EPA Region 1 RAC 2 Contract No. EP-S1-06-03

May 10, 2013
Nobis Project No. 80022

Via Electronic Submittal

U.S. Environmental Protection Agency, Region 1
Attention: Mr. Daniel Keefe, Task Order Project Officer
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3919

Subject: Transmittal of Final Groundwater Monitoring Data Summary Report
Nyanza Chemical Waste Dump Superfund Site – Operable Unit 2,
Ashland, Massachusetts
Remedial Action
Task Order No. 0022-RA-RA-0115

Dear Mr. Keefe:

Enclosed is the Final Groundwater Monitoring Data Summary Report for the Nyanza Chemical Waste Dump Superfund Site, Operable Unit 2, located in Ashland, Massachusetts.

Should you have any questions or comments, please contact me at (603) 724-6238, or jmccullough@nobiseng.com.

Sincerely,

NOBIS ENGINEERING, INC.

Jeff A. McCullough, P.E.
Senior Project Manager

Enclosure

c: Dave Buckley, MassDEP
File No. 80022/NH

SDMS Doc ID 535576

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Groundwater Monitoring Data Summary

Nyanza Chemical Waste Dump – Operable Unit 2
Ashland, Massachusetts

Remedial Action
EPA Task Order No. 0022-RA-RA-0115

REMEDIAL ACTION CONTRACT
No. EP-S1-06-03

FOR

US Environmental Protection Agency
Region 1

BY

Nobis Engineering, Inc.

Nobis Project No. 80022

May 2013

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Groundwater Monitoring Data Summary

Nyanza Chemical Waste Dump – Operable Unit 2
Ashland, Massachusetts
Remedial Action
EPA Task Order No. 0022-RA-RA-0115

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May 2013

Jeff A. McCullough
Senior Project Manager

Jeff Brunelle
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1.0 INTRODUCTION

Nobis Engineering, Inc. (Nobis) prepared this 2012 Groundwater Monitoring Data Summary Report (Report) for the Nyanza Chemical Waste Dump Superfund Site, Operable Unit II (Nyanza OU2) located in Ashland, Massachusetts. Site location is depicted in Figure 1-1.

This work was performed in accordance with the United States Environmental Protection Agency (EPA) Region I Remedial Action Contract 2, No. EP-S1-06-03, EPA Task Order No. 0022-RA-RA-0115, Amended Scope of Work (ASOW) dated March 23, 2012, Work Plan Amendment (WPA) No. 3 (Nobis, April 2012).

1.1 Objective

The Task Order objective is to implement a Remedial Action (RA) for the Nyanza OU2 (the Site) that eliminates, reduces, or controls risks to human health and the environment. More specifically, this Task Order contemplates recovering dense non-aqueous phase liquid (DNAPL) using an extraction system. The Task Order was modified by Amendment No. 2 to include groundwater monitoring of approximately 30 wells. Amendment No. 3 further modified the monitoring program to include the collection of groundwater samples semi-annually over the next four years (through 2015). This will allow for a comprehensive evaluation as to the feasibility of Monitored Natural Attenuation (MNA) as an effective remedial alternative for the dissolved phase plume of Nyanza-related contaminants.

Natural attenuation relies on natural processes to decrease or “attenuate” groundwater contaminants. Periodic monitoring, including the collection of groundwater samples that are analyzed for the presence of site contaminants and other site characteristics, is used to verify that natural attenuation is working. The right conditions must exist in groundwater to effectively reduce the concentration of site-related contaminants in a reasonable timeframe.

Project tasks recently completed include:

- Completion of a supplemental step-drilling investigation. The step-drilling investigation was an iterative field-decision approach where a decision was made following completion of drilling activities at each soil boring location to proceed to the next location. This included the installation of new monitoring wells and the redevelopment of

area-wide monitoring wells (the details of these activities have been reported under a separate report);

- Completion of a monitoring well location and elevation survey;
- Completion of a synoptic groundwater gaging round from site-wide monitoring wells;
- Analytical testing of groundwater collected from selected wells included in the work scope as Spring and Fall round monitoring wells; and
- Completion and submittal of this 2012 Groundwater Monitoring Report.

This 2012 Groundwater Monitoring Data Summary Report summarizes the above activities. In addition, this report compares groundwater 2012 analytical data with prior results from limited sampling efforts in 2011. The report also compares the 2012 data with two state standards: the GW-1 and GW-2 standards promulgated by the Massachusetts Department of Environmental Protection (MassDEP).

The GW-1 standards apply to groundwater that is in a current or potential drinking water source area, including wellhead and water supply protection areas and groundwater within 500 feet of a private water supply well. The GW-2 standards apply to groundwater within 30 feet of an existing or planned building that will be occupied and when groundwater is less than 15 feet below ground surface. GW-2 standards were developed with consideration to the potential migration of volatile contaminants from groundwater into indoor air.

1.2 Site Location and Background

The former Nyanza facility is located on the north side of Megunko Road in the Town of Ashland, Massachusetts. The Town of Ashland is in Middlesex County and located 25 miles west of Boston, and 20 miles east of Worcester (Figure 1-1). The Site is crossed by railroad tracks used daily by MBTA commuter trains as well as freight trains. The Site study area focuses on groundwater contamination plumes that have migrated north and east from the former Nyanza facility, and on contaminated sediment in the Sudbury River, about 1000 feet north of the Site.

Soil thickness varies from approximately 3.5 feet at MW-502B to 115 feet at MW-404A. The soil at the Site consists mainly of silty fine sand and sandy silt (corresponding to glaciolacustrine sediment) and fine to coarse sands with gravels/cobbles found at some locations

(corresponding to glaciofluvial sediment) (Ebasco Services Incorporated, 1991). The content of fines is in the range of 1.5% to 33.5%, with no significant changes in percentages with depth below ground surface (bgs). Fines are defined as materials passing a No. 200 sieve during a soils test.

Depth to bedrock is shallowest in the Megunko Hill area and increases radially out from the Hill into a valley in the lowlands before beginning to rise again on the north shore of the Sudbury River. A meandering bedrock trough is located in the center of the Site, roughly parallel to the Sudbury River. It is attributed to a preglacial Sudbury River channel (Ebasco Services Incorporated, 1991). There is also evidence of a bedrock low in the vicinity of MW-113A. This localized depression may provide a natural accumulation area for DNAPL. The physical properties of DNAPL cause it to sink in groundwater where it may accumulate on top of competent bedrock or travel into bedrock fractures.

In the upland Megunko Hill area, overburden and bedrock groundwater generally flow in a northerly direction from the north side of Megunko Hill and in an easterly direction toward the Eastern Wetlands from the east side of Megunko Hill and the cap area. Section 2.0 provides the most recent overburden and bedrock groundwater level maps. Flow in the lowland areas east of Megunko Hill is in a more northeasterly direction, toward the Sudbury River. In the lowland areas north of Megunko Hill, overburden and bedrock groundwater flow is also in a northerly direction towards the Sudbury River. Downward gradients were observed in most of the Site, with upward gradients observed primarily at locations adjacent to the Sudbury River.

In 1994, DNAPL was discovered at the Worcester Air Conditioning (WAC) property, north of the Nyacol facility and across the railroad right of way. The DNAPL, found at this location, was a reddish, dark brown liquid with a low viscosity and had a very strong almond-like chemical odor. Potential DNAPL sources here include:

- a former concrete "vault" adjacent to the main processing building of Nyanza, Inc., and used for solids separation prior to effluent discharge;
- two previously-used lined lagoons south of Megunko Road;
- two former settling ponds (1 and 2) south of Megunko Road between the lined lagoons and Trolley Brook;
- the former landfill on Megunko Hill;

- the former Chemical Brook; and
- Area E (the lower industrial area between Megunko Road and the railroad tracks).

Between 1998 and 2004, EPA conducted groundwater monitoring at the Site twice a year. It has recently reinstated the semi-annual monitoring events. Site monitoring wells and other features are presented in Figure 1-2. In addition to the groundwater sampling events (described herein), other recent site activity has included two step-drilling investigations. These were performed in 2009 and 2012, to evaluate DNAPL contamination at the WAC and Nyacol properties, respectively.

2.0 GROUNDWATER MONITORING INVESTIGATION

Groundwater sampling was conducted to characterize the nature and extent of groundwater contamination. Both overburden monitoring wells (OB) and bedrock monitoring wells (BR) exist at the Site. Wells are classified as OB, BR, or overburden/bedrock (OB/BR) based on where the well screen is positioned (OB/BR wells are screened across the bedrock interface). OB/BR wells (MW-04B, RW-1 and MW/B-5) are included with the OB wells when calculating groundwater elevations and mapping chemicals.

Two groundwater sampling rounds were conducted in 2012 to evaluate both the overburden and bedrock aquifers and compare any season variability in the results. The Spring event was completed the week of August 13, 2012 at a total of 17 monitoring wells for analyses of VOCs, SVOCs and anions. The Fall event was completed the week of November 5, 2012. A total of 40 wells were analyzed for VOCs, SVOCs and anions. Of these 40 wells, a sub-set of 8 wells was also analyzed for dissolved gases in the Fall event. Note: the Spring 2012 event was conducted in August as a result of the time required to incorporate ASOW changes as a result of Amendment 3. All future spring sampling events will be conducted in May of successive years.

Specific information pertaining to each sampling event is presented in the following sections. Table 2-1 lists wells selected for each sampling round, groundwater sample identification, dates of sample collection, analyses performed, and quality control (QC) sample designation (as appropriate). Figure 1-2 depicts wells included in each sampling round. Table 2-2 presents monitoring well construction details for the wells sampled.

Prior to each sampling event, Nobis obtained site-wide synoptic groundwater elevations from all monitoring wells. These data were used to develop groundwater flow maps. Overburden and bedrock groundwater flow directions are summarized below in Sections 2.1.1 and 2.2.1, respectively. Overburden and bedrock groundwater flow directions derived from Fall gaging data are depicted in Figures 2-1 and 2-2, respectively.

For groundwater sampling, Nobis outfitted monitoring wells with dedicated Teflon or Teflon-lined polyethylene tubing. The tubing remained in the wells for future sampling use. Nobis used either peristaltic or bladder pumps to purge wells and collect groundwater samples.

Bladder pumps (where used) were decontaminated and new bladder kits installed prior to sampling all wells with the bladder pump set-up. Due to the nature of peristaltic pumps and the use of dedicated tubing, no peristaltic pump components required decontamination between sample points. Movable equipment was decontaminated between wells.

The peristaltic pumps were battery operated. The bladder pumps were powered either by an electric compressor or a pressurized nitrogen tank. Pump controls allowed the sampler to adjust flow rate, minimizing drawdown in the well while purging and collecting groundwater samples.

Nobis collected groundwater samples in accordance with the EPA Region 1 low-stress sampling procedures. Nobis monitored the purge water for stabilization before collecting samples. Water level (drawdown), pumping rate, and water quality parameters were recorded every five minutes (or as appropriate) using YSI 650 MDS multi-parameter and Hach 2100Q turbidity meters (or equivalent). Field data were recorded on Low-Flow Field Log Sheets (Appendix A).

Monitoring wells were considered stable and ready to be sampled when three consecutive readings of water quality parameters achieved the following conditions:

- Temperature – (3 percent difference between readings)
- pH (+/- 0.1 unit between readings)
- ORP (+/- 10 millivolts between readings)

- DO – (10 percent difference between readings or readings less than 0.5 milligrams per liter [mg/L])
- Specific conductance – (3 percent difference between readings)
- Turbidity – (10 percent difference between readings or readings less than 5 Nephelometric Turbidity Units [NTU])

To ensure that samples were representative of aquifer conditions, groundwater samples were collected only after stabilization. Samples were collected from the tubing directly into the sample containers. Volatile organic compound (VOC) samples were kept free of air bubbles or air pockets so as to minimize evaporative loss of dissolved VOCs.

2.1 Spring Sampling Event

The 2012 annual Spring sampling event was conducted between August 13 and 15, 2012. Subsequent spring sampling event will occur in May of successive years. Details regarding the 2012 Spring sampling event are included below.

2.1.1 Groundwater Elevations

Nobis completed the Spring synoptic groundwater gaging round on August 13, 2012. To calculate groundwater elevations and estimate flow direction, Nobis collected depth-to-water measurements at 45 measuring points, including monitoring wells and stream gages.

Measured depths to water and calculated groundwater elevations for all monitoring locations included in the synoptic round are presented in Table 2-3. Groundwater depths ranged from 1.91 feet below ground surface (bgs) in RMW-405B to 30.49 feet bgs in MW-503B. With the exception of MW-402 and MW-503B (located on Megunko Hill), all depths to groundwater were less than 15 feet.

Overburden groundwater flows in a northeasterly direction on the western portion of the site, toward Mill Pond, and turns in an east-northeasterly direction on the eastern portion of the site, toward the Sudbury River. Bedrock groundwater flows in a similar direction, toward Mill Pond and the Sudbury River. Groundwater flow patterns are consistent with historical flow data and previous report interpretations.

2.1.2 Well Sampling

Eighteen groundwater wells were planned for the Spring sampling. However, only 17 wells were used. Well MW-113A was eliminated due to the presence of DNAPL.

Samples were collected and analyzed for VOC, semi-volatile organic compound (SVOC), and anions (chloride, nitrate, nitrite, sulfate, nitrate as nitrogen, and nitrite as nitrogen) per the approved Quality Assurance Project Plan (QAPP) (Nobis, 2012b). Bladder pumps were used to sample most monitoring wells with the exception of three wells that required peristaltic pumps (MW-06A, MW-113B, and MW-305B).

QC samples were collected in conjunction with the groundwater samples and as per the QAPP. The spring QC samples included a field duplicate sample, a matrix spike/matrix spike duplicate (MS/MSD) sample, a trip blank, and two performance evaluation samples.

Groundwater samples and associated field QC samples were collected, preserved, and submitted to EPA-approved laboratories. VOC and SVOC samples were shipped to the Contract Laboratory Program (CLP) laboratory, Shealy Environmental Services, in West Columbia, South Carolina. Anion samples were delivered via courier to EPA's Region 1 Office of Environmental Measurement and Evaluation (OEME) in North Chelmsford, MA.

2.2 Fall Sampling Event

The Fall sampling event was conducted between November 5 and 9, 2012. Details regarding the fall sampling event are included in the following sections.

2.2.1 Fall Groundwater Elevations

Nobis completed the fall event synoptic groundwater gaging round on November 5, 2012. Nobis collected depth to water measurements from 47 measuring points, including 46 monitoring wells and 1 stream gage, to calculate groundwater elevations and estimate flow direction.

Groundwater gaging information is included in Table 2-3. Groundwater depths ranged from 1.42 feet bgs in RMW-405B to 27.58 feet bgs in MW-503B. These same wells also produced the

Spring 2012 minimum and maximum groundwater depths. Aside from MW-402 and MW-503B, all depths to groundwater were less than 15 feet.

Overburden and bedrock groundwater flow directions calculated from Fall gaging data are depicted in Figures 2-1 and 2-2 respectively. Groundwater flow patterns are consistent with Spring data and previous report interpretations.

2.2.2 Well Sampling

There were 42 groundwater wells scheduled for sampling during the Fall monitoring event. Only 40 groundwater samples were collected because property access was not secured for MW-112A and B. The needed access agreement was signed by the property owner on November 20, 2012, after the Fall sampling.

To increase sampling efficiency, all but six wells were sampled using peristaltic pumps. MW-115A, MW-201, MW-203A, MW-0402, RMW-0405B, and MW-503B were sampled using bladder pumps based on the greater depths to groundwater or equipment availability.

Samples were collected for VOC, SVOC, anions (chloride, nitrate, nitrite, sulfate, nitrate as nitrogen, and nitrite as nitrogen), and dissolved gasses analysis as per the approved QAPP (Nobis, 2010b).

QC samples were taken in conjunction with the groundwater samples and as per the QAPP. QC samples collected during the Fall event included three field duplicate samples, six MS/MSD samples, four trip blanks, four performance evaluation samples, and one equipment blank. The equipment blank was collected from a non-dedicated bladder pump using de-ionized (DI) and high performance liquid chromatography (HPLC) water, after decontaminating the bladder pump between sampling locations.

Groundwater samples and associated field QC samples were collected, preserved, and submitted to EPA-approved laboratories. VOC and SVOC samples were shipped to the CLP laboratory, CAP Technologies Inc. in The Woodlands, Texas. Dissolved gasses samples were shipped to a Delivery of Analytical Services laboratory, Spectrum Analytical Inc. in Warwick,

Rhode Island. Anion samples were delivered via courier to EPA's Region 1 OEME Laboratory in North Chelmsford, MA.

2.3 DNAPL Gaging

In the past, DNAPL was found in two wells (MW-113A and RW-1). In 2012, DNAPL was found in three wells (MW-113A, SB-600 and MW/B-11) and strong odors were observed in B/MW-5.

Nobis visited the Site periodically throughout Fall 2012 to gage DNAPL in five wells: MW-113A, RW-1, SB-600, MW/B-5, and MW/B-11. DNAPL gaging information is included in Table 2-4. RW-1 and MW/B-5 were removed from the DNAPL gaging program after DNAPL was not detected in these locations during three consecutive gaging events. DNAPL gaging on December 18, 2012 was limited to the two locations (MW-113A and MW/B-11) where samples were collected for DNAPL physical properties.

Initially, DNAPL gaging was conducted using an interface probe; however, DNAPL coated the probe thus limiting the ability to accurately measure DNAPL levels. Later DNAPL gaging rounds were completed by bailing DNAPL with separate clear disposable polyethylene bailers. This allowed Nobis to remove DNAPL from the monitoring wells as well as to obtain more accurate DNAPL measurements with visual confirmation. The DNAPL was a reddish, dark brown liquid with a low viscosity.

During this process, Nobis measured either the DNAPL smear or DNAPL retrieved in bailers lowered into the well. Recoverable amounts were limited to what were present in each well at the time of gaging, because DNAPL did not immediately reflow into each well at time of recovery. The average DNAPL depths encountered were 23 inches in MW-113A, 5 inches in SB-600, and 10 inches in MW/B-11. DNAPL was not observed in MW/B-5 or RW-1, even though small globules of DNAPL had been noted during well development. It is noted that the minuscule quantity of DNAPL observed in RW-1 during well development did not allow for bailer measurement or recovery. DNAPL was not observed in any other wells during the 2012 monitoring events.

Under a separate cover, Nobis is evaluating the remedial alternatives for active DNAPL recovery at the Site.

2.4 Other Field Activities

2.4.1 Monitoring Well Development

From July 23, 2012 to August 3, 2012, Nobis personnel oversaw the development of new and existing monitoring wells. Wells were developed to remove accumulated sediment and stagnant water present in the well screen, well pack, and in the vicinity of the well. This process is believed to provide aquifer conditions necessary for the collection of a representative groundwater sample. Wells were developed by first mechanically surging each well with an inertial foot-valve type pump fitted with a surge block, and then over-pumping with a down-hole electric pump.

During development, Nobis personnel evaluated purge water turbidity visually and with a LaMotte 2020we turbidity meter. Monitoring wells were developed until one of the following criteria was met:

- purge water was clear,
- at least five well volumes had been purged, or
- the monitoring well showed no further improvement with continued activity (i.e., either the recharge rate was too slow to provide adequate water, or a negligible drop in turbidity was recorded).

Well-specific development details, including well development duration and estimated quantities of water removed from each well were presented in the Technical Memorandum for Step Drilling Program (Nobis, 2012); and are summarized below:

- Development purge rates ranged from between 0.33 gallons per minute (gpm) to 2 gpm.
- Seventeen wells were either purged dry, exhibited significant water level drawdown, or slow recharge rates.
- Turbidity levels in six of the wells did not improve with development and could not be quantified as they were outside the calibration range of the turbidity meter.
- Turbidity was greater than or equal to 50 Nephelometric turbidity units (NTU) in 5 wells.
- Readings of less than 50 NTU and above 15 NTU were achieved in 8 monitoring wells

- Turbidity levels less than 15 NTU were achieved in 13 wells.
- DNAPL was visible in the purge water during development at MW-113A, RW-1, and MW/B-11.
- DNAPL odors were noted during development at B/MW-5 and SB-600.

2.4.2 Monitoring Well Survey

Nobis contracted A Plus Construction Services Corporation (A Plus) from Norwell, Massachusetts, to conduct a site-wide survey to delineate land topography; locate new and existing monitoring wells, soil borings, and staff gages; establish temporary benchmarks; and stake out property lines based on available property line information.

A Plus conducted the survey on the site from August 22 to September 12, 2012. Survey information collected at each well location included northing and easting coordinates (calculated from the North American Datum of 1983 (NAD 83), and ground, top of PVC, and top of casing elevations (calculated from the North American Vertical Datum of 1988 [NAVD 88]). In addition, site and property features, such as ground topography and property lot boundaries were included from site survey information and existing regional survey databases. Monitoring wells and site features are presented in Figure 1-2, and well survey information is included in Table 2-2.

3.0 GROUNDWATER LABORATORY ANALYTICAL RESULTS

Nobis collected samples for VOCs, SVOCs, and anions analyses during both sampling events. Dissolved gasses samples were collected as part of the Fall sampling round only.

Prior to collecting samples, Nobis measured water quality parameters to document physical and chemical characteristics and determine well stability prior to collection. These parameters measured included turbidity, temperature, pH, conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP). Groundwater data are discussed in the following sections. When these parameters do not change, the well is determined to be stable and this condition provides for more reliable water results.

Groundwater laboratory analytical results for VOCs, SVOCs, anions, and dissolved gasses are presented in Tables 3-1 series (Spring round) and 3-2 series (Fall round). Analytical results were compared to the state's GW-1 and GW-2 groundwater standards. Due to elevated

concentrations of several compounds, the laboratory needed to dilute the sample in order to obtain valid results. The dilution of the sample caused the detected limits for some non-detected compounds to be higher than the applicable MCP standard. This generally occurred in source area wells such as MW-113A, MW/B-5, RW-1, MW/B-11, and SB-600. The following sections summarize the 2012 analytical and field data.

3.1 VOC Analytical Data

VOC data (Tables 3-1a and 3-2a) from both 2012 sampling events were compared to the GW-1 and GW-2 standards. A total of 6 VOCs exceeded both the GW-1 and the GW-2 groundwater standards, including: 1,2-dichlorobenzene (1,2 DCB); 1,4-dichlorobenzene (1,4 DCB); chlorobenzene; cis-1,2-dichloroethene (cis-1,2-DCE); trichloroethene (TCE); and vinyl chloride (VC). Four additional VOCs exceeded the GW-1 standard only, bringing the total number of compounds exceeding GW-1 to ten; these include: 1,2,4-trichlorobenzene (1,2,4 TCB), 1,3-dichlorobenzene (1,3 DCB), benzene, and methylene chloride.

Total VOCs concentrations in the overburden and bedrock aquifers for the Fall sampling event are depicted in Figures 3-1 and 3-2, respectively. Figure 1-2 depicts the Site source areas. The contaminant plume in both the bedrock and overburden originate on the Nyacol (former vault area) and WAC properties (source areas), flow north and then east to the areas south of the Sudbury River and Mill Pond, and then to the downgradient area east of Main Street. The contaminant plumes in the overburden and bedrock aquifers are similar. Highest concentrations are located in the bedrock in the source and center plume areas. VOC concentrations exceeded the GW-2 standard in 25 monitoring wells.

Specific details for some compounds are as follows:

- **TCE** exceeded the GW-2 standard at 25 sample locations, and was detected above the-GW-1 standard at five of these locations.

  TCE Exceedances occurred in bedrock and overburden wells throughout the Site, including lateral well MW-04B; the source areas; northeast of the landfill and along Megunko Road; throughout the downgradient plume area south of Mill Pond and west of Main Street; and east of Main Street in wells RMW-0405A and B, and MW-406A. TCE

contaminant distributions in overburden and bedrock wells for November 2012 are depicted in Figures 3-3 and 3-4, respectively.

The highest TCE concentration was detected in SB-600, located at the Nyacol facility. Measureable DNAPL was retrieved from this well. In 2011, the maximum concentration was detected in MW/B-5, located on the WAC property (both are considered to be source area wells).

- **VC** was detected at concentrations exceeding both the GW-1 and GW-2 standards in MW-304A, MW-304B, and MW-203A; however, the laboratory was unable to report detection limits lower than the groundwater standards for any of the samples analyzed. This was due to sample dilutions required to get other (higher) contaminants of concern (COC) in the samples within their respective reporting limit. Therefore, it is possible that some VC concentrations, although reported as non-detected, may exceed the groundwater standards at additional sampling locations.

  VC exceedances historically have occurred in the north-central portion of the contaminant plume and downgradient from the source area south of Pleasant Street.

- **Chlorobenzene** was detected above the GW-2 standard at 16 sampling locations and additionally, above the GW-1 standard only in MW-304B.

  The highest levels of chlorobenzene were detected in source area wells on the Nyacol and WAC properties, in bedrock and overburden wells on the south bank of the Sudbury River upstream of Mill Pond, and in the downgradient plume area south of Mill Pond and west of Main Street.

  The highest chlorobenzene concentration was detected in MW/B-11, a new well installed at the Nyacol facility during the 2012 step drilling program. Measureable DNAPL was retrieved from this well.

- **1,4 DCB** was detected above the GW-2 standard at 13 sampling locations and above the GW-1 standard only at an additional 12 locations.

Elevated levels of 1,4 DCB were detected in bedrock and overburden wells in source area wells on the Nyacol and WAC properties, at the base and northeast of the landfill, on the south bank of the Sudbury River upstream of Mill Pond, and in the downgradient plume area south of Mill Pond and west of Main Street.

The highest 1,4 DCB concentration was detected in MW/B-11. Measureable DNAPL was retrieved from this well.

- **1,2 DCB** was detected above the GW-2 standard at 10 sampling locations and above the GW-1 standard only at an additional six.

  Elevated levels of 1,2 DCB were detected in bedrock and overburden wells in source area wells on the Nyacol and WAC properties, northeast of the landfill, on the south bank of the Sudbury River upstream of Mill Pond, and in the downgradient plume area south of Mill Pond and west of Main Street.

  The highest 1,2 DCB concentration occurred in MW/B-11. Measureable DNAPL was retrieved from this well.

- **Additional VOCs –** cis-1,2-DCE was detected in source area and downgradient plume locations at levels above the GW-2 Standard. Additional VOCs, including cis-1,2-DCE, 1,3 DCB, 1,2,4 TCB, Benzene, and methylene chloride were also detected in these same areas at levels above the GW-1 standard.

3.2 SVOC Analytical Data

Elevated SVOCs were measured in many of the same wells where elevated VOCs were detected.

SVOC analytical data are presented in Tables 3-1b and 3-2b. SVOC data from both the Spring and Fall sampling events were compared to the GW-1 and GW-2 standards. In 2012, four compounds exceeded the GW-1 standard: 1,1-Biphenyl; 2-chlorophenol; 4-chloroaniline; and pentachlorophenol. No compounds were detected above GW-2 standards.

SVOCs exceeded the GW-1 standard in eight monitoring wells, including three monitoring wells located in the source area, four located in the downgradient plume area south of Mill Pond, and one located farthest downgradient (MW-406B).

In addition, elevated levels (≥18,000 µg/L) of nitrobenzene were detected in source area wells MW/B-5, SB-600, and MW-/B-11; in downgradient plume well MW-401; and in downgradient well MW-406B. No groundwater standards exist for this compound.

It should be noted that VOC compounds 1,2,4 TCB; 1,2 DCB; 1,3 DCB; and 1,4 DCB were listed as both VOC and SVOC compounds in 2011. In this report, these four compounds are considered to be VOCs and they are listed in Tables 3-1a and 3-2a.

3.3 Dissolved Gasses Analytical Data

Dissolved gas concentrations can be used to evaluate the aerobic and anaerobic biodegradation of contaminants. Anaerobic biodegradation, in particular, is one MNA process that could potentially change the site groundwater contaminants to harmless compounds over time. Eight wells were sampled for dissolved gasses for the first time during the Fall sampling event. Dissolved gasses were not collected during the Spring sampling nor is there a history of this measurement prior to 2012. Thus, there is currently no ability to compare the Fall 2012 results to historical values. However, looking ahead these results will be compared with subsequent Fall sampling events.

Samples were analyzed for ethane, ethylene, and methane. Dissolved gas sampling results are presented in Table 3-2d. Ethane and ethylene are anaerobic biodegradation pathway reaction endpoints for dechlorination. Methane is an indicator of reductive conditions favoring anaerobic biodegradation.

Data indicates that anaerobic biodegradation is more likely in the more contaminated portions of the bedrock aquifer (as compared to the overburden wells). The presence of ethane and ethylene in MW-203A suggest ongoing biodegradation near this location. Also a possible indication of anaerobic biodegradation is that the maximum VC concentration measured decreased from 1,000 µg/L in MW-203A in April 2012 (sampled as part of the 2011 data set) to 350 µg/L in MW-203A in November 2012.

3.4 Anion Analytical Data

Anion concentrations can be used as additional indicators of anaerobic biodegradation processes. When oxygen is depleted, microbes will preferentially use nitrate and sulfate as electron acceptors to anaerobically degrade hydrocarbons. Depletion of these terminal electron acceptors may be indicative of ongoing biodegradation.

Anion samples were collected during both the Spring and Fall sampling rounds to assess the degree to which natural attenuation may be occurring. Results are presented in Tables 3-1c and 3-2c and indicate the following:

- Nitrate and sulfate exhibit a range of concentrations across the Site. Nitrate and sulfate concentrations near MW-203B, MW-202, and MW-201 decrease along a flow line suggesting favorable conditions for anaerobic biodegradation. DO values and reduced TCE and VC concentrations indicate that natural attenuation may be occurring, but it appears limited to this area.

- In certain conditions, chloride accumulation can be an indicator of anaerobic biodegradation, a process that is also referred to as reductive dechlorination. Reductive dechlorination occurs where naturally-occurring bacteria in the Site groundwater breakdown or dechlorinate VOCs to ultimately harmless compounds. The highest chloride and sulfate values (≥ 1,500 mg/L) were located in overburden wells MW-115B and RMW-405B, and in bedrock wells MW-304A, MW-203A, and MW-115A. This suggests reductive dechlorination may have occurred at these locations. Additional data collected in subsequent years should help confirm or refute this reductive dechlorination hypothesis.

3.5 Field Parameter Data

Field parameter data (Table 3-3) are used to track well stability prior to collecting samples as well as to assess natural attenuation and general conditions of the groundwater. The 2012 field parameter data results indicate the following:

- Temperature values were consistent across the Site with average temperature of 13.5 degrees Celsius.

- The mean pH value across the Site was 6.4. Low pH values (<4) were detected in MW-302 and MW-305B. A high pH value was detected in RMW-405A, possibly due to grout influencing the groundwater chemistry after well replacement and construction.

- The highest specific conductance values were detected in MW-115A and B, MW-203A, MW-304A, and RMW-405B. Elevated specific conductance values correlate well with the highest measured chloride levels.

- Oxygen Reduction Potential (ORP) is a measurement of the tendency of a chemical species to acquire electrons and hence be reduced in the environment and the unit of measurement is millivolts. In general, positive ORP values indicate oxidizing conditions and negative ORP values indicate reducing conditions. It is generally believed that effective anaerobic biodegradation occurs primarily in reducing conditions. In 2012, reducing conditions were measured in 23 wells, indicating conditions favorable for anaerobic biodegradation. While this is a hopeful sign, ORP data alone is inconclusive.

- Anaerobic biodegradation generally begins when DO levels are less than 0.5 mg/L. Ten overburden wells and eight bedrock wells were anoxic with DO levels less than 0.5 mg/L. In general, these wells were source area or center plume area wells. Aside from MW/B-5, wells with DO values greater than 0.5 mg/L are plume fringe wells with lower levels of contamination detected in the groundwater samples.

4.0 DATA EVALUATION

4.1 Data Quality Assessment and Limitations

In accordance with the Work Plan Amendment (WPA) and QAPP, a data quality assessment was performed to evaluate whether the collected groundwater data would be reliable for assessing groundwater contamination. In general the data proved reliable; details are given below.

Results of the Tier 1 modified data validation are in the memoranda presented in Appendix B. Data validation qualification flags were applied to VOC and SVOC data based on *EPA CLP National Functional Guidelines for Organic Superfund Data Review* (EPA, 2008). These flags marked non-conformance related to initial and continuing calibrations, blanks, deuterated monitoring compounds, matrix spikes, and internal standards. For Tier I validation, qualification due to field duplicate and performance evaluation samples results was not performed for VOC and SVOC data. Full comments on relative bias for these data are included in the data validation memos. Key excerpts include:

- Field duplicate results for sample MW-113B collected in August exhibited variability for 1,2-dichlorobenzene, 1,4-dichlorobenzene, chlorobenzene, cis-1,2-dichloroethene, and trichloroethene. Therefore, results for these analytes should be considered estimates in this sample.
- Field duplicate results for sample MW-401 collected in November exhibited variability for nitrobenzene. Nitrobenzene results for this sample should be considered estimated.
- Due to a high performance evaluation sample recovery for toluene, results for samples MW-304A and MW-302 for the November event should be considered biased high.

Data qualifiers were not applied to dissolved gas and anion data. Comments on relative bias for these data are made in the data validation memos and are summarized as follows:

- The August sulfate results (detections and non-detections) are biased low, due to low matrix spike recovery.
- The November sulfate result for sample WP-105 should be considered non-detect due to blank contamination.
- The November nitrate results for sample MW-115A should be considered estimated due to imprecision in the field duplicate values.
- The November nitrite results for samples MW/B-5, MW/B-11, and MW-503A should be considered biased high due to high matrix spike recoveries.

Fundamentally, with minor exceptions the groundwater data are evaluated as reliable for decision-making purposes.

4.2 Trends and Extents

The incorporation of additional sampling points in 2012 increased the ability to track spatial distribution of contaminant plumes across the Site. More specifically, wells SB-600 and MW/B-11 provide better source area characterization, wells MW-402 and the MW-104 and MW-9 well pairs have increased plume tracking to the south of the source area, and the replacement of damaged wells at the RMW-405 cluster has closed a data gap to the east of Main Street.

VOC & MNA parameters, SVOC, and anion data from 2011 and 2012 are presented in Tables 4-1, 4-2, and 4-3, respectively. Only compounds with detections are included in the historical data tables.

The 2012 data show that both overburden and bedrock groundwater plumes have expanded when compared to the 2011 data. TCE and VOC concentration plots also indicate an increase of both TCE and VOC in the source area and center plume area south of the Sudbury River and Mill Pond. This occurs in both the overburden and bedrock aquifers (Figures 3-1 through 3-4). There was also an increase in lateral well set, MW-04, but the cause is not known at this time. Further evaluation at this location is warranted. MW-04 well set is not located downgradient or upgradient from the source area, rather it is located lateral to the source area (see Figures 2-1 and 2-2).

The expanded sample program of 2012 revealed the following:

- An increase in TCE concentrations was noted to the west and east of Main Street near MW-115B and RMW-405B (as shown on Figure 3-3).

- TCE was detected in overburden groundwater in the upgradient area of the MW-04 well set, to the south towards MW-104B and MW-9A, and downgradient at the MW-403 and MW-406 well locations.

- TCE was detected in bedrock wells MW-104A and MW-402, at levels above the GW-2 standard, just downgradient of the capped area. These wells were not sampled in 2011.

- TCE was detected at levels above the GW-1 standard in MW-406A. This indicates possible plume migration farther downgradient than previously detected. SVOC exceedances have been detected in MW-406A and B.

- Elevated levels of VOCs were detected in the new replacement well, RMW-405B. No 2011 data exists for this sampling location.

4.3 Historical Data Comparison

Nobis compared the results for the 2012 sampling rounds to the data collected in 2011. This comparison included a review of maximum concentrations as well as enumerating the number of times a groundwater standard was exceeded. This comparison is the first trend evaluation conducted under the amended Work Scope. It is naturally limited due to small number of data sets available for comparison (2011 and 2012). A more comprehensive MNA evaluation will be conducted as more data sets become available. MNA may be an effective remedial alternative for the dissolved phase plume.

Comparative data is included in Tables 4-1 through 4-4. Wells without data from either 2011 or 2012 were excluded. An evaluation of these comparative data shows:

- an increase in maximum concentrations of 11 compounds, including: TCE; cis-1,2 DCE; chlorobenzene; 1,2 DCB; 1,3 DCB; 1,4 DCB; 1,2,4 TCB; methylene chloride; 1,1-biphenyl; 2-chlorophenol; and pentachlorophenol;

- a decrease in maximum concentrations of VC, benzene, and 4-chloroanaline;

- an increase in the total number of exceedances (both GW-1 and GW-2/GW-1) for 10 compounds, including: TCE; chlorobenzene; 1,4 DCB; 1,2 DCB; cis-1,2 DCE; 1,2,4 TCB; methylene chloride; 1,1-biphenyl; 2-chlorophenol; and pentachlorophenol;

- An increase in the total number of wells for GW-2 exceedances from either below GW-1 standard or from GW-1;

- 1,3 DCB and 4-chloroanaline showed no change in the number of exceedances detected since 2011;

- The total number of exceedances for VC decreased in 2012. However, this decrease may be an artifact of laboratory detection limits being above MCP standards for all samples analyzed; and

- Nitrobenzene concentrations increased in MW-401 and MW-406B. No groundwater standards exist for nitrobenzene.

Some of the increases may have resulted simply from the expansion of the groundwater sampling program. The new 2012 sampling program (especially the Fall sampling program) is more comprehensive and includes replacement wells and new source area wells. Some of these new locations were not sampled in 2011.

A review of the center plume wells in the source areas and downgradient, as shown in Figures 4-1 and 4-2, suggests migration from the source areas. There is an overall increase in all targeted VOCs at MW-113A and a significant increase in 1,2 DCB and 1,4 DCB at RW-1. Downgradient wells in the overburden (MW-203B, MW-202 and MW-115B) are all indicating increases in targeted VOCs, compared with 2011. TCE has also increased in this vicinity in bedrock at MW-203A. This could be an indication of a narrow plume migration from the source areas.

Historical anion data are consistent between the two sampling rounds despite a few notable exceptions. MW-204A data show an increase in chloride and sulfate concentrations between the two data sets, while RW-1, WP-105, and MW-406A show a decrease in chloride and sulfate concentrations. MW-305B data indicate a decrease in nitrate concentrations from 2011 to 2012. Historical anion analytical data are presented in Table 4-3.

