183	75,898	<LOD	143	<LOD	12	11,356	12,851	281

Note: Geoprobe on August 6, 2018

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-04

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
13:51:46	0-1	PD <LOD	<LOD	<LOD	<LOD	48.9	2,405	<LOD	<LOD	<LOD	117	1,540	66.4	178
13:54:12	1-2	PD <LOD	<LOD	<LOD	<LOD	33.7	9,520	<LOD	<LOD	<LOD	143	906	102.6	101
13:56:38	2-3	PD <LOD	<LOD	<LOD	<LOD	30.2	5,563	<LOD	<LOD	<LOD	123	796	65.7	106

Note:

Date	Instrument SN	Sample ID
August 7, 2018	512294	TA-SB-MA-04

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
10:10:56	0-1	25.8	<LOD	20	<LOD	43.8	640	<LOD	<LOD	<LOD	105.7	1,422	229	136
10:13:34	1-2	26.1	<LOD	20	<LOD	28.6	1,153	<LOD	<LOD	<LOD	117.3	908	93.5	85.8
10:24:06	2-3	26.2	<LOD	30	<LOD	38.3	770	<LOD	<LOD	<LOD	106.9	1,431	67.9	153
10:26:43	3-4	31.7	<LOD	21	<LOD	30.6	<LOD	<LOD	<LOD	<LOD	85.6	301	9.7	84.4
10:30:48	4-4.3	41.8	<LOD	13	<LOD	29.6	447	<LOD	<LOD	<LOD	98	325	23.1	86.9
10:33:57	8-9	PD 36.7	<LOD	18	<LOD	52.3	4,281	<LOD	<LOD	<LOD	107.6	1949	46.4	244
10:36:13	10-11	PD 60.9	<LOD	31	<LOD	59	2,985	<LOD	<LOD	<LOD	139	2,343	77.4	217
10:38:56	11-12	PD <LOD	<LOD	25	<LOD	49.3	1,180	<LOD	<LOD	<LOD	108.7	2259	46.3	261
10:45:05	12-13	DTT Clay	<LOD	34	<LOD	51.9	744	<LOD	<LOD	<LOD	104.5	1,506	24.5	143
10:48:43	13-14	DTT Clay	<LOD	24	<LOD	45.5	512	<LOD	<LOD	<LOD	100.1	1457	22.4	169
10:51:43	14-15	DTT Clay	<LOD	26	<LOD	50.6	591	<LOD	<LOD	<LOD	112.3	1523	28.3	143

Note: Geoprobe on August 6, 2018

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-05

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
13:59:07	0-1	PD <LOD	8.8	51	<LOD	44.8	<LOD	223	77,104	<LOD	<LOD	<LOD	16	14,824	8,281	785
14:01:29	1-2	PD <LOD	4.8	47	<LOD	45.2	<LOD	176	75,664	<LOD	<LOD	<LOD	13	12,516	6,330	332
14:03:53	2-3	PD <LOD	3.2	35	<LOD	52.3	<LOD	205	91,685	<LOD	<LOD	<LOD	17	10,305	6,764	332
14:06:59	3-4	PD <LOD	2.3	50	<LOD	24.1	<LOD	178	54,235	<LOD	<LOD	<LOD	10	9,083	7,166	298
14:13:14	7-8	PD <LOD	5.3	57	<LOD	23	<LOD	171	51,446	<LOD	<LOD	<LOD	11	9,310	6,069	297
14:15:27	13-14	PD <LOD	<LOD	33	<LOD	12.1	<LOD	174	49,098	<LOD	<LOD	<LOD	<LOD	6,345	6,896	153
14:18:05	14-15	PD <LOD	<LOD	33	<LOD	8.4	<LOD	205	46,419	<LOD	<LOD	<LOD	<LOD	6,281	6,414	180
14:20:36	15-16	PD <LOD	<LOD	37	<LOD	9.2	<LOD	171	39,012	<LOD	<LOD	<LOD	<LOD	4,138	6,434	167

Date	Instrument SN	Sample ID
July 27, 2018	511051	TA-SB-MA-05

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
13:59:07	0-1	PD <LOD	<LOD	<LOD	<LOD	46.6	3,796	<LOD	<LOD	<LOD	130	1,910	110	194
14:01:29	1-2	PD <LOD	<LOD	<LOD	<LOD	34.2	10,717	<LOD	<LOD	<LOD	143	953	109	121
14:03:53	2-3	PD <LOD	<LOD	<LOD	<LOD	37.8	10,036	<LOD	<LOD	<LOD	155	1,277	113	120
14:06:59	3-4	PD <LOD	<LOD	22	<LOD	38.7	4,534	<LOD	<LOD	<LOD	114	1,013	62.6	146
14:13:14	7-8	PD <LOD	<LOD	18	<LOD	35	2,585	<LOD	<LOD	<LOD	111	882	60.6	92
14:15:27	13-14	PD <LOD	<LOD	<LOD	<LOD	55.4	2,247	<LOD	<LOD	<LOD	152	1,289	10.6	310
14:18:05	14-15	PD <LOD	<LOD	<LOD	<LOD	50.5	<LOD	<LOD	<LOD	<LOD	136	1,593	7	411
14:20:36	15-16	PD <LOD	<LOD	<LOD	<LOD	50	<LOD	<LOD	<LOD	<LOD	136	857	7.6	217

Date	Instrument SN	Sample ID
August 6, 2018	512294	TA-SG-04

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
8:24:09	0-1	49.4	6.6	517	6.2	69.3	<LOD	186	5,962	<LOD	<LOD	<LOD	44.8	8,839	5,492	253	<LOD	26
8:29:29	1-2	41.8	4.8	216	2.6	73.5	<LOD	148	12,867	<LOD	87	<LOD	17	7,055	6,269	225	<LOD	19
8:31:56	2-3	41.4	1.8	71	<LOD	13.6	<LOD	157	3,127	<LOD	<LOD	<LOD	3.8	7,833	6,723	198	<LOD	18
8:34:19	3-4	40.6	<LOD	25	<LOD	7	<LOD	109	1,169	<LOD	69	<LOD	<LOD	3,648	7,651	59	<LOD	13
8:36:34	4-5	48.6	<LOD	22.6	<LOD	5	<LOD	84	708	<LOD	103	<LOD	<LOD	1,044	6,724	43.1	<LOD	8

Date	Instrument SN	Sample ID
August 6, 2018	512294	TA-SG-04

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
8:24:09	0-1	49.4	<LOD	34.4	312	<LOD	<LOD	<LOD	95	1,285	124.2	149
8:29:29	1-2	41.8	<LOD	30.7	<LOD	<LOD	<LOD	<LOD	88.9	1,281	108	134.9
8:31:56	2-3	41.4	<LOD	30.7	<LOD	<LOD	<LOD	<LOD	74.2	1,315	26.5	173
8:34:19	3-4	40.6	<LOD	35.1	<LOD	<LOD	<LOD	<LOD	64.1	453	8.5	111
8:36:34	4-5	48.6	<LOD	35.7	<LOD	<LOD	<LOD	<LOD	53.7	227	15.7	69.4

Date	Instrument SN	Sample ID
June 26, 2018	511051	TA-GW-01

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
15:56:07	0-1	34.9	3.2	372	<LOD	34.9	<LOD	211	23,119	<LOD	<LOD	<LOD	15	9,088	4,939	255	<LOD
16:02:40	2-3	53.6	3.8	433	<LOD	41.1	<LOD	235	22,364	<LOD	<LOD	<LOD	14	20,952	7,300	375	11.6
16:05:12	3-4	36.2	3.6	36	<LOD	9.3	<LOD	118	151,300	<LOD	<LOD	<LOD	10	15,518	3,303	410	<LOD
16:09:41	4-6 - post dry grab	6.9	<LOD	49	<LOD	10.4	<LOD	174	16,018	<LOD	414	<LOD	<LOD	3,991	5,893	120	<LOD

Date	Instrument SN	Sample ID
June 26, 2018	511051	TA-GW-01

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:56:07	0-1	34.9	<LOD	<LOD	36.1	<LOD	<LOD	<LOD	<LOD	105	1,420	85.4	156
16:02:40	2-3	53.6	<LOD	<LOD	44.1	<LOD	<LOD	<LOD	<LOD	93.7	1,293	132	157
16:05:12	3-4	36.2	22	<LOD	20.7	8,947	<LOD	<LOD	<LOD	113	594	32.2	78
16:09:41	4-6 - post dry grab	6.9	<LOD	<LOD	50.2	<LOD	<LOD	<LOD	<LOD	95.4	876	15.8	172