Historical dissolved gasses data are not presented because dissolved gasses were not collected in 2011.

4.4 MNA Assessment

The 2012 data show an increase in VOC and SVOC concentrations at 12 sample points since 2011. However, there is also some countervailing evidence of reductive biodegradation occurring in some portions of the groundwater plumes. This is important because a major question being investigated at this Site is the feasibility of Monitored Natural Attenuation (MNA) as an effective remedial alternative for the dissolved phase plume.

To assess MNA, Nobis plotted field parameter, anion, and VOC concentrations from source area wells to downgradient well RMW-405B (see Tables 4-1, 4-2 and 4-3). These small data sets do not currently support the conclusion that reductive biodegradation is occurring throughout the Site. A more comprehensive picture will emerge as the data sets become larger.

However, a decrease in DO, nitrate, and sulfate concentrations is observed in MW-203B, MW-202, and MW-201. These data indicate that oxygen and these electron acceptors are being depleted in this area and suggest that bioreduction processes may be occurring in the area south of Mill Pond. In addition, although an increase in ethane and ethylene did not occur in these wells, an increase in ethane and ethylene did occur in the immediate vicinity of MW-203A, supporting the concept of localized reductive dechlorination.

As stated above, more comprehensive MNA assessments will be possible as larger data sets become available in future years.

4.5 Statistical Analysis

Nobis calculated the percent change in contaminant concentration in wells that were sampled in both 2011 and 2012. Additional statistical analysis is not warranted at this time because the number of data sets is limited (only 2 data sets).

Figures 4-1 through 4-3 depict the percent change at source area wells, downgradient plume wells, and plume fringe wells, respectively. These percent change bar charts display the changes in specific contaminant compounds at each well.

Comparative data indicate an increase in VOC concentrations at eight sample points and a decrease in VOC concentrations at six sample points. MW 304A showed a decrease in VOCs but an increase in TCE concentration.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The 2012 data show a distribution of VOCs, SVOCs, and anions in the overburden and bedrock groundwater that is similar to what was found in 2011. However, 2012 data also shows an increase in TCE, and other VOCs and SVOCs, in source area wells and downgradient center plume wells. In addition, the plume is moving. It has now extended as far as MW-406A, which prior to this round had no VOC detections.

5.1 Conclusions

The following conclusions are based on the results of the 2012 sampling and evaluation of limited historical data:

- Depths to groundwater ranged between 1.42 feet bgs in RMW-405B (November round) to 30.49 feet bgs in MW-503B (August round). With the exception of MW-402 and MW-503B located on Megunko Hill, all depths to groundwater were less than 15 feet.

  Depth to groundwater is important at the site because vapor mitigation measures may be needed if VOC concentrations in groundwater exceed the GW-2 standard. These apply when groundwater is less than 15 feet from the ground surface, or contamination is detected within 30 feet of a school or residence. Additional state notification and reporting may be required should this happen.

- Overburden groundwater flows in a northeasterly direction on the western portion of the site, toward Mill Pond, and turning in an east-northeasterly direction on the eastern portion of the Site, toward the Sudbury River. Bedrock groundwater flows in a similar direction, toward Mill Pond and the Sudbury River. Groundwater flow patterns are consistent with historical flow data and with previous report interpretations. It is likely that groundwater is discharging to the Sudbury River.

- Increases in VOC concentrations since 2011 were detected at MW-04B, MW-06A, MW-113A, MW-115B, MW-202, MW-203A, MW-203B, MW-305B, MW-403B, MW-406A, MW-406B and RW-1. Decreases were detected in MW/B-5, MADEP-MW-1, MW-201, MW-204A, and MW-302.

- Six compounds were detected above the GW-2 standards. These compounds include 1,2-dichlorobenzene, 1,4 DCB, chlorobenzene, cis-1,2-DCE, TCE, and VC. GW-2 standards were exceeded for these compounds at 25 monitoring well locations. By definition, the GW-1 standards were also exceeded at these locations.

- Eight other compounds (VOCs and SVOCs) were detected above the GW-1 standard but below the GW-2 standard. These compounds include 1,2,4 TCB; 1,3 DCB; benzene; methylene chloride; 1,1-biphenyl; 2-chlorophenol; 4-chloroaniline; and pentachlorophenol. Leaving out the GW-2 exceedances mentioned above, GW-1 standards were exceeded in nine monitoring wells.

- Measureable DNAPL was present in three wells: MW-113A, SB-600, and MW/B-11, . Nobis had gaged these wells and two others (MW/B-5 and RW-1) for the presence of DNAPL. In the wells that showed DNAPL, the average thicknesses encountered were 23 inches in MW-113A, 5 inches in SB-600, and 10 inches in MW/B-11. No DNAPL was found in MW/B-5 or RW-1.

- Since 2011, TCE levels have increased in six overburden wells (MW-04B, RW-1, MW-304B, MW-202, MW-203B, and MW-115B) and in four bedrock wells (MW-113A, MW-203A, MW-115A, and MW-406A). These increases may indicate DNAPL contaminant migration from the source area along a narrow band in the center of the plume. Further periodic monitoring of these wells for TCE is needed.

- The 2012 data plots indicate the expansion of both TCE and total VOC overburden and bedrock groundwater plumes when compared to 2011 data. TCE and VOC concentrations have increased and expanded in the source area and in the center plume area south of the Sudbury River and Mill Pond. An increase in TCE concentrations was also noted to the west and east of Main Street near MW-115B and RMW-405B. TCE levels exceed the GW-1 standard in downgradient well MW-406A.

- A decrease in dissolved oxygen, nitrate, sulfate, TCE, and VC concentrations in MW-203B, MW-202, and MW-201 shows evidence of localized reductive dechlorination.

- The inclusion of new and additional sample points has eliminated possible data gaps and allowed for better spatial analysis. Some of the apparent increases (of both contaminant concentrations and number of locations exceeding standards) may be due to the expansion of the groundwater sampling program.

- The data support a hypothesis that there may be possible contaminant plume migration downgradient from the source areas, resulting in TCE increases, but limited to the plume's center corridor. This possible trend will be monitored during future sampling events.

5.2 Recommendations

- Continue with the sampling program outlined in the Scope of Work to track possible plume migration and evaluate the feasibility of MNA.

- Continue with DNAPL gaging and removal. Pump recoverable DNAPL from MW-113A and MW/B-11 with a new submersible pump extraction system that would be capable of periodic operation as necessary. It is anticipated that the new extraction system located at MW/B-11 will remove the DNAPL that exists in the immediate bedrock vicinity, as discovered at SB-600. This system would most likely be smaller than the originally proposed belt skimmer or pneumatic system.

- Continue operation of the vapor mitigation system at those locations where specific VOC concentrations warrant it.

6.0 REFERENCES

Ebasco Services, Inc., 1991. *Draft Final Remedial Investigation Report, Nyanza II - Groundwater Study, Ashland, Massachusetts, Volumes I and II.* April.

EPA, 2008. Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review. June.

Nobis Engineering, Inc., 2012a. Amended Scope of Work (ASOW) dated March 23, 2012, Work Plan Amendment (WPA) No. 3. April.

Nobis Engineering, Inc., 2012b. *Quality Assurance Project Plan, Amendment No. 3, Nyanza Chemical Waste Dump Superfund Site, Operable Unit 2, Ashland, Massachusetts.* July.

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TABLES

Table 2-1
Summary of Field Samples Collected
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Location	Sample #	EventID	Analyses	Sample Date	Sample Time	Sampler
MW/B-05	MWB5-110812	Fall 2012	VOCs, SVOCs, Anions, Dissolved Gases	11/8/2012	10:10	Josh Stewart
MW/B-11	MWB11-110912	Fall 2012	VOCs, SVOCs, Anions	11/9/2012	9:45	Josh Stewart
MADEP-MW-1	MADEPMW1-110912	Fall 2012	VOCs	11/9/2012	12:00	Steve Dube
MW-04A	MW4A-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	10:05	Steve Dube
MW-04B	MW04B-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	9:55	Matt Webber
MW-04C	MW04C-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	12:15	Matt Webber
MW-06A	MW-6A-081412A	Spring 2012	VOCs, SVOCs, Anions	8/14/2012	15:35	Erik Johnson
	MW6A-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	12:33	Richard Rizza
MW-09A	MW9A-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	14:05	Josh Stewart
MW-09B	MW9B-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	15:27	Richard Rizza
MW-104A	MW104A-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	13:05	Steve Dube
MW-104B	MW104B-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	15:25	Steve Dube
MW-110	MW-110-081512A	Spring 2012	VOCs, SVOCs, Anions	8/15/2012	11:25	David Kammer
	MW110-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	12:30	Josh Stewart
MW-113A	MW113A-110812	Fall 2012	VOCs, Anions	11/8/2012	11:45	Josh Stewart
MW-113B	MW-113B-081512A	Spring 2012	VOCs, SVOCs, Anions	8/15/2012	11:55	Andrew Klappholz
	MW113B-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	15:05	Matt Webber
MW-115A	MW-115A-081412A	Spring 2012	VOCs, SVOCs, Anions	8/14/2012	15:30	Andrew Klappholz
	MW115A-110512	Fall 2012	VOCs, SVOCs, Anions, Dissolved Gases	11/5/2012	10:15	Josh Stewart
MW-115B	MW-115B-081412A	Spring 2012	VOCs, SVOCs, Anions	8/14/2012	15:35	David Kammer
	MW115B-110512	Fall 2012	VOCs, SVOCs, Anions, Dissolved Gases	11/5/2012	10:58	Richard Rizza
RMW-116A	RMW116A-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	16:20	Steve Dube
MW-201	MW201-110512	Fall 2012	VOCs, SVOCs, Anions, Dissolved Gases	11/5/2012	15:30	Adam Roy
MW-202	MW202-110512	Fall 2012	VOCs, SVOCs, Anions	11/5/2012	14:20	Steve Dube
MW-203A	MW-203A-081312A	Spring 2012	VOCs, SVOCs, Anions	8/13/2012	12:00	Josh Stewart
	MW203A-110512	Fall 2012	VOCs, SVOCs, Anions, Dissolved Gases	11/5/2012	12:05	Adam Roy
MW-203B	MW-203B-081312A	Spring 2012	VOCs, SVOCs, Anions	8/13/2012	15:10	Josh Stewart
	MW203B-110512	Fall 2012	VOCs, SVOCs, Anions, Dissolved Gases	11/5/2012	11:30	Steve Dube
MW-204A	MW204A-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	11:37	Steve Dube
MW-302	MW302-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	10:10	Steve Dube
MW-304A	MW-304A-081312A	Spring 2012	VOCs, SVOCs, Anions	8/13/2012	16:15	David Kammer
	MW304A-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	12:20	Josh Stewart
MW-304B	MW-304B-081312A	Spring 2012	VOCs, SVOCs, Anions	8/13/2012	15:15	Andrew Klappholz
	MW304B-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	12:26	Richard Rizza

Table 2-1
Summary of Field Samples Collected
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Location	Sample #	EventID	Analyses	Sample Date	Sample Time	Sampler
RMW-305A	MW-305A-081512A	Spring 2012	VOCs, SVOCs, Anions	8/15/2012	12:15	Erik Johnson
	RMW305A-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	16:20	Richard Rizza
MW-305B	MW-305B-081512A	Spring 2012	VOCs, SVOCs, Anions	8/15/2012	11:20	Steve Dube
	MW305B-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	15:10	Josh Stewart
MW-401	MW401-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	12:20	Matt Webber
MW-402	MW402-110912	Fall 2012	VOCs, SVOCs, Anions	11/9/2012	10:35	Steve Dube
MW-403A	MW-403A-081312A	Spring 2012	VOCs, SVOCs, Anions	8/13/2012	11:40	Andrew Klappholz
	MW403A-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	10:15	Josh Stewart
RMW-403B	MW-403B-081312A	Spring 2012	VOCs, SVOCs, Anions	8/13/2012	11:30	David Kammer
	MW403B-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	10:09	Richard Rizza
RMW-405A	MW405A-110512	Fall 2012	VOCs, SVOCs, Anions, Dissolved Gases	11/5/2012	15:38	Richard Rizza
	RMW-405A-081412A	Spring 2012	VOCs, SVOCs, Anions	8/14/2012	11:20	Andrew Klappholz
RMW-405B	MW-405B-110512	Fall 2012	VOCs, SVOCs, Anions, Dissolved Gases	11/5/2012	15:25	Josh Stewart
	RMW-405B-081412A	Spring 2012	VOCs, SVOCs, Anions	8/14/2012	11:15	David Kammer
MW-406A	MW-406A-081412A	Spring 2012	VOCs, SVOCs, Anions	8/14/2012	11:45	Erik Johnson
	MW406A-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	9:49	Richard Rizza
MW-406B	MW-406B-081412A	Spring 2012	VOCs, SVOCs, Anions	8/14/2012	13:35	Erik Johnson
	MW406B-110712	Fall 2012	VOCs, SVOCs, Anions	11/7/2012	9:45	Josh Stewart
MW-503A	MW503A-110912	Fall 2012	VOCs, SVOCs, Anions	11/9/2012	9:50	Jeff Brunelle
MW-503B	MW503B-110812	Fall 2012	VOCs, SVOCs, Anions	11/8/2012	11:35	Steve Dube
RW-1	RWS1-110812	Fall 2012	VOCs, SVOCs, Anions	11/8/2012	11:53	Richard Rizza
SB-600	SB600-110912	Fall 2012	VOCs, SVOCs, Anions	11/9/2012	11:17	Richard Rizza
WP-105	WP105-110612	Fall 2012	VOCs, SVOCs, Anions	11/6/2012	14:35	Matt Webber
DNAPL Samples						
MW/B-11	B-11-081412A	Spring 2012	VOCs, SVOCs	8/14/2012	11:00	Jeff Brunelle
	80022-B11-NAPL-121812	Fall 2012	Viscosity, density, specific gravity, temperature	12/18/2012	13:00	Erik Johnson
	80022-B11-GW-121812		Viscosity, density, specific gravity, temperature		13:05	
MW-113A	MW-113A-081412A	Spring 2012	VOCs, SVOCs	8/14/2012	16:00	Jeff Brunelle
	80022-MW113A-NAPL-121812	Fall 2012	Viscosity, density, specific gravity, temperature	12/18/2012	11:30	Erik Johnson
	80022-MW113A-GW-121812		Viscosity, density, specific gravity, temperature		11:35	

Table 2-2
Monitoring Well Construction Details
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

WELLS ID		NORTHING (FT NAD83)	EASTING (FT NAD83)	GROUND ELEVATION (FT NAVD88)	TOC ELEVATION (FT NAVD88)	PVC/TUBING ELEVATION (FT NAVD88)	Construction Depth (ft bgs)	Measured Depth (ft bgs)	Depth to Bedrock (ft bgs)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Screen Length (ft)	Suggested Pump Intake (ft bgs)	Well Diameter (inches)	Well Constr. Material	Surface Completion
MADEP-MW-1	OB	2,920,517.64	664,615.07	196.4	196.36	NA	15	15	Unk	10	15	5	12.5	1	S	FM
MW-04A	OB	2,920,197.50	662,623.31	199.2	199.82	199.18	24	20.93	--	4	24	20	14	2	PVC	SP
MW-04B	OB/BR	2,920,198.92	662,599.97	199.1	199.61	199.07	68	66.63	67	48	68	20	58	2	PVC	SP
MW-04C	BR	2,920,203.33	662,571.13	198.9	199.33	198.89	78	77.03	Unk	73	78	5	75.5	2	PVC	SP
MW-06A	OB	2,920,048.01	663,958.94	192.9	192.85	193.66	12	12.07	--	7	12	5	9.5	2	PVC	FM
MW-09A	OB	2,919,499.64	663,602.89	198.0	198.22	198.22	33	28.6	--	5.5	33	27.5	19	2	PVC	SP
MW-09B	BR	2,919,497.33	663,605.50	197.9	197.96	197.82	41.7	41.5	Unk	34.7	41.7	7	38.2	2	PVC	SP
MW-104A	BR	2,919,573.20	663,382.96	201.2	202.93	202.70	40.1	42	Unk	35.1	40.1	5	37.6	2	PVC	SP
MW-104B	OB	2,919,585.86	663,379.92	200.9	203.84	203.58	15.4	17.82	--	10.4	15.4	5	12.9	2	PVC	SP
MW-110	BR	2,920,043.95	663,931.26	193.8	193.80	193.36	69.1	69.8	Unk	64.1	69.1	5	66.6	2	PVC	FM
MW-112A	BR	2,920,077.59	663,489.86	195.3	197.93	197.81	43	46.52	35	38	43	5	40.5	2	SS	SP
MW-112B	OB	2,920,081.74	663,486.68	195.5	198.00	197.88	30	31.56	--	25	30	5	27.5	2	SS	SP
MW-113A	BR	2,920,145.57	663,136.34	195.6	195.59	195.36	51	53.81	43	46	51	5	48.5	2	SS	FM
MW-113B	OB	2,920,156.69	663,139.12	195.1	195.10	194.85	29.5	32.09	--	24.5	29.5	5	27	2	SS	FM
MW-115A	BR	2,920,354.89	664,995.07	192.2	192.21	192.10	91	90.98	Unk	86	91	5	88.5	2	PVC	FM
MW-115B	OB	2,920,359.83	664,988.95	192.0	192.02	191.84	48.6	45.88	70	43.5	48.5	5	46	2	PVC	FM
RMW-116A	BR	2,921,434.47	664,916.03	191.2	193.81	193.44	--	39.15	Unk	--	--	--	--	2	PVC	SP
MW-201	OB	2,920,422.07	664,542.31	197.2	199.90	199.73	20	22.67	--	15	20	5	17.5	2	PVC	SP
MW-202	OB	2,920,440.93	664,295.53	198.3	198.33	198.11	25	28.08	--	20	25	5	22.5	2	PVC	SP
MW-203A	BR	2,920,302.23	664,195.74	194.0	194.22	193.96	78.7	78.49	68	73.7	78.7	5	76.2	2	SS	SP
MW-203B	OB	2,920,306.93	664,196.64	193.9	194.23	193.87	32	31.91	--	27	32	5	29.5	2	PVC	SP
MW-204A	BR	2,920,398.95	663,091.99	198.6	198.60	198.14	52.6	48.03	36.5	47.6	52.6	5	50.1	2	SS	FM
MW-302	OB	2,920,161.87	665,179.77	193.4	193.36	193.25	25	24.26	--	20	25	5	22.5	2	PVC	FM
MW-304A	BR	2,920,648.80	663,820.55	192.5	192.54	192.46	55	53.04	45	50	55	5	52.5	2	PVC	FM
MW-304B	OB	2,920,649.81	663,826.21	192.7	192.72	192.59	30.7	29.89	--	25.7	30.7	5	28.2	2	PVC	FM
RMW-305A	BR	2,920,636.40	663,453.20	196.5	196.47	196.32	54	54.14	47	49	54	5	51.5	2	PVC	SP
MW-305B	OB	2,920,630.87	663,437.69	196.6	196.58	196.38	19.5	19.1	--	14.5	19.5	5	17	2	PVC	FM
MW-401	BR	2,920,096.98	663,287.63	196.7	196.66	196.20	98	97.82	Unk	83	98	15	90.5	2	PVC	FM
MW-402	BR	2,919,650.65	663,160.83	220.2	222.98	222.92	108.5	77.3	Unk	93.5	108.5	15	101	2	PVC	SP
MW-403A	BR	2,920,818.01	665,661.99	184.6	187.25	186.96	44.9	47.28	37	41	44.9	3.9	42.95	2	PVC	SP
RMW-403B	OB	2,920,797.07	665,698.53	185.0	187.53	187.13	19.5	21.83	--	14.5	19.5	5	17	2	PVC	SP
RMW-405A	BR	2,920,585.67	665,606.47	180.5	180.48	180.10	73.5	75.13	57.5	68.5	73.5	5	71	2	PVC	FM
RMW-405B	OB	2,920,593.64	665,617.87	181.0	180.95	180.24	45.5	46.23	--	40.5	45.5	5	43	2	PVC	FM
MW-406A	BR	2,919,818.16	666,143.33	186.6	186.57	186.20	66	62.78	45.9	61	66	5	63.5	2	PVC	FM
MW-406B	OB	2,919,819.88	666,131.82	186.7	186.66	186.34	43	42.41	--	38	43	5	40.5	2	PVC	FM
MW-503A	BR	2,919,549.62	663,120.36	238.8	241.67	240.77	15	17.8	--	5	15	10	10	2	PVC	SP
MW-503B	OB	2,919,535.46	663,125.69	239.2	241.92	241.49	31	33.8	Unk	21	31	10	26	2	PVC	SP
MW/B-05	OB/BR	2,920,130.48	663,154.39	195.5	195.50	195.36	47	46.24	42	39	46	7	42.5	2	PVC	FM
MW/B-11	BR	2,919,925.82	663,121.72	199.6	202.98	202.82	23.5	27.97	9	11.25	21.25	10	16.25	2	PVC	SP
RW-1	OB/BR	2,920,141.47	663,177.40	196.2	196.22	195.90	55	53.99	40	36	51	15	43.5	6	PVC	FM
SB-600	BR	2,919,958.29	663,128.34	199.1	201.99	201.19	--	46.97	Unk	--	--	--	--	--	--	SP
WP-105	OB	2,920,732.84	664,512.80	191.5	--	193.36	11	12.69	--	9	11	2	10	2	PVC	Unk

Notes:

FT NAD83	Location reference datum
FTNAVD88	Elevation reference datum
ft	Feet
ft bgs	Feet below ground surface
--	No data
Unk	Unknown
FM	Flush-mounted roadbox
SP	Stand pipe protective casing

Table 2-3
2012 Synoptic Groundwater Gauging Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts
Page 1 of 2

Well ID	Date	Well Casing Elevation (MSL)	Depth to Groundwater (feet bgs)	Groundwater Elevation (MSL)
MA-DEP-MW-1	8/13/2012	196.36	DTS	--
MW/B-5	8/13/2012	195.36	4.08	191.28
	11/5/2012		2.45	192.91
MW/B-11	8/13/2012	195.36	9.39	185.97
	11/5/2012		5.39	189.97
MW-04A	8/13/2012	199.18	7.17	192.01
	11/5/2012		5.62	193.56
MW-04B	8/13/2012	199.07	7.12	191.95
	11/5/2012		5.63	193.44
MW-04C	8/13/2012	198.89	6.83	192.06
	11/5/2012		5.37	193.52
MW-06A	8/13/2012	193.66	3.51	190.15
	11/5/2012		2.37	191.29
MW-102A	8/13/2012	199.04	7.02	192.02
	11/5/2012		5.78	193.26
MW-103	8/13/2012	200.67	9.36	191.31
	11/5/2012		8.06	192.61
MW-104A	8/13/2012	202.70	9.95	192.75
	11/5/2012		8.64	194.06
MW-104B	8/13/2012	203.58	10.82	192.76
	11/5/2012		9.22	194.36
MW-110	8/13/2012	193.36	3.03	190.33
	11/5/2012		1.92	191.44
MW-112A	8/13/2012	197.81	7.13	190.68
	11/5/2012		5.79	192.02
MW-112B	8/13/2012	197.88	7.07	190.81
	11/5/2012		5.65	192.23
MW-113A	8/13/2012	195.36	3.94	191.42
	11/5/2012		2.22	193.14
MW-113B	8/13/2012	194.85	3.59	191.26
	11/5/2012		2.00	192.85
MW-115A	8/13/2012	192.10	8.54	183.56
	11/5/2012		6.95	185.15
MW-115B	8/13/2012	191.84	8.29	183.55
	11/5/2012		7.51	184.33
RMW-116A	8/13/2012	193.44	31.94 [1]	161.50
	11/5/2012		14.04	179.40
MW-201	8/13/2012	199.73	13.77	185.96
	11/5/2012		12.77	186.96
MW-202	8/13/2012	198.11	11.08	187.03
	11/5/2012		10.11	188.00
MW-203A	8/13/2012	193.96	6.15	187.81
	11/5/2012		6.13	187.83
MW-203B	8/13/2012	193.87	5.82	188.05
	11/5/2012		4.85	189.02
MW-204A	8/13/2012	198.14	8.11	190.03
	11/5/2012		7.18	190.96
MW-301	8/13/2012	209.00	NF	--
	11/5/2012		14.87	194.13
MW-302	8/13/2012	193.25	10.87	182.38
	11/5/2012		9.97	183.28
MW-304A	8/13/2012	192.46	3.93	188.53
	11/5/2012		3.49	188.97
MW-304B	8/14/2012	192.59	4.06	188.53
	11/5/2012		3.57	189.02

Table 2-3
2012 Synoptic Groundwater Gauging Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Well ID	Date	Well Casing Elevation (MSL)	Depth to Groundwater (feet bgs)	Groundwater Elevation (MSL)
RMW-305A	8/13/2012	196.32	7.18	189.14
	11/5/2012		6.46	189.86
MW-305B	8/13/2012	196.38	7.35	189.03
	11/5/2012		6.81	189.57
MW-401	8/13/2012	196.20	5.43	190.77
	11/5/2012		3.87	192.33
MW-402	8/13/2012	222.92	24.16	198.76
	11/5/2012		22.03	200.89
MW-403A	8/13/2012	186.96	7.79	179.17
	11/5/2012		6.98	179.98
RMW-403B	8/13/2012	187.13	8.40	178.73
	11/5/2012		7.20	179.93
MW-404A	8/13/2012	191.93	11.22	180.71
	11/5/2012		10.07	181.86
MW-404B	8/13/2012	191.67	10.19	181.48
	11/5/2012		9.04	182.63
RMW-405A	8/13/2012	180.10	2.07	178.03
	11/5/2012		1.65	178.45
RMW-405B	8/13/2012	180.24	1.91	178.33
	11/5/2012		1.42	178.82
MW-406A	8/13/2012	186.20	8.93	177.27
	11/5/2012		8.07	178.13
MW-406B	8/13/2012	186.34	9.04	177.30
	11/5/2012		8.2	178.14
MW-503A	8/13/2012	240.77	DRY	--
	11/5/2012		14.88	225.89
MW-503B	8/13/2012	241.49	30.49	211.00
	11/5/2012		27.58	213.91
MW-9A	8/13/2012	198.22	6.43	191.79
	11/5/2012		5.39	192.83
MW-9B	8/13/2012	197.82	6.05	191.77
	11/5/2012		4.99	192.83
RW-1	8/13/2012	195.90	4.63	191.27
	11/5/2012		3.02	192.88
SB-600	8/13/2012	201.19	8.52	192.67
	11/5/2012		6.13	195.06
WP-105	8/13/2012	193.36	6.92	186.44
	11/5/2012		6.68	186.68
SG-1	8/13/2012	--	NF	--
SG-2	8/13/2012	190.24	0.42	189.82
	11/5/2012		0.44	189.8
SG-3	8/13/2012	--	NF	--
SG-4	8/13/2012	--	NF	--
SG-5	8/13/2012	--	NF	--

Notes:
bgs - Below Ground Surface
DTS - Well Diameter too small for probe to be lowered into well
MSL - Mean Sea Level
NF - Not Found
-- No Data
[1] Low DTW at RMW-116A is likely due to well still recharging from development

Table 2-4
2012 DNAPL Gaging Information
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Date	8/13/2012[1]	11/06/12	11/09/12	11/20/12	12/05/12	12/18/12
Well ID	**Inches of DNAPL**					
RW-1	0	0	0	--	--	--
SB-600	0	6	4	5	5	--
MW-113A	0.5	10	28	22	33	24
MW/B-11	0	19	12	12	4	4
MW/B-5	0	0	0	--	--	--

Notes:

1. DNAPL gaging on 8/13/12 was conducted using an interface probe. DNAPL gaging using a bailer proved to be more effective than the interface probe, and subsequent gaging rounds were completed by measuring inches of DNAPL smear or inches of recovered product on dedicated bailers lowered into each well during each gaging round.
2. DNAPL was initially observed while installing MW/B-11 and while developing monitoring wells SB-600, MW/B-11, and MW-113A in Summer 2012.
3. -- = Not Gaged

Table 3-1a
Spring 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-06A	MW-110	MW-113B		MW-115A	MW-115B	MW-203A	MW-203B	MW-304A	MW-304B
		Sample ID	MW-6A-081412A	MW-110-081512A	MW-113B-081512A	FDUP-01-081512A	MW-115A-081412A	MW-115B-081412A	MW-203A-081312A	MW-203B-081312A	MW-304A-081312A	MW-304B-081312A
		Sample Date & Time	8/14/2012 3:35:00 PM	8/15/2012 11:25:00 AM	8/15/2012 11:55:00 AM	8/15/2012 12:05:00 PM	8/14/2012 3:30:00 PM	8/14/2012 3:35:00 PM	8/13/2012 12:00:00 PM	8/13/2012 3:10:00 PM	8/13/2012 4:15:00 PM	8/13/2012 3:15:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**				Duplicate						
1,1,1-Trichloroethane	200	4000	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,1,2,2-Tetrachloroethane	2	9	5 UJ	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,1,2-Trichloroethane	5	900	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,1-Dichloroethane	70	1000	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,1-Dichloroethene	7	80	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,2,3-Trichlorobenzene	--	--	6.5 J	21	25 UJ	25 U	100 UJ	100 UJ	400 UJ	130	100 U	5.7 J
1,2,4-Trichlorobenzene	70	2000	22	**80**	25 U	12 J	100 UJ	**120**	400 U	**660**	**100**	27
1,2-Dibromo-3-Chloropropane	--	--	5 UJ	5 U	25 UJ	25 U	100 UJ	100 UJ	400 UJ	100 U	100 U	10 U
1,2-Dibromoethane	0.02	2	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,2-Dichlorobenzene	600	2000	15	40	99	160	**820** J	**1300**	**3000**	**2000**	**1400**	230
1,2-Dichloroethane	5	5	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,2-Dichloropropane	3	3	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
1,3-Dichlorobenzene	40	2000	3.9 J	5 U	25 U	25 U	100 UJ	100 U	400 U	100 U	100 U	5.8 J
1,4-Dichlorobenzene	5	200	**10**	**6.8**	**17** J	**32**	**120** J	**210**	**500**	**390**	**290**	**41**
1,4-Dioxane	3	6000	-- R	-- R	-- R	-- R	-- R	-- R	-- R	-- R	-- R	-- R
2-Butanone	4000	50000	10 U	10 U	50 U	50 U	200 U	200 U	800 U	200 U	200 U	20 U
2-Hexanone	--	--	10 U	10 U	50 U	50 U	200 U	200 U	800 U	200 U	200 U	20 U
4-Methyl-2-Pentanone	350	50000	10 U	10 U	50 U	50 U	14 J	200 U	800 U	200 U	200 U	20 U
Acetone	6300	50000	10 U	10 U	50 U	50 U	200 U	200 U	800 U	200 U	200 U	20 U
Benzene	5	2000	1.2 J	0.63 J	25 U	25 U	**37** J	**30** J	**170** J	**34** J	**36** J	2.3 J
Bromochloromethane	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Bromodichloromethane	3	6	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Bromoform	4	700	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Bromomethane	7	7	5 UJ	5 U	25 UJ	25 U	100 UJ	100 UJ	400 UJ	100 U	100 U	10 U
Carbon Disulfide	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Carbon Tetrachloride	2	2	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Chlorobenzene	100	200	58	23	39	72	**1800** J	**1300**	**7000**	**2100**	**1300**	**110**
Chloroethane	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Chloroform	50	50	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Chloromethane	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U

Table 3-1a
Spring 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-06A	MW-110	MW-113B		MW-115A	MW-115B	MW-203A	MW-203B	MW-304A	MW-304B
		Sample ID	MW-6A-081412A	MW-110-081512A	MW-113B-081512A	FDUP-01-081512A	MW-115A-081412A	MW-115B-081412A	MW-203A-081312A	MW-203B-081312A	MW-304A-081312A	MW-304B-081312A
		Sample Date & Time	8/14/2012 3:35:00 PM	8/15/2012 11:25:00 AM	8/15/2012 11:55:00 AM	8/15/2012 12:05:00 PM	8/14/2012 3:30:00 PM	8/14/2012 3:35:00 PM	8/13/2012 12:00:00 PM	8/13/2012 3:10:00 PM	8/13/2012 4:15:00 PM	8/13/2012 3:15:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**				Duplicate						
cis-1,2-Dichloroethene	70	100	**76**	**73**	37	60	**140**	**320**	**210** J	**530**	**660**	**200**
cis-1,3-Dichloropropene	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Cyclohexane	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Dibromochloromethane	2	20	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Dichlorodifluoromethane	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Ethylbenzene	700	20000	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Isopropylbenzene	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
m,p-Xylene	10000	9000	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Methyl Acetate	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Methyl Tert-Butyl Ether	70	50000	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Methylcyclohexane	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Methylene Chloride	5	10000	5 U	5 U	25 U	25 U	**23** J	**13** J	**76** J	100 U	100 U	10 U
o-Xylene	10000	9000	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Styrene	100	100	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Tetrachloroethene	5	50	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Toluene	1000	50000	5 U	5 U	25 U	25 U	100 U	100 U	55 J	100 U	100 U	10 U
trans-1,2-Dichloroethene	90	90	5 U	1.7 J	25 U	25 U	100 U	100 U	400 U	100 U	100 U	1.6 J
trans-1,3-Dichloropropene	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Trichloroethene	5	30	**22**	**15**	**190**	**510**	**1600**	**2100**	**4100**	**1200**	**2600**	**130**
Trichlorofluoromethane	--	--	5 U	5 U	25 U	25 U	100 U	100 U	400 U	100 U	100 U	10 U
Vinyl Chloride	2	2	5 U	0.6 J	25 U	25 U	100 U	100 U	**300** J	100 U	**29** J	**4.6** J

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-1a
Spring 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	RMW-305A	MW-305B	MW-403A	RMW-403B	RMW-405A	RMW-405B	MW-406A	MW-406B
		Sample ID	MW-305A-081512A	MW-305B-081512A	MW-403A-081312A	MW-403B-081312A	RMW-405A-081412A	RMW-405B-081412A	MW-406A-081412A	MW-406B-081412A
		Sample Date & Time	8/15/2012 12:15:00 PM	8/15/2012 11:20:00 AM	8/13/2012 11:40:00 AM	8/13/2012 11:30:00 AM	8/14/2012 11:20:00 AM	8/14/2012 11:15:00 AM	8/14/2012 11:45:00 AM	8/14/2012 1:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**								
1,1,1-Trichloroethane	200	4000	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
1,1,2,2-Tetrachloroethane	2	9	50 U	5 U	5 U	5 UJ	10 UJ	100 UJ	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
1,1,2-Trichloroethane	5	900	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
1,1-Dichloroethane	70	1000	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
1,1-Dichloroethene	7	80	50 U	5 U	5 U	5 U	10 U	100 U	5 UJ	5 U
1,2,3-Trichlorobenzene	--	--	50 U	5 U	5 UJ	5 UJ	10 U	100 U	5 UJ	5 U
1,2,4-Trichlorobenzene	70	2000	58	5 U	5 U	5 U	6.5 J	**130**	5 U	5 U
1,2-Dibromo-3-Chloropropane	--	--	50 U	5 U	5 UJ	5 UJ	10 UJ	100 UJ	5 UJ	5 U
1,2-Dibromoethane	0.02	2	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
1,2-Dichlorobenzene	600	2000	**650**	5 U	5 U	5 U	140	**2000**	5 U	5 U
1,2-Dichloroethane	5	5	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
1,2-Dichloropropane	3	3	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
1,3-Dichlorobenzene	40	2000	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
1,4-Dichlorobenzene	5	200	**140**	5 U	5 U	5 U	**24**	**360**	5 U	5 U
1,4-Dioxane	3	6000	-- R	-- R	-- R	-- R	-- R	-- R	-- R	-- R
2-Butanone	4000	50000	100 U	10 U	10 U	10 U	20 U	200 U	10 U	10 U
2-Hexanone	--	--	100 U	10 U	10 U	10 U	20 U	200 U	10 U	10 U
4-Methyl-2-Pentanone	350	50000	100 U	10 U	10 U	10 U	20 U	200 U	10 U	10 U
Acetone	6300	50000	100 U	10 U	10 U	10 U	20 U	200 U	10 U	10 U
Benzene	5	2000	50 U	5 U	5 U	5 U	2.1 J	**47** J	5 U	5 U
Bromochloromethane	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Bromodichloromethane	3	6	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Bromoform	4	700	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Bromomethane	7	7	50 U	5 U	5 UJ	5 UJ	10 U	100 U	5 UJ	5 U
Carbon Disulfide	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Carbon Tetrachloride	2	2	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Chlorobenzene	100	200	**290**	5 U	5 U	5 U	**220**	**2800**	5 U	5 U
Chloroethane	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Chloroform	50	50	14 J	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Chloromethane	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U

Table 3-1a
Spring 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	RMW-305A	MW-305B	MW-403A	RMW-403B	RMW-405A	RMW-405B	MW-406A	MW-406B
		Sample ID	MW-305A-081512A	MW-305B-081512A	MW-403A-081312A	MW-403B-081312A	RMW-405A-081412A	RMW-405B-081412A	MW-406A-081412A	MW-406B-081412A
		Sample Date & Time	8/15/2012 12:15:00 PM	8/15/2012 11:20:00 AM	8/13/2012 11:40:00 AM	8/13/2012 11:30:00 AM	8/14/2012 11:20:00 AM	8/14/2012 11:15:00 AM	8/14/2012 11:45:00 AM	8/14/2012 1:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**								
cis-1,2-Dichloroethene	70	100	**90**	5 U	5 U	5 U	41	**890**	5 U	0.66 J
cis-1,3-Dichloropropene	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Cyclohexane	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Dibromochloromethane	2	20	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Dichlorodifluoromethane	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Ethylbenzene	700	20000	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Isopropylbenzene	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
m,p-Xylene	10000	9000	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Methyl Acetate	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Methyl Tert-Butyl Ether	70	50000	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Methylcyclohexane	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Methylene Chloride	5	10000	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
o-Xylene	10000	9000	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Styrene	100	100	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Tetrachloroethene	5	50	50 U	5 U	5 U	5 U	10 U	100 U	5 U	1.2 J
Toluene	1000	50000	50 U	5 U	5 U	5 U	1.9 J	100 U	5 U	5 U
trans-1,2-Dichloroethene	90	90	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
trans-1,3-Dichloropropene	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Trichloroethene	5	30	**950**	2 J	5 U	0.91 J	**190**	**3000**	5 U	1.3 J
Trichlorofluoromethane	--	--	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U
Vinyl Chloride	2	2	50 U	5 U	5 U	5 U	10 U	100 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-1b
Spring 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-06A	MW-110	MW-113B		MW-115A	MW-115B	MW-203A	MW-203B	MW-304A	MW-304B
		Sample ID	MW-6A-081412A	MW-110-081512A	MW-113B-081512A	FDUP-01-081512A	MW-115A-081412A	MW-115B-081412A	MW-203A-081312A	MW-203B-081312A	MW-304A-081312A	MW-304B-081312A
		Sample Date & Time	8/14/2012 3:35:00 PM	8/15/2012 11:25:00 AM	8/15/2012 11:55:00 AM	8/15/2012 12:05:00 PM	8/14/2012 3:30:00 PM	8/14/2012 3:35:00 PM	8/13/2012 12:00:00 PM	8/13/2012 3:10:00 PM	8/13/2012 4:15:00 PM	8/13/2012 3:15:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**				Duplicate						
1,1'-Biphenyl	0.9	200	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2,2'-Oxybis(1-Chloropropane)	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2,4,5-Trichlorophenol	200	50000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	3.5 J	5 U	5 U
2,4,6-Trichlorophenol	10	5000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2,4-Dichlorophenol	10	30000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5.6 J	5 U	5 U
2,4-Dimethylphenol	60	40000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2,4-Dinitrophenol	200	50000	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U	10 U	10 U
2,4-Dinitrotoluene	30	20000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2,6-Dinitrotoluene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2-Chloronaphthalene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2-Chlorophenol	10	20000	5 U	5 U	5 U	5 U	1.6 J	2.1 J	**25**	**24**	5 U	5 U
2-Methylnaphthalene	10	2000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
2-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U	10 U	10 U
2-Nitrophenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
3,3'-Dichlorobenzidine	80	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
3-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U	10 U	10 U
4,6-Dinitro-2-Methylphenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U	10 U	10 U
4-Bromophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
4-Chloro-3-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 UJ	10 U	10 U	5 U	5 U
4-Chloroaniline	20	50000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
4-Chlorophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
4-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	22	10 U	5 U	5 U
4-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U	10 U	10 U
4-Nitrophenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U	10 U	10 U
Acenaphthene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Acenaphthylene	30	10000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Acetophenone	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Anthracene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U

Table 3-1b
Spring 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-06A	MW-110	MW-113B		MW-115A	MW-115B	MW-203A	MW-203B	MW-304A	MW-304B
		Sample ID	MW-6A-081412A	MW-110-081512A	MW-113B-081512A	FDUP-01-081512A	MW-115A-081412A	MW-115B-081412A	MW-203A-081312A	MW-203B-081312A	MW-304A-081312A	MW-304B-081312A
		Sample Date & Time	8/14/2012 3:35:00 PM	8/15/2012 11:25:00 AM	8/15/2012 11:55:00 AM	8/15/2012 12:05:00 PM	8/14/2012 3:30:00 PM	8/14/2012 3:35:00 PM	8/13/2012 12:00:00 PM	8/13/2012 3:10:00 PM	8/13/2012 4:15:00 PM	8/13/2012 3:15:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**				Duplicate						
Atrazine		--	5 U	5 U	5 U	5 U	5 U	5 UJ	10 U	10 U	5 U	5 U
Benzaldehyde		--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Benzo(A)Anthracene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Benzo(A)Pyrene	0.2	--	5 U	5 U	5 U	5 U	5 U	-- R	10 U	10 U	5 U	5 U
Benzo(B)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	-- R	10 U	10 U	5 U	5 U
Benzo(G,H,I)Perylene	20	--	5 U	5 U	5 U	5 U	5 U	-- R	10 U	10 U	5 U	5 U
Benzo(K)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	-- R	10 U	10 U	5 U	5 U
Bis(2-Chloroethoxy)Methane	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Bis(2-Chloroethyl)Ether	30	30	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Bis(2-Ethylhexyl)Phthalate	6	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Butylbenzylphthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Caprolactam	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	2.1 J	5 U
Carbazole	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Chrysene	2	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Dibenz(A,H)Anthracene	0.5	--	5 U	5 U	5 U	5 U	5 U	-- R	10 U	10 U	5 U	5 U
Dibenzofuran	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Diethylphthalate	2000	50000	5 U	5 U	2.4 J	2.8 J	5 U	5 U	10 U	10 U	5 U	5 U
Dimethylphthalate	30000	50000	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Di-N-Butyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Di-N-Octyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	-- R	10 U	10 U	5 U	5 U
Fluoranthene	90	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Fluorene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Hexachlorobenzene	1	1	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Hexachlorobutadiene	0.6	1	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Hexachlorocyclopentadiene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Hexachloroethane	8	100	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Indeno(1,2,3-Cd)Pyrene	0.5		5 U	5 U	5 U	5 U	5 U	-- R	10 U	10 U	5 U	5 U
Isophorone	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Naphthalene	140	1000	5 U	5 U	5 U	5 U	12	130	24	10 U	4.3 J	5 U
Nitrobenzene	--	--	5 U	5 U	110	120	5 U	5 U	79	10 U	380	5 U
N-Nitroso-Di-N-Propylamine	--	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U

Table 3-1b
Spring 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-06A	MW-110	MW-113B		MW-115A	MW-115B	MW-203A	MW-203B	MW-304A	MW-304B
		Sample ID	MW-6A-081412A	MW-110-081512A	MW-113B-081512A	FDUP-01-081512A	MW-115A-081412A	MW-115B-081412A	MW-203A-081312A	MW-203B-081312A	MW-304A-081312A	MW-304B-081312A
		Sample Date & Time	8/14/2012 3:35:00 PM	8/15/2012 11:25:00 AM	8/15/2012 11:55:00 AM	8/15/2012 12:05:00 PM	8/14/2012 3:30:00 PM	8/14/2012 3:35:00 PM	8/13/2012 12:00:00 PM	8/13/2012 3:10:00 PM	8/13/2012 4:15:00 PM	8/13/2012 3:15:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**				Duplicate						
N-Nitrosodiphenylamine	--	--	2.3 J	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Pentachlorophenol	1	--	10 U	10 U	10 U	10 U	10 U	**2.5 J**	20 U	20 U	10 U	10 U
Phenanthrene	40	--	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U
Phenol	1000	50000	5 U	5 U	5 U	5 U	3.8 J	5 U	10 U	3.8 J	4.1 J	1.9 J
Pyrene	20		5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
2. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-1b
Spring 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	RMW-305A	MW-305B	MW-403A	RMW-403B	RMW-405A	RMW-405B	MW-406A	
		Sample ID	MW-305A-081512A	MW-305B-081512A	MW-403A-081312A	MW-403B-081312A	RMW-405A-081412A	RMW-405B-081412A	MW-406A-081412A	MW-406B-081412A
		Sample Date & Time	8/15/2012 12:15:00 PM	8/15/2012 11:20:00 AM	8/13/2012 11:40:00 AM	8/13/2012 11:30:00 AM	8/14/2012 11:20:00 AM	8/14/2012 11:15:00 AM	8/14/2012 11:45:00 AM	8/14/2012 1:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**								
1,1'-Biphenyl	0.9	200	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2,2'-Oxybis(1-Chloropropane)	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2,4,5-Trichlorophenol	200	50000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2,4,6-Trichlorophenol	10	5000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2,4-Dichlorophenol	10	30000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2,4-Dimethylphenol	60	40000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2,4-Dinitrophenol	200	50000	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
2,4-Dinitrotoluene	30	20000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2,6-Dinitrotoluene	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2-Chloronaphthalene	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2-Chlorophenol	10	20000	3.1 J	5 U	5 U	5 U	5 U	2.7 J	5 U	5 U
2-Methylnaphthalene	10	2000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
2-Nitrophenol	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
3,3'-Dichlorobenzidine	80	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
3-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
4,6-Dinitro-2-Methylphenol	--	--	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
4-Bromophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
4-Chloro-3-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
4-Chloroaniline	20	50000	5 U	5 U	5 U	5 U	0.83 J	10 U	5 U	5 U
4-Chlorophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
4-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
4-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
4-Nitrophenol	--	--	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
Acenaphthene	20	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Acenaphthylene	30	10000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Acetophenone	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Anthracene	30	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U

Table 3-1b
Spring 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	RMW-305A	MW-305B	MW-403A	RMW-403B	RMW-405A	RMW-405B	MW-406A	
		Sample ID	MW-305A-081512A	MW-305B-081512A	MW-403A-081312A	MW-403B-081312A	RMW-405A-081412A	RMW-405B-081412A	MW-406A-081412A	MW-406B-081412A
		Sample Date & Time	8/15/2012 12:15:00 PM	8/15/2012 11:20:00 AM	8/13/2012 11:40:00 AM	8/13/2012 11:30:00 AM	8/14/2012 11:20:00 AM	8/14/2012 11:15:00 AM	8/14/2012 11:45:00 AM	8/14/2012 1:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**								
Atrazine		--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Benzaldehyde		--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Benzo(A)Anthracene	1	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Benzo(A)Pyrene	0.2	--	5 U	5 U	5 UJ	5 U	5 U	10 U	5 UJ	5 U
Benzo(B)Fluoranthene	1	--	5 U	5 U	5 UJ	5 U	5 U	10 U	5 UJ	5 U
Benzo(G,H,I)Perylene	20	--	5 U	5 U	5 UJ	5 U	5 U	10 U	5 UJ	5 U
Benzo(K)Fluoranthene	1	--	5 U	5 U	5 UJ	5 U	5 U	10 U	5 UJ	5 U
Bis(2-Chloroethoxy)Methane	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Bis(2-Chloroethyl)Ether	30	30	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Bis(2-Ethylhexyl)Phthalate	6	--	5 U	5 U	0.55 J	5 U	5 U	10 U	5 U	5 U
Butylbenzylphthalate	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Caprolactam	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Carbazole	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Chrysene	2	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Dibenz(A,H)Anthracene	0.5	--	5 U	5 U	5 UJ	5 U	5 U	10 U	5 UJ	5 U
Dibenzofuran	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Diethylphthalate	2000	50000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Dimethylphthalate	30000	50000	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Di-N-Butyl Phthalate	--	--	5 U	5 U	1.5 J	5 U	5 U	10 U	5 U	5 U
Di-N-Octyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Fluoranthene	90	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Fluorene	30	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Hexachlorobenzene	1	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Hexachlorobutadiene	0.6	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Hexachlorocyclopentadiene	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Hexachloroethane	8	100	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Indeno(1,2,3-Cd)Pyrene	0.5		5 U	5 U	5 UJ	5 U	5 U	10 U	5 UJ	5 U
Isophorone	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Naphthalene	140	1000	5 U	5 U	5 U	5 U	5 U	58	5 U	5 U
Nitrobenzene	--	--	55	5 U	5 U	5 U	5 U	10 U	5 U	5 U
N-Nitroso-Di-N-Propylamine	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U

Table 3-1b
Spring 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	RMW-305A	MW-305B	MW-403A	RMW-403B	RMW-405A	RMW-405B	MW-406A	
		Sample ID	MW-305A-081512A	MW-305B-081512A	MW-403A-081312A	MW-403B-081312A	RMW-405A-081412A	RMW-405B-081412A	MW-406A-081412A	MW-406B-081412A
		Sample Date & Time	8/15/2012 12:15:00 PM	8/15/2012 11:20:00 AM	8/13/2012 11:40:00 AM	8/13/2012 11:30:00 AM	8/14/2012 11:20:00 AM	8/14/2012 11:15:00 AM	8/14/2012 11:45:00 AM	8/14/2012 1:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**								
N-Nitrosodiphenylamine	--	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Pentachlorophenol	1	--	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
Phenanthrene	40	--	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Phenol	1000	50000	5 U	5 U	5 U	5 U	2.7 J	2.1 J	5 U	5 U
Pyrene	20		5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
2. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-1c
Spring 2012 Data - Anions Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-06A	MW-110	MW-113B		MW-115A	MW-115B	MW-203A	MW-203B	MW-304A	MW-304B	MW-305A
Sample ID	MW-6A-081412A	MW-110-081512A	MW-113B-081512A	FDUP-01-081512A	MW-115A-081412A	MW-115B-081412A	MW-203A-081312A	MW-203B-081312A	MW-304A-081312A	MW-304B-081312A	MW-305A-081512A
Sample Date & Time	8/14/2012 3:35:00 PM	8/15/2012 11:25:00 AM	8/15/2012 11:55:00 AM	8/15/2012 12:05:00 PM	8/14/2012 3:30:00 PM	8/14/2012 3:35:00 PM	8/13/2012 12:00:00 PM	8/13/2012 3:10:00 PM	8/13/2012 4:15:00 PM	8/13/2012 3:15:00 PM	8/15/2012 12:15:00 PM
Chemical Name				Duplicate							
Bromide	0.1 U	0.1 U	0.1 U	0.1 U	20 U	10 U	20 U	0.6	20 U	0.6	0.1 U
Chloride	120	46	37	35	4000	2000	6900	320	2900	950	100
Fluoride	0.1 U	0.16	0.1	0.1	20 U	10 U	20 U	0.4	20 U	0.16	1
Nitrate	0.05 U	0.05 U	0.93	0.95	10 U	5 U	10 U	4.7	10 U	0.26	0.05 U
Nitrate as Nitrogen	0.011 U	0.011 U	0.21	0.21	2.2 U	1.1 U	2.2 U	0.03	2.2 U	0.06	0.011 U
Nitrite	0.05 U	0.05 U	0.05 U	0.05 U	10 U	5 U	10 U	0.05 U	10 U	0.05 U	0.05 U
Nitrite as Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	3.1 U	1.5 U	3 U	0.015 U	3 U	0.015 U	0.015 U
Sulfate	38	38	62	62	2100	1900	3700	540	1500	620	250

Note:

All concentrations reported in milligrams per liter (mg/L).

Table 3-1c
Spring 2012 Data - Anions Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-305B	MW-403A	RMW-403B	RMW-405A	RMW-405B	MW-406A	MW-406B
Sample ID	MW-305B-081512A	MW-403A-081312A	MW-403B-081312A	RMW-405A-081412A	RMW-405B-081412A	MW-406A-081412A	MW-406B-081412A
Sample Date & Time	8/15/2012 11:20:00 AM	8/13/2012 11:40:00 AM	8/13/2012 11:30:00 AM	8/14/2012 11:20:00 AM	8/14/2012 11:15:00 AM	8/14/2012 11:45:00 AM	8/14/2012 1:35:00 PM
Chemical Name							
Bromide	0.1 U	0.2	0.5	1.1	20 U	0.45	0.5
Chloride	35	150	190	420	3700	220	190
Fluoride	0.1 U	0.3	0.16	0.85	20 U	1.4	0.77
Nitrate	1.9	11	1.7	1.3	10 U	0.05 U	0.05 U
Nitrate as Nitrogen	0.43	2.5	0.38	0.29	2.2 U	0.011 U	0.011 U
Nitrite	0.05 U	0.05 U	0.05 U	0.05 U	10 U	0.05 U	0.05 U
Nitrite as Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	3.1 U	0.015 U	0.015 U
Sulfate	42	34	33	220	2800	29	35

Note:

All concentrations reported in milligrams per liter (mg/L).

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW/B-5	MW/B-11	MADEP-MW-1	MW-04A	MW-04B	MW-04C	MW-06A	MW-09A	MW-09B	MW-104A
		Sample ID	MWB5-110812	MWB11-110912	MADEPMW1-110912	MW4A-110612	MW04B-110612	MW04C-110612	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712
		Sample Date & Time	11/8/2012 10:10:00 AM	11/9/2012 9:45:00 AM	11/9/2012 12:00:00 PM	11/6/2012 10:05:00 AM	11/6/2012 9:55:00 AM	11/6/2012 12:15:00 PM	11/7/2012 12:33:00 PM	11/7/2012 2:05:00 PM	11/7/2012 3:27:00 PM	11/7/2012 1:05:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**										
1,1,1-Trichloroethane	200	4000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,1,2,2-Tetrachloroethane	2	9	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,1,2-Trichloroethane	5	900	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,1-Dichloroethane	70	1000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,1-Dichloroethene	7	80	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,2,3-Trichlorobenzene	--	--	500 UJ	400 UJ	5 UJ	5 U	5 U	5 U	5.8	5 U	5 U	20 U
1,2,4-Trichlorobenzene	70	2000	500 U	**240** J	3.4 J	5 U	5 U	5 U	14	5 U	5 U	20 U
1,2-Dibromo-3-Chloropropane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,2-Dibromoethane	0.02	2	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,2-Dichlorobenzene	600	2000	**20000**	**46000**	22	5 U	5 U	5 U	12	16	48	**2000**
1,2-Dichloroethane	5	5	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,2-Dichloropropane	3	3	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
1,3-Dichlorobenzene	40	2000	**820**	**1200**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	15 J
1,4-Dichlorobenzene	5	200	**5500**	**8400**	5 U	5 U	5 U	5 U	**5.4**	**5.7**	**5.4**	**200**
1,4-Dioxane	3	6000	10000 U	8000 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	400 U
2-Butanone	4000	50000	1000 U	800 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	40 U
2-Hexanone	--	--	1000 U	800 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	40 U
4-Methyl-2-Pentanone	350	50000	1000 U	800 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	40 U
Acetone	6300	50000	1000 U	800 U	22	10 U	10 U	10 U	10 U	10 U	10 U	40 U
Benzene	5	2000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Bromochloromethane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Bromodichloromethane	3	6	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Bromoform	4	700	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Bromomethane	7	7	500 U	400 U	5 U	5 U	5 U	5 U	4 J	5 U	5 U	20 U
Carbon Disulfide	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Carbon Tetrachloride	2	2	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Chlorobenzene	100	200	**15000**	**30000**	19	5 U	5 U	5 U	27	24	5 U	50
Chloroethane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Chloroform	50	50	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Chloromethane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
cis-1,2-Dichloroethene	70	100	500 U	**190** J	5 U	5 U	5 U	5 U	19	6.2	16	**710**

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW/B-5	MW/B-11	MADEP-MW-1	MW-04A	MW-04B	MW-04C	MW-06A	MW-09A	MW-09B	MW-104A
		Sample ID	MWB5-110812	MWB11-110912	MADEPMW1-110912	MW4A-110612	MW04B-110612	MW04C-110612	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712
		Sample Date & Time	11/8/2012 10:10:00 AM	11/9/2012 9:45:00 AM	11/9/2012 12:00:00 PM	11/6/2012 10:05:00 AM	11/6/2012 9:55:00 AM	11/6/2012 12:15:00 PM	11/7/2012 12:33:00 PM	11/7/2012 2:05:00 PM	11/7/2012 3:27:00 PM	11/7/2012 1:05:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**										
cis-1,3-Dichloropropene	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Cyclohexane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Dibromochloromethane	2	20	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Dichlorodifluoromethane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Ethylbenzene	700	20000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Isopropylbenzene	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
m,p-Xylene	10000	9000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Methyl Acetate	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Methyl Tert-Butyl Ether	70	50000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Methylcyclohexane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Methylene Chloride	5	10000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
o-Xylene	10000	9000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Styrene	100	100	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Tetrachloroethene	5	50	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Toluene	1000	50000	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
trans-1,2-Dichloroethene	90	90	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
trans-1,3-Dichloropropene	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Trichloroethene	5	30	**7100**	**6900**	**5.5**	5 U	**34**	**11**	**9.8**	5 U	4.6 J	**1700**
Trichlorofluoromethane	--	--	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U
Vinyl Chloride	2	2	500 U	400 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-104B	MW-110	MW-113A	MW-113B	MW-115A		MW-115B	RMW-116A	MW-201	MW-202
		Sample ID	MW104B-110712	MW110-110712	MW113A-110812	MW113B-110712	MW115A-110512	MW115A-110512D	MW115B-110512	RMW116A-110612	MW201-110512	MW202-110512
		Sample Date & Time	11/7/2012 3:25:00 PM	11/7/2012 12:30:00 PM	11/8/2012 11:45:00 AM	11/7/2012 3:05:00 PM	11/5/2012 10:15:00 AM	11/5/2012 10:40:00 AM	11/5/2012 10:58:00 AM	11/6/2012 12:00:00 AM	11/5/2012 3:30:00 PM	11/5/2012 2:20:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**						Duplicate				
1,1,1-Trichloroethane	200	4000	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,1,2,2-Tetrachloroethane	2	9	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,1,2-Trichloroethane	5	900	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,1-Dichloroethane	70	1000	5 U	5 U	400 U	5 UJ	50 U	50 U	50 U	5 U	5 U	25 U
1,1-Dichloroethene	7	80	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,2,3-Trichlorobenzene	--	--	5 U	10	400 UJ	5 U	50 U	50 U	50 U	5 U	26	160
1,2,4-Trichlorobenzene	70	2000	5 U	43	400 U	26	**110**	**130**	**220**	5 U	**120**	**800**
1,2-Dibromo-3-Chloropropane	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,2-Dibromoethane	0.02	2	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,2-Dichlorobenzene	600	2000	11	29	**28000**	240	**1600**	**1600**	**1800**	5 U	460	**2600**
1,2-Dichloroethane	5	5	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,2-Dichloropropane	3	3	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
1,3-Dichlorobenzene	40	2000	5 U	5 U	**890**	9.7	50 U	50 U	50 U	5 U	8.2	**45**
1,4-Dichlorobenzene	5	200	5 U	4.6 J	**6100**	**42**	**280**	**270**	**320**	5 U	**66**	**390**
1,4-Dioxane	3	6000	100 U	100 U	8000 U	100 U	1000 U	1000 U	1000 U	100 U	100 U	500 U
2-Butanone	4000	50000	10 U	10 U	800 U	10 U	100 U	100 U	100 U	10 U	10 U	50 U
2-Hexanone	--	--	10 U	10 U	800 U	10 U	100 U	100 U	100 U	10 U	10 U	50 U
4-Methyl-2-Pentanone	350	50000	10 U	10 U	800 U	10 U	100 U	100 U	100 U	10 U	10 U	50 U
Acetone	6300	50000	10 U	10 U	800 U	10 U	100 U	100 U	100 U	10 U	10 U	50 U
Benzene	5	2000	5 U	5 U	400 U	5 U	**46** J	**46** J	50 U	5 U	**7.4**	**52**
Bromochloromethane	--	--	5 U	5 U	400 U	5 UJ	50 U	50 U	50 U	5 U	5 U	25 U
Bromodichloromethane	3	6	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Bromoform	4	700	5 U	5 U	400 U	5 UJ	**50** U	50 U	50 U	5 U	5 U	**25** U
Bromomethane	7	7	5 U	3.8 J	400 U	5 UJ	50 U	50 U	50 U	5.6 J	5 U	25 U
Carbon Disulfide	--	--	5 U	5 U	400 U	5 UJ	50 U	50 U	50 U	5 U	5 U	25 U
Carbon Tetrachloride	2	2	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Chlorobenzene	100	200	5 U	15	**19000**	64	**2600**	**2500**	**1600**	5 U	**390**	**2500**
Chloroethane	--	--	5 U	5 U	400 U	5 UJ	50 U	50 U	50 U	5 U	5 U	25 U
Chloroform	50	50	5 U	5 U	400 U	5 UJ	50 U	50 U	50 U	5 U	5 U	25 U
Chloromethane	--	--	5 U	5 U	400 U	5 UJ	50 U	50 U	50 U	5 U	5 U	25 U
cis-1,2-Dichloroethene	70	100	28	28	400 U	67	**130**	**130**	**290**	5 U	**100**	**360**

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-104B	MW-110	MW-113A	MW-113B	MW-115A		MW-115B	RMW-116A	MW-201	MW-202
		Sample ID	MW104B-110712	MW110-110712	MW113A-110812	MW113B-110712	MW115A-110512	MW115A-110512D	MW115B-110512	RMW116A-110612	MW201-110512	MW202-110512
		Sample Date & Time	11/7/2012 3:25:00 PM	11/7/2012 12:30:00 PM	11/8/2012 11:45:00 AM	11/7/2012 3:05:00 PM	11/5/2012 10:15:00 AM	11/5/2012 10:40:00 AM	11/5/2012 10:58:00 AM	11/6/2012 12:00:00 AM	11/5/2012 3:30:00 PM	11/5/2012 2:20:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**						Duplicate				
cis-1,3-Dichloropropene	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Cyclohexane	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Dibromochloromethane	2	20	5 U	5 U	**400** U	5 UJ	50 U	50 U	50 U	5 U	5 U	25 U
Dichlorodifluoromethane	--	--	5 U	5 U	400 U	5 UJ	50 U	50 U	50 U	5 U	5 U	25 U
Ethylbenzene	700	20000	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Isopropylbenzene	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
m,p-Xylene	10000	9000	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Methyl Acetate	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Methyl Tert-Butyl Ether	70	50000	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Methylcyclohexane	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Methylene Chloride	5	10000	5 U	5 U	400 U	**41**	50 U	50 U	50 U	5 U	5 U	25 U
o-Xylene	10000	9000	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Styrene	100	100	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Tetrachloroethene	5	50	5 U	5 U	400 U	5 U	50 U	**50** U	50 U	5 U	5 U	25 U
Toluene	1000	50000	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
trans-1,2-Dichloroethene	90	90	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
trans-1,3-Dichloropropene	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Trichloroethene	5	30	**7.8**	**6.5**	**17000**	**290**	**2300**	**2200**	**2500**	5 U	**180**	**1500**
Trichlorofluoromethane	--	--	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U
Vinyl Chloride	2	2	5 U	5 U	400 U	5 U	50 U	50 U	50 U	5 U	5 U	25 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-203A	MW-203B	MW-204A	MW-302		MW-304A	MW-304B	RMW-305A	MW-305B
		Sample ID	MW203A-110512	MW203B-110512	MW204A-110612	MW302-110712	MW302-110712D	MW304A-110612	MW304B-110612	RMW305A-110612	MW305B-110612
		Sample Date & Time	11/5/2012 12:05:00 PM	11/5/2012 11:30:00 AM	11/6/2012 11:37:00 AM	11/7/2012 10:10:00 AM	11/7/2012 10:15:00 AM	11/6/2012 12:20:00 PM	11/6/2012 12:26:00 PM	11/6/2012 4:20:00 PM	11/6/2012 3:10:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**					Duplicate				
1,1,1-Trichloroethane	200	4000	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	2	9	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	900	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	70	1000	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7	80	40 U	25 U	5 U	5 U	5 U	6.2 J	5 U	5 U	5 U
1,2,3-Trichlorobenzene	--	--	40 U	130	5 U	3.9 J	3.8 J	7.5	5 U	5.1	5 U
1,2,4-Trichlorobenzene	70	2000	**140**	**620**	5 U	15	14	42	9.2	49	5 U
1,2-Dibromo-3-Chloropropane	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	0.02	2	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	600	2000	**3200**	**2000**	32	**610**	550	**1200**	93	**730**	5 U
1,2-Dichloroethane	5	5	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	3	3	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	40	2000	**49**	34	5 U	6.3	5.7	24	5 U	18	5 U
1,4-Dichlorobenzene	5	200	**500**	**290**	**5.6**	**65**	**59**	**180**	**17**	**100**	5 U
1,4-Dioxane	3	6000	**800** U	500 U	100 U	100 U	100 U	-- R	100 U	100 U	100 U
2-Butanone	4000	50000	80 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	--	--	80 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	350	50000	80 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	6300	50000	80 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	5	2000	**140**	**30**	5 U	**41**	**39**	**27** J	5 U	5 U	5 U
Bromochloromethane	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	3	6	40 U	25 U	**5** U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	4	700	**40** U	25 U	**5** U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	7	7	40 U	25 U	5 U	5 U	3.4 J	5 U	5 U	5 U	5 U
Carbon Disulfide	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	2	2	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	100	200	**6400**	**1800**	24	**370**	**350**	**1000**	51	**180**	5 U
Chloroethane	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	50	50	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	--	--	40 U	25 U	5 U	5 U	1.2 J	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	100	**220**	**370**	10	**160**	**150**	**480**	63	60	5 U

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-203A	MW-203B	MW-204A	MW-302		MW-304A	MW-304B	RMW-305A	MW-305B
		Sample ID	MW203A-110512	MW203B-110512	MW204A-110612	MW302-110712	MW302-110712D	MW304A-110612	MW304B-110612	RMW305A-110612	MW305B-110612
		Sample Date & Time	11/5/2012 12:05:00 PM	11/5/2012 11:30:00 AM	11/6/2012 11:37:00 AM	11/7/2012 10:10:00 AM	11/7/2012 10:15:00 AM	11/6/2012 12:20:00 PM	11/6/2012 12:26:00 PM	11/6/2012 4:20:00 PM	11/6/2012 3:10:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**					Duplicate				
cis-1,3-Dichloropropene	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	2	20	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	20000	40 U	25 U	5 U	4.6 J	4 J	5 U	5 U	5 U	5 U
Isopropylbenzene	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
m,p-Xylene	10000	9000	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Tert-Butyl Ether	70	50000	40 U	25 U	5 U	12	12	5 U	5 U	5 U	5 U
Methylcyclohexane	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	5	10000	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
o-Xylene	10000	9000	40 U	25 U	5 U	5.2	4.7 J	5 U	5 U	5 U	5 U
Styrene	100	100	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	50	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	1000	50000	44	25 U	5 U	5 U	1.6 J	5.1	5 U	5 U	5 U
trans-1,2-Dichloroethene	90	90	40 U	25 U	5 U	5 U	5 U	6.1	5 U	5 U	5 U
trans-1,3-Dichloropropene	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	30	**2800**	**800**	**69**	**330**	**290**	**1700**	**55**	**870**	5 U
Trichlorofluoromethane	--	--	40 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	2	**350**	25 U	5 U	5 U	5 U	**46**	5 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-401		MW-402	MW-403A	RMW-403B	RMW-405A	RMW-405B	MW-406A	MW-406B	MW-503A
		Sample ID	MW401-110712	MW401-110712D	MW402-110912	MW403A-110612	MW403B-110612	MW405A-110512	MW-405B-110512	MW406A-110712	MW406B-110712	MW503A-110912
		Sample Date & Time	11/7/2012 12:20:00 PM	11/7/2012 12:25:00 PM	11/9/2012 10:35:00 AM	11/6/2012 10:15:00 AM	11/6/2012 10:09:00 AM	11/5/2012 3:38:00 PM	11/5/2012 3:25:00 PM	11/7/2012 9:49:00 AM	11/7/2012 9:45:00 AM	11/9/2012 9:50:00 AM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**		Duplicate								
1,1,1-Trichloroethane	200	4000	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	2	9	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	900	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,1-Dichloroethane	70	1000	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,1-Dichloroethene	7	80	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 UJ
1,2,4-Trichlorobenzene	70	2000	250 U	250 U	130 U	5 U	5 U	5 U	**130**	5 U	5 U	5 U
1,2-Dibromo-3-Chloropropane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,2-Dibromoethane	0.02	2	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,2-Dichlorobenzene	600	2000	**3900**	**3500**	**610**	5 U	5 U	24	**1800**	14	5 U	5 U
1,2-Dichloroethane	5	5	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,2-Dichloropropane	3	3	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,3-Dichlorobenzene	40	2000	250 U	**96** J	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	200	**700**	**670**	130 U	5 U	5 U	5 U	**290**	5 U	5 U	5 U
1,4-Dioxane	3	6000	5000 U	5000 U	**2500** U	100 U	100 U	100 U	1000 U	100 U	100 U	100 U
2-Butanone	4000	50000	500 U	500 U	250 U	10 U	10 U	10 U	100 U	10 U	10 U	10 U
2-Hexanone	--	--	500 U	500 U	250 U	10 U	10 U	10 U	100 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	350	50000	500 U	500 U	250 U	10 U	10 U	10 U	100 U	10 U	10 U	10 U
Acetone	6300	50000	500 U	500 U	250 U	10 U	10 U	10 U	100 U	10 U	10 U	10 U
Benzene	5	2000	250 U	250 U	130 U	5 U	5 U	5 U	**37** J	5 U	5 U	5 UJ
Bromochloromethane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Bromodichloromethane	3	6	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Bromoform	4	700	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Bromomethane	7	7	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	3.8 J	5 U
Carbon Disulfide	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Carbon Tetrachloride	2	2	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Chlorobenzene	100	200	**4200**	**3900**	130 U	5 U	5 U	57	**2400**	4.3 J	5 U	5 U
Chloroethane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Chloroform	50	50	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Chloromethane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	100	**150** J	250 U	**520**	5 U	5 U	19	**810**	5 U	5 U	5 U

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-401		MW-402	MW-403A	RMW-403B	RMW-405A	RMW-405B	MW-406A	MW-406B	MW-503A
		Sample ID	MW401-110712	MW401-110712D	MW402-110912	MW403A-110612	MW403B-110612	MW405A-110512	MW-405B-110512	MW406A-110712	MW406B-110712	MW503A-110912
		Sample Date & Time	11/7/2012 12:20:00 PM	11/7/2012 12:25:00 PM	11/9/2012 10:35:00 AM	11/6/2012 10:15:00 AM	11/6/2012 10:09:00 AM	11/5/2012 3:38:00 PM	11/5/2012 3:25:00 PM	11/7/2012 9:49:00 AM	11/7/2012 9:45:00 AM	11/9/2012 9:50:00 AM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**		Duplicate								
cis-1,3-Dichloropropene	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Cyclohexane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Dibromochloromethane	2	20	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Dichlorodifluoromethane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Ethylbenzene	700	20000	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Isopropylbenzene	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
m,p-Xylene	10000	9000	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Methyl Acetate	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Methyl Tert-Butyl Ether	70	50000	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Methylcyclohexane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Methylene Chloride	5	10000	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
o-Xylene	10000	9000	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Styrene	100	100	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Tetrachloroethene	5	50	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Toluene	1000	50000	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	90	90	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Trichloroethene	5	30	**12000**	**14000**	**8000**	5 U	5 U	**51**	**2200**	**8**	5 U	4 J
Trichlorofluoromethane	--	--	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Vinyl Chloride	2	2	250 U	250 U	130 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-503B	RW-1	SB-600	WP-105
		Sample ID	MW503B-110812	RWS1-110812	SB600-110912	WP105-110612
		Sample Date & Time	11/8/2012 11:35:00 AM	11/8/2012 11:53:00 AM	11/9/2012 12:00:00 AM	11/6/2012 2:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**				
1,1,1-Trichloroethane	200	4000	5 U	100 U	400 U	5 U
1,1,2,2-Tetrachloroethane	2	9	5 U	100 U	400 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	5 U	100 U	400 U	5 U
1,1,2-Trichloroethane	5	900	5 U	100 U	400 U	5 U
1,1-Dichloroethane	70	1000	5 U	100 U	400 U	5 U
1,1-Dichloroethene	7	80	5 U	100 U	400 U	5 U
1,2,3-Trichlorobenzene	--	--	5 U	100 UJ	400 UJ	5 U
1,2,4-Trichlorobenzene	70	2000	5.4	**75** J	400 U	5 U
1,2-Dibromo-3-Chloropropane	--	--	5 U	100 U	400 U	5 U
1,2-Dibromoethane	0.02	2	5 U	100 U	400 U	5 U
1,2-Dichlorobenzene	600	2000	180	**4600**	400 U	5 U
1,2-Dichloroethane	5	5	5 U	100 U	400 U	5 U
1,2-Dichloropropane	3	3	5 U	100 U	400 U	5 U
1,3-Dichlorobenzene	40	2000	13	**180**	400 U	5 U
1,4-Dichlorobenzene	5	200	**25**	**1200**	400 U	5 U
1,4-Dioxane	3	6000	100 U	2000 U	8000 U	100 U
2-Butanone	4000	50000	10 U	200 U	800 U	10 U
2-Hexanone	--	--	10 U	200 U	800 U	10 U
4-Methyl-2-Pentanone	350	50000	10 U	200 U	800 U	10 U
Acetone	6300	50000	10 U	200 U	800 U	10 U
Benzene	5	2000	5 U	100 U	400 U	5 U
Bromochloromethane	--	--	5 U	100 U	400 U	5 U
Bromodichloromethane	3	6	5 U	100 U	400 U	5 U
Bromoform	4	700	5 U	100 U	400 U	5 U
Bromomethane	7	7	4.6 J	100 U	400 U	5 U
Carbon Disulfide	--	--	5 U	100 U	400 U	5 U
Carbon Tetrachloride	2	2	5 U	100 U	400 U	5 U
Chlorobenzene	100	200	4.1 J	**1600**	400 U	5 U
Chloroethane	--	--	5 U	100 U	400 U	5 U
Chloroform	50	50	5 U	100 U	400 U	5 U
Chloromethane	--	--	5 U	100 U	400 U	5 U
cis-1,2-Dichloroethene	70	100	6	**80** J	400 U	5 U