Date	Instrument SN	Sample ID
June 27, 2018	511051	TA-GW-02

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:04:50	0-1	30.3	<LOD	149	<LOD	24.8	<LOD	244	42,699	<LOD	<LOD	<LOD	12	17,539	5,472	266	4.7
16:10:10	1-2	69.4	11.4	158	<LOD	40.9	<LOD	362	5,824	<LOD	<LOD	<LOD	38	26,116	7,454	167	<LOD
16:12:57	2-3	52.5	2.1	38	<LOD	9.5	<LOD	217	2,401	<LOD	<LOD	<LOD	<LOD	9,303	5,989	232	<LOD
16:16:21	3-4	61	2.5	25	<LOD	11.1	<LOD	233	1,672	<LOD	<LOD	<LOD	<LOD	13,451	6,435	338	<LOD
16:42:21	4-5	22.1	9.1	60	<LOD	23.1	<LOD	394	3,758	<LOD	<LOD	<LOD	11	25,415	15,581	378	<LOD
16:50:35	5-6	22.4	6.9	56	<LOD	14.3	<LOD	248	64,413	<LOD	<LOD	<LOD	15	20,720	14,646	374	<LOD
17:01:26	6-7	16.1	<LOD	57	<LOD	8.7	<LOD	222	56,213	<LOD	<LOD	<LOD	<LOD	10,912	9,087	206	<LOD
17:14:23	7-8	N/A	3.6	43	<LOD	11.4	<LOD	271	75,964	<LOD	<LOD	<LOD	8	15,594	13,405	423	<LOD
17:19:29	8-9	N/A	4.9	46	<LOD	10.3	<LOD	305	85,259	<LOD	471	<LOD	10	16,126	12,977	461	<LOD
17:22:26	9-10	N/A	<LOD	29	<LOD	7.8	<LOD	172	37,803	<LOD	339	<LOD	<LOD	5,612	4,741	167	<LOD
17:40:22	10-11	17.6	3	37	<LOD	10.5	<LOD	233	63,786	<LOD	218	<LOD	<LOD	8,054	7,876	240	<LOD
17:42:41	11-12	N/A	2.7	18	<LOD	7.5	<LOD	171	36,767	<LOD	<LOD	<LOD	<LOD	4,981	5,276	152	<LOD

Date	Instrument SN	Sample ID
June 27, 2018	511051	TA-GW-02

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:04:50	0-1	30.3	13	<LOD	30.9	9,785	<LOD	<LOD	<LOD	123	998	32.7	127
16:10:10	1-2	69.4	<LOD	<LOD	58.3	4,676	<LOD	<LOD	<LOD	229	2,612	59.3	253
16:12:57	2-3	52.5	<LOD	<LOD	41.8	<LOD	<LOD	<LOD	<LOD	87.4	1,266	20.2	223
16:16:21	3-4	61	<LOD	<LOD	40.4	<LOD	<LOD	<LOD	<LOD	84	1,373	17.9	246
16:42:21	4-5	22.1	13	<LOD	80.6	<LOD	<LOD	<LOD	<LOD	114	2,421	45	285
16:50:35	5-6	22.4	18	<LOD	73.9	<LOD	<LOD	<LOD	<LOD	119	1,971	38.7	194
17:01:26	6-7	16.1	<LOD	<LOD	56.3	<LOD	<LOD	<LOD	<LOD	105	1,247	25.9	144
17:14:23	7-8	N/A	<LOD	<LOD	70.5	<LOD	<LOD	<LOD	<LOD	116	1,756	33.3	134
17:19:29	8-9	N/A	14	<LOD	70.2	<LOD	<LOD	<LOD	<LOD	113	1,643	33.8	134
17:22:26	9-10	N/A	<LOD	<LOD	43.1	<LOD	<LOD	<LOD	<LOD	129	695	15.7	278
17:40:22	10-11	17.6	13	<LOD	51.9	<LOD	<LOD	<LOD	<LOD	160	1,195	21.2	244
17:42:41	11-12	N/A	<LOD	<LOD	42.6	<LOD	<LOD	<LOD	<LOD	121	693	14.5	200