Table 3-2a
Fall 2012 Data - VOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-503B	RW-1	SB-600	WP-105
		Sample ID	MW503B-110812	RWS1-110812	SB600-110912	WP105-110612
		Sample Date & Time	11/8/2012 11:35:00 AM	11/8/2012 11:53:00 AM	11/9/2012 12:00:00 AM	11/6/2012 2:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**				
cis-1,3-Dichloropropene	--	--	5 U	100 U	400 U	5 U
Cyclohexane	--	--	5 U	100 U	400 U	5 U
Dibromochloromethane	2	20	5 U	100 U	400 U	5 U
Dichlorodifluoromethane	--	--	5 U	100 U	400 U	5 U
Ethylbenzene	700	20000	5 U	100 U	400 U	5 U
Isopropylbenzene	--	--	5 U	100 U	400 U	5 U
m,p-Xylene	10000	9000	5 U	100 U	400 U	5 U
Methyl Acetate	--	--	5 U	100 U	400 U	5 U
Methyl Tert-Butyl Ether	70	50000	5 U	100 U	400 U	5 U
Methylcyclohexane	--	--	5 U	100 U	400 U	5 U
Methylene Chloride	5	10000	5 U	100 U	400 U	5 U
o-Xylene	10000	9000	5 U	100 U	400 U	5 U
Styrene	100	100	5 U	100 U	400 U	5 U
Tetrachloroethene	5	50	5 U	100 U	400 U	5 U
Toluene	1000	50000	5 U	100 U	400 U	5 U
trans-1,2-Dichloroethene	90	90	5 U	100 U	400 U	5 U
trans-1,3-Dichloropropene	--	--	5 U	100 U	400 U	5 U
Trichloroethene	5	30	**240**	**1700**	**23000**	5 U
Trichlorofluoromethane	--	--	5 U	100 U	400 U	5 U
Vinyl Chloride	2	2	5 U	100 U	400 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW/B-05	MW/B-11	MW-04A	MW-04B	MW-04C	MW-06A	MW-09A	MW-09B	MW-104A	MW-104B	MW-110
		Sample ID	MWB5-110812	MWB11-110912	MW4A-110612	MW04B-110612	MW04C-110612	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712	MW104B-110712	MW110-110712
		Sample Date & Time	11/8/2012 10:10:00 AM	11/9/2012 9:45:00 AM	11/6/2012 10:05:00 AM	11/6/2012 9:55:00 AM	11/6/2012 12:15:00 PM	11/7/2012 12:33:00 PM	11/7/2012 2:05:00 PM	11/7/2012 3:27:00 PM	11/7/2012 1:05:00 PM	11/7/2012 3:25:00 PM	11/7/2012 12:30:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**											
1,1'-Biphenyl	0.9	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-Chloropropane)	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	--	--	5 U	2.2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	200	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	10	5000	5 U	2.1 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	10	30000	5 U	3.3 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	60	40000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	200	50000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	30	20000	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	--	--	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	10	20000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	10	2000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	--	--	8.9	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	80	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-Methylphenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	20	50000	5 U	**42**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	--	--	2.8 J	10	10 U	10 U	10 U	10 U	10 U	10 U	2.6 J	10 U	10 U
4-Nitrophenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	30	10000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	--	--	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Anthracene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine		--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW/B-05	MW/B-11	MW-04A	MW-04B	MW-04C	MW-06A	MW-09A	MW-09B	MW-104A	MW-104B	MW-110
		Sample ID	MWB5-110812	MWB11-110912	MW4A-110612	MW04B-110612	MW04C-110612	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712	MW104B-110712	MW110-110712
		Sample Date & Time	11/8/2012 10:10:00 AM	11/9/2012 9:45:00 AM	11/6/2012 10:05:00 AM	11/6/2012 9:55:00 AM	11/6/2012 12:15:00 PM	11/7/2012 12:33:00 PM	11/7/2012 2:05:00 PM	11/7/2012 3:27:00 PM	11/7/2012 1:05:00 PM	11/7/2012 3:25:00 PM	11/7/2012 12:30:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**											
Benzaldehyde		--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(A)Anthracene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(A)Pyrene	0.2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(B)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(G,H,I)Perylene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(K)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethoxy)Methane	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethyl)Ether	30	30	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Ethylhexyl)Phthalate	6	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbazole	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenz(A,H)Anthracene	0.5	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	2000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	30000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Butyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Octyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	90	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	1	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	0.6	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	8	100	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-Cd)Pyrene	0.5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	140	1000	2.7 J	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Nitrobenzene	--	--	32000	39000	5 U	5 U	5 U	5 U	5 U	5 U	28	5 U	5 U
N-Nitroso-Di-N-Propylamine	--	--	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	--	--	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 J
Pentachlorophenol	1	--	**2.6 J**	**9.3 J**	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW/B-05	MW/B-11	MW-04A	MW-04B	MW-04C	MW-06A	MW-09A	MW-09B	MW-104A	MW-104B	MW-110
		Sample ID	MWB5-110812	MWB11-110912	MW4A-110612	MW04B-110612	MW04C-110612	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712	MW104B-110712	MW110-110712
		Sample Date & Time	11/8/2012 10:10:00 AM	11/9/2012 9:45:00 AM	11/6/2012 10:05:00 AM	11/6/2012 9:55:00 AM	11/6/2012 12:15:00 PM	11/7/2012 12:33:00 PM	11/7/2012 2:05:00 PM	11/7/2012 3:27:00 PM	11/7/2012 1:05:00 PM	11/7/2012 3:25:00 PM	11/7/2012 12:30:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**											
Phenanthrene	40	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	1000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pyrene	20		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-113B	MW-115A		MW-115B	RMW-116A	MW-201	MW-202	MW-203A	MW-203B	MW-204A
		Sample ID	MW113B-110712	MW115A-110512	MW115A-110512D	MW115B-110512	RMW116A-110612	MW201-110512	MW202-110512	MW203A-110512	MW203B-110512	MW204A-110612
		Sample Date & Time	11/7/2012 3:05:00 PM	11/5/2012 10:15:00 AM	11/5/2012 10:40:00 AM	11/5/2012 10:58:00 AM	11/6/2012 12:00:00 AM	11/5/2012 3:30:00 PM	11/5/2012 2:20:00 PM	11/5/2012 12:05:00 PM	11/5/2012 11:30:00 AM	11/6/2012 11:37:00 AM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**			Duplicate							
1,1'-Biphenyl	0.9	200	5 U	5 U	5 U	5 U	5 U	5 U	**2.6 J**	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-Chloropropane)	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	200	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.4 J	5 U
2,4,6-Trichlorophenol	10	5000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	10	30000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4.5 J	5 U	5 U
2,4-Dimethylphenol	60	40000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	200	50000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	30	20000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	10	20000	5 U	5 U	5 U	5 U	5 U	5 U	2.5 J	**14**	**12**	5 U
2-Methylnaphthalene	10	2000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3.6 J	5 U	5 U
2-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	80	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-Methylphenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	20	50000	5 U	5 U	5 U	9.9	5 U	5 U	4 J	9.7	3.2 J	5 U
4-Chlorophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	30	10000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Anthracene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine		--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-113B	MW-115A		MW-115B	RMW-116A	MW-201	MW-202	MW-203A	MW-203B	MW-204A
		Sample ID	MW113B-110712	MW115A-110512	MW115A-110512D	MW115B-110512	RMW116A-110612	MW201-110512	MW202-110512	MW203A-110512	MW203B-110512	MW204A-110612
		Sample Date & Time	11/7/2012 3:05:00 PM	11/5/2012 10:15:00 AM	11/5/2012 10:40:00 AM	11/5/2012 10:58:00 AM	11/6/2012 12:00:00 AM	11/5/2012 3:30:00 PM	11/5/2012 2:20:00 PM	11/5/2012 12:05:00 PM	11/5/2012 11:30:00 AM	11/6/2012 11:37:00 AM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**			Duplicate							
Benzaldehyde		--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(A)Anthracene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(A)Pyrene	0.2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(B)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(G,H,I)Perylene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(K)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethoxy)Methane	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethyl)Ether	30	30	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Ethylhexyl)Phthalate	6	--	5 U	5.3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3.8 J
Carbazole	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4.4 J
Chrysene	2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenz(A,H)Anthracene	0.5	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	2000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	30000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Butyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Octyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	90	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.5 J
Fluorene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	1	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	0.6	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	8	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-Cd)Pyrene	0.5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	140	1000	5 U	3.1 J	4.9 J	--	5 U	5 U	5 U	18	5 U	5 U
Nitrobenzene	--	--	12	5 U	5 U	5 U	5 U	5 U	5 U	4.2 J	5 U	5 U
N-Nitroso-Di-N-Propylamine	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	--	--	5 U	5 U	5 U	5 U	5 U	5 U	2.1 J	5 U	2.5 J	5 U
Pentachlorophenol	1	--	10 UJ	10 U	10 U	**2.3 J**	10 U	10 U	10 U	10 U	10 U	10 U

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-113B	MW-115A		MW-115B	RMW-116A	MW-201	MW-202	MW-203A	MW-203B	MW-204A
		Sample ID	MW113B-110712	MW115A-110512	MW115A-110512D	MW115B-110512	RMW116A-110612	MW201-110512	MW202-110512	MW203A-110512	MW203B-110512	MW204A-110612
		Sample Date & Time	11/7/2012 3:05:00 PM	11/5/2012 10:15:00 AM	11/5/2012 10:40:00 AM	11/5/2012 10:58:00 AM	11/6/2012 12:00:00 AM	11/5/2012 3:30:00 PM	11/5/2012 2:20:00 PM	11/5/2012 12:05:00 PM	11/5/2012 11:30:00 AM	11/6/2012 11:37:00 AM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**			Duplicate							
Phenanthrene	40	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.8 J
Phenol	1000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pyrene	20		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-302		MW-304A	MW-304B	RMW-305A	MW-305B	MW-401		MW-402	MW-403A	RMW-403B
		Sample ID	MW302-110712	MW302-110712D	MW304A-110612	MW304B-110612	RMW305A-110612	MW305B-110612	MW401-110712	MW401-110712D	MW402-110912	MW403A-110612	MW403B-110612
		Sample Date & Time	11/7/2012 10:10:00 AM	11/7/2012 10:15:00 AM	11/6/2012 12:20:00 PM	11/6/2012 12:26:00 PM	11/6/2012 4:20:00 PM	11/6/2012 3:10:00 PM	11/7/2012 12:20:00 PM	11/7/2012 12:25:00 PM	11/9/2012 10:35:00 AM	11/6/2012 10:15:00 AM	11/6/2012 10:09:00 AM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**								Duplicate			
1,1'-Biphenyl	0.9	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-Chloropropane)	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	200	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	10	5000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	10	30000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	60	40000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
2,4-Dinitrophenol	200	50000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	30	20000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
2,6-Dinitrotoluene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
2-Chloronaphthalene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	10	20000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	10	2000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
2-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	80	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-Methylphenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	20	50000	3.6 J	5 U	5 U	5 U	5 U	5 U	4 J	4.2 J	5 U	5 U	5 U
4-Chlorophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	--	--	5 U	5 U	2.2 J	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
4-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3.3 J	10 U	10 U
4-Nitrophenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	30	10000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
Anthracene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine		--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-302		MW-304A	MW-304B	RMW-305A	MW-305B	MW-401		MW-402	MW-403A	RMW-403B
		Sample ID	MW302-110712	MW302-110712D	MW304A-110612	MW304B-110612	RMW305A-110612	MW305B-110612	MW401-110712	MW401-110712D	MW402-110912	MW403A-110612	MW403B-110612
		Sample Date & Time	11/7/2012 10:10:00 AM	11/7/2012 10:15:00 AM	11/6/2012 12:20:00 PM	11/6/2012 12:26:00 PM	11/6/2012 4:20:00 PM	11/6/2012 3:10:00 PM	11/7/2012 12:20:00 PM	11/7/2012 12:25:00 PM	11/9/2012 10:35:00 AM	11/6/2012 10:15:00 AM	11/6/2012 10:09:00 AM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**								Duplicate			
Benzaldehyde		--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
Benzo(A)Anthracene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(A)Pyrene	0.2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(B)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(G,H,I)Perylene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(K)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethoxy)Methane	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethyl)Ether	30	30	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Ethylhexyl)Phthalate	6	--	5 U	5 U	5 U	5 U	2.7 J	5 U	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbazole	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenz(A,H)Anthracene	0.5	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	2000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	30000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Butyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Octyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	90	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	1	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	0.6	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	8	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
Indeno(1,2,3-Cd)Pyrene	0.5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	140	1000	28	5 U	3.7 J	5 U	5 U	5 U	31	2.2 J	5 U	5 U	5 U
Nitrobenzene	--	--	5 U	5 U	150	5 U	29	5 U	5.9	18000	610	5 U	5 U
N-Nitroso-Di-N-Propylamine	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
N-Nitrosodiphenylamine	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
Pentachlorophenol	1	--	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	**4.3 J**	10 U	10 UJ	10 U

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	MW-302		MW-304A	MW-304B	RMW-305A	MW-305B	MW-401		MW-402	MW-403A	RMW-403B
		Sample ID	MW302-110712	MW302-110712D	MW304A-110612	MW304B-110612	RMW305A-110612	MW305B-110612	MW401-110712	MW401-110712D	MW402-110912	MW403A-110612	MW403B-110612
		Sample Date & Time	11/7/2012 10:10:00 AM	11/7/2012 10:15:00 AM	11/6/2012 12:20:00 PM	11/6/2012 12:26:00 PM	11/6/2012 4:20:00 PM	11/6/2012 3:10:00 PM	11/7/2012 12:20:00 PM	11/7/2012 12:25:00 PM	11/9/2012 10:35:00 AM	11/6/2012 10:15:00 AM	11/6/2012 10:09:00 AM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**								Duplicate			
Phenanthrene	40	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	1000	50000	5 U	5 U	4.2 J	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U
Pyrene	20		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	RMW-405A	RMW-405B	MW-406A	MW-406B	MW-503A	MW-503B	RW-1	SB-600	WP-105
		Sample ID	MW405A-110512	MW-405B-110512	MW406A-110712	MW406B-110712	MW503A-110912	MW503B-110812	RWS1-110812	SB600-110912	WP105-110612
		Sample Date & Time	11/5/2012 3:38:00 PM	11/5/2012 3:25:00 PM	11/7/2012 9:49:00 AM	11/7/2012 9:45:00 AM	11/9/2012 9:50:00 AM	11/8/2012 11:35:00 AM	11/8/2012 11:53:00 AM	11/9/2012 12:00:00 AM	11/6/2012 2:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**									
1,1'-Biphenyl	0.9	200	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-Chloropropane)	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	200	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	10	5000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	10	30000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	60	40000	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	200	50000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	30	20000	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	--	--	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	10	20000	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	10	2000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	--	--	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	--	--	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	80	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-Methylphenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-Methylphenol	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	20	50000	5 U	6.9	5 U	2.9 J	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-Phenylether	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	--	--	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	30	10000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	--	--	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
Anthracene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine		--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	RMW-405A	RMW-405B	MW-406A	MW-406B	MW-503A	MW-503B	RW-1	SB-600	WP-105
		Sample ID	MW405A-110512	MW-405B-110512	MW406A-110712	MW406B-110712	MW503A-110912	MW503B-110812	RWS1-110812	SB600-110912	WP105-110612
		Sample Date & Time	11/5/2012 3:38:00 PM	11/5/2012 3:25:00 PM	11/7/2012 9:49:00 AM	11/7/2012 9:45:00 AM	11/9/2012 9:50:00 AM	11/8/2012 11:35:00 AM	11/8/2012 11:53:00 AM	11/9/2012 12:00:00 AM	11/6/2012 2:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**									
Benzaldehyde		--	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
Benzo(A)Anthracene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(A)Pyrene	0.2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(B)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(G,H,I)Perylene	20	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(K)Fluoranthene	1	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethoxy)Methane	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethyl)Ether	30	30	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Ethylhexyl)Phthalate	6	--	5 U	5.9	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	--	--	5 U	5 U	5 U	13	5 U	5 U	5 U	5 U	5 U
Caprolactam	--	--	5 U	5 U	5 U	2.6 J	5 U	5 U	5 U	5 U	5 U
Carbazole	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenz(A,H)Anthracene	0.5	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	2000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	30000	50000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Butyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Octyl Phthalate	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	90	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	30	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	1	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	0.6	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	8	100	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-Cd)Pyrene	0.5		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	--	--	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	140	1000	5 U	7.9	5 U	2.1 J	5 U	5 U	5 U	2.2 J	5 U
Nitrobenzene	--	--	5 U	5 UJ	12	20000	33	3.6 J	1000	32000	5 U
N-Nitroso-Di-N-Propylamine	--	--	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	--	--	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
Pentachlorophenol	1	--	10 U	10 U	10 UJ	**4.5 J**	10 U	10 U	10 U	10 U	10 U

Table 3-2b
Fall 2012 Data - SVOC Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

		Sample Location	RMW-405A	RMW-405B	MW-406A	MW-406B	MW-503A	MW-503B	RW-1	SB-600	WP-105
		Sample ID	MW405A-110512	MW-405B-110512	MW406A-110712	MW406B-110712	MW503A-110912	MW503B-110812	RWS1-110812	SB600-110912	WP105-110612
		Sample Date & Time	11/5/2012 3:38:00 PM	11/5/2012 3:25:00 PM	11/7/2012 9:49:00 AM	11/7/2012 9:45:00 AM	11/9/2012 9:50:00 AM	11/8/2012 11:35:00 AM	11/8/2012 11:53:00 AM	11/9/2012 12:00:00 AM	11/6/2012 2:35:00 PM
Chemical Name	**GW-1 Standard**	**GW-2 Standard**									
Phenanthrene	40	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	1000	50000	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
Pyrene	20		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bold concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.

Table 3-2c
Fall 2012 Data - Anions Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW/B-05	MW/B-11	MW-04A	MW-04B	MW-04C	MW-06A	MW-09A	MW-09B	MW-104A	MW-104B	MW-110
Sample ID	MWB5-110812	MWB11-110912	MW4A-110612	MW04B-110612	MW04C-110612	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712	MW104B-110712	MW110-110712
Sample Date & Time	11/8/2012 10:10:00 AM	11/9/2012 9:45:00 AM	11/6/2012 10:05:00 AM	11/6/2012 9:55:00 AM	11/6/2012 12:15:00 PM	11/7/2012 12:33:00 PM	11/7/2012 2:05:00 PM	11/7/2012 3:27:00 PM	11/7/2012 1:05:00 PM	11/7/2012 3:25:00 PM	11/7/2012 12:30:00 PM
Chemical Name											
Bromide	--	--	--	--	--	--	--	--	--	--	--
Chloride	160	72	4.7	140	59	92	110	23	290	16	34
Fluoride	--	--	--	--	--	--	--	--	--	--	--
Nitrate	70	2.7	0.66	2.6	0.05 U	0.05 U	1 U	0.05 U	1 U	0.05 U	0.05 U
Nitrate as Nitrogen	16	0.61	0.15	0.59	0.011 U	0.011 U	0.22 U	0.011 U	0.22 U	0.011 U	0.011 U
Nitrite	4.5	4.6	0.05 U	0.05 UJ	0.05 U	0.05 U	1 U	0.05 U	1 U	0.05 U	0.05 U
Nitrite as Nitrogen	1.4	1.4	0.015 U	0.015 U	0.015 U	0.015 U	0.3 U	0.015 U	0.3 U	0.015 U	0.015 U
Sulfate	320	700	10	130	60	42	420	430	410	260	34

Note:

All concentrations reported in milligrams per liter (mg/L).

Table 3-2c
Fall 2012 Data - Anions Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-113A	MW-113B	MW-115A		MW-115B	RMW-116A	MW-201	MW-202	MW-203A	MW-203B	MW-204A
Sample ID	MW113A-110812	MW113B-110712	MW115A-110512	MW115A-110512D	MW115B-110512	RMW116A-110612	MW201-110512	MW202-110512	MW203A-110512	MW203B-110512	MW204A-110612
Sample Date & Time	11/8/2012 11:45:00 AM	11/7/2012 3:05:00 PM	11/5/2012 10:15:00 AM	11/5/2012 10:40:00 AM	11/5/2012 10:58:00 AM	11/6/2012 12:00:00 AM	11/5/2012 3:30:00 PM	11/5/2012 2:20:00 PM	11/5/2012 12:05:00 PM	11/5/2012 11:30:00 AM	11/6/2012 11:37:00 AM
Chemical Name				Duplicate							
Bromide	--	--	--	--	--	--	--	--	--	--	--
Chloride	13	53	3300	3500	1700	11	270	450	5900	280	580
Fluoride	--	--	--	--	--	--	--	--	--	--	--
Nitrate	0.26	0.05 U	10	6.5	1 U	0.87	0.6	2.1	5.3	1 U	0.05 U
Nitrate as Nitrogen	0.06	0.011 U	2.3	1.5	0.22 U	0.2	0.14	0.47	1.2	0.22 U	0.011 U
Nitrite	0.05 U	0.05 U	1 U	1 U	1 U	0.05 U	0.05 U	1 U	1 U	1 U	0.05 U
Nitrite as Nitrogen	0.015 U	0.015 U	0.3 U	0.3 U	0.3 U	0.015 U	0.03 U	0.3 U	0.3 U	0.3 U	0.015 U
Sulfate	22	96	1700	1800	1800	27	220	710	3200	490	1200

Note:

All concentrations reported in milligrams per liter (mg/L).

Table 3-2c
Fall 2012 Data - Anions Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-302		MW-304A	MW-304B	RMW-305A	MW-305B	MW-401		MW-402	MW-403A	RMW-403B
Sample ID	MW302-110712	MW302-110712D	MW304A-110612	MW304B-110612	RMW305A-110612	MW305B-110612	MW401-110712	MW401-110712D	MW402-110912	MW403A-110612	MW403B-110612
Sample Date & Time	11/7/2012 10:10:00 AM	11/7/2012 10:15:00 AM	11/6/2012 12:20:00 PM	11/6/2012 12:26:00 PM	11/6/2012 4:20:00 PM	11/6/2012 3:10:00 PM	11/7/2012 12:20:00 PM	11/7/2012 12:25:00 PM	11/9/2012 10:35:00 AM	11/6/2012 10:15:00 AM	11/6/2012 10:09:00 AM
Chemical Name		Duplicate						Duplicate			
Bromide	--	--	--	--	--	--	--	--	--	--	--
Chloride	890	900	2800	970	97	24	650	640	210	130	170
Fluoride	--	--	--	--	--	--	--	--	--	--	--
Nitrate	1 U	1 U	0.05 U	0.05 U	0.05 U	0.81	1 U	1 U	5.1	9.9	1.2
Nitrate as Nitrogen	0.22 U	0.22 U	0.011 U	0.011 U	0.011 U	0.18	0.22 U	0.22 U	1.2	2.2	0.27
Nitrite	1 U	1 U	0.05 U	0.05 U	0.05 U	0.05 U	1 U	1 U	0.05 U	0.05 UJ	0.05 U
Nitrite as Nitrogen	0.3 U	0.3 U	0.015 U	0.015 U	0.015 U	0.015 U	0.3 U	0.3 U	0.015 U	0.015 U	0.015 U
Sulfate	600	600	1400	610	270	45	500	500	590	36	37

Note:

All concentrations reported in milligrams per liter (mg/L).

Table 3-2c
Fall 2012 Data - Anions Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	RMW-405A	RMW-405B	MW-406A	MW-406B	MW-503A	MW-503B	RW-1	SB-600	WP-105
Sample ID	MW405A-110512	MW-405B-110512	MW406A-110712	MW406B-110712	MW503A-110912	MW503B-110812	RWS1-110812	SB600-110912	WP105-110612
Sample Date & Time	11/5/2012 3:38:00 PM	11/5/2012 3:25:00 PM	11/7/2012 9:49:00 AM	11/7/2012 9:45:00 AM	11/9/2012 9:50:00 AM	11/8/2012 11:35:00 AM	11/8/2012 11:53:00 AM	11/9/2012 12:00:00 AM	11/6/2012 2:35:00 PM
Chemical Name									
Bromide	--	--	--	--	--	--	--	--	--
Chloride	360	3200	110	170	1	27	72	510	95
Fluoride	--	--	--	--	--	--	--	--	--
Nitrate	1.2	6.9	0.05 U	0.05 U	2.5	5.7	3.3	1.8	0.05 U
Nitrate as Nitrogen	0.27	1.6	0.011 U	0.011 U	0.56	1.3	0.74	0.41	0.011 U
Nitrite	1 U	1 U	0.05 UJ	0.05 UJ	0.22	0.05 U	0.05 UJ	0.05 U	0.05 U
Nitrite as Nitrogen	0.3 U	0.3 U	0.015 U	0.015 U	0.07	0.015 U	0.015 U	0.015 U	0.015 U
Sulfate	180	2600	16	37	45	57	130	460	4.8

Note:

All concentrations reported in milligrams per liter (mg/L).

Table 3-2d
Fall 2012 Data - Dissolved Gases Analytical Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	B/MW-05	MW-115A		MW-115B	MW-201	MW-203A	MW-203B	RMW-405A	RMW-405B
Sample ID	MWB5-110812	MW115A-110512	MW115A-110512D	MW115B-110512	MW201-110512	MW203A-110512	MW203B-110512	MW405A-110512	MW-405B-110512
Sample Date & Time	11/8/2012 10:10:00 AM	11/5/2012 10:15:00 AM	11/5/2012 10:40:00 AM	11/5/2012 10:58:00 AM	11/5/2012 3:30:00 PM	11/5/2012 12:05:00 PM	11/5/2012 11:30:00 AM	11/5/2012 3:38:00 PM	11/5/2012 3:25:00 PM
Chemical Name			Duplicate						
Ethane	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.4	1.3 U	1.3 U	1.3 U
Ethylene	1.6 U	1.6 U	1.6 U	1.7 U	1.7 U	18	1.7 U	1.6 U	1.6 U
Methane	17	98	96	88	17	98	53	6.9	98

Note:

All concentrations reported in micrograms per liter (ug/L).

Table 3-3
2012 Annual Data - Field Parameter Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Location	Sample #	Sample Date	Turbidity (NTU)	Temp (^oC)	pH (SU)	Conductivity (mS)	DO (mg/L)	ORP (mV)
MW/B-05	MWB5-110812	11/8/2012	12	10.98	6.53	1338	2.29	46.7
MW/B-11	MWB11-110912	11/9/2012	11.2	12.35	8.91	1665	0.47	-125.2
MADEP-MW-1	MADEPMW1-110912	11/9/2012	No low-flow water quality parameters obained, well purged dry.					
MW-04A	MW4A-110612	11/6/2012	9	14.46	5.56	67	0.5	72.8
MW-04B	MW04B-110612	11/6/2012	2.11	12.1	6.13	830	1.32	74.1
MW-04C	MW04C-110612	11/6/2012	13	12.15	6.14	352	0.9	118.1
MW-06A	MW-6A-081412A	8/14/2012	3.54	18.79	6.3	571	0.41	35.4
	MW6A-110712	11/7/2012	10.9	14.39	5.66	457	0.24	-202.5
MW-09A	MW9A-110712	11/7/2012	3.96	12.83	6.52	1369	0.87	-63.2
MW-09B	MW9B-110712	11/7/2012	9.63	11.58	6.48	1160	2.49	-145.1
MW-104A	MW104A-110712	11/7/2012	4.87	11.49	7.1	1884	0.49	-32.9
MW-104B	MW104B-110712	11/7/2012	18.1	10.49	6.25	760	0.6	-58.2
MW-110	MW-110-081512A	8/15/2012	50.1	15.16	6.22	303	0.53	-4
	MW110-110712	11/7/2012	3.21	10.93	6.48	276	0.75	-60.5
MW-113A	MW113A-110812	11/8/2012	12.8	9.72	6.27	290	0.95	89.1
MW-113B	MW-113B-081512A	8/15/2012	58.1	14.89	5.54	334	2.52	165.6
	MW113B-110712	11/7/2012	4.05	11.37	5.94	446	0.41	111.1
MW-115A	MW-115A-081412A	8/14/2012	21.6	14.27	6.4	12788	0.5	-18.3
	MW115A-110512	11/5/2012	48.2	11.9	6.69	12302	0.26	-35.8
MW-115B	MW-115B-081412A	8/14/2012	43.4	13.44	5.81	7694	1.03	12.8
	MW115B-110512	11/5/2012	8.27	12.33	5.87	7891	0.43	-239.3
RMW-116A	RMW116A-110612	11/6/2012	1.87	11.57	7.86	222	8.15	49
MW-201	MW201-110512	11/5/2012	9.7	15.57	5.54	1525	0.2	81.7
MW-202	MW202-110512	11/5/2012	4.72	12.99	4.97	2739	0.82	154.6
MW-203A	MW-203A-081312A	8/13/2012	33.4	17.8	6.28	22000	1.36	-101.9
	MW203A-110512	11/5/2012	34.5	13.07	6.65	19645	0.08	-109.2
MW-203B	MW-203B-081312A	8/13/2012	62.8	16.22	6.09	2157	0.7	-6.7
	MW203B-110512	11/5/2012	9.13	14.09	6.08	2000	0.98	-36.4
MW-204A	MW204A-110612	11/6/2012	16.6	15.34	5.67	3793	0.68	-12.1
MW-302	MW302-110712	11/7/2012	9.66	12.34	4.29	3571	0.67	190.3
MW-304A	MW-304A-081312A	8/13/2012	33.9	13.74	6.22	10180	0.36	30
	MW304A-110612	11/6/2012	9.24	11.22	6.35	10245	0.93	-58.7
MW-304B	MW-304B-081312A	8/13/2012	9.09	14.44	6.08	3845	0.53	63.6
	MW304B-110612	11/6/2012	1.08	12.23	6.35	3871	0.39	-240
RMW-305A	MW-305A-081512A	8/15/2012	89	15.91	6.97	924	0.44	10.8
	RMW305A-110612	11/6/2012	7.03	11.69	6.01	986	0.33	-254.3
MW-305B	MW-305B-081512A	8/15/2012	1.64	14.33	4.45	228	0.51	274.6
	MW305B-110612	11/6/2012	0.38	13.46	4.58	189	0.28	310.4
MW-401	MW401-110712	11/7/2012	4.96	11.23	7.33	2874	0.35	-43.8
MW-402	MW402-110912	11/9/2012	10.6	11.95	6.54	2120	1.51	129.6
MW-403A	MW-403A-081312A	8/13/2012	361	13.25	5.2	591	3.26	406.3
	MW403A-110612	11/6/2012	1.43	11.87	5.22	556	2.97	204.2
RMW-403B	MW-403B-081312A	8/13/2012	210	14.52	6.06	767	1.75	101
	MW403B-110612	11/6/2012	2.19	12.91	6.16	732	3.81	-179
RMW-405A	MW405A-110512	8/14/2012	18.6	13.08	10.92	1827	2.37	147.3
	RMW-405A-081412A	11/5/2012	12.4	13.76	11.44	1823	1.24	-288.2

Table 3-3
2012 Annual Data - Field Parameter Results
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Location	Sample #	Sample Date	Turbidity (NTU)	Temp (^oC)	pH (SU)	Conductivity (mS)	DO (mg/L)	ORP (mV)
RMW-405B	MW-405B-110512	8/14/2012	9.01	14.98	5.91	12009	0.54	-7.2
	RMW-405B-081412A	11/5/2012	108	13.05	6.06	12131	1.08	-10.4
MW-406A	MW-406A-081412A	8/14/2012	38.6	18.45	7.29	784	0.49	-44
	MW406A-110712	11/7/2012	6.58	14.39	7.65	573	0.45	-283.6
MW-406B	MW-406B-081412A	8/14/2012	22.2	20.82	6.9	848	0.47	34.3
	MW406B-110712	11/7/2012	3.94	14.03	7.23	793	0.48	-7.8
MW-503A	MW503A-110912	11/9/2012	93.3	10.99	5.72	321	0.56	91.8
MW-503B	MW503B-110812	11/8/2012	18.6	9.7	5.86	453	1.69	165.5
RW-1	RWS1-110812	11/8/2012	5.46	12.88	5.67	564	0.31	-118.8
SB-600	SB600-110912	11/9/2012	3.23	13.03	6.66	2443	0.33	-189.8
WP-105	WP105-110612	11/6/2012	1.11	12.64	6.52	427	0.48	40.5

Notes:

^oC - Degrees Celsius
DO - Dissolved Oxygen
mg/L - milligrams per liter
mV - millivolts
NTU - nephelometric turbidity units
ORP - Oxygen Reduction Potential
mS - micro siemens
SU - Standard Unit

Table 4-1
Historical Data Comparison - VOCs and MNA Parameter Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, MA

			VOCs (ug/L)					MNA Parameters (mg/L)			
Well ID	**Sample Date & Time**	**Chemical Name**	**Tetrachloroethene**	**Trichloroethene**	**cis-1,2-Dichloroethene**	**Vinyl Chloride**	**Chlorobenzene**	**Chloride**	**Nitrate**	**Sulfate**	**Dissolved Oxygen**
		GW-1 Standard	5	5	70	2	100	--	--	--	
		GW-2 Standard	50	30	100	2	200	--	--	--	
MW/B-5	1/11/2011 3:20:00 PM		--	**8700**	--	--	**17000**	120	--	130	4.9
	4/19/2012 2:30:00 PM		--	**17000**	--	--	**27000**	NS	NS	NS	0.26
	4/19/2012 3:00:00 PM	Duplicate	--	**17000**	--	--	**28000**	NS	NS	NS	0.26
	11/8/2012 10:10:00 AM		--	**7100**	--	--	**15000**	160	70	320	2.29
MW/B-11	11/9/2012 9:45:00 AM		--	**6900**	**190 J**	--	**30000**	72	2.7	700	0.47
MADEP-MW-1	1/20/2011 11:25:00 AM		--	**88**	37	--	57	NS	NS	NS	NM
	11/9/2012 12:00:00 PM		--	**5.5**	--	--	19	NS	NS	NS	NM
MADEP-MW-2	1/20/2011 10:30:00 AM		--	**35**	15	--	21	NS	NS	NS	NM
MW-04A	1/18/2011 12:00:00 PM		--	--	--	--	--	4.9	--	14	2.31
MW-04B	1/18/2011 12:20:00 PM		--	**16**	1.3	--	--	110	1.4 B	110	4.62
	11/6/2012 9:55:00 AM		--	**34**	--	--	--	140	2.6	130	1.32
MW-04C	11/6/2012 12:15:00 PM		--	**11**	--	--	--	59	--	60	0.9
MW-06A	1/19/2011 10:50:00 AM		--	**10**	**96**	1.3	22	91	--	43	0.92
	8/14/2012 3:35:00 PM		--	**22**	**76**	--	58	120	--	38	0.41
	11/7/2012 12:33:00 PM		--	**9.8**	19	--	27	92	--	42	0.24
MW-08	1/19/2011		--	**5.1**	8.7	--	1.1	110	6 JB	450	1.89
MW-09A	11/7/2012 2:05:00 PM		--	--	6.2	--	24	110	--	420	0.87
MW-09B	11/7/2012 3:27:00 PM		--	4.6 J	16	--	--	23	--	430	2.49
MW-104A	11/7/2012 1:05:00 PM		--	**1700**	**710**	--	50	290	--	410	0.49
MW-104B	11/7/2012 3:25:00 PM		--	**7.8**	28	--	--	16	--	260	0.6
MW-107	1/18/2011 1:20:00 PM	Duplicate	--	**34**	**170**	--	**170**	330	--	400	0.83
	1/18/2011 12:25:00 PM		--	**37**	**180**	--	**170**	330	--	400	0.83
MW-110	8/15/2012 11:25:00 AM		--	**15**	**73**	0.6 J	23	46	--	38	0.53
	11/7/2012 12:30:00 PM		--	**6.5**	28	--	15	34	--	34	0.75
MW-112A	1/20/2011 11:10:00 AM		--	**19**	19	--	7.5	210	--	140	0.45

Table 4-1
Historical Data Comparison - VOCs and MNA Parameter Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, MA

			VOCs (ug/L)					MNA Parameters (mg/L)			
Well ID	**Sample Date & Time**	**Chemical Name**	**Tetrachloroethene**	**Trichloroethene**	**cis-1,2-Dichloroethene**	**Vinyl Chloride**	**Chlorobenzene**	**Chloride**	**Nitrate**	**Sulfate**	**Dissolved Oxygen**
		GW-1 Standard	5	5	70	2	100	--	--	--	
		GW-2 Standard	50	30	100	2	200	--	--	--	
MW-113A	1/11/2011 2:40:00 PM		--	**13000**	--	--	**16000**	44	--	34	0.86
	11/8/2012 11:45:00 AM		--	**17000**	--	--	**19000**	13	0.26	22	0.95
MW-113B	8/15/2012 12:05:00 PM	Duplicate	--	**510**	60	--	72	35	0.95	62	2.52
	8/15/2012 11:55:00 AM		--	**190**	37	--	39	37	0.93	62	2.52
	11/7/2012 3:05:00 PM		--	**290**	67	--	64	53	--	96	0.41
MW-115A	4/19/2012 12:25:00 PM		--	**3100**	**310**	--	**1800**	NS	NS	NS	0.16
	8/14/2012 3:30:00 PM		--	**1600**	**140**	--	**1800 J**	4000	--	2100	0.5
	11/5/2012 10:15:00 AM		--	**2300**	**130**	--	**2600**	3300	10	1700	0.26
	11/5/2012 10:40:00 AM	Duplicate	--	**2200**	**130**	--	**2500**	3500	6.5	1800	0.26
MW-115B	1/13/2011 1:30:00 PM		--	**640**	67	--	**190**	1700	--	1700	5.55
	8/14/2012 3:35:00 PM		--	**2100**	**320**	--	**1300**	2000	--	1900	1.03
	11/5/2012 10:58:00 AM		--	**2500**	**290**	--	**1600**	1700	--	1800	0.43
RMW-116A	11/6/2012		--	--	--	--	--	11	0.87	27	8.15
MW-201	1/10/2011 1:35:00 PM		--	**240**	**130**	**2.3**	**400**	400	--	340	0.33
	11/5/2012 3:30:00 PM		--	**180**	**100**	--	**390**	270	0.6	220	0.2
MW-202	1/10/2011 1:30:00 PM		--	**380**	**99**	**2.4**	**710**	470	--	740	7.82
	1/10/2011 12:55:00 PM		--	**390**	**100**	**3.5**	**710**	470	--	730	7.82
	11/5/2012 2:20:00 PM		--	**1500**	**360**	--	**2500**	450	2.1	710	0.82
MW-203A	1/10/2011 1:50:00 PM		--	**500**	**110**	**460**	**3600**	5200	--	2700	0.23
	4/19/2012 2:30:00 PM		--	**1100**	**230 J**	**1000**	**7600**	NS	NS	NS	0.12
	8/13/2012 12:00:00 PM		--	**4100**	**210 J**	**300 J**	**7000**	6900	--	3700	1.36
	11/5/2012 12:05:00 PM		--	**2800**	**220**	**350**	**6400**	5900	5.3	3200	0.08
MW-203B	1/11/2011 10:45:00 AM		--	**560**	**170**	--	**750**	320	--	550	0.8
	8/13/2012 3:10:00 PM		--	**1200**	**530**	--	**2100**	320	4.7	540	0.7
	11/5/2012 11:30:00 AM		--	**800**	**370**	--	**1800**	280	--	490	0.98

Table 4-1
Historical Data Comparison - VOCs and MNA Parameter Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, MA

			VOCs (ug/L)					MNA Parameters (mg/L)			
Well ID	**Sample Date & Time**	**Chemical Name**	**Tetrachloroethene**	**Trichloroethene**	**cis-1,2-Dichloroethene**	**Vinyl Chloride**	**Chlorobenzene**	**Chloride**	**Nitrate**	**Sulfate**	**Dissolved Oxygen**
		GW-1 Standard	5	5	70	2	100	--	--	--	
		GW-2 Standard	50	30	100	2	200	--	--	--	
MW-204A	1/14/2011 10:30:00 AM		--	**174.8**	**145.2**	**15.2**	55.3	86	--	310	3.29
	11/6/2012 11:37:00 AM		--	**69**	10	--	24	580	--	1200	0.68
MW-302	1/14/2011 10:50:00 AM		--	**335.4**	**214.2**	--	**435.1**	900	--	560	0.61
	11/7/2012 10:10:00 AM		--	**330**	**160**	--	**370**	890	--	600	0.67
	11/7/2012 10:15:00 AM	Duplicate	--	**290**	**150**	--	**350**	900	--	600	0.67
MW-304A	1/17/2011 11:55:00 AM		--	**2000**	**450**	**65**	**1200**	2800	--	1400	0.41
	4/19/2012 2:30:00 PM		--	**800**	**170**	--	**2000**	NS	NS	NS	0.18
	8/13/2012 4:15:00 PM		--	**2600**	**660**	**29 J**	**1300**	2900	--	1500	0.36
	11/6/2012 12:20:00 PM		--	**1700**	**480**	**46**	**1000**	2800	--	1400	0.93
MW-304B	1/17/2011 11:40:00 AM		--	**120**	**170**	**5.8**	**120**	830	--	550	0.42
	8/13/2012 3:15:00 PM		--	**130**	**200**	**4.6 J**	**110**	950	0.26	620	0.53
	11/6/2012 12:26:00 PM		--	**55**	63	--	51	970	--	610	0.39
RMW-305A	8/15/2012 12:15:00 PM		--	**950**	**90**	--	**290**	100	--	250	0.44
	11/6/2012 4:20:00 PM		--	**870**	60	--	**180**	97	--	270	0.33
MW-305B	1/21/2011 10:50:00 AM		--	1	--	--	--	39	5.4 J	41	1.17
	8/15/2012 11:20:00 AM		--	2 J	--	--	--	35	1.9	42	0.51
MW-401	11/7/2012 12:20:00 PM	Duplicate	--	**12000**	**150 J**	--	**4200**	650	--	500	0.35
	11/7/2012 12:25:00 PM		--	**14000**	--	--	**3900**	640	--	500	0.35
MW-402	11/9/2012 10:35:00 AM		--	**8000**	**520**	--	--	210	5.1	590	1.51
RMW-403A	1/20/2011 10:45:00 AM		--	--	--	--	--	140	14	34	3.76
RMW-403B	8/13/2012 11:30:00 AM		--	0.91 J	--	--	--	190	1.7	33	1.75
RMW-405A	8/14/2012 11:20:00 AM		--	**190**	41	--	**220**	420	1.3	220	2.37
	11/5/2012 3:38:00 PM		--	**51**	19	--	57	360	1.2	180	1.24
RMW-405B	8/14/2012 11:15:00 AM		--	**3000**	**890**	--	**2800**	3700	--	2800	0.54
	11/5/2012 3:25:00 PM		--	**2200**	**810**	--	**2400**	3200	6.9	2600	1.08
MW-406A	11/7/2012 9:49:00 AM		--	**8**	--	--	4.3 J	110	--	16	0.45

Table 4-1
Historical Data Comparison - VOCs and MNA Parameter Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, MA

			VOCs (ug/L)					MNA Parameters (mg/L)			
Well ID	**Sample Date & Time**	**Chemical Name**	**Tetrachloroethene**	**Trichloroethene**	**cis-1,2-Dichloroethene**	**Vinyl Chloride**	**Chlorobenzene**	**Chloride**	**Nitrate**	**Sulfate**	**Dissolved Oxygen**
		GW-1 Standard	5	5	70	2	100	--	--	--	
		GW-2 Standard	50	30	100	2	200	--	--	--	
MW-406B	8/14/2012 1:35:00 PM		1.2 J	1.3 J	0.66 J	--	--	190	--	35	0.47
	11/7/2012 9:45:00 AM		--	--	--	--	--	170	--	37	0.48
MW-503A	11/9/2012 9:50:00 AM		--	4 J	--	--	--	1	2.5	45	0.56
MW-503B	11/8/2012 11:35:00 AM		--	**240**	6	--	4.1 J	27	5.7	57	1.69
P-1S	1/11/2011 2:55:00 PM		--	2.4	4.8	--	--	21	--	150	1.64
P-4	1/11/2011 11:40:00 AM		--	**1000**	**99.3**	--	**374.4**	140	--	190	NM
RW-1	1/11/2011 10:50:00 AM		--	**1500**	**91.2**	--	**502.3**	110	--	210	0.44
	11/8/2012 11:53:00 AM		--	**1700**	**80 J**	--	**1600**	72	3.3	130	0.31
SB-600	11/9/2012		--	**23000**	--	--	--	510	1.8	460	0.33
WP-105	1/21/2011 11:10:00 AM		--	--	--	--	--	120	14 J	12	0.39

Notes:
1. Bolded concentrations exceed MADEP GW-1 Standards.
2. Shaded concentrations exceed MADEP GW-2 Standards.
3. NS = Not Sampled
4. NM = Not Measured
5. -- = Analyte concentration was below laboratory reporting limits.

Table 4-2
Historic Data Comparison - SVOCs Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, MA

Sample Location	Sample Date & Time	Chemical Name	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Nitrobenzene	Aniline
		GW-1 Standard	70	600	40	5	--	--
		GW-2 Standard	2000	2000	2000	200	--	--
MW/B-5	1/11/2011 3:20:00 PM		**252**	**15954**	**592**	**3535**	41000	974
	11/8/2012 10:10:00 AM		--	--	--	--	32000	--
MW/B-11	11/9/2012 9:45:00 AM		--	--	--	--	39000	--
MW-06A	1/19/2011 10:50:00 AM		64	31	--	**5.3**	--	14
	8/14/2012 3:35:00 PM		--	--	--	--	--	--
MW-08	1/19/2011		6.3	23	8.4	**8.7**	74	5.8
RMW-102	1/17/2011 11:50:00 AM		15	180	4	**29**	--	--
MW-104A	11/7/2012 1:05:00 PM		--	--	--	--	28	--
MW-107	1/18/2011 1:20:00 PM	Duplicate	23	380	4.8	**50**	--	3.7
	1/18/2011 12:25:00 PM		28	370	5.8	**60**	--	4.1
MW-110	11/7/2012 12:30:00 PM		--	--	--	--	--	--
MW-112A	1/20/2011 11:10:00 AM		--	33	--	**6**	--	4.6
MW-113A	1/11/2011 2:40:00 PM		**160**	**15000**	**500**	**3300**	42000	40
MW-113B	8/15/2012 12:05:00 PM	Duplicate	--	--	--	--	120	--
	8/15/2012 11:55:00 AM		--	--	--	--	110	--
	11/7/2012 3:05:00 PM		--	--	--	--	12	--
MW-115A	8/14/2012 3:30:00 PM		--	--	--	--	--	--
	11/5/2012 10:15:00 AM		--	--	--	--	--	--
	11/5/2012 10:40:00 AM	Duplicate	--	--	--	--	--	--
MW-115B	1/13/2011 1:30:00 PM		**120**	950	16	**170**	4	860
	8/14/2012 3:35:00 PM		--	--	--	--	--	--
	11/5/2012 10:58:00 AM		--	--	--	--	--	--
MW-201	1/10/2011 1:35:00 PM		**178**	570	14	**113**	--	4
MW-202	1/10/2011 1:30:00 PM	Duplicate	**390**	**1079**	23	**190**	--	17
	1/10/2011 12:55:00 PM		**416**	**1138**	25	**201**	--	24
	11/5/2012 2:20:00 PM		--	--	--	--	--	--

Table 4-2
Historic Data Comparison - SVOCs Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, MA

Sample Location	Sample Date & Time	Chemical Name	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Nitrobenzene	Aniline
		GW-1 Standard	70	600	40	5	--	--
		GW-2 Standard	2000	2000	2000	200	--	--
MW-203A	1/10/2011 1:50:00 PM		**109**	**2265**	**55**	**428**	8	8232
	8/13/2012 12:00:00 PM		--	--	--	--	79	--
	11/5/2012 12:05:00 PM		--	--	--	--	4.2 J	--
MW-203B	1/11/2011 10:45:00 AM		**334**	**990**	25	**180**	--	18
	8/13/2012 3:10:00 PM		--	--	--	--	--	--
	11/5/2012 11:30:00 AM		--	--	--	--	--	--
MW-204A	1/14/2011 10:30:00 AM		7.6	61.5	2.6	**13.3**	--	--
	11/6/2012 11:37:00 AM		--	--	--	--	--	--
MW-302	1/14/2011 10:50:00 AM		14.6	452.2	5.4	**50.6**	--	160.2
	11/7/2012 10:10:00 AM		--	--	--	--	--	--
MW-304A	1/17/2011 11:55:00 AM		34	**780**	20	**160**	140	3.2
	8/13/2012 4:15:00 PM		--	--	--	--	380	--
	11/6/2012 12:20:00 PM		--	--	--	--	150	--
MW-304B	8/13/2012 3:15:00 PM		--	--	--	--	--	--
RMW-305A	8/15/2012 12:15:00 PM		--	--	--	--	55	--
	11/6/2012 4:20:00 PM		--	--	--	--	29	--
MW-401	11/7/2012 12:20:00 PM		--	--	--	--	5.9	--
	11/7/2012 12:25:00 PM		--	--	--	--	18000	--
MW-402	11/9/2012 10:35:00 AM		--	--	--	--	610	--
MW-403A	8/13/2012 11:40:00 AM		--	--	--	--	--	--
RMW-405A	8/14/2012 11:20:00 AM		--	--	--	--	--	--
RMW-405B	8/14/2012 11:15:00 AM		--	--	--	--	--	--
	11/5/2012 3:25:00 PM		--	--	--	--	--	--
MW-406A	1/13/2011 12:10:00 PM		--	3.6	--	--	5.6	--
	11/7/2012 9:49:00 AM		--	--	--	--	12	--

Table 4-2
Historic Data Comparison - SVOCs Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, MA

Sample Location	Sample Date & Time	Chemical Name	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Nitrobenzene	Aniline
		GW-1 Standard	70	600	40	5	--	--
		GW-2 Standard	2000	2000	2000	200	--	--
MW-406B	1/13/2011 12:00:00 PM		--	--	--	--	3.4	--
	11/7/2012 9:45:00 AM		--	--	--	--	20000	--
MW-503A	11/9/2012 9:50:00 AM		--	--	--	--	33	--
MW-503B	11/8/2012 11:35:00 AM		--	--	--	--	3.6 J	--
P-1S	1/11/2011 2:55:00 PM		--	11	--	3	20	--
P-4	1/11/2011 11:40:00 AM		**110**	**1766**	**79**	**406**	1647	48
RW-1	1/11/2011 10:50:00 AM		**114**	**2050**	**89**	**470**	2297	19
	11/8/2012 11:53:00 AM		--	--	--	--	1000	--
SB-600	11/9/2012		--	--	--	--	32000	--

Notes:
1. All concentrations reported in micrograms per liter (ug/L).
2. Bolded concentrations exceed MADEP GW-1 Standards.
3. Shaded concentrations exceed MADEP GW-2 Standards.
4. SVOC analytes were selected based on compounds detected in DNAPL characterization sampling performed in Fall 2012.
5. -- = Analyte concentration was below laboratory reporting limits

Table 4-3
Historical Data Comparison - Anions Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW/B-05		MW/B-11	MW-04A		MW-04B		MW-04C	MW-06A			MW-08
Sample ID	MWB5-110812	MW-113B-011111A	MWB11-110912	MW-403A-011811A	MW4A-110612	MW-403B-011811A	MW04B-110612	MW04C-110612	MW-06A-011911A	MW-6A-081412A	MW6A-110712	MW-08-011911A
Sample Date & Time	11/8/2012 10:10:00 AM	1/11/2011 3:20:00 PM	11/9/2012 9:45:00 AM	1/18/2011 12:00:00 PM	11/6/2012 10:05:00 AM	1/18/2011 12:20:00 PM	11/6/2012 9:55:00 AM	11/6/2012 12:15:00 PM	1/19/2011 10:50:00 AM	8/14/2012 3:35:00 PM	11/7/2012 12:33:00 PM	1/19/2011
Chemical Name												
Bromide	--	--	--	--	--	0.22	--	--	--	--	--	--
Chloride	160	120	72	4.9	4.7	110	140	59	91	120	92	110
Fluoride	--	0.3	--	--	--	0.32	--	--	0.3	--	--	0.22
Nitrate	70	--	2.7	--	0.66	1.4 B	2.6	--	--	--	--	6 JB
Nitrate & Nitrite	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	16	--	0.61	--	0.15	0.32	0.59	--	--	--	--	1.4
Nitrite	4.5	--	4.6	--	--	--	--	--	--	--	--	--
Nitrite as Nitrogen	1.4	--	1.4	--	--	--	--	--	--	--	--	--
Nitrite + Nitrate (as Nitrogen)	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	320	130	700	14	10	110	130	60	43	38	42	450

Notes:
1. All concentrations reported in milligrams per liter (mg/L).

2. -- = Analyte concentration was below laboratory reporting limits.

Table 4-3
Historical Data Comparison - Anions Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-09A	MW-09B	RMW-102	MW-103	MW-104A	MW-104B	MW-107		MW-110		MW-112A
Sample ID	MW9A-110712	MW9B-110712	RMW-102-011711A	MW-103-011411A	MW104A-110712	MW104B-110712	DUP-02-011811A	MW-107-011811A	MW-110-081512A	MW110-110712	MW-112A-012011A
Sample Date & Time	11/7/2012 2:05:00 PM	11/7/2012 3:27:00 PM	1/17/2011 11:50:00 AM	1/14/2011 10:50:00 AM	11/7/2012 1:05:00 PM	11/7/2012 3:25:00 PM	1/18/2011 1:20:00 PM	1/18/2011 12:25:00 PM	8/15/2012 11:25:00 AM	11/7/2012 12:30:00 PM	1/20/2011 11:10:00 AM
Chemical Name											
Bromide	--	--	0.2	--	--	--	--	--	--	--	--
Chloride	110	23	73	15	290	16	330	330	46	34	210
Fluoride	--	--	0.32	0.2	--	--	1.2	1.3	0.16	--	0.78
Nitrate	--	--	--	--	--	--	--	--	--	--	--
Nitrate & Nitrite	--	--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	--	--	--	--	--	--	--	--	--	--	--
Nitrite	--	--	--	--	--	--	--	--	--	--	--
Nitrite as Nitrogen	--	--	--	--	--	--	--	--	--	--	--
Nitrite + Nitrate (as Nitrogen)	--	--	--	--	--	--	--	--	--	--	--
Sulfate	420	430	17	22	410	260	400	400	38	34	140

Notes:
1. All concentrations reported in milligrams per liter (mg/L).

2. -- = Analyte concentration was below laboratory reporting limits.

Table 4-3
Historical Data Comparison - Anions Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-113A		MW-113B			MW-115A			MW-115B			RMW-116A
Sample ID	MW-113A-011111A	MW113A-110812	FDUP-01-081512A	MW-113B-081512A	MW113B-110712	MW-115A-081412A	MW115A-110512	MW115A-110512D	MW-115B-011310A	MW-115B-081412A	MW115B-110512	RMW116A-110612
Sample Date & Time	1/11/2011 2:40:00 PM	11/8/2012 11:45:00 AM	8/15/2012 12:05:00 PM	8/15/2012 11:55:00 AM	11/7/2012 3:05:00 PM	8/14/2012 3:30:00 PM	11/5/2012 10:15:00 AM	11/5/2012 10:40:00 AM	1/13/2011 1:30:00 PM	8/14/2012 3:35:00 PM	11/5/2012 10:58:00 AM	11/6/2012
Chemical Name												
Bromide	--	--	--	--	--	--	--	--	5.7	--	--	--
Chloride	44	13	35	37	53	4000	3300	3500	1700	2000	1700	11
Fluoride	0.22	--	0.1	0.1	--	--	--	--	8.4	--	--	--
Nitrate	--	0.26	0.95	0.93	--	--	10	6.5	--	--	--	0.87
Nitrate & Nitrite	12	--	--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	--	0.06	0.21	0.21	--	--	2.3	1.5	--	--	--	0.2
Nitrite	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite as Nitrogen	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite + Nitrate (as Nitrogen)	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	34	22	62	62	96	2100	1700	1800	1700	1900	1800	27

Notes:
1. All concentrations reported in milligrams per liter (mg/L).

2. -- = Analyte concentration was below laboratory reporting limits.

Table 4-3
Historical Data Comparison - Anions Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-201		MW-202			MW-203A			MW-203B		
Sample ID	MW-201-011011A	MW201-110512	DUP-01-011011A	MW-202-011011A	MW202-110512	MW-203A-011011A	MW-203A-081312A	MW203A-110512	MW-203B-011110A	MW-203B-081312A	MW203B-110512
Sample Date & Time	1/10/2011 1:35:00 PM	11/5/2012 3:30:00 PM	1/10/2011 1:30:00 PM	1/10/2011 12:55:00 PM	11/5/2012 2:20:00 PM	1/10/2011 1:50:00 PM	8/13/2012 12:00:00 PM	11/5/2012 12:05:00 PM	1/11/2011 10:45:00 AM	8/13/2012 3:10:00 PM	11/5/2012 11:30:00 AM
Chemical Name											
Bromide	0.53	--	1.1	1.2	--	8.2	--	--	--	0.6	--
Chloride	400	270	470	470	450	5200	6900	5900	320	320	280
Fluoride	0.3	--	0.22	0.23	--	--	--	--	0.41	0.4	--
Nitrate	--	0.6	--	--	2.1	--	--	5.3	--	4.7	--
Nitrate & Nitrite	--	--	--	--	--	2.4	--	--	--	--	--
Nitrate as Nitrogen	--	0.14	--	--	0.47	--	--	1.2	--	0.03	--
Nitrite	--	--	--	--	--	--	--	--	--	--	--
Nitrite as Nitrogen	--	--	--	--	--	--	--	--	--	--	--
Nitrite + Nitrate (as Nitrogen)	--	--	--	--	--	0.54	--	--	--	--	--
Sulfate	340	220	740	730	710	2700	3700	3200	550	540	490

Notes:

1. All concentrations reported in milligrams per liter (mg/L).

2. -- = Analyte concentration was below laboratory reporting limits.

Table 4-3
Historical Data Comparison - Anions Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-204A		MW-302			MW-304A			MW-304B		
Sample ID	MW-204A-011411A	MW204A-110612	MW-302-011411A	MW302-110712	MW302-110712D	MW-304A-011711A	MW-304A-081312A	MW304A-110612	MW-304B-011711A	MW-304B-081312A	MW304B-110612
Sample Date & Time	1/14/2011 10:30:00 AM	11/6/2012 11:37:00 AM	1/14/2011 10:50:00 AM	11/7/2012 10:10:00 AM	11/7/2012 10:15:00 AM	1/17/2011 11:55:00 AM	8/13/2012 4:15:00 PM	11/6/2012 12:20:00 PM	1/17/2011 11:40:00 AM	8/13/2012 3:15:00 PM	11/6/2012 12:26:00 PM
Chemical Name											
Bromide	0.1	--	0.78	--	--	--	--	--	--	0.6	--
Chloride	86	580	900	890	900	2800	2900	2800	830	950	970
Fluoride	1.8	--	0.77	--	--	--	--	--	0.23	0.16	--
Nitrate	--	--	--	--	--	--	--	--	--	0.26	--
Nitrate & Nitrite	--	--	--	--	--	3.5	--	--	--	--	--
Nitrate as Nitrogen	--	--	--	--	--	--	--	--	--	0.06	--
Nitrite	--	--	--	--	--	--	--	--	--	--	--
Nitrite as Nitrogen	--	--	--	--	--	--	--	--	--	--	--
Nitrite + Nitrate (as Nitrogen)	--	--	--	--	--	0.79	--	--	--	--	--
Sulfate	310	1200	560	600	600	1400	1500	1400	550	620	610

Notes:

1. All concentrations reported in milligrams per liter (mg/L).

2. -- = Analyte concentration was below laboratory reporting limits.

Table 4-3
Historical Data Comparison - Anions Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	RMW-305A		MW-305B			MW-306	MW-401		MW-402	MW-403A		
Sample ID	MW-305A-081512A	RMW305A-110612	MW-305B-012111A	MW-305B-081512A	MW305B-110612	MW-306-012111A	MW401-110712	MW401-110712D	MW402-110912	RMW-403A-012011A	MW-403A-081312A	MW403A-110612
Sample Date & Time	8/15/2012 12:15:00 PM	11/6/2012 4:20:00 PM	1/21/2011 10:50:00 AM	8/15/2012 11:20:00 AM	11/6/2012 3:10:00 PM	1/21/2011 11:00:00 AM	11/7/2012 12:20:00 PM	11/7/2012 12:25:00 PM	11/9/2012 10:35:00 AM	1/20/2011 10:45:00 AM	8/13/2012 11:40:00 AM	11/6/2012 10:15:00 AM
Chemical Name												
Bromide	--	--	0.15 J	--	--	--	--	--	--	0.13	0.2	--
Chloride	100	97	39	35	24	26	650	640	210	140	150	130
Fluoride	1	--	0.18	--	--	1.1	--	--	--	0.67	0.3	--
Nitrate	--	--	5.4 J	1.9	0.81	--	--	--	5.1	14	11	9.9
Nitrate & Nitrite	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	--	--	1.2	0.43	0.18	--	--	--	1.2	3.2	2.5	2.2
Nitrite	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite as Nitrogen	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite + Nitrate (as Nitrogen)	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	250	270	41	42	45	6.4	500	500	590	34	34	36

Notes:

1. All concentrations reported in milligrams per liter (mg/L).

2. -- = Analyte concentration was below laboratory reporting limits.

Table 4-3
Historical Data Comparison - Anions Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	RMW-403B			RMW-405A		RMW-405B		MW-406A		
Sample ID	RMW-403B-011911A	MW-403B-081312A	MW403B-110612	RMW-405A-081412A	MW405A-110512	RMW-405B-081412A	MW-405B-110512	MW-406A-011311A	MW-406A-081412A	MW406A-110712
Sample Date & Time	1/19/2011 11:05:00 AM	8/13/2012 11:30:00 AM	11/6/2012 10:09:00 AM	8/14/2012 11:20:00 AM	11/5/2012 3:38:00 PM	8/14/2012 11:15:00 AM	11/5/2012 3:25:00 PM	1/13/2011 12:10:00 PM	8/14/2012 11:45:00 AM	11/7/2012 9:49:00 AM
Chemical Name										
Bromide	--	0.5	--	1.1	--	--	--	0.3	0.45	--
Chloride	170	190	170	420	360	3700	3200	230	220	110
Fluoride	0.28	0.16	--	0.85	--	--	--	0.37	1.4	--
Nitrate	--	1.7	1.2	1.3	1.2	--	6.9	--	--	--
Nitrate & Nitrite	--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	--	0.38	0.27	0.29	0.27	--	1.6	--	--	--
Nitrite	--	--	--	--	--	--	--	--	--	--
Nitrite as Nitrogen	--	--	--	--	--	--	--	--	--	--
Nitrite + Nitrate (as Nitrogen)	--	--	--	--	--	--	--	--	--	--
Sulfate	42	33	37	220	180	2800	2600	33	29	16

Notes:

1. All concentrations reported in milligrams per liter (mg/L).

2. -- = Analyte concentration was below laboratory reporting limits.

Table 4-3
Historical Data Comparison - Anions Results Summary, Detects Only
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Sample Location	MW-406B			MW-503A	MW-503B	P-1S	P-4	RW-1		SB-600	WP-105	
Sample ID	MW-406B-011311A	MW-406B-081412A	MW406B-110712	MW503A-110912	MW503B-110812	P-01-011111A	B-05-011110A	RW-01-011110A	RWS1-110812	SB600-110912	WP-105-012111A	WP105-110612
Sample Date & Time	1/13/2011 12:00:00 PM	8/14/2012 1:35:00 PM	11/7/2012 9:45:00 AM	11/9/2012 9:50:00 AM	11/8/2012 11:35:00 AM	1/11/2011 2:55:00 PM	1/11/2011 11:40:00 AM	1/11/2011 10:50:00 AM	11/8/2012 11:53:00 AM	11/9/2012	1/21/2011 11:10:00 AM	11/6/2012 2:35:00 PM
Chemical Name												
Bromide	--	0.5	--	--	--	--	--	--	--	--	0.11	--
Chloride	190	190	170	1	27	21	140	110	72	510	120	95
Fluoride	1.7	0.77	--	--	--	0.19	0.24	0.24	--	--	0.21	--
Nitrate	--	--	--	2.5	5.7	--	--	--	3.3	1.8	14 J	--
Nitrate & Nitrite	--	--	--	--	--	3.9	0.32	--	--	--	--	--
Nitrate as Nitrogen	--	--	--	0.56	1.3	--	--	--	0.74	0.41	3.2	--
Nitrite	--	--	--	0.22	--	--	--	--	--	--	--	--
Nitrite as Nitrogen	--	--	--	0.07	--	--	--	--	--	--	--	--
Nitrite + Nitrate (as Nitrogen)	--	--	--	--	--	0.88	0.07	--	--	--	--	--
Sulfate	32	35	37	45	57	150	190	210	130	460	12	4.8

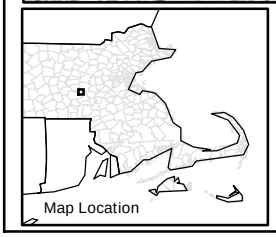
Notes:
1. All concentrations reported in milligrams per liter (mg/L).

2. -- = Analyte concentration was below laboratory reporting limits.

Table 4-4
Historical Data Comparison - MCP Exceedances and Maximum Concentrations
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

Compound	2012				2011				2012 - 2011 Differences			
	Total Number of Exceedances	Number of Wells Exceeding GW-1/GW-2	Number of Wells Exceeding GW-1 only	Maximum Concentration (ug/L)	Total Number of Exceedances	Number of Wells Exceeding GW-1/GW-2	Number of Wells Exceeding GW-1 only	Maximum Concentration (ug/L)	Total Number of Exceedances	GW-1/GW-2 Exceedances	GW-1 Only Exceedances	Maximum Concentration (ug/L)
VOCS												
Trichloroethylene	31	25	6	23000	21	17	4	17000	10	8	2	6000
Vinyl Chloride	3	3	0	350	6	6	0	1000	-3	-3	0	-650
Chlorobenzene	17	16	1	30000	14	11	3	27000	3	5	-2	3000
1,4-Dichlorobenzene	25	13	12	8400	16	7	9	5800	9	6	3	2600
1,2-Dichlorobenzene	16	10	6	46000	8	2	6	26000	8	8	0	20000
cis-1,2 Dichloroethene	18	14	4	890	12	2	10	310	6	12	-6	580
1,3-Dichlorobenzene	5	0	5	1200	0	0	5	870	0	0	0	330
1,2,4-Trichlorobenzene	11	0	11	800	0	0	9	280	2	0	2	520
Benzene	10	0	10	140	7	0	7	170	3	0	3	-30
Methylene Chloride	3	0	3	76	0	0	0	0	3	0	3	76
SVOCS												
4-Chloroanaline	1	0	1	42	1	0	1	99.1	0	0	0	-57.1
1,1-Biphenyl	1	0	1	2.6	0	0	0	0	1	0	1	2.6
2-Chlorophenol	2	0	2	25	0	0	0	0	2	0	2	25
Pentachlorophenol	5	0	5	9.3	0	0	0	0	5	0	5	9.3

FIGURES



USGS Topographic Map
Ashland, Massachusetts
Revised 1982

0 500 1,000 2,000
Feet
1 inch = 2,000 feet

N

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FIGURE 1-1

SITE LOCUS PLAN
NYANZA CHEMICAL WASTE DUMP
SUPERFUND SITE - OPERABLE UNIT II
ASHLAND, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: JM
PROJECT NO. 80022	DATE: MAY 2013

Path: R:\80000 Task Orders\80022 Nyanza OU2\Technical Data (TD)\GIS\Maps\2012 GW Summary Report\Fig_1-1_Nyanza_Locus.mxd Date Printed: 5/3/2013

NOTES:

1. THIS SITE PLAN WAS CREATE FROM A SITE PLAN TITLED "BASE MAPPING AND WELL SURVEY" BY A-PLUS CONSTRUCTION, DATED SEPTEMBER 25, 2012.
2. CONTOURS SHOWN WERE INTERPOLATED FROM 3 METER CONTOURS OBTAINED FROM THE MASSGIS WEBSITE.
3. HORIZONTAL DATUM IS IN REFERENCE TO THE NORTH AMERICAN DATUM OF 1983 (NAD83).
4. VERTICAL DATUM IS IN REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

0 400' 800'

GRAPHIC SCALE

LEGEND:

- WETLAND DELINATION LINE
- 625 CONTOUR 25' INTERVAL
- 620 CONTOUR 5' INTERVAL

SAMPLING EVENT

- FALL
- SPRING, FALL
- ALL OTHER WELLS
- STAFF GAGE

DATE: MAY 2013
PROJECT NO. 80022

PREPARED BY: ML
CHECK BY: JM

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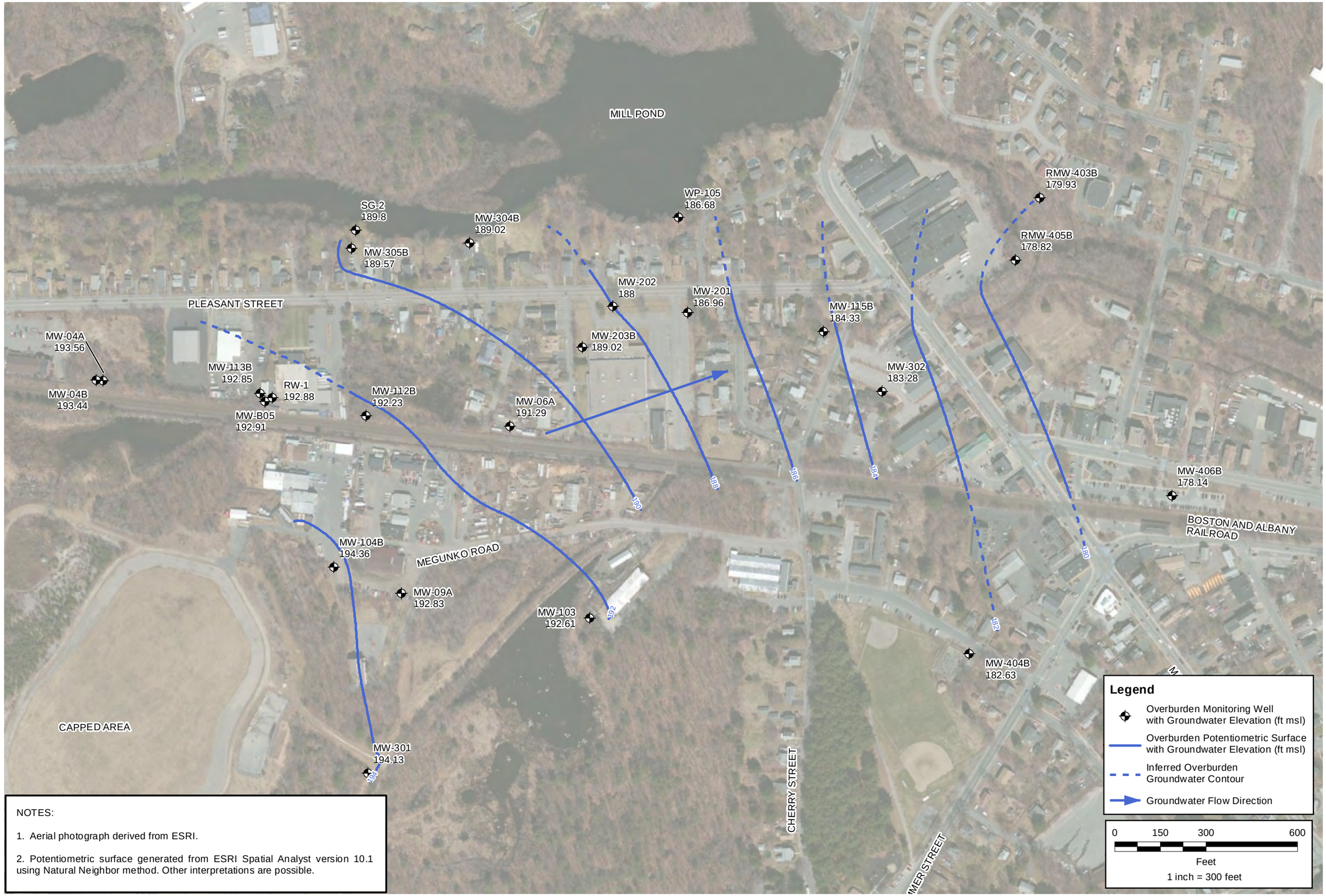
NYANZA CHEMICAL WASTE DUMP
SUPERFUND SITE
OPERABLE UNIT II
AHSLAND, MASSACHUSETTS

SITE PLAN / MONITORING WELLS PLAN

FIGURE 1-2

\\mo-netapp\Rac_File_Storage\80000 Task Orders\80022 Nyanza OU2\CAD\dwg\80022-SITE-WELLS.dwg 5/3/2013 12:42 PM



NOTES:

1. Aerial photograph derived from ESRI.

2. Potentiometric surface generated from ESRI Spatial Analyst version 10.1 using Natural Neighbor method. Other interpretations are possible.

DATE: MAY 2013
PROJECT NO. 80022

PREPARED BY: JH
CHECKED BY: JM

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NYANZA CHEMICAL WASTE DUMP
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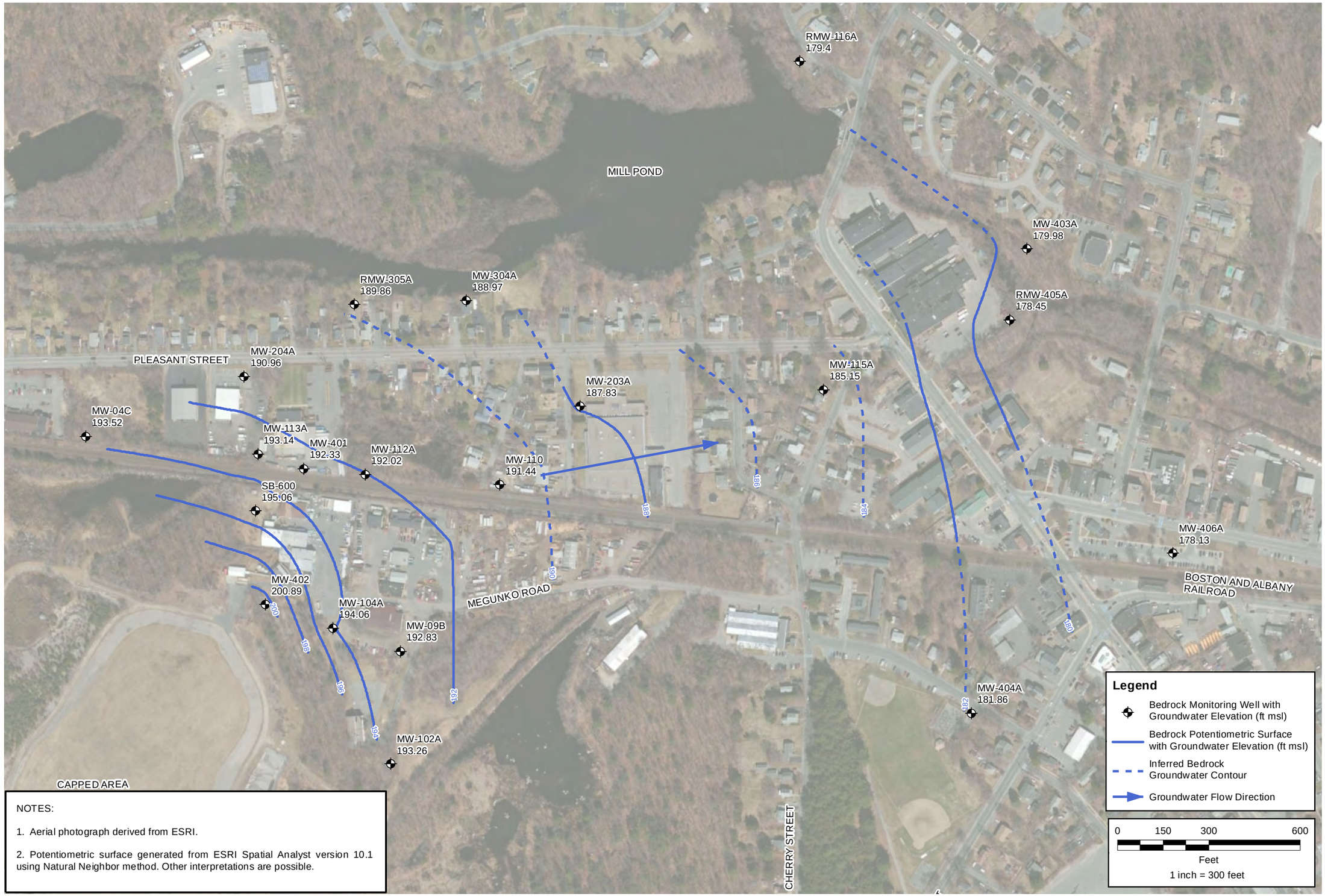
ASHLAND, MASSACHUSETTS

OVERBURDEN GROUNDWATER ELEVATIONS
AND POTENTIOMETRIC SURFACES
NOVEMBER, 2012

FIGURE
2-1

Path: R:\80000 Task Orders\80022 Nyanza OU2\Technical Data (TD)\GIS\Maps\2012 GW Summary Report\Fig_2-1_OB_GW_Elev_Nov2012.mxd Date Printed: 5/6/2013



NOTES:

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2. Potentiometric surface generated from ESRI Spatial Analyst version 10.1 using Natural Neighbor method. Other interpretations are possible.