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-GW-03

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
15:43:52	0-1	30.6	4	30	<LOD	33.3	<LOD	172	76,985	<LOD	<LOD	<LOD	8	10,465	5,411	418	<LOD
15:46:27	1-2	37.8	<LOD	834	<LOD	344	<LOD	235	32,756	<LOD	<LOD	<LOD	27	12,053	5,038	209	<LOD
15:48:46	2-3	PD <LOD	56	712	<LOD	1,429	<LOD	309	25,957	<LOD	342	<LOD	31	18,763	8,313	332	<LOD
15:51:04	7-8	PD <LOD	24	393	<LOD	595	<LOD	260	50,911	<LOD	<LOD	<LOD	25	14,859	8,193	321	3.5
15:53:37	8-9	PD 26.8	18	287	<LOD	317	<LOD	255	48,076	<LOD	355	<LOD	50	36,275	13,082	646	<LOD
15:56:03	9-10	PD 33.1	4.6	33	<LOD	16.3	<LOD	147	20,744	<LOD	<LOD	<LOD	10	11,149	6,233	376	3.4

Note: Same as TA-SB-01

Date	Instrument SN	Sample ID
July 25, 2018	511051	TA-GW-03

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:43:52	0-1	30.6	<LOD	<LOD	34.1	7,217	<LOD	<LOD	<LOD	125	1,084	107.1	150
15:46:27	1-2	37.8	13	<LOD	38.7	4,193	<LOD	<LOD	<LOD	148	862	87.2	176
15:48:46	2-3	PD <LOD	23	<LOD	42.6	7,916	<LOD	<LOD	<LOD	180	1,774	160	197
15:51:04	7-8	PD <LOD	20	<LOD	47.9	4,205	<LOD	<LOD	<LOD	163	1,558	113	156
15:53:37	8-9	PD 26.8	<LOD	<LOD	32.1	88,505	<LOD	<LOD	128	160	1,664	223	145
15:56:03	9-10	PD 33.1	<LOD	<LOD	38.2	19,397	<LOD	<LOD	<LOD	109	915	24.2	88

Note: Same as TA-SB-01

Date	Instrument SN	Sample ID
June 27, 2018	511051	TA-GW-04

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
11:25:55	0-1	24.1	7.1	104	<LOD	43.7	<LOD	219	44,831	<LOD	<LOD	<LOD	22	13,884	6,717	496	<LOD
11:30:37	1-2	37.6	19.1	528	1.2	149	<LOD	463	16,236	<LOD	<LOD	<LOD	96	21,734	6,129	260	3.7
11:37:38	2-3	47.2	9.4	54	<LOD	24.5	<LOD	163	44,002	<LOD	<LOD	<LOD	9	8,612	4,609	181	<LOD
11:49:33	4-5	PD NR	4.1	61	<LOD	43.5	<LOD	310	12,766	<LOD	<LOD	<LOD	112	20,049	9,479	387	<LOD
11:52:02	5-6	PD 9.6	3.4	84	<LOD	16.4	<LOD	371	4,536	<LOD	<LOD	<LOD	<LOD	20,867	12,692	325	<LOD
11:55:20	6-7	68.7	2.4	45	<LOD	11.2	<LOD	244	2,661	<LOD	<LOD	<LOD	<LOD	13,669	8,914	246	<LOD
11:57:49	7-8	66.9	3	61	<LOD	12	<LOD	275	3,314	<LOD	<LOD	<LOD	<LOD	12,916	9,345	482	<LOD
12:00:21	8-9	65.1	3.3	41	<LOD	9.7	<LOD	183	28,350	<LOD	<LOD	<LOD	<LOD	15,134	7,038	420	<LOD
12:02:45	9-10	52.3	<LOD	43	<LOD	10.4	<LOD	227	63,937	<LOD	<LOD	<LOD	<LOD	14,580	9,681	281	<LOD

Date	Instrument SN	Sample ID
June 27, 2018	511051	TA-GW-04

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
11:25:55	0-1	24.1	<LOD	<LOD	40.7	<LOD	<LOD	<LOD	<LOD	159	1,151	113	111
11:30:37	1-2	37.6	27	<LOD	46	4,282	<LOD	1.4	<LOD	270	1,966	265	147
11:37:38	2-3	47.2	<LOD	<LOD	45.4	2,350	<LOD	<LOD	<LOD	138	1,014	204	168
11:49:33	4-5	PD NR	14	<LOD	44.2	<LOD	<LOD	1.4	<LOD	191	2,516	99	266
11:52:02	5-6	PD 9.6	14	<LOD	62.9	<LOD	<LOD	<LOD	<LOD	136	2,330	37.3	203
11:55:20	6-7	68.7	15	<LOD	58.8	<LOD	<LOD	<LOD	<LOD	118	1,651	27	210
11:57:49	7-8	66.9	26	<LOD	60.1	<LOD	<LOD	<LOD	<LOD	118	1,903	29.5	220
12:00:21	8-9	65.1	25	<LOD	39.3	<LOD	<LOD	<LOD	<LOD	97.4	1,005	27.3	119
12:02:45	9-10	52.3	<LOD	<LOD	72	<LOD	<LOD	<LOD	<LOD	136	1,407	31.3	159

Date	Instrument SN	Sample ID
June 28, 2018	511051	TA-GW-05

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
14:00:56	0-1	37.6	3.9	92	<LOD	15.3	<LOD	185	30,731	<LOD	<LOD	<LOD	20	19,259	5,366	435	<LOD	<LOD
14:03:23	1-2	27.9	15.1	155	4.1	69.1	<LOD	568	8,238	<LOD	411	<LOD	63	78,276	16,166	259	16.1	26
14:05:49	2-3	53.5	8.3	64	<LOD	57	<LOD	372	3,179	<LOD	<LOD	<LOD	52	8,514	2,272	71	<LOD	11
14:08:09	3-4	45.2	2.5	65	<LOD	13.1	<LOD	412	1,155	<LOD	<LOD	<LOD	33	8,275	2,444	63	<LOD	14
14:33:31	4-5	PD 6.5	7.9	207	1.2	49.9	<LOD	704	13,144	<LOD	<LOD	<LOD	65	19,147	7,156	270	<LOD	52
14:36:31	5-6	PD NR	4	43	<LOD	19.9	<LOD	308	5,020	<LOD	<LOD	<LOD	8	15,316	9,077	210	<LOD	13
15:17:24	6-7	PD NR	5.2	81	<LOD	17.7	<LOD	422	19,168	<LOD	<LOD	<LOD	13	24,050	12,490	378	<LOD	31
15:21:59	7-8	PD NR	3.8	57	<LOD	15.6	<LOD	352	29,829	<LOD	<LOD	<LOD	17	22,379	15,737	426	<LOD	29

Date	Instrument SN	Sample ID
June 28, 2018	511051	TA-GW-05

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
14:00:56	0-1	37.6	<LOD	30.3	<LOD	<LOD	<LOD	<LOD	91.1	1,176	49.8	98
14:03:23	1-2	27.9	<LOD	75.6	16,216	<LOD	2.4	<LOD	269	3,304	446	203
14:05:49	2-3	53.5	<LOD	76.9	2,580	<LOD	2.8	<LOD	263	3,090	515	213
14:08:09	3-4	45.2	<LOD	73.9	1,254	<LOD	2.8	<LOD	272	3,649	230	216
14:33:31	4-5	PD 6.5	<LOD	72.4	4,121	<LOD	1.8	<LOD	388	5,768	807	280
14:36:31	5-6	PD NR	<LOD	55	6,208	<LOD	1.9	<LOD	128	2,698	55.4	315
15:17:24	6-7	PD NR	<LOD	58.7	2,244	<LOD	<LOD	<LOD	257	2,636	77.1	217
15:21:59	7-8	PD NR	<LOD	83.6	<LOD	<LOD	<LOD	<LOD	137	2,772	44.2	307