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NYANZA CHEMICAL WASTE DUMP
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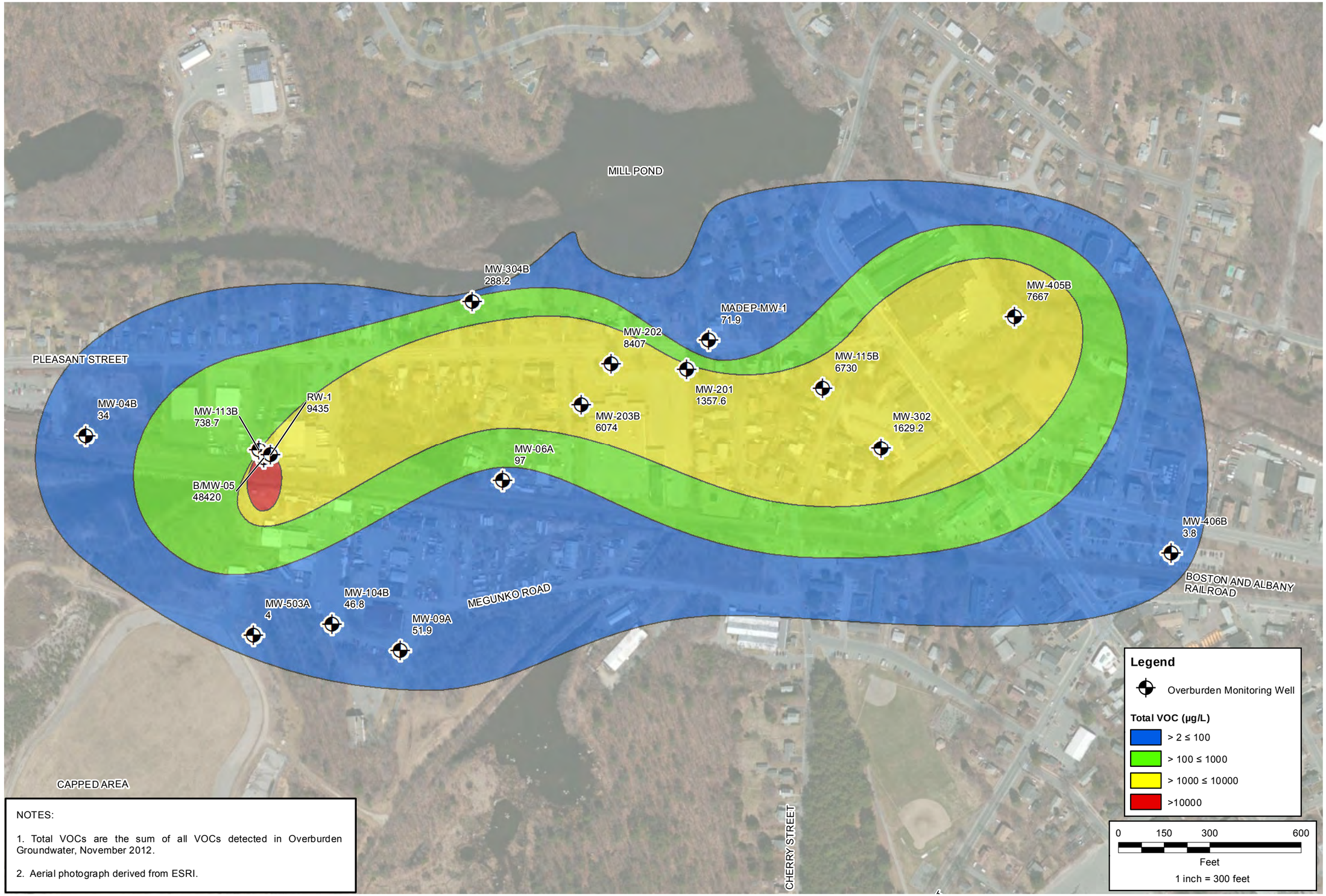
ASHLAND, MASSACHUSETTS

BEDROCK GROUNDWATER ELEVATIONS
AND POTENTIOMETRIC SURFACES
NOVEMBER, 2012

FIGURE
2-2

Path: R:\80000 Task Orders\80022 Nyanza OU2\Technical Data (TD)\GIS\Maps\2012 GW Summary Report\Fig_2-2_BR_GW_Elev_Nov2012.mxd Date Printed: 5/9/2013



NOTES:

1. Total VOCs are the sum of all VOCs detected in Overburden Groundwater, November 2012.

2. Aerial photograph derived from ESRI.

N

DATE: MAY 2013
PROJECT NO. 80022

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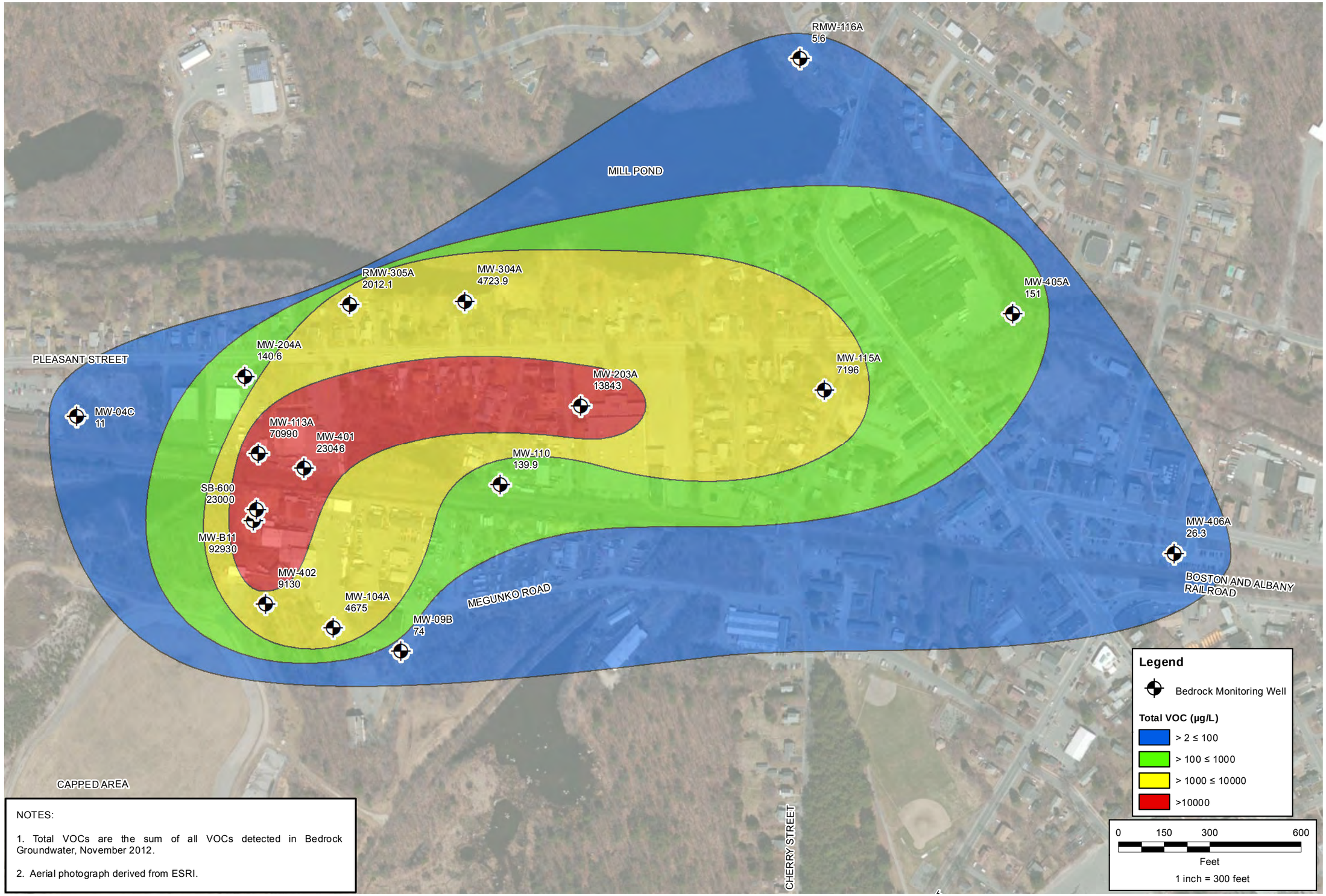
TOTAL VOC CONCENTRATIONS IN
OVERBURDEN GROUNDWATER
NOVEMBER, 2012

FIGURE
3-1

R:\80000 Task Orders\80022 Nyanza OU2\Technical Data (TD)\GIS\Maps\2012 GW Summary Report\Fig_3-1_OB_GW_TVOC_Nov12.mxd



NOTES:

1. Total VOCs are the sum of all VOCs detected in Bedrock Groundwater, November 2012.

2. Aerial photograph derived from ESRI.

DATE: MAY 2013
PROJECT NO. 80022

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NYANZA CHEMICAL WASTE DUMP
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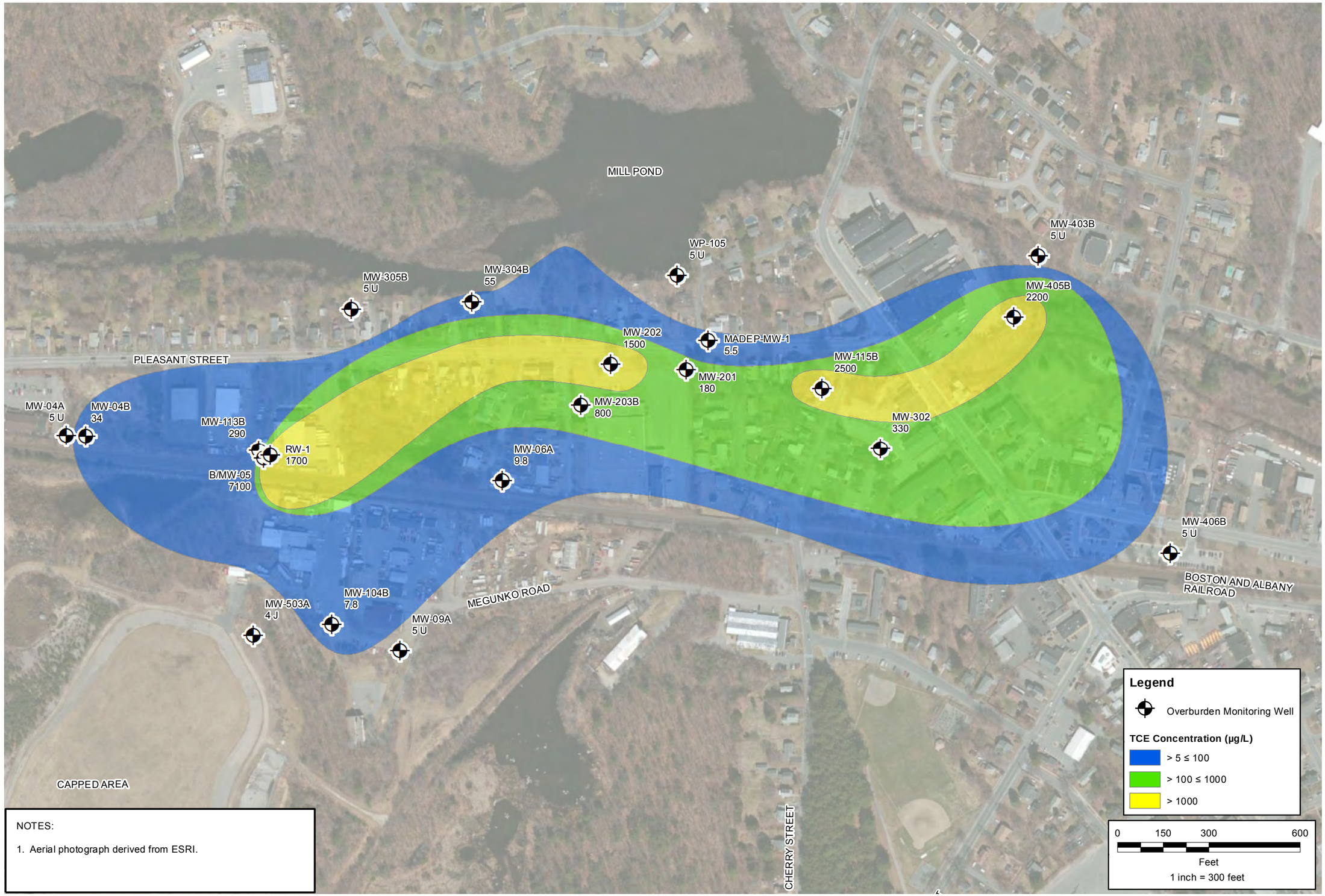
ASHLAND, MASSACHUSETTS

TOTAL VOC CONCENTRATIONS IN
BEDROCK GROUNDWATER
NOVEMBER, 2012

FIGURE
3-2

R:\80000 Task Orders\80022 Nyanza OU2\Technical Data (TD)\GIS\Maps\2012 GW Summary Report\Fig_3-2_BR_GW_TVOC_Nov12.mxd



NOTES:

1. Aerial photograph derived from ESRI.

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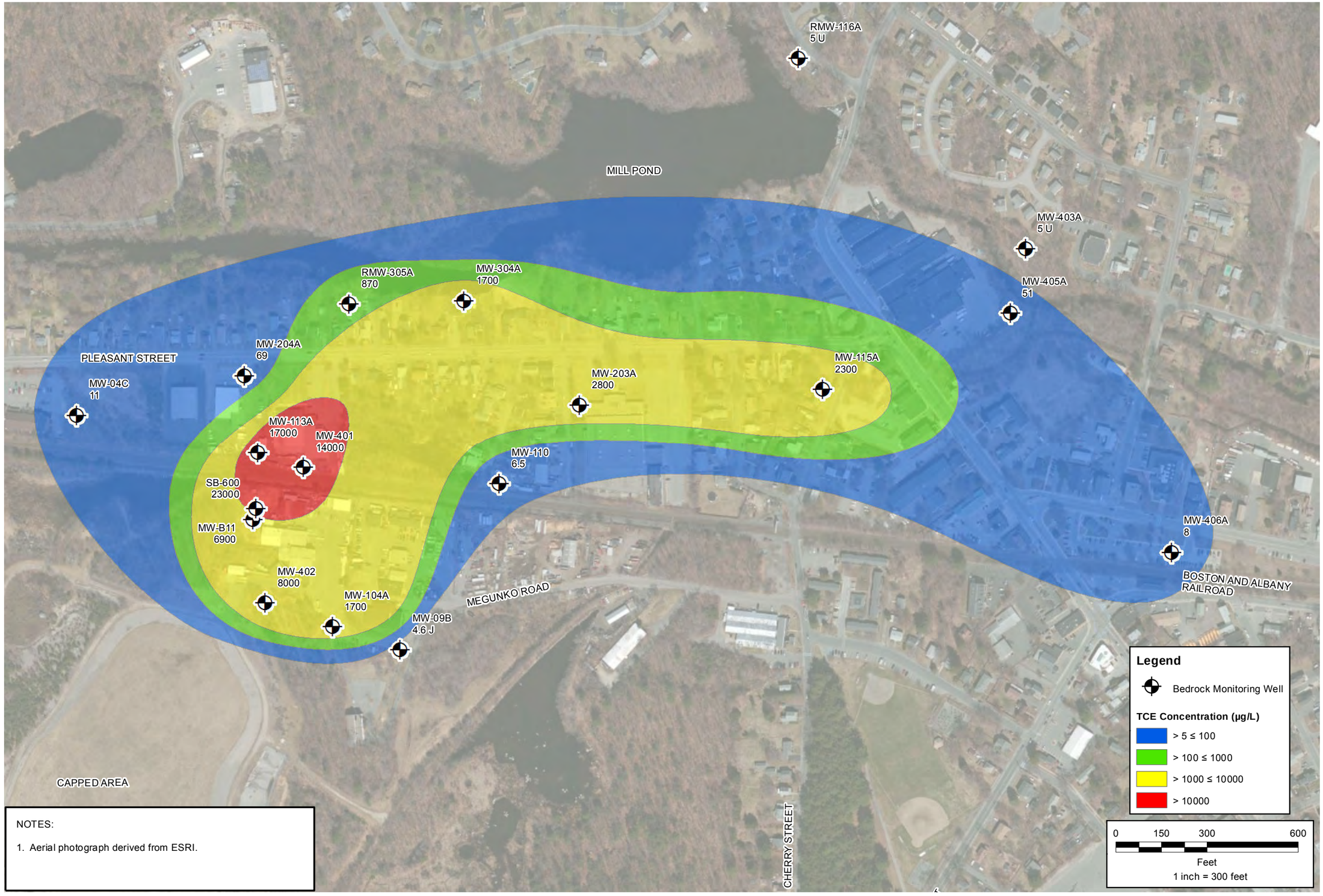
ASHLAND, MASSACHUSETTS

TCE CONCENTRATIONS IN
OVERBURDEN GROUNDWATER
NOVEMBER, 2012

FIGURE
3-3

R:\80000 Task Orders\80022 Nyanza OU2\Technical Data (TD)\GIS\Maps\2012 GW Summary Report\Fig_3-3_OB_GW_TCE_Nov12.mxd



NOTES:

1. Aerial photograph derived from ESRI.

DATE: MAY 2013
PROJECT NO. 80022

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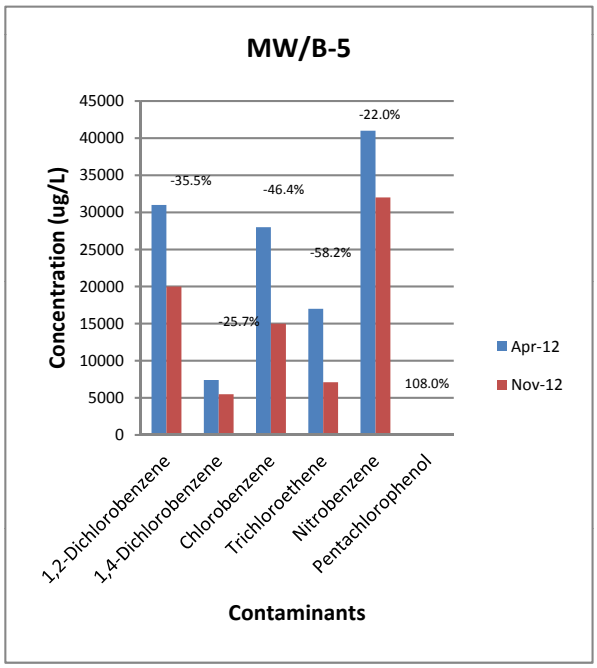
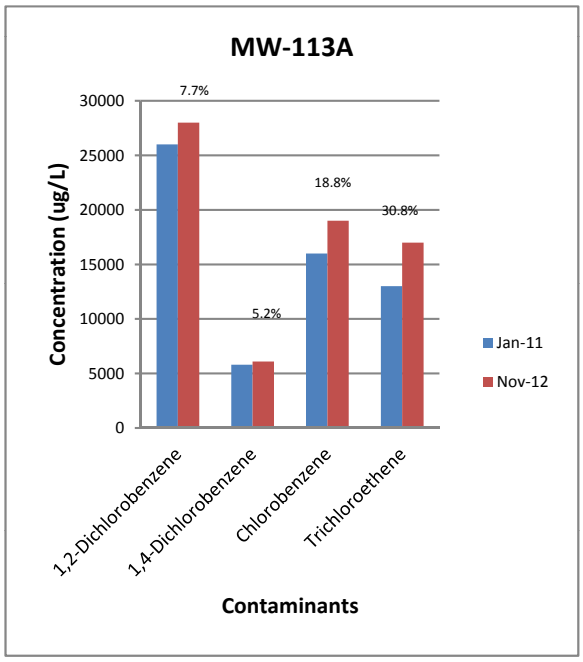
TCE CONCENTRATIONS IN
BEDROCK GROUNDWATER
NOVEMBER, 2012

FIGURE
3-4

R:\80000 Task Orders\80022 Nyanza OU2\Technical Data (TD)\GIS\Maps\2012 GW Summary Report\Fig_3-4_BR_GW_TCE_Nov12.mxd

Figure 4-1
Percent Change in Source Area Wells
Nyanza Superfund Site
Ashland, MA





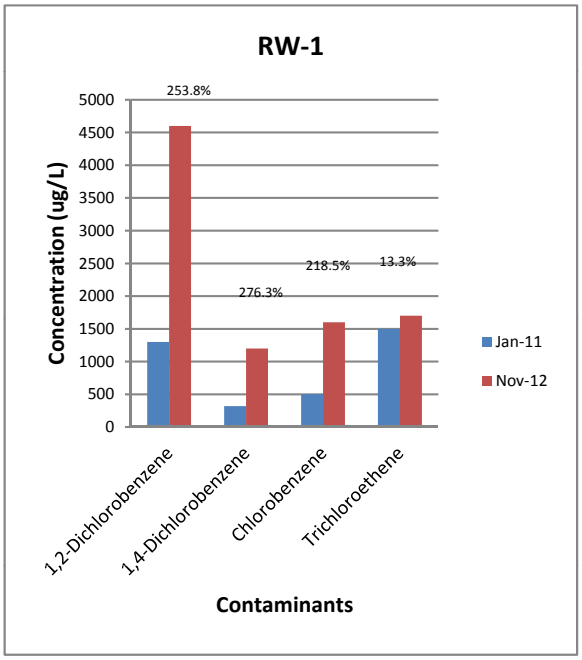
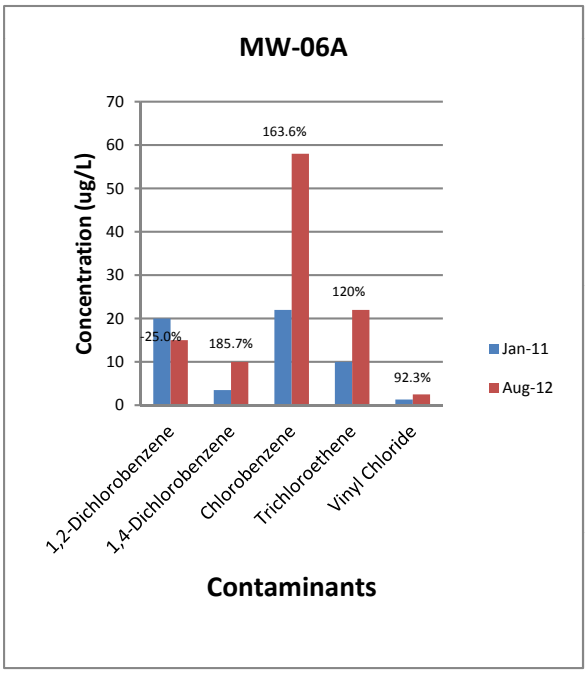
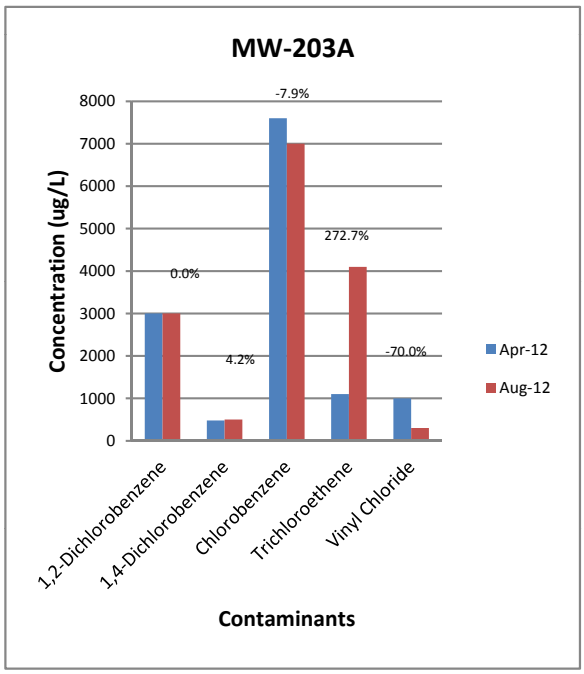
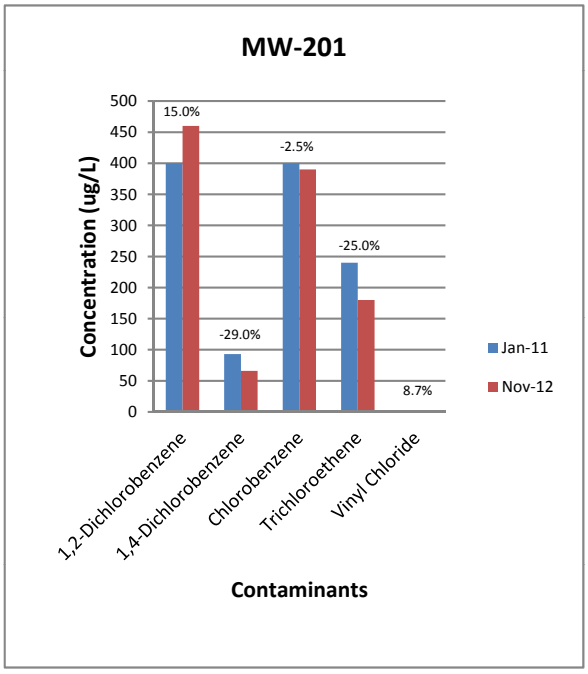


Figure 4-2
Percent Change in Downgradient Center Plume Wells
Nyanza Superfund Site
Ashland, MA







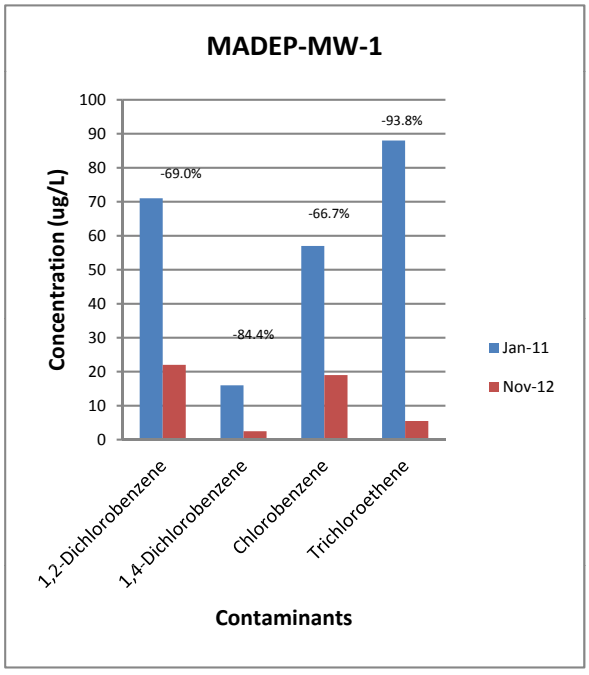


Figure 4-2
Percent Change in Downgradient Center Plume Wells
Nyanza Superfund Site
Ashland, MA

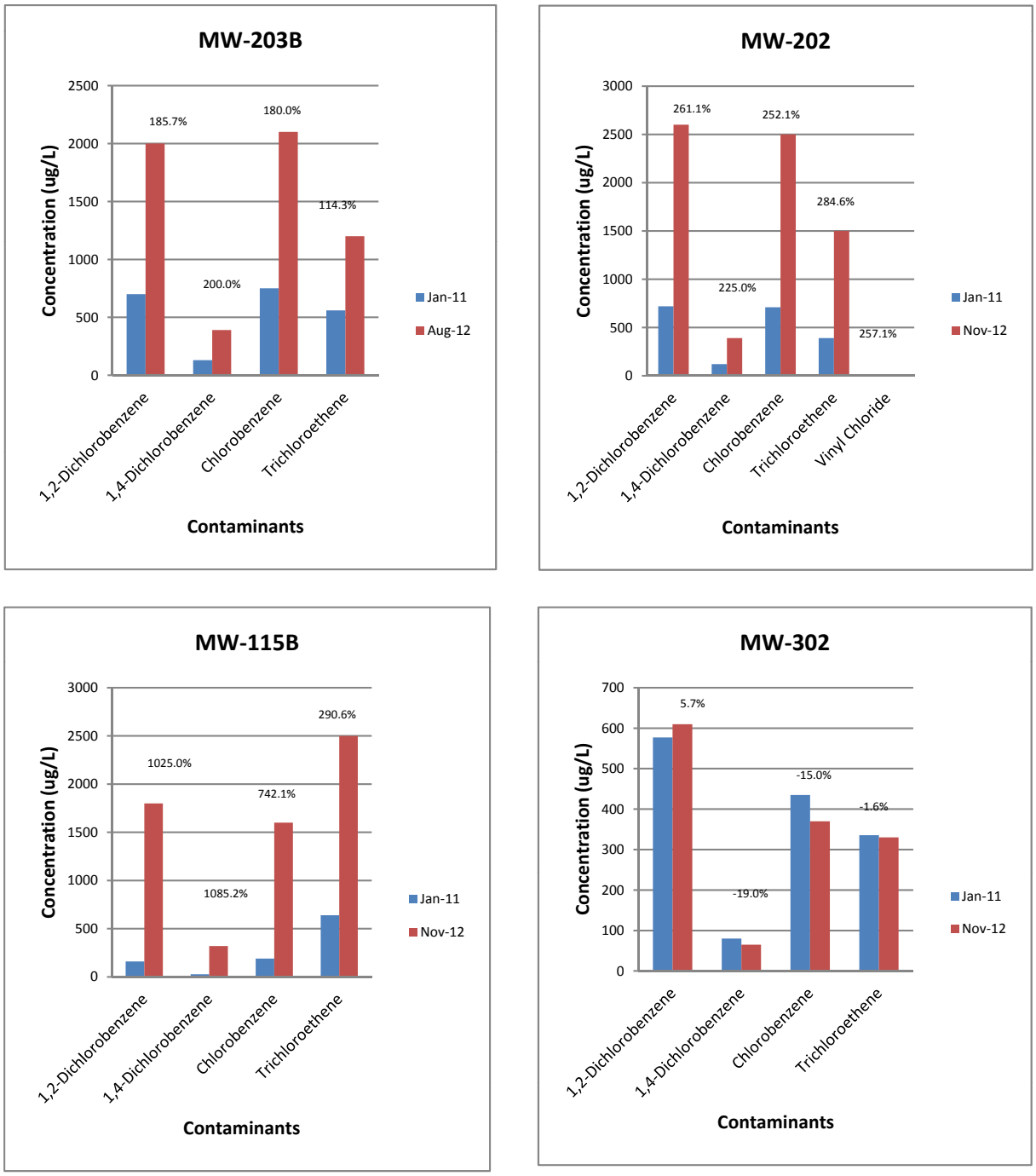
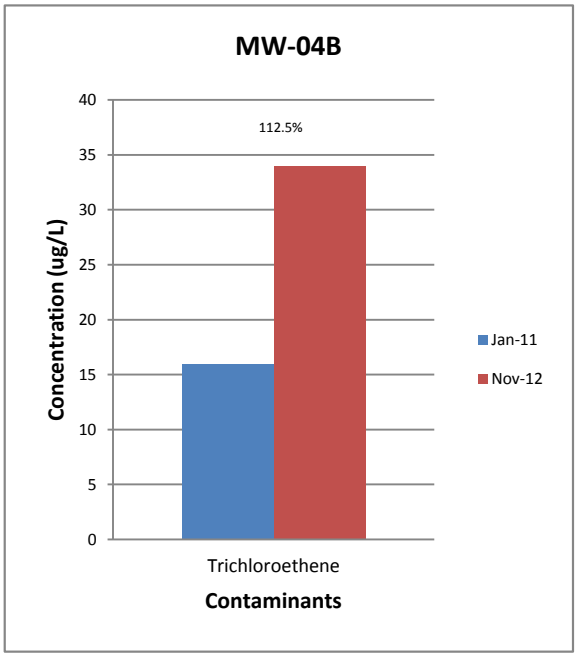
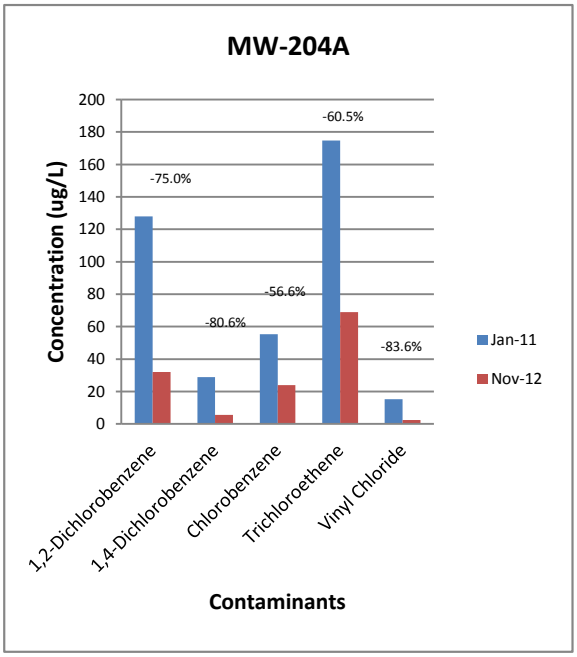
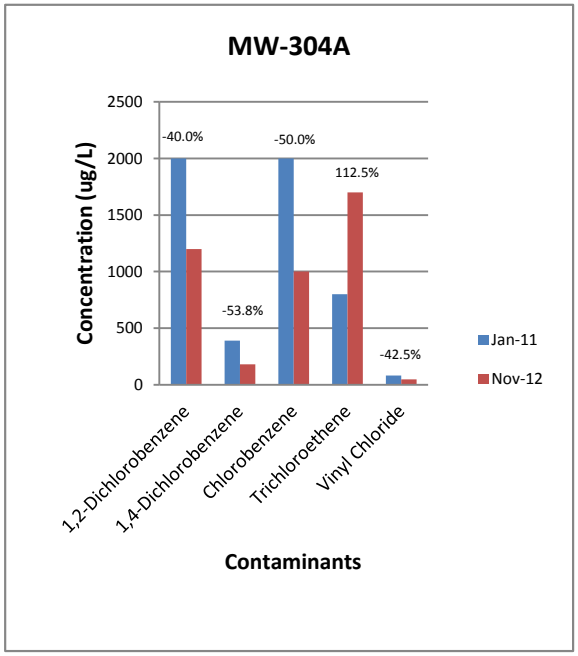


Figure 4-3
Percent Change in Plume Fringe Wells
Nyanza Superfund Site
Ashland, MA







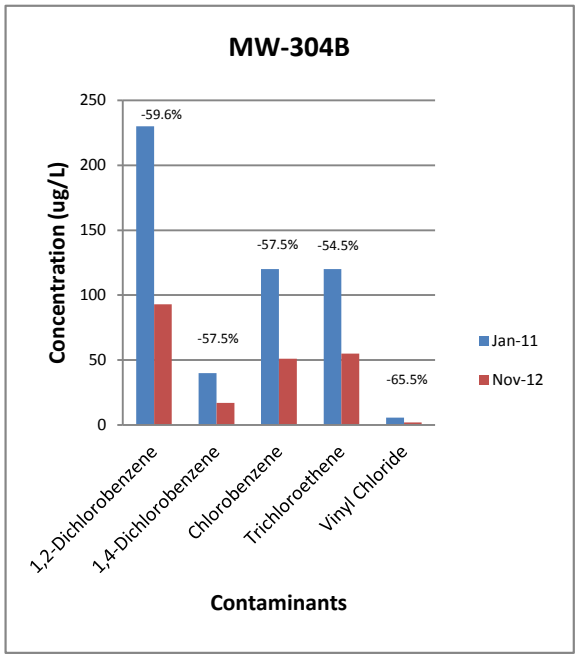
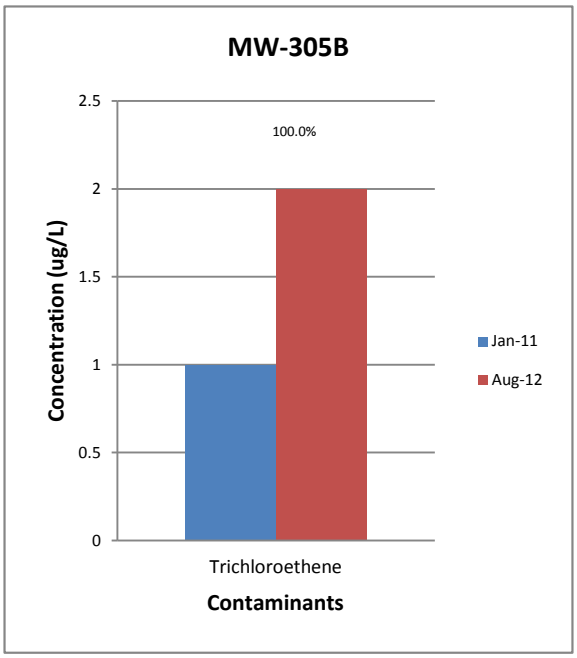
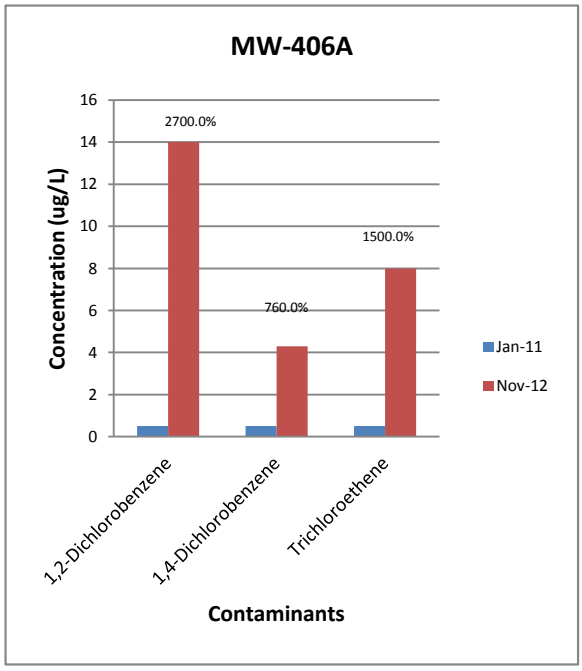
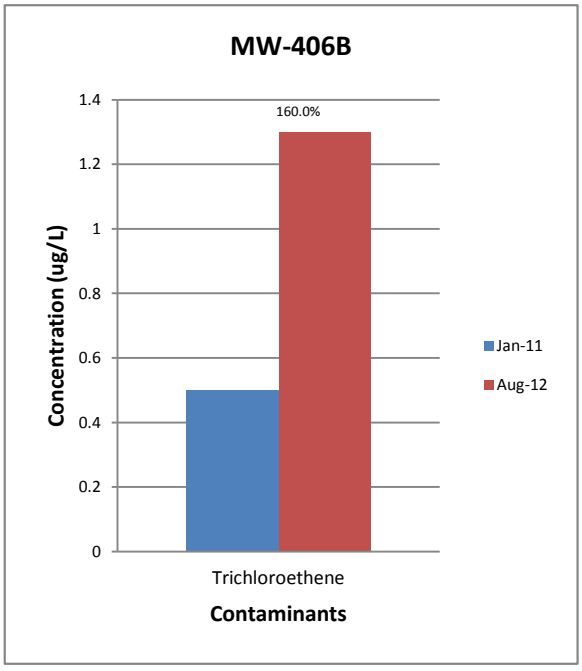
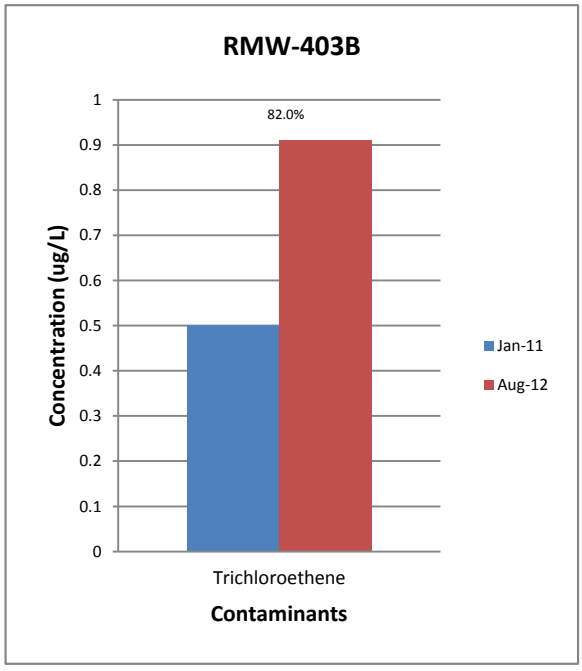