Date	Instrument SN	Sample ID
June 28, 2018	511051	TA-GW-06

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo	Ni
9:51:31	0-1	30.6	2.8	75	<LOD	30.2	<LOD	200	27,715	<LOD	<LOD	<LOD	10	10,530	5,890	327	<LOD	<LOD
9:54:51	1-2	33.9	8.2	172	<LOD	146	<LOD	241	29,466	<LOD	<LOD	<LOD	29	21,971	6,494	275	<LOD	<LOD
10:22:05	2-3	PD 18.9	24.7	1,350	<LOD	210	<LOD	403	37,502	<LOD	316	<LOD	47	33,577	12,298	363	<LOD	25
10:25:18	3-4	PD 16.5	18.5	376	<LOD	252	<LOD	319	96,654	<LOD	<LOD	<LOD	17	13,324	6,271	300	<LOD	<LOD
10:37:16	4-5	PD 13.7	13.7	371	<LOD	156	<LOD	407	43,067	<LOD	<LOD	<LOD	9	20,166	8,832	336	<LOD	<LOD
11:38:28	5-6	PD NR	24.3	1,074	<LOD	35.3	<LOD	300	25,757	<LOD	<LOD	<LOD	10	15,456	9,675	287	<LOD	<LOD
11:40:55	6-7	PD NR	18.8	496	<LOD	24.2	<LOD	194	40,395	<LOD	<LOD	<LOD	9	7,490	5,059	238	<LOD	<LOD
11:43:33	7-8	PD NR	4.6	35	<LOD	14.4	<LOD	240	31,802	<LOD	254	<LOD	8	11,100	8,395	268	<LOD	<LOD

Date	Instrument SN	Sample ID
June 28, 2018	511051	TA-GW-06

Time	Depth Interval	Moisture	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
9:51:31	0-1	30.6	<LOD	43.3	<LOD	<LOD	<LOD	<LOD	103	1,325	67	183
9:54:51	1-2	33.9	<LOD	34.1	9,054	<LOD	<LOD	37	123	1,011	203	128
10:22:05	2-3	PD 18.9	<LOD	43.4	17,439	<LOD	<LOD	68	216	2,153	1,211	166
10:25:18	3-4	PD 16.5	<LOD	33.9	16,791	<LOD	<LOD	<LOD	154	766	1,183	146
10:37:16	4-5	PD 13.7	<LOD	42.7	10,989	<LOD	<LOD	<LOD	118	1,421	550	139
11:38:28	5-6	PD NR	<LOD	60.6	3,935	<LOD	<LOD	<LOD	118	2,339	76.5	234
11:40:55	6-7	PD NR	<LOD	33	5,221	<LOD	<LOD	<LOD	91.3	1,106	82.7	131
11:43:33	7-8	PD NR	<LOD	51.7	5,108	<LOD	<LOD	<LOD	118	1,463	414	163

Date	Instrument SN	Sample ID
June 26, 2018	511051	TA-GW-07

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn	Mo
16:18:09	0-1	32.6	3.1	39	<LOD	13.8	<LOD	207	32,356	<LOD	<LOD	<LOD	<LOD	10,672	6,606	354	<LOD
16:20:26	1-2	47.5	<LOD	27	<LOD	11.5	<LOD	146	2,496	<LOD	<LOD	<LOD	<LOD	4,543	4,368	175	<LOD
16:23:21	2-3	63.7	<LOD	26	<LOD	8.7	<LOD	138	9,793	<LOD	<LOD	<LOD	<LOD	5,471	3,766	215	<LOD
16:26:11	3-4	67.8	<LOD	28	<LOD	10.4	<LOD	161	2,605	<LOD	<LOD	<LOD	<LOD	7,972	4,113	153	<LOD
16:30:17	4-5	68.7	1.9	34	<LOD	10.3	<LOD	233	7,022	<LOD	<LOD	<LOD	6.5	8,706	6,743	187	<LOD
16:44:32	5-6	80.6	<LOD	<LOD	<LOD	17.1	<LOD	36	3,217	<LOD	<LOD	<LOD	<LOD	3,080	<LOD	164	2.2
16:47:06	6-7	71.4	6.6	46	<LOD	14.3	<LOD	324	5,190	<LOD	<LOD	<LOD	22	21,669	8,553	370	<LOD
16:49:54	7-8	66.7	2.2	25	<LOD	8.4	<LOD	195	1,870	<LOD	<LOD	<LOD	<LOD	7,473	4,960	146	<LOD