Figure 4-3
Percent Change in Plume Fringe Wells
Nyanza Superfund Site
Ashland, MA









APPENDIX A

Engineering a Sustainable Future

Low-Flow Field Log

80022.07

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 8/14/12 Page 1 of 1 Well ID: MW-6A
Field Personnel E. JOHNSON / S. DUBE Purging Start Time: 1440
Well Depth as installed (ft.): Measured Well Depth (ft.): 11.75
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.66 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 11.25 From: PVC Total Volume Purged, Including Drawdown (gallons): 2g
Sample Designation Time at Purge Completion: 1551
Sample Time 15:35 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) PERISTALTIC
Multimeter model and serial number YSI 600 XL 04J15999AE Turbidity meter model and serial number HACH 2100P 06120C020532
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1450		140	3.67	—	—	19.38	719	6.36	35.6	0.90	4.95	PALE PINK HUE ON
1455		140	3.68	0.01	0.01	19.04	667	6.41	36.7	0.67	4.58	PURGE H_2O, SUBTLE
1500		140	3.70	0.02	0.03	18.76	633	6.42	35.9	0.56	3.47	MUSTY ODOR
1505		125	3.69	-0.01	0.02	18.96	627	6.35	38.4	0.51	4.85	NOTED.
1510		125	3.69	—	—	18.89	600	6.34	37.1	0.49	4.61	
1515		125	3.70	0.01	0.03	18.74	593	6.33	36.9	0.48	4.44	
1520		125	3.70	—	—	18.62	582	6.33	36.3	0.44	4.56	
1525		125	3.70	—	—	18.66	575	6.32	35.7	0.41	3.01	
1530		125	3.71	0.01	0.04	18.79	571	6.30	35.4	0.41	3.54	
												Readings Stable
												GW Sample @ 1535

EJ

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 8.10.12 Page 1 of 2 Well ID: MW-110
Field Personnel DR Purging Start Time: 1005
Well Depth as installed (ft.): 69.10 Measured Well Depth (ft.): 69.28
Screen Length in ft. 5 Screen Depth in ft. 64.1 - 69.1 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.58 From: ~~64.1~~ TOR Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 67.00 From: ~~69.1~~ TOR Total Volume Purged, Including Drawdown (gallons): 3.25
Sample Designation MW-110 Time at Purge Completion: 1120
Sample Time 1125 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder/10/20/CMP2/40 psi
Multimeter model and serial number 600 XLM-M/02H0893 AG Turbidity meter model and serial number Hach 2100P/1690C012293
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Ø ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1010	10 / 20	100	3.03	0.05	0.05	16.26	372	6.17	12.8	2.29	169	
1015	10 / 20	100	3.35	0.32	0.37	15.55	316	6.08	6.0	1.07	167	
1020	10 / 20	100	3.50	0.15	0.52	15.50	307	6.14	2.0	0.92	109	
1025	10 / 20	100	3.65	0.15	0.67	15.34	306	6.16	0.2	0.78	89.0	
1030	10 / 20	100	3.80	0.15	0.82	15.22	305	6.17	-1.1	0.69	74.6	
1035	10 / 20	100	3.85	0.05	0.87	15.26	304	6.19	-2.7	0.65	57.9	
1040	10 / 20	100	3.85	—	0.87	15.18	304	6.19	-3.0	0.62	48.0	
1045	10 / 20	100	3.85	—		15.15	304	6.20	-3.2	0.59	45.8	
1050	10 / 20	100	3.85	—		15.09	304	6.20	-3.2	0.58	43.2	
1055	10 / 20	100	3.85	—		15.08	304	6.21	-3.3	0.57	46.1	
1100	10 / 20	90	3.85	—		15.04	304	6.20	-3.4	0.56	46.8	
1105	10 / 20	80	3.85	—		15.12	304	6.21	-3.8	0.56	45.9	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : _____ Page 2 of 2 Well ID : MW-110

Field Personnel _____ Purging Start Time : _____

Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____

Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____

Sample Designation _____ Time at Purge Completion: _____

Sample Time _____ Signature: _____

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____

Multimeter model and serial number _____ Turbidity meter model and serial number _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1110	10 / 20	80	3.85	–	0.87	15.13	303	6.21	-4.1	0.53	50.0	
1115	10 / 20	80	3.85	–	0.87	15.14	303	6.21	-4.2	0.54	49.2	
1120	10 / 20	80	3.86	–	0.87	15.14	303	6.22	-4.0	0.53	50.1	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date: 8.15.12 Page 1 of 2 Well ID: MW-113B

Field Personnel Andrew Klappholz Purging Start Time: 0941

Well Depth as installed (ft.): 29.5 Measured Well Depth (ft.): 28.9

Screen Length in ft. 5 Screen Depth in ft. 24.5-29.5 Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): 3.62 / 3.58 at start after water was removed & equilibrated. From: TOR Two Hour Time Limit Reached? (Circle) Yes / No

Pump/Tubing Intake set (ft.): 26 From: Top of Riser Casing (metal) - MP Total Volume Purged, Including Drawdown (gallons): 5.2

Sample Designation MW113B Time at Purge Completion: 1058

Sample Time ~~1100~~ AM 1155 Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic / pump died at 11 o'clock on 300 rpm setting

Multimeter model and serial number Pine 9005 Turbidity meter model and serial number

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID = 0.0 at well head & breathing zone

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0943	NA NA	140	3.62	0.04	0.04	16.57	202	6.14	206.1	5.82	372	one flow cell volume
0948		140	3.62	0.0	0.04	15.22	176	5.59	231.2	4.44	546	
0953		140	3.62	0.0	0.04	14.85	187	5.52	240.2	4.06	411	
0958		140	3.62	0.0	0.04	14.58	197	5.53	238.2	3.83	339	
1003		140	3.62	0.0	0.04	14.73	204	5.53	226.3	3.72	339	
1008		140	3.62	0.0	0.04	14.63	215	5.57	214.1	3.55	251	
1013		140	3.60	+0.02	0.02	14.57	225	5.62	200.3	3.36	221	
1018		140	3.58	+0.02	0.0	14.64	227	5.65	197.6	3.28	168	
1023		140	3.58	0.0	0.0	14.72	238	5.68	191.6	3.21	165	
1028		140	3.58	0.0	0.0	14.53	246	5.69	182.4	3.11	110	
1033		140	3.58	0.0	0.0	14.50	254	5.68	178.4	3.05	115	
1038		140	3.58	0.0	0.0	14.44	263	5.68	173.4	2.98	101	waiting for Spec Cond + Turbidity to stabilize

Notes: All depths in feet below top of PVC unless specified.

NR = No Reading

Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/15/12 Page 2 of 2 Well ID : MW-113B
Field Personnel Andrew Klappholz Purging Start Time : 0941
Well Depth as installed (ft.): 29.5 Measured Well Depth (ft.): 28.9
Screen Length in ft. 5 Screen Depth in ft. 24.5-29.5 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.62 From: top of inner casing (metal) TOP Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 26 From: " " " " " Total Volume Purged, Including Drawdown (gallons): ±2
Sample Designation MW113B Time at Purge Completion: 1058
Sample Time ~~1100~~ 1155 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic / pump dial at 11 o'clock or 300 RPM setting
Multimeter model and serial number Pine 9005 / YSI 600XLM Turbidity meter model and serial number Hach 2100Q 1924
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID: 0.0 at wellhead + breathing zone

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1043	NA NA	140	3.58	0.0	0.0	14.38	268	5.68	169.3	2.94	95.5	
1048		140	3.57	+0.01	+0.01	14.37	271	5.68	164.1	2.90	92.6	
1053		140	3.56	+0.01	+0.02	14.41	272	5.70	162.4	2.93	90.1	
1058		140	3.55	+0.01	+0.03	14.46	273	5.71	161.1	2.91	88.6	
1118		140	3.51	+0.04	+0.07	14.98	312	5.67	159.8	2.98	87.5	Stopped collecting reading because it appeared stable.
1123		140	3.51	0.0	+0.07	14.87	314	5.53	168.5	2.80	65.2	Continue after continuous pumping
1128		140	3.50	+0.01	+0.08	14.64	321	5.48	170.0	2.68	57.2	
1133		140	3.50	0.0	+0.08	14.68	322	5.48	170.4	2.64	50.4	
1138		140	3.50	0.0	+0.08	14.66	327	5.49	169.2	2.59	62.0	
1143		140	3.50	0.0	+0.08	14.77	331	5.51	167.1	2.54	60.3	
1148		140	3.50	0.0	+0.08	14.82	332	5.53	166.4	2.53	58.4	
1153		140	3.50	0.0	+0.08	14.89	334	5.54	165.6	2.52	58.1	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/14/12 Page 1 of 2 Well ID : MW115 A
Field Personnel Andrew Klapholz Purging Start Time : 1326
Well Depth as installed (ft.): 91 Measured Well Depth (ft.): 91.10
Screen Length in ft. 5 Screen Depth in ft. 91.10 - 86.10 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 8.59 From: Top of PVC - mp Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 88 From: Top of PVC - mp Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation MW115A Time at Purge Completion: _____
Sample Time 1530 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) 50psi / 10/20 cycle /
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 0.0 in breathing zone / 0.4 @ well head

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1343	10/20	60	—	—	—	18.61	4688	7.45	-22.6	4.07	251	One flow cell volume
1348	10/20	140	9.48	0.99	0.99	15.25	12,521	6.90	-31.6	1.98	643	20psi → 40psi → 50psi to get good flow
1353	10/20	120	9.88	0.40	1.39	14.94	12,849	6.83	-29.4	1.32	429	↳ 50psi was set to set 40ml minimum purge
1358	10/20	120	10.08	0.20	1.59	14.89	12,946	6.76	-29.7	1.11	231	
1403	10/20	120	10.38	0.30	1.89	14.79	12499	6.61	-32.2	0.93	—	
1408	10/20	120	10.42	0.04	1.93	14.71	12,262	6.51	-30.6	0.87	95.4	
1413	10/20	120	10.51	0.09	2.02	14.80	12,202	6.43	-28.7	0.81	51.3	
1418	10/20	120	10.55	0.04	2.06	14.61	12248	6.40	-27.0	0.75	36.6	
1423	10/20	120	10.55	0.0	2.06	14.65	12,385	6.38	-25.3	0.70	29.0	
1428	10/20	120	10.55	0.0	2.06	14.64	12,512	6.38	-22.4	0.65	27.8	
1433	10/20	120	10.55	0.0	2.06	14.67	12,553	6.38	-22.5	0.64	24.7	
1438	10/20	120	10.55	0.0	2.06	14.59	12,627	6.38	-21.6	0.61	27.5	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/14/12 Page 2 of 2 Well ID : MW115A
Field Personnel Andrew Klappholz Purging Start Time : 1326
Well Depth as installed (ft.): 91 Measured Well Depth (ft.): 91.1
Screen Length in ft. 5 Screen Depth in ft. 91.1 - 86.1 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 8.59 From: top of PVC - MP Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 88 From: top of PVC - MP Total Volume Purged, Including Drawdown (gallons): ±2.5 gal
Sample Designation MW115A Time at Purge Completion: 1528
Sample Time 1530 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) 50 psi / 10/20 cycle
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) See pg. 1

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1443	10/20	120	10.55	0.0	2.06	14.60	12,678	6.39	-20.6	0.59	20.2	
1448	10/20	120	10.55	0.0	2.06	14.49	12,731	6.40	-19.6	0.57	21.1	
1453	10/20	120	10.55	0.0	2.06	14.47	12,745	6.40	-19.2	0.55	16.9	
1458	10/20	120	10.55	0.0	2.06	14.46	12,772	6.40	-18.9	0.54	19.7	
1503	10/20	120	10.55	0.0	2.06	14.38	12,797	6.40	-18.3	0.53	16.0	
1508	10/20	120	10.55	0.0	2.06	14.43	12,780	6.40	-18.4	0.52	17.8	
1513	10/20	120	10.55	0.0	2.06	14.33	12,806	6.41	-18.6	0.52	19.1	
1518	10/20	120	10.55	0.0	2.06	14.30	12,792	6.41	-18.8	0.51	19.7	
1523	10/20	120	10.55	0.0	2.06	14.28	12,792	6.40	-18.2	0.50	23.8	
1528	10/20	120	10.55	0.0	2.06	14.27	12,788	6.40	-18.3	0.50	21.6	2 hrs after pump started. ~~DO never~~
1533	10/20											~~stabilized~~ Turbidity never stabilized.
1538	10/20											

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/14/12 Page 1 of 2 Well ID : MW-115B
Field Personnel DK Purging Start Time : 1372
Well Depth as installed (ft.): 48.5 Measured Well Depth (ft.): 47.10
Screen Length in ft. 5 Screen Depth in ft. 42.10 Parameter Stabilization: (Circle) Yes / (No)
Depth to GW (ft.): 8.32 From: Top PVC Two Hour Time Limit Reached ? (Circle) (Yes) / No
Pump/Tubing Intake set (ft.): 44.60 From: Top PVC Total Volume Purged, Including Drawdown (gallons): 6
Sample Designation MW-115B Time at Purge Completion: 1532
Sample Time 1535 Signature: [illegible]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder / 10/20 / CMP2 / 65PSI
Multimeter model and serial number 600 XLM-M / 02H0893A6 Turbidity meter model and serial number Hatch 2100P/11090C012293
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 0.1 ppm Ambient / 2.9 ppm wellhead

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1332	10/20	100	8.90	0.62	0.62	15.72	7616	5.74	32.3	2.51	>1000	
1337	10/20	100	9.71	0.81	1.43	14.34	7600	5.76	26.6	1.24	>1000	
1342	10/20	100	10.10	0.41	1.84	13.92	7600	5.77	22.7	1.02	863	
1347	10/20	100	10.19	0.09	1.83	13.81	7636	5.78	19.2	0.91	601	
1352	10/20	100	10.40	0.21	2.04	13.88	7638	5.79	16.7	0.94	493	
1357	10/20	100	10.42	0.02	2.06	13.71	7665	5.79	16.5	0.95	394	
1402	10/20	100	10.44	0.02	2.08	13.76	7668	5.80	15.1	0.94	390	
1407	10/20	100	10.50	0.06	2.14	13.61	7694	5.80	15.6	0.99	150	
1412	10/20	100	10.52	0.02	2.16	13.63	7695	5.81	15.8	0.91	153	
1417	10/20	100	10.53	0.01	2.17	13.58	7706	5.81	16.2	0.97	145	
1422	10/20	100	10.53	—	2.17	13.56	7691	5.81	15.6	0.94	130	
1427	10/20	100	10.53	—	2.17	13.60	7685	5.81	15.3	0.91		

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : _____ Page 2 of 2 Well ID : MW-115B
Field Personnel _____ Purging Start Time : _____
Well Depth as installed (ft.): See pg 1 Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 15 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1432	~~10~~ 20	100	10.53	—	2.17	13.56	7689	5.89	14.4	1.09	72.1	
1437	~~10~~ 20	100	10.53	—	2.17	13.62	7679	5.81	15.6	1.05	64.0	
1442	~~10~~ 20	100	10.53	—	2.17	13.60	7681	5.81	17.4	1.05	61.7	
1447	~~10~~ 20	100	10.53	—	2.17	13.57	7688	5.81	15.4	1.13	56.6	
1453	~~10~~ 20	100	10.53	—	2.17	13.60	7677	5.81	14.5	1.15	50.9	
1457	~~10~~ 20	100	10.53	—	2.17	13.52	7687	5.81	15.0	1.17	48.7	
1502	~~10~~ 20	100	10.53	—	2.17	13.53	7672	5.81	15.2	1.23	58.3	
1307	~~10~~ 20	100	10.53	—	2.17	13.51	7678	5.81	14.4	1.20	60.3	
1312	~~10~~ 20	100	10.53	—	2.17	13.51	7686	5.81	14.8	1.18	50.2	
1317	~~10~~ 20	100	10.53	—	2.17	13.54	7689	5.81	14.0	1.10	45.5	
1322	~~10~~ 20	100	10.53	—	2.17	13.54	7685	5.81	13.2	1.07	36.6	
1327	~~10~~ 20	100	10.53	—	2.17	13.50	7702	5.81	13.0	1.08	40.3	
1332	~~10~~ 20	100	10.53	—	2.17	13.44	7694	5.81	12.8	1.03	39.4	

Notes: All depths in feet below top of PVC unless specified.
NR = No reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Nyanza

SOP No: SA-003
Date: Mar. 2010

Rev.: 2

Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 8/13/12 Page 1 of 2 Well ID: MW-203A
Field Personnel J. Stewart Purging Start Time: 1035
Well Depth as installed (ft.): Measured Well Depth (ft.): 78.45
Screen Length in ft. 10 Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 6.15 From: PVC SS Two Hour Time Limit Reached? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 73.00 From: SS Total Volume Purged, Including Drawdown (gallons): 2.5
Sample Designation Time at Purge Completion: 1230
Sample Time 1200 Signature: Josh Stewart
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) bladder
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100P
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1040	12 / 18	200										40 PSI Set up Adjust Flow
1045	10 / 20	165	6.51	0.36	0.36							40 PSI Set up Adjust Flow
1050	6 / 24	100	7.15	0.64	1.00							Fill Cell
1055	6 / 24	100	7.75	0.60	1.60							Fill Cell
1100	6 / 24	100	8.05	0.30	1.90	18.90	21887	6.10	-70.4	2.32	81.3	Significant Drawdown at 100 ml/min
1105	6 / 24	100	8.45	0.30	2.20	18.60	21908	6.11	-67.2	2.54	74.0	
1110	6 / 24	100	8.85	0.40	2.60	18.34	21960	6.14	-68.3	2.38	64.1	Purge water brown/red tint
1115	6 / 24	100	9.20	0.35	2.95	18.00	21970	6.15	-69.4	2.35	51.7	
1120	6 / 24	100	9.70	0.40	3.35	17.83	21950	6.18	-74.1	2.24	49.3	
1125	6 / 24	100	9.90	0.20	3.55	17.79	21902	6.19	-76.4	1.77	45.2	
1130	6 / 24	100	10.25	0.35	3.90	17.73	21988	6.21	-84.7	1.45	40.9	
1135	6 / 24	100	10.60	0.35	4.25	17.74	21990	6.23	-92.3	1.37	38.2	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010

Attachment B, Page 1 of 1
Rev.: 2

Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/13/12 Page 2 of 2 Well ID : MW-~~283A~~ 203A

Field Personnel J. Stewart Purging Start Time :

Well Depth as installed (ft.): Measured Well Depth (ft.):

Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): From: Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons):

Sample Designation Time at Purge Completion:

Sample Time Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)

Multimeter model and serial number Turbidity meter model and serial number

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1140	6 / 24	100	10.75	0.15	4.40	17.76	22000	6.24	-99.1	1.32	37.6	
1145	6 / 24	100	10.95	0.20	4.60	17.89	22006	6.25	-101.4	1.34	33.1	
1150	6 / 24	100	11.20	0.25	4.85	17.47	22030	6.27	-107.8	1.36	31.5	
1155	6 / 24	100	11.30	0.10	4.95	17.80	22000	6.28	-101.9	1.36	33.4	
1200												Collect Sample

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

Nyanza

SOP No: SA-003
Date: Mar. 2010

Rev.: 2

Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/13/12 Page 1 of 2 **Well ID :** MW-203B

Field Personnel J. Stewart Purging Start Time : 1335

Well Depth as installed (ft.): _____ Measured Well Depth (ft.): 31.72

Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) (Yes) / No

Depth to GW (ft.): 5.82 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / (No)

Pump/Tubing Intake set (ft.): 27.00 From: PVC Total Volume Purged, Including Drawdown (gallons): _____

Sample Designation _____ Time at Purge Completion: _____

Sample Time 1510 Signature: Josh Stewart

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) bladder

Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100P

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1340	24 / 6	130	6.15	0.33	0.33	—	—	—	—	—	—	35 PSI Set UP Adjust Flow
1345	25 / 5	100	6.22	0.07	0.40	—	—	—	—	—	—	Fill Cell
1350	25 / 5	100	6.22	0.00	0.40	—	—	—	—	—	—	Fill Cell
1355	25 / 5	100	6.22	0.00	0.40	18.08	2235	6.01	-14.7	2.91	38.2	Purge water Purple / Black Tint
1400	25 / 5	100	6.22	0.00	0.40	17.85	2209	6.03	-14.7	2.55	205	high NTU = Purple Tint / Not Turbid
1405	25 / 5	100	6.22	0.00	0.40	16.91	2192	6.05	-14.2	1.92	176	
1410	25 / 5	100	6.22	0.00	0.40	16.69	2183	6.08	-15.2	1.38	178	
1415	25 / 5	100	6.22	0.00	0.40	16.65	2187	6.09	-15.4	1.30	176	Purge water light Purple Tint
1420	25 / 5	100	6.22	0.00	0.40	16.58	2176	6.10	-13.7	1.32	140	
1425	25 / 5	100	6.22	0.00	0.40	16.49	2173	6.10	-13.4	1.44	122	
1430	25 / 5	100	6.22	0.00	0.40	16.28	2174	6.10	-13.0	1.42	119	
1435	25 / 5	100	6.22	0.00	0.40	16.48	2174	6.11	-12.1	1.40	104	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010

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Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/13/12 Page 2 of 2 **Well ID :** MW-203B

Field Personnel J. Stewart Purging Start Time : _____

Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____

Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): _____ From: 1 Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____

Sample Designation _____ Time at Purge Completion: _____

Sample Time 1510 Signature: Josh S

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____

Multimeter model and serial number _____ Turbidity meter model and serial number _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1440	25 / 5	100	6.22	0.00	0.40	16.60	2173	6.11	-10.7	0.98	83.2	
1445	25 / 5	100	6.22	0.00	0.40	16.55	2167	6.10	-9.2	0.89	79.8	
1450	25 / 5	100	6.22	0.00	0.40	16.27	2168	6.09	-8.3	0.83	76.1	
1455	25 / 5	100	6.22	0.00	0.40	16.49	2164	6.10	-6.8	0.76	70.2	
1500	25 / 5	100	6.22	0.00	0.40	16.38	2167	6.09	-6.6	0.74	65.3	
1505	25 / 5	100	6.22	0.00	0.40	16.22	2157	6.09	-6.7	0.70	62.8	
1510	25 / 5	100	6.22	0.00	0.40	—	—	—	—	—	—	Collect Sample

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

53.5

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date: 8/13/12 Page 1 of 2 Well ID: MW-304A
Field Personnel DF Purging Start Time: 1408
Well Depth as installed (ft.): 53.5 Measured Well Depth (ft.): 53.5
Screen Length in ft. 5 Screen Depth in ft. 48.5 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.92 From: TPVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 51 From: TPVC Total Volume Purged, Including Drawdown (gallons): 6
Sample Designation MW-304A Time at Purge Completion: 1610
Sample Time 1615 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) 30 psi / Grup-2 (Bladder)
Multimeter model and serial number 600 XLM-M/02H0893 AG Turbidity meter model and serial number Hach 2100P/11090C12293
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 0 ppm PID on wellhead

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1410	10 / 20	60	4.40	1.48	1.48	16.93	8793	6.35	15.0	1.63	511	
1415	10 / 20	70	4.29	—	—	14.64	9817	6.37	5.4	0.73	444	
1420	10 / 20	70	4.30	0.01	1.49	14.15	9961	6.39	-2.8	0.40	400	
1425	10 / 20	70	4.32	0.02	1.51	13.84	9977	6.40	-10.9	0.37	302	
1430	10 / 20	70	4.32	—	1.51	14.03	9984	6.41	-17.7	0.29	290	
1435	10 / 20	70	4.32	—	1.51	14.08	9991	6.41	-16.4	0.29	278	
1440	10 / 20	70	4.32	—	1.51	13.95	10,008	6.40	-11.9	0.30	269	
1445	10 / 20	70	4.32	—	1.51	13.81	10,019	6.40	-11.8	0.30	209	
1450	10 / 20	70	4.32	—	1.51	13.61	10,031	6.38	-13.2	0.30	165	
1455	10 / 20	70	4.32	—	1.51	13.58	10,065	6.36	-12.2	0.30	157	
1500	10 / 20	70	4.32	—	1.51	13.56	10,089	6.35	-11.0	0.34	160	
1505	10 / 20	70	4.32	—	1.51	13.47	10,125	6.73	-8.3	0.32	163	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/13/12 Page 2 of 2 Well ID : MW-304A

Field Personnel DC Purging Start Time : _____

Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____

Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____

Sample Designation _____ Time at Purge Completion: _____

Sample Time _____ Signature: _____

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____

Multimeter model and serial number _____ Turbidity meter model and serial number _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1510	10 / 20	70	4.32	—	1.51	13.44	10,156	6.32	-4.3	0.31	130	
1515	10 / 20	70	4.32	—	1.51	13.39	10,168	6.30	-1.0	0.34	96.8	
1520	10 / 20	70	4.32	—	1.51	13.38	10,196	6.29	1.0	0.33	98.2	
1525	10 / 20	70	4.32	—	1.51	13.35	10,198	6.28	4.1	0.34	100	
1530	10 / 20	70	4.32	—	1.51	13.39	10,215	6.27	8.6	0.34	106	
1535	10 / 20	70	4.32	—	1.51	13.29	10,212	6.26	12.1	0.34	75.8	
1540	10 / 20	70	4.32	—	1.51	13.32	10,210	6.25	14.8	0.35	71.0	
1545	10 / 20	70	4.32	—	1.51	13.30	10,207	6.24	18.8	0.35	62.7	
1550	10 / 20	70	4.32	—	1.51	13.33	10,198	6.24	21.0	0.36	44.9	
1555	10 / 20	70	4.32	—	1.51	13.24	10,193	6.24	22.7	0.36	36.6	
1600	10 / 20	70	4.32	—	1.51	13.27	10,201	6.23	29.1	0.35	36.1	
1605	10 / 20	70	4.32	—	1.51	13.67	10,246	6.22	27.5	0.36	35.6	
1610	10 / 20	70	4.32	—	1.51	13.74	10,180	6.22	30.0	0.36	33.9	

Note: All depths in feet below top of PVC unless specified.
NR = No reading

Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/13/12 Page 1 of 2 Well ID : MW-304B
Field Personnel AJK Purging Start Time : 1357
Well Depth as installed (ft.): 29.69 Measured Well Depth (ft.): 29.69
Screen Length in ft. ± 5' Screen Depth in ft. 29.69-24.69 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 4.10 From: Top of PVC - mp Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 26.5 From: Top of PVC - mp Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation MW304B Time at Purge Completion: _____
Sample Time 1515 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) CPm2 / 20psi / 60/20
Multimeter model and serial number Pine9005 Turbidity meter model and serial number 19241
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 0.0 ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1354	10 / 20	160	4.50	0.40	0.40	16.76	3591	5.67	203.9	1.90	47.6	- 20psi = 80ml/discharge / 2 cell volume
1359	10 / 20	160	4.44	0.06	0.36	16.35	3690	5.80	144.2	1.07	24.9	-Can't go less than 20psi
1404	10 / 20	160	4.51	0.07	0.43	15.38	4038	5.84	129.0	0.86	21.3	
1409	10 / 20	160	4.52	0.01	0.44	15.05	4,172	5.91	82.6	0.69	20.7	
1414	10 / 20	160	4.52	0.0	0.44	15.23	4,170	5.96	74.7	0.67	19.1	
1419	10 / 20	160	4.52	0.0	0.44	14.80	4,176	6.02	63.1	0.61	19.4	
1424	10 / 20	160	4.52	0.0	0.44	14.94	4,140	6.03	63.2	0.59	15.3	
1429	10 / 20	160	4.52	0.0	0.44	15.12	4,093	6.04	65.9	0.58	13.9	
1434	10 / 20	160	4.52	0.0	0.44	15.29	4,051	6.04	67.2	0.57	13.9	
1439	10 / 20	160	4.52	0.0	0.44	15.55	4,001	6.05	67.3	0.59	11.7	
1444	10 / 20	160	4.52	0.0	0.44	15.24	3,993	6.06	66.1	0.58	14.0	
1449	10 / 20	160	4.52	0.0	0.44	15.27	3,935	6.07	62.9	0.57	10.7	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/13/12 Page 2 of 2 Well ID : MW-304B
Field Personnel A.S.K. Purging Start Time : 1351
Well Depth as installed (ft.): 29.69 Measured Well Depth (ft.): 29.69
Screen Length in ft. 5 Screen Depth in ft. 29.69-24.69 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 4.10 From: Top of PVC = MP Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 26.5 From: Top of PVC = MP Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation MW304B Time at Purge Completion: _____
Sample Time 1515 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) CPMA / 20psi / 10/20
Multimeter model and serial number Pine 9005 Turbidity meter model and serial number 19041
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 0.0ppm

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1454	10 / 20	160	4.52	0.0	0.44	14.92	3,937	6.07	63.2	0.56	10.5	
1459	10 / 20	160	4.52	0.0	0.44	14.84	3,890	6.07	63.9	0.55	9.57	
1504	10 / 20	160	4.57	0.0	0.44	14.80	3,848	6.08	63.7	0.54	9.31	
1509	10 / 20	160	4.52	0.0	0.44	14.44	3,845	6.08	63.6	0.53	9.09	

[signature] 8/13/12

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

80022.07

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/15/2012 Page 1 of 2 Well ID : MW - 305A
Field Personnel E. JOHNSON Purging Start Time : 1010
Well Depth as installed (ft.): 55' Measured Well Depth (ft.): 53.78
Screen Length in ft. 5' Screen Depth in ft. 50'-55' Parameter Stabilization: (Circle) Yes / (No)
Depth to GW (ft.): 7.13 From: TOP OF STEEL MW Two Hour Time Limit Reached ? (Circle) (Yes) No
Pump/Tubing Intake set (ft.): 52.5 From: TOP OF STEEL Total Volume Purged, Including Drawdown (gallons): 3 g
Sample Designation Time at Purge Completion:
Sample Time 1215 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER PUMP
Multimeter model and serial number YSI 600XL 04J15999AE Turbidity meter model and serial number HACH 2100 06120C020532
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) CONTROL BOX @ 30 PSI PID @ TOP OF WELL = 0.2-0.5 ppm, NO ODOR

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1025	10/20	110	7.43	–	–	16.35	733	7.45	-21.6	1.27	O.R.	VERY CLOUDY/MILKY @
1030	10/20	110	7.43	–	–	16.14	751	7.30	-11.3	0.94	868	START-UP
1035	10/20	110	7.43	–	–	15.67	810	7.02	2.9	0.82	448	
1040	10/20	110	7.43	–	–	15.54	873	6.84	12.3	0.74	278	
1045	10/20	110	7.43	–	–	15.77	1002	6.96	6.4	2.26	261	← FLOW CELL EMPTIED
1050	10/20	110	7.43	–	–	15.72	1053	6.99	3.5	0.84	239	OF SILT.
1055	10/20	110	7.43	–	–	15.77	1101	7.04	4.5	0.68	231	
1100	10/20	110	7.43	–	–	15.56	1122	7.09	3.5	0.60	224	
1105	10/20	110	7.43	–	–	15.43	1127	7.10	3.9	0.56	220	
1110	10/20	110	7.43	–	–	15.58	1124	7.12	3.4	0.53	193	
1115	10/20	110	7.43	–	–	15.63	1118	7.12	3.0	0.51	169	
1120	10/20	110	7.43	–	–	15.75	1100	7.14	2.0	0.50	148	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

80022.07

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/15/2012 Page 2 of 2 Well ID : MW-305A
Field Personnel E. JOHNSON Purging Start Time : 1010
Well Depth as installed (ft.): 55' Measured Well Depth (ft.): 53.78
Screen Length in ft. 5' Screen Depth in ft. 50'-55' Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 7.13 From: TOP OF STEEL RISER Two Hour Time Limit Reached ? (Circle) Yes No
Pump/Tubing Intake set (ft.): 52.5' From: TOP OF STEEL RISER Total Volume Purged, Including Drawdown (gallons): 3+ g
Sample Designation Time at Purge Completion: 1234
Sample Time 1215 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER PUMP
Multimeter model and serial number YSI 600XL - 04J15999AE Turbidity meter model and serial number HACH 2100P 06120C020532
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) CONTROL BOX @ 30 PSI

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1125	10 / 20	110	7.43	—	—	15.84	1083	7.13	2.3	0.48	138	
1130	10 / 20	110	7.43	—	—	15.90	1055	7.11	3.9	0.48	154	
1135	10 / 20	110	7.43	—	—	15.91	1026	7.08	4.9	0.48	134	
1140	10 / 20	110	7.43	—	—	15.84	1002	7.06	6.3	0.47	122	
1145	10 / 20	110	7.43	—	—	15.77	981	7.03	7.4	0.47	109	
1150	10 / 20	110	7.43	—	—	15.81	966	7.03	8.1	0.46	103	
1155	10 / 20	110	7.43	—	—	15.85	950	7.00	9.0	0.45	116	
1200	10 / 20	110	7.43	—	—	15.84	940	7.00	9.9	0.45	113	
1205	10 / 20	110	7.43	—	—	15.99	932	6.99	10.2	0.45	97.6	
1210	10 / 20	110	7.43	—	—	15.91	924	6.97	10.8	0.44	89.0	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

80022.07

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/15/2012 Page 1 of 1 Well ID : MW-305B

Field Personnel S. Dube Purging Start Time : 1015

Well Depth as installed (ft.): 19.5 Measured Well Depth (ft.): 16.93

Screen Length in ft. 5 Screen Depth in ft. 14.5-19.5 Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): 7.34 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): 16.25 From: PVC Total Volume Purged, Including Drawdown (gallons): 3.5-4.0

Sample Designation 305B Time at Purge Completion: 1135

Sample Time 1120 Signature: [illegible]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic

Multimeter model and serial number YSI 600XL 01A0019AA Turbidity meter model and serial number HACH 2100Q 11090C012118

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID = 0.2

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1020		200	7.35	0.01	0.01	14.33	233	4.56	246.1	1.86	6.24	Water clear
1025		200	7.35	—	—	14.35	234	4.39	259.7	1.38	4.79	
1030		225	7.35	—	—	14.24	233	4.35	265.4	1.12	5.06	
1035		225	7.35	—	—	14.17	230	4.34	266.7	0.95	2.13	
1040		225	7.35	—	—	14.13	229	4.37	267.4	0.85	1.70	
1045		225	7.35	—	—	14.28	228	4.39	267.9	0.76	2.16	
1050		225	7.35	—	—	14.29	228	4.41	268.4	0.69	1.61	
1055		225	7.35	—	—	14.29	229	4.44	270.2	0.64	0.96	
1100		225	7.35	—	—	14.23	229	4.42	272.2	0.59	1.68	
1105		225	7.35	—	—	14.17	228	4.38	275.5	0.55	1.38	
1110		225	7.35	—	—	14.22	228	4.42	274.3	0.52	1.30	
1115		225	7.35	—	—	14.33	228	4.45	274.6	0.51	1.64	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

GW Sampling start @ 1120

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/13/12 Page 1 of 2
Field Personnel Andrew Klapthorz
Well Depth as installed (ft.): ~~46.96~~ ±43
Screen Length in ft. 3.90 Screen Depth in ft. 46.96 - 43.06
Depth to GW (ft.): 7.79 From: Top of PVC - MP
Pump/Tubing Intake set (ft.): 44.00 From: Top of PVC - MP
Sample Designation MW403A -
Sample Time 1140

Well ID : MW-403A
Purging Start Time : 1014:25
Measured Well Depth (ft.): 46.96
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): ±2.5
Time at Purge Completion: 1125
Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) QED MP-15
Multimeter model and serial number Pine 9005 Turbidity meter model and serial number 19241
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) NA - out of battery

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1029	10/20	130	7.95	0.16	~~15.60~~ 0.16	15.60	683	6.08	264.1	4.23	831	One flow cell volume
1034	10/20	130	7.95	—	0.16	13.94	689	5.76	313.1	2.66	921	
1039	10/20	130	7.95	—	0.16	13.66	672	5.68	348.4	2.56	955	
1044	10/20	130	7.95	—	0.16	13.50	662	5.62	374.4	2.70	755	
1049	10/20	130	7.93	+0.02	0.14	13.63	644	5.51	394.4	2.86	597	
1054	10/20	130	7.95	0.02	0.16	13.54	629	5.40	415.1	3.00	520	
1059	10/20	130	7.95	0.0	0.16	13.55	621	5.35	426.4	3.05	460	
1104	10/20	130	7.96	0.1	0.17	13.57	613	5.31	437.8	3.09	481	
1109	10/20	130	7.95	+0.01	0.16	13.46	607	5.29	445.5	3.11	457	
1114	10/20	130	7.95	0.00	0.16	13.42	601	5.26	454.1	3.14	447	
1119	10/20	130	7.95	0.0	0.16	13.38	598	5.24	457.7	3.17	409	
1124		130	7.95	0.0	0.16	13.24	596	5.21	459.2	3.21	389	Waiting for turbidity to stabilize.