Date	Instrument SN	Sample ID
June 26, 2018	511051	TA-GW-07

Time	Depth Interval	Moisture	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
16:18:09	0-1	32.6	<LOD	<LOD	38.3	<LOD	<LOD	<LOD	<LOD	115	1,012	30.2	154
16:20:26	1-2	47.5	<LOD	<LOD	39.8	<LOD	<LOD	<LOD	<LOD	75.1	455	22.7	132
16:23:21	2-3	63.7	<LOD	<LOD	32.5	<LOD	<LOD	<LOD	<LOD	58.3	588	16.5	92.3
16:26:11	3-4	67.8	<LOD	<LOD	37.3	<LOD	<LOD	<LOD	<LOD	81.4	742	23.2	120
16:30:17	4-5	68.7	12	<LOD	48.3	2,068	<LOD	<LOD	<LOD	104.6	1,264	23.2	191
16:44:32	5-6	80.6	<LOD	<LOD	9.9	3,616	18	<LOD	<LOD	37.6	184	19.9	23.3
16:47:06	6-7	71.4	13	<LOD	57.5	2,150	<LOD	<LOD	<LOD	119	2,049	44.5	188
16:49:54	7-8	66.7	15	<LOD	52	<LOD	<LOD	<LOD	<LOD	103.4	832	9.3	246

Date	Instrument SN	Sample ID
June 27, 2018	511051	TA-GW-08

Time	Depth Interval	Moisture	As	Cr	Hg	Pb	Ag	Ba	Ca	Cd	Cl	Co	Cu	Fe	K	Mn
15:17:02	0-1	28.5	<LOD	40	<LOD	34.5	<LOD	175	19,247	<LOD	<LOD	<LOD	8	10,221	5,289	346
15:19:19	1-2	35	3.2	30	<LOD	17.7	<LOD	175	9,897	<LOD	<LOD	<LOD	8	9,554	5,277	186
15:21:43	2-3	54.4	<LOD	33	<LOD	45.4	<LOD	171	4,436	<LOD	<LOD	<LOD	13	5,935	2,878	221
15:24:19	3-4	62.4	<LOD	31	<LOD	17	<LOD	152	7,352	<LOD	<LOD	<LOD	<LOD	5,880	3,610	143
15:26:34	4-5	PD 16.8	<LOD	36	<LOD	10.4	<LOD	184	44,714	<LOD	<LOD	<LOD	<LOD	8,438	7,300	388
15:29:41	5-6	63.4	<LOD	18	<LOD	118.4	<LOD	85	3,089	12	<LOD	<LOD	28.1	7,829	895	111
15:33:32	6-7	58.2	2.9	18	<LOD	51.4	<LOD	94	2,924	<LOD	<LOD	<LOD	11.2	6,020	1,028	101
15:35:47	7-8	63.3	6.2	60	<LOD	10.6	<LOD	224	43,084	<LOD	<LOD	<LOD	17	18,203	10,631	350

Date	Instrument SN	Sample ID
June 27, 2018	511051	TA-GW-08

Time	Depth Interval	Moisture	Mo	Ni	P	Rb	S	Sb	Se	Sn	Sr	Ti	Zn	Zr
15:17:02	0-1	28.5	<LOD	<LOD	<LOD	38.5	<LOD	<LOD	<LOD	<LOD	124	1,079	58.9	151
15:19:19	1-2	35	<LOD	<LOD	<LOD	43.7	<LOD	<LOD	<LOD	<LOD	103	791	25.5	144
15:21:43	2-3	54.4	<LOD	<LOD	<LOD	34.4	<LOD	<LOD	<LOD	<LOD	71.3	979	78.2	160
15:24:19	3-4	62.4	<LOD	<LOD	<LOD	39.3	<LOD	<LOD	<LOD	<LOD	83.9	707	28.5	157
15:26:34	4-5	PD 16.8	<LOD	<LOD	<LOD	45.7	2,395	<LOD	<LOD	<LOD	107	1,071	19.7	171
15:29:41	5-6	63.4	<LOD	<LOD	<LOD	19.4	2,332	<LOD	<LOD	<LOD	36.7	434	97.2	58.5
15:33:32	6-7	58.2	<LOD	<LOD	<LOD	18.2	2,177	<LOD	<LOD	<LOD	37.3	460	40.6	74.4
15:35:47	7-8	63.3	<LOD	12	<LOD	38.5	<LOD	<LOD	<LOD	<LOD	84.3	1,504	42.6	153