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/13/12 Page 2 of 2 Well ID : MW-403A

Field Personnel Andrew Kleppolz Purging Start Time : 1014

Well Depth as installed (ft.): ±43 Measured Well Depth (ft.): 46.96

Screen Length in ft. 3.90 Screen Depth in ft. 46.96 - 43.06 Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): 7.79 From: top of PVC - MP Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): 44.00 From: top of PVC - MP Total Volume Purged, Including Drawdown (gallons): ±2.5

Sample Designation MW403A Time at Purge Completion: 1125

Sample Time 1140 Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)

Multimeter model and serial number Pine 9005 Turbidity meter model and serial number

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) NA - out of battery

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1129	10 / 20	130	7.95	0.0	0.16	13.28	594	5.21	461.5	3.24	380	
1134	10 / 20	130	7.95	0.0	0.16	13.25	591	5.20	406.3	3.26	361	

[signature] 8/13/12

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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DTB - 21.52

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/13/12 Page 1 of 1 Well ID : MW-403B
Field Personnel DR Purging Start Time : 1020
Well Depth as installed (ft.): 21.52 Measured Well Depth (ft.): 21.52
Screen Length in ft. 5' Screen Depth in ft. 5' Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 8.40 From: 16.52 Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 20' From: 21.52 Total Volume Purged, Including Drawdown (gallons): 2.75
Sample Designation Time at Purge Completion: 1125
Sample Time 1130 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) 20 PSI CMP-2 (Bladder)
Multimeter model and serial number 600 XLM-M/02H0893 Turbidity meter model and serial number Hach 2100Q/11090C012293
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1032	10 ~~20~~	100	8.95	0.55	0.55	16.66	837	6.24	11.9	1.34	195	After VOCs collection
1037	10 ~~20~~	90	9.45	0.50	1.05	16.11	688	6.25	26.3	0.96	200	well Dried out, Let well
1042	10 ~~20~~	50	10.85	0.40	1.45	15.73	825	6.24	25.2	0.85	222	recharge and then collected
1047	10 ~~20~~	90	10.90	0.05	1.50	14.39	822	6.22	36.0	0.79	120	Anions & SVOCS.
1052	10 ~~20~~	60	12.08	1.18	2.68	14.25	808	6.20	45.7	2.81	98.7	
1057	10 ~~20~~	60	13.60	1.52	4.20	14.35	793	6.15	62.3	1.01	92.1	
1102	10 ~~20~~	60	14.38	0.78	4.90	14.37	778	6.09	81.2	1.30	117	
1107	10 ~~20~~	60	15.60	1.22	6.12	14.47	771	6.07	91.7	1.54	115	
1112	10 ~~20~~	60	16.75	1.15	7.27	14.51	767	6.06	97.8	1.63	115	
1117	10 ~~20~~	60	17.75	1.00	8.27	14.50	767	6.07	98.2	1.70	119	
1122	10 ~~20~~	60	19.00	1.25	9.32	14.52	767	6.06	101	1.75	210	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/14/12 Page 1 of 2

Field Personnel Andrew Clappholz

Well Depth as installed (ft.): ~~73.30~~ 75

Screen Length in ft. 5' Screen Depth in ft. 73.30 - 68.30

Depth to GW (ft.): 1.96 From: Top of Inner casing (metal) = MP

Pump/Tubing Intake set (ft.): 71.30' From: Top of Inner casing (metal) = MP

Sample Designation RMW405A

Sample Time

Well ID RMW405A

Purging Start Time : 0918

Measured Well Depth (ft.): 73.30

Parameter Stabilization: (Circle) Yes / No

Two Hour Time Limit Reached ? (Circle) Yes / No

Total Volume Purged, Including Drawdown (gallons): ±2.5 gal

Time at Purge Completion: 1118

Signature: Andrew

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) 40psi / 120

Multimeter model and serial number Pine 4005 Turbidity meter model and serial number 19241

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) 0.1ppm / Low Yield water flows out of top of well when pump is installed.

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0923	10 / 20	125	0.90	+1.06	+1.06	17.98	2,091	11.35	160.0	6.82	38.1	One flow cell Volume
0928	10 / 20	125	1.78	-0.88	+0.18	16.98	1,794	9.85	137.0	1.83	35.4	
0933	10 / 20	125	3.20	-1.42	-1.24	16.77	1,797	8.99	149.0	0.89	35.3	Drew ↓ out can't go less than 40psi
0938	10 / 20	125	3.47	-0.27	-1.47	16.90	1,795	8.96	155.4	0.79	34.7	
0943	10 / 20	125	4.20	-0.73	-2.20	16.71	1,800	8.98	161.9	0.70	30.5	
0948	10 / 20	125	4.87	-0.67	-2.87	16.62	1,796	9.06	162.5	0.72	26.6	
0953	10 / 20	125	5.85	-0.98	-3.85	16.47	1,774	9.48	149.6	0.90	27.7	
0958	10 / 20	125	6.45	-0.60	-4.45	16.37	1,748	10.44	114.5	1.47	20.9	
1003	10 / 20	125	7.10	0.65	-5.10	16.12	1,747	10.69	105.2	1.74	18.9	
1008	10 / 20	125	7.80	0.70	-5.80	16.00	1,750	10.76	103.7	1.75	17.1	
1013	10 / 20	125	8.64	0.84	-6.64	15.81	1,763	10.80	99.2	1.90	17.5	
1018	10 / 20	125	9.40	0.76	-7.40	15.73	1,761	10.82	102.8	1.82	17.6	

Notes: All depths in feet below top of PVC unless specified.

NR = No Reading

Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 8/14/12 Page 2 of 2 Well ID : RMW405A
Field Personnel Andrew Klappholz Purging Start Time : 0918
Well Depth as installed (ft.): 75' Measured Well Depth (ft.): 73.30
Screen Length in ft. 5 Screen Depth in ft. 73.30 - 68.30 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 1.96 From: Top of inner casing (metal) - MP Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 71.30 From: Top of inner casing (metal) - MP Total Volume Purged, Including Drawdown (gallons): 12.5 gal
Sample Designation RMW405 Time at Purge Completion: 1118
Sample Time 1120 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number Fine 9005 Turbidity meter model and serial number 19241
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1023	10/20	125	10.08	0.68	8.08	15.62	1772	10.83	106.6	1.77	14.9	
1028	10/20	125	10.44	0.34	8.42	15.67	1787	10.83	112.6	5.24	22.5	DO spike!
1033	10/20	125	10.50	0.06	8.48	16.72	1804	10.84	105.5	3.96	—	
1038	10/20	110	10.95	0.45	8.93	15.84	1806	10.86	105.2	3.35	20.2	Adjust flow to 42 psi.
1043	10/20	110	11.45	0.50	9.43	15.68	1794	10.78	115.2	3.06	17.3	
1048	10/20	110	11.95	0.50	9.93	15.63	1794	10.77	121.5	3.02	14.9	
1053	10/20	110	12.50	0.55	10.48	15.55	1,792	10.76	126.5	2.76	16.5	
1058	10/20	110	13.05	0.55	11.03	15.50	1,792	10.76	133.7	2.56	16.5	
1103	10/20	110	13.69	0.64	11.67	15.37	1,803	10.81	139.9	2.44	19.7	
1108	10/20	110	14.08	0.39	12.06	15.34	1,807	10.86	140.0	2.32	19.9	
1113	10/20	110	14.61	0.53	12.59	15.32	1,822	10.90	143.3	2.38	17.3	
1118	10/20	110	15.10	0.49	13.08	15.31	1,827	10.92	147.3	2.37	18.6	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date: 8/14/12 Page 1 of 2 Well ID: RMW-405B
Field Personnel DK Purging Start Time: 0916
Well Depth as installed (ft.): 45 Measured Well Depth (ft.): 45.25
Screen Length in ft. 5' Screen Depth in ft. 40 Parameter Stabilization: (Circle) (Yes) / No
Depth to GW (ft.): 1.94 From: Top of riser (metal) Two Hour Time Limit Reached? (Circle) Yes / (No)
Pump/Tubing Intake set (ft.): 42.5 From: Top of riser (metal) Total Volume Purged, Including Drawdown (gallons): 5.5
Sample Designation RMW-405B Time at Purge Completion: 1100
Sample Time 1115 Signature: D.J
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder / 10/20 / 30 PSI / CMP2
Multimeter model and serial number 600 XLM-M/02H0893 A0 Turbidity meter model and serial number Hach 2100Q/11090C012293
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Ø PID

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0921	10/20	100	2.24	1.30	1.30	15.95	11447	5.91	-21.1	1.36	990	High conductivity
0926	10/20	100	2.19	—	1.30	15.49	11702	5.93	-14.8	0.85	910	readings
0931	10/20	100	2.19	—	1.30	15.24	11814	5.94	-12.8	0.70	427	
0936	10/20	100	2.19	—	1.30	15.17	11874	5.94	-9.0	0.65	301	
0941	10/20	100	2.19	—	1.30	15.06	11925	5.93	-5.0	0.63	230	
0946	10/20	100	2.19	—	1.30	15.03	11934	5.92	-3.5	0.61	137	
0951	10/20	100	2.19	—	1.30	14.92	11956	5.92	-3.2	0.61	101	
0956	10/20	100	2.19	—	1.30	14.98	11966	5.92	-2.8	0.60	89.7	
1001	10/20	100	2.19	—	1.30	15.01	11978	5.92	-2.4	0.60	65.0	
1006	10/20	100	2.19	—	1.30	14.86	11993	5.91	-4.6	0.59	50.2	
1011	10/20	100	2.19	—	1.30	14.84	11976	5.91	-5.0	0.58	31.8	
1016	10/20	100	2.19	—	1.30	14.86	11982	5.91	-5.5	0.58	26.9	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Nobis Engineering a Sustainable Future	Low-Flow Field Log	SOP No: SA-003	Attachment B, Page 1 of 1
		Date: Mar. 2010	Rev.: 2
		Prepared by:	S. Bonis
		Approved by:	M. Summerlin

Date : _____ Page 2 of 2 Well ID : RMW-405B

Field Personnel _____ Purging Start Time : _____

Well Depth as installed (ft.): See pg 1 Measured Well Depth (ft.): _____

Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____

Sample Designation _____ Time at Purge Completion: _____

Sample Time _____ Signature: _____

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____

Multimeter model and serial number _____ Turbidity meter model and serial number _____

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1021	10 / 20	100	2.19	–	1.30	14.89	11959	5.91	-5.5	0.66	24.7	
1026	10 / 20	100	2.19	–	1.30	14.99	11966	5.91	-5.5	0.58	20.0	
1031	10 / 20	100	2.19	–	1.30	15.11	12007	5.91	-6.7	0.58	19.9	
1036	10 / 20	100	2.19	–	1.30	15.01	12008	5.91	-6.9	0.57	19.8	
1041	10 / 20	100	2.19	–	1.30	14.97	12019	5.91	-7.0	0.56	19.6	
1046	10 / 20	100	2.19	–	1.30	15.04	12001	5.91	-7.0	0.55	18.0	
1051	10 / 20	100	2.19	–	1.30	14.96	12004	5.91	-7.3	0.54	16.1	
1056	10 / 20	100	2.19	–	1.30	14.93	12005	5.91	-7.2	0.54	13.2	
1101	10 / 20	100	2.19	–	1.30	14.94	12006	5.91	-7.1	0.54	9.98	
1106	10 / 20	100	2.19	–	1.30	14.91	12008	5.91	-7.2	0.54	9.20	
1111	10 / 20	100	2.19	–	1.30	14.98	12009	5.91	-7.2	0.54	9.01	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

80022.07

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/14/12 Page 1 of 2

Field Personnel S. Dube (E. Johnson)

Well Depth as installed (ft.):

Screen Length in ft. 5 Screen Depth in ft. 61-66

Depth to GW (ft.): 8.96 From: PVC

Pump/Tubing Intake set (ft.): 61.5 From: PVC

Sample Designation

Sample Time 1145

Well ID : MW-406A

Purging Start Time : 9:27

Measured Well Depth (ft.): 62.56

Parameter Stabilization: (Circle) Yes / No

Two Hour Time Limit Reached ? (Circle) Yes / No

Total Volume Purged, Including Drawdown (gallons): ~2.25g

Time at Purge Completion: 1314

Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER PUMP

Multimeter model and serial number YSI 600XL 00198 Turbidity meter model and serial number HACH 2100P 06120C020532

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) CONTROL BOX @ ~35-40 PSI, MW HEADSPACE = 0.2 ppm (BKGD = 0.2)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
9:30	20/10	+100	9.29	—	—	NM						CLEAR PURGE H_2O
9:35	20/10	+100	9.32	0.03	0.03	18.70	860	6.86	-32.3	1.31	79.0	NO ODOR, SUBTLE
9:40	20/10	+100	9.34	0.02	0.05	18.52	838	6.96	-36.8	1.02	59.0	CLOUDINESS, SLOWLY
9:45	21/9	100	9.32	+.02	0.03	18.57	819	7.05	-30.8	0.90	38.8	CLEARING
9:50	21/9	100	9.27	+.05	—	18.85	809	7.16	-20.8	0.85	27.0	
9:55	21/9	100	9.29	.02	—	18.71	807	7.20	-21.4	0.81	26.2	
1000	21/9	100	9.29	—	—	18.47	803	7.21	-26.4	0.75	27.8	
1005	21/9	100	9.29	—	—	18.37	799	7.21	-34.0	0.71	28.4	
1010	21/9	100	9.29	—	—	18.38	795	7.25	-37.2	0.66	32.3	
1015	21/9	100	9.29	—	—	18.38	791	7.27	-42.3	0.63	31.2	
1020	21/9	100	9.29	—	—	18.28	787	7.27	-44.9	0.59	38.2	
1025	21/9	100	9.28	+.01		18.35	785	7.29	-45.4	0.56	36.0	

Notes: All depths in feet below top of PVC unless specified.

NR = No Reading

Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 8/14/2012 Page 2 of 2 Well ID : MW-406A
Field Personnel S. DUBE / E. JOHNSON Purging Start Time : 9:27
Well Depth as installed (ft.): Measured Well Depth (ft.): 62.56
Screen Length in ft. 5 Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 8.96 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 61.5 From: PVC Total Volume Purged, Including Drawdown (gallons): ~2.25 g
Sample Designation Time at Purge Completion: 1314
Sample Time 1145 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER PUMP
Multimeter model and serial number YSI 600XL 00198B Turbidity meter model and serial number HACH 2100P 06120C020532
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) CONTROL BOX @ 35 PSI

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1030	21 / 9	100	9.29	.01	—	18.41	785	7.29	-44.3	0.53	38.1	
1035	21 / 9	100	9.29	—	—	18.44	784	7.29	-42.1	0.51	37.4	
1040	21 / 9	100	9.29	—	—	18.45	784	7.29	-44.0	0.49	38.6	
												READINGS STABLE,
												GW

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

80022.07

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date: 8/14/2012 Page 1 of 1

Field Personnel S. DUBE / E. JOHNSON

Well Depth as installed (ft.): 43'

Screen Length in ft. 5' Screen Depth in ft. 38'-43'

Depth to GW (ft.): 9.09 From: PVC

Pump/Tubing Intake set (ft.): 40.5 From: PVC

Sample Designation

Sample Time 1335

Well ID: MW-406B

Purging Start Time: 1217

Measured Well Depth (ft.): 41.99

Parameter Stabilization: (Circle) Yes / No

Two Hour Time Limit Reached ? (Circle) Yes / No

Total Volume Purged, Including Drawdown (gallons): 1.5g

Time at Purge Completion: 1405

Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) BLADDER PUMP

Multimeter model and serial number YSI 600XL 04J15999 Turbidity meter model and serial number HACH 2100P

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) CONTROL BOX @ 20-25PSI

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1225	10/20	110	9.15	—	—	21.38	932	6.66	37.1	1.48	179	CLEAR PURGE H_2O
1230	10/20	110	9.13	—	—	20.28	914	6.89	40.6	0.93	111	SLIGHTLY CLOUDY
1235	10/20	110	9.11	+.02	+.02	20.19	900	6.96	41.5	0.82	79.2	
1240	10/20	110	9.12	.01	+.01	19.90	884	6.97	41.0	0.68	60.8	
1245	10/20	110	9.12	—	+.01	19.80	872	6.92	41.3	0.61	60.3	
1250	10/20	110	9.13	.01	—	19.88	868	6.98	38.7	0.57	51.8	
1300	10/20	110	9.14	.01	.01	19.87	860	6.99	37.7	0.52	36.5	
1305	10/20	110	9.14	—	.01	19.84	858	6.99	36.5	0.51	34.7	
1310	10/20	110	9.13	+.01	—	19.95	856	7.00	35.1	0.49	30.3	
1315	10/20	110	9.13	—	—	20.04	853	6.99	35.1	0.47	28.1	
1320	10/20	110	9.13	—	—	20.37	850	6.98	34.3	0.47	22.0	
1325	10/20	110	9.13	—	—	20.63	848	6.96	34.0	0.47	23.8	
											22.2	
1330	10/20	110	9.13	—	—	20.82	848	6.90	34.3	0.47		

Notes: All depths in feet below top of PVC unless specified.

NR = No Reading

Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/5/12 Page 1 of 1 Well ID : MW-115A
Field Personnel J. Stewart Purging Start Time : 0940
Well Depth as installed (ft.): Measured Well Depth (ft.): 92.14
Screen Length in ft. 5 Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 6.95 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 3
Sample Designation F DUP Time at Purge Completion: 1047
Sample Time 1035 / 1040 Signature: Josh S
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) bladder pump
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0945	13 / 17	200	8.35									80PSI Set up Adjust Flow
0950	25 / 5	175	9.05									80PSI Adjust Flow
0955	25 / 5	120	9.25									70PSI Fill Cell
1000	25 / 5	100	9.40			12.04	12577	6.64	-16.6	0.71	95.9	65PSI
1005	25 / 5	100	9.45			11.97	12512	6.67	-20.3	0.46	83.7	65PSI
1010	25 / 5	100	9.50			11.97	12506	6.69	-19.6	0.36	79.6	65PSI
1015	25 / 5	100	9.55			12.03	12462	6.69	-22.9	0.35	65.4	65PSI
1020	25 / 5	100	9.58			11.81	12417	6.70	-28.7	0.29	49.8	65PSI
1025	25 / 5	100	9.60			11.88	12343	6.69	-32.2	0.26	46.1	65PSI
1030	25 / 5	100	9.62			11.90	12302	6.69	-35.8	0.26	48.2	65PSI

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11-5-12 Page 1 of 2 Well ID : MW-115B
Field Personnel R. Rizza Purging Start Time : 0943
Well Depth as installed (ft.): 48.5 Measured Well Depth (ft.): 47.17
Screen Length in ft. 5 Screen Depth in ft. 43.5 - 48.5 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 7.51 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 46 From: Top of PVC Total Volume Purged, Including Drawdown (gallons): ~3.5
Sample Designation Time at Purge Completion: 1122
Sample Time 1058 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
Dorin Lapper (YSI) S/N 00M0550AC Peri Pump S/N G63490
YSI Sonde S/N 04C2866AC HACH S/N 110900012345

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0945	/	100	8.38	0.87	0.87	12.99	7713	5.85	-239.4	1.37	25.2	Purge water was
0950	/	100	8.48	0.10	0.97	12.84	7720	5.84	-229.0	1.14	29.6	clear, slightly
0955	/	100	8.92	0.44	1.41	12.74	7717	5.85	-225.0	0.58	8.88	brown/reddish.
1000	/	100	8.95	0.03	1.44	12.72	7745	5.85	-225.5	0.48	15.0	Slight odor observed
1005	/	100	9.07	0.12	1.56	12.63	7761	5.85	-225.9	0.47	18.2	
1010	/	100	9.10	0.03	1.59	12.63	7758	5.86	-230.2	0.40	21.8	
1015	/	100	9.14	0.04	1.63	12.57	7762	5.86	-233.7	0.40	15.8	
1020	/	100	9.14	—	1.63	12.36	7763	5.86	-234.4	0.39	12.3	
1025	/	100	9.15	0.01	1.64	12.36	7783	5.86	-235.3	0.40	9.18	
1030	/	100	9.17	0.02	1.66	12.42	7805	5.87	-235.2	0.40	8.84	
1035	/	100	9.18	0.01	1.67	12.40	7826	5.86	-237.0	0.40	7.10	
1040	/	100	9.19	0.01	1.68	12.49	7844	5.87	-237.1	0.41	9.53	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Engineering a Sustainable Future

Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11-5-12 Page 2 of 2 **Well ID :** MW-115B

Field Personnel R. Ciza Purging Start Time :

Well Depth as installed (ft.): Measured Well Depth (ft.):

Screen Length in ft. Screen Depth in ft. Pg. 1 Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): From: Two Hour Time Limit Reached ? (Circle) Yes / No

Pump/Tubing Intake set (ft.): From: 25 Total Volume Purged, Including Drawdown (gallons):

Sample Designation Same Time at Purge Completion:

Sample Time Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)

Multimeter model and serial number Turbidity meter model and serial number

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1045		100	9.19	—	1.68	12.37	7853	5.87	-237.4	0.43	8.34	
1050		100	9.20	0.01	1.69	12.37	7872	5.87	-237.4	0.43	8.52	
1055		100	9.22	0.02	1.71	12.33	7891	5.87	-239.3	0.43	8.27	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11-5-12 Page 1 of 2 **Well ID :** MW-405A
Field Personnel R. Rizza Purging Start Time : 1331
Well Depth as installed (ft.): Measured Well Depth (ft.): 73.27
Screen Length in ft. 5 Screen Depth in ft. 68.5 - 73.5 Parameter Stabilization: (Circle) Yes / (No)
Depth to GW (ft.): 6.21 From: Top of casing Two Hour Time Limit Reached ? (Circle) (Yes) / No
Pump/Tubing Intake set (ft.): 71.0 From: Top of casing Total Volume Purged, Including Drawdown (gallons): 24.5
Sample Designation Time at Purge Completion: 1616
Sample Time 1538 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri. pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
YSI Data Logger S/N 00A0550AC Peri. Pump S/N 663490
YSI Sonde S/N 04C2866AC HACH S/N 110900012345

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1335	/	100	2.30	1.09	1.09	13.96	1819	9.89	-292.6	1.32	17.4	
1340	/	100	2.97	0.67	1.76	14.09	1800	9.51	-302.2	0.75	39.5	
1345	/	100	3.80	0.83	2.59	14.12	1790	9.45	-307.0	0.53	36.7	Purge water is brown
1350	/	100	4.71	0.91	3.50	14.08	1787	9.46	-312.2	0.42	45.4	and clear. No
1355	/	100	5.29	0.58	4.08	14.04	1785	9.45	-313.3	0.40	22.1	odor observed.
1400	/	100	6.15	0.86	4.94	14.09	1781	9.45	-315.1	0.35	89.2	Notified Jeff B.
1405	/	100	6.86	0.71	5.65	13.98	1780	9.45	-315.8	0.32	18.6	of drawdown after
1410	/	100	7.66	0.80	6.65	13.96	1781	9.44	-316.8	0.33	96.0	3rd reading. Cont.
1415	/	100	8.37	0.71	7.36	13.89	1777	9.44	-317.7	0.33	19.7	purging. Historically
1420	/	100	9.14	0.77	8.13	13.76	1750	9.86	-315.9	0.37	28.5	this well has
1425	/	100	9.78	0.64	8.77	13.80	1740	10.53	-313.7	0.49	18.8	drawdown.
1430	/	100	10.62	0.84	9.61	13.77	1739	11.00	-310.0	0.68	20.4	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11-5-12 Page 2 of 2 **Well ID :** MW-405A

Field Personnel R. Rizza Purging Start Time : ~~Measured Well Depth (ft.):~~

Well Depth as installed (ft.): Parameter Stabilization: (Circle) Yes / No

Screen Length in ft. Screen Depth in ft. Two Hour Time Limit Reached ? (Circle) Yes / No

Depth to GW (ft.): From: Pg. 1

Pump/Tubing Intake set (ft.): From: 25 Total Volume Purged, Including Drawdown (gallons):

Sample Designation Time at Purge Completion:

Sample Time Same Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)

Multimeter model and serial number Turbidity meter model and serial number

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1435		100	11.18	0.56	10.17	13.76	1738	11.10	-302.8	0.78	35.8	
1440		100	11.73	0.55	10.72	13.76	1744	11.15	-305.7	0.87	8.56	
1445		100	12.40	0.67	11.39	13.75	1755	11.18	-303.1	0.96	85.9	
1450		100	12.97	0.57	11.96	13.65	1757	11.19	-301.1	1.00	24.7	
1455		100	13.60	0.63	12.59	13.65	1769	11.19	-299.7	1.04	37.8	
1500		100	14.19	0.59	13.18	13.69	1757	11.21	-298.6	1.05	52.4	
1505		100	14.75	0.56	13.74	13.67	1769	11.22	-298.0	1.06	27.8	
1510		100	15.32	0.57	14.31	13.54	1767	11.26	-297.4	1.11	15.4	
1515		100	15.86	0.54	14.85	13.54	1766	11.29	-296.8	1.13	25.7	
1520		100	16.44	0.58	15.43	13.56	1785	11.36	-296.4	1.16	41.3	
1525		100	16.93	0.49	15.92	13.68	1820	11.41	-292.1	1.19	14.6	
1530		100	17.40	0.47	16.39	13.79	1828	11.43	-290.0	1.22	25.2	
1535		100	18.04	0.64	17.03	13.76	1823	11.44	-288.2	1.24	12.4	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date: 11/5/12 Page 1 of 2 Well ID: MW-405 B
Field Personnel J. Stewart Purging Start Time: 1325
Well Depth as installed (ft.): 45 Measured Well Depth (ft.): 45 33
Screen Length in ft. 5 Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No - See Note
Depth to GW (ft.): 1 25 From: ~~69.5~~ 40.5 Two Hour Time Limit Reached ? (Circle) Yes / No - See Note
Pump/Tubing Intake set (ft.): 43 From: ~~73.5~~ 45.5 Total Volume Purged, Including Drawdown (gallons): 7
Sample Designation Time at Purge Completion:
Sample Time 1525 Signature: Josh S
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) bladder pump
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Stable at 1415, wait for Turbidity to Come down
PID on purge Bucket = 3.0 PPM

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1330	8 / 22	220	1.40	0.15	0.15							60 PSI Set up Adjust flow
1335	6 / 24	200	1.40	0.00	0.15							50 PSI Adjust flow Fill Cell
1340	6 / 24	200	1.40	0.00	0.15	~~13~~						50 PSI
1345	6 / 24	200	1.40	0.00	0.15	13.24	12082	6.11	-21.5	1.56	688	50 PSI Odor From
1350	6 / 24	200	1.40	0.00	0.15	13.37	12080	6.10	-20.3	1.65	783	50 PSI Purge water
1355	6 / 24	200	1.40	0.00	0.15	13.32	12083	6.10	-18.4	1.85	678	50 PSI with Bubbles
1400	6 / 24	200	1.40	0.00	0.15	13.33	12072	6.10	-16.2	1.97	624	50 PSI Orange / brown
1405	6 / 24	200	1.40	0.00	0.15	13.20	12046	6.10	-14.7	2.05	589	50 PSI hue
1410	6 / 24	200	1.40	0.00	0.15	13.28	12035	6.10	-13.8	2.14	543	50 PSI
1415	6 / 24	200	1.40	0.00	0.15	13.16	12047	6.10	-12.9	2.20	576	50 PSI
1420	6 / 24	200	1.40	0.00	0.15	13.17	12024	6.09	-11.8	2.32	491	50 PSI
1425	6 / 24	200	1.40	0.00	0.15	13.17	12054	6.08	-11.6	1.81	412	50 PSI

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/3/12 Page 2 of 2 **Well ID :** MW-405B
Field Personnel J Stewart Purging Start Time : 1325
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No – See Note
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No – See Note
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time _____ Signature: Josh S
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1430	6 / 24	200	1.40	0.00	0.15	13.04	12071	6.08	-11.8	1.66	319	50 PSI
1435	6 / 24	200	1.40	0.00	0.15	13.17	12070	6.08	-11.8	1.50	382	50 PSI
1440	6 / 24	200	1.40	0.00	0.15	13.14	12082	6.07	-11.6	1.44	260	50 PSI
1445	6 / 24	200	1.40	0.00	0.15	13.19	12035	6.07	-11.8	1.38	225	50 PSI
1450	6 / 24	200	1.40	0.00	0.15	13.09	12052	6.07	-11.6	1.35	228	50 PSI
1455	6 / 24	200	1.40	0.00	0.15	13.20	12070	6.07	-11.0	1.35	193	50 PSI
1300	6 / 24	200	1.40	0.00	0.15	13.22	12068	6.07	-10.9	1.29	173	50 PSI PID = 3.0
1305	6 / 24	200	1.40	0.00	0.15	13.34	12070	6.07	-10.5	1.27	149	50 PSI
1310	6 / 24	200	1.40	0.00	0.15	13.10	12103	6.07	-10.5	1.20	146	50 PSI
1315	6 / 24	200	1.40	0.00	0.15	13.23	12105	6.07	-10.4	1.14	125	50 PSI
1320	6 / 24	200	1.40	0.00	0.15	13.05	12131	6.06	-10.4	1.08	108	50 PSI
1325			Sample									

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/5/12 Page 1 of 2 **Well ID :** MW-203B
Field Personnel S. Dubz Purging Start Time : 0940
Well Depth as installed (ft.): Measured Well Depth (ft.): 31.38
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 4.85 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): As installed From: — Total Volume Purged, Including Drawdown (gallons): 2.5-3.0
Sample Designation Time at Purge Completion: 1205
Sample Time 1130 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 11080C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0940		60	5.05	0.20	0.20	—	—	—	—	—	—	Purging started at 0940
0945		60	5.03	-0.02	0.18	13.62	2039	6.03	-55.7	0.87	321	
0950		60	5.03	—	—	13.78	2036	6.02	-55.8	0.66	246	
0955		60	5.03	—	—	13.74	2031	6.04	-56.4	0.57	166	
1000		60	5.03	—	—	13.60	2026	6.05	-55.7	0.51	134	
1005		60	5.02	-0.01	0.17	13.93	2024	6.04	-54.8	0.47	123	
1010		60	5.02	—	—	13.84	2024	6.06	-54.7	0.47	91	
1015		60	5.00	-0.02	0.15	13.88	2023	6.07	-54.5	0.48	76.9	
1020		60	5.00	—	—	14.14	2024	6.07	-53.4	0.53	44.8	
1025		60	5.00	—	—	14.31	2020	6.08	-51.6	0.60	39.9	
1030		60	5.00	—	—	14.35	2017	6.08	-51.4	0.66	31.8	
1035		60	5.00	—	—	14.14	2012	6.08	-49.6	0.72	26.0	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11/5/12 Page 2 of 2 **Well ID :** MW-203B
Field Personnel S. DOSE Purging Start Time : 0940
Well Depth as installed (ft.): Measured Well Depth (ft.): 31.38
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 4.85 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): As installed From: – Total Volume Purged, Including Drawdown (gallons): 2.5 - 3.0
Sample Designation Time at Purge Completion: 1205
Sample Time 1130 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 11080C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1040		60	5.12	0.12	0.27	14.19	2014	6.08	-48.5	0.77	19.2	
1045		60	5.12	–	–	14.29	2013	6.08	-48.1	0.82	18.4	
1050		60	5.12	–	–	14.21	2005	6.08	-47.5	0.84	20.3	
1055		60	5.12	–	–	14.12	2007	6.08	-45.5	0.85	14.5	
1100		70	5.12	–	–	14.03	2004	6.08	-44.5	0.86	11.6	
1105		70	5.12	–	–	13.98	1999	6.08	-44.0	0.85	9.52	
1110		70	5.14	0.02	0.29	14.15	1996	6.08	-43.1	0.85	7.88	
1115		70	5.14	–	–	14.26	2000	6.08	-40.1	0.89	8.09	
1120		70	5.14	–	–	14.08	1999	6.08	-37.7	0.93	8.58	
1125		70	5.14	–	–	14.18	1997	6.08	-36.7	0.95	9.31	
1130		70	5.14	–	–	14.09	2000	6.08	-36.4	0.98	9.13	Begin Sampling
1135												

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11/5/12 Page 1 of 2 **Well ID :** MW-202
Field Personnel S.DUBE Purging Start Time : 1235
Well Depth as installed (ft.): 27.49 Measured Well Depth (ft.): 27.49
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 10.40 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): As Installed From: ~ Total Volume Purged, Including Drawdown (gallons): ~3.0
Sample Designation _____ Time at Purge Completion: 1455
Sample Time 1420 (AZ) Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 11080C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1245		80	10.71	0.01	0.01	14.17	2734	5.12	139.1	0.79	112	Begin purging at 1235
1250		80	10.75	0.04	0.05	13.88	2742	5.09	141.2	0.73	74.9	
1255		80	10.75	–	–	13.61	2747	5.07	146.2	0.71	69.6	
1300		80	10.75	–	–	13.64	2740	5.06	147.9	0.73	49.8	
1305		80	10.82	0.07	0.72	13.50	2738	5.04	149.1	0.72	38.3	
1310		80	10.83	0.01	0.73	13.44	2739	5.03	150.4	0.72	45.3	
1315		80	10.83	–	–	13.58	2739	5.03	150.4	0.74	29.6	
1320		80	10.83	–	–	13.55	2742	5.03	149.6	0.75	22.5	
1325		80	10.83	–	–	13.24	2749	5.02	150.0	0.76	18.6	
1330		80	10.83	–	–	13.20	2740	5.01	150.6	0.77	17.0	
1335		80	10.83	–	–	13.31	2734	5.01	150.3	0.78	14.9	
1340		80	10.83	–	–	12.99	2747	5.00	151.5	0.79	10.6	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/5/12 Page 2 of 2 **Well ID :** MW-202
Field Personnel S. DUBE Purging Start Time : 1235
Well Depth as installed (ft.): Measured Well Depth (ft.): 27.49
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 10.10 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): As Installed From: — Total Volume Purged, Including Drawdown (gallons): ~3.0
Sample Designation Time at Purge Completion: 1455
Sample Time 1420 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108000011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1345		80	10.83	—	—	12.98	2739	5.00	152.2	0.79	10.2	
1350		80	10.83	—	—	13.05	2737	5.00	151.7	0.79	8.58	
1355		80	10.83	—	—	12.96	2740	4.99	152.3	0.79	9.03	
1400		80	10.83	—	—	12.90	2735	4.98	152.9	0.80	6.68	
1405		80	10.83	—	—	12.92	2738	4.98	154.0	0.80	5.31	
1410		80	10.83	—	—	12.95	2739	4.98	154.4	0.81	6.48	
1415		80	10.83	—	—	12.83	2745	4.98	154.8	0.82	5.13	
1420		80	10.83	—	—	12.99	2739	4.97	154.6	0.82	4.72	Stable. Sampling started

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/5/12 Page 1 of 1 Well ID : MADEP - MW-1
Field Personnel S. DUBE Purging Start Time : 1525
Well Depth as installed (ft.): Measured Well Depth (ft.): —
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes (No)
Depth to GW (ft.): — From: — Two Hour Time Limit Reached ? (Circle) Yes (No)
Pump/Tubing Intake set (ft.): 1 ft from bottom From: — Total Volume Purged, Including Drawdown (gallons): 250 mL
Sample Designation Time at Purge Completion: 1535
Sample Time ~~[illegible]~~ 12:00 on 11-9-12 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108000 11671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Well dry.

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1530		—	—	—	—	—	—	—	—	—	—	Well dried up after 2 minutes. Purging completed.

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

only enough water in well to collect 2 VOA vials
vials submitted for VOC analysis.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/5/12 Page 1 of 2 **Well ID :** MW-203A
Field Personnel AR Purging Start Time : 1000
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. 10 Screen Depth in ft. Parameter Stabilization: (Circle) Yes (No)
Depth to GW (ft.): 6.13 From: Two Hour Time Limit Reached ? (Circle) (Yes) No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 4 ±
Sample Designation MW203A - 110512 Time at Purge Completion: 1040
Sample Time 1205 Signature: [illegible]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder - 10/5 @ 70 PSI
Multimeter model and serial number YSI 60XL / 99K0055AE Turbidity meter model and serial number HACH 2100Q / 1100Q011667
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Sheen noted on purge water.

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1015		100	6.34	0.21	0.21	12.78	20326	6.38	-96.4	0.30	39.7	
1020			6.90	0.56	0.77	13.43	20387	6.39	-78.6	0.17	35.3	
1025			7.51	0.61	1.38	13.26	20522	6.41	-83.6	0.13	37.6	
1030			7.91	0.40	1.78	13.23	20602	6.43	-85.0	0.09	46.9	
1035			8.65	0.74	2.52	12.91	20556	6.48	-93.2	0.07	86.1	
1040												missed readings
1045			9.46	0.81	3.33	13.07	20494	6.51	-94.2	0.06	119	
1050			9.60	0.14	3.47	13.42	20443	6.51	-101.4	0.06	29.1	
1055			9.88	0.28	3.75	13.20	20338	6.52	-110.1	0.06	36.0	
1100			10.19	0.31	4.06	12.87	20317	6.53	-102.8	0.06	24.6	
1105			10.55	0.36	4.42	12.92	20077	6.54	-102.2	0.06	24.9	
1110		✓	10.81	0.26	4.68	13.16	20107	6.55	-97.2	0.06	31.5	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/5/12 Page 2 of 2 **Well ID :** MW-203A
Field Personnel AR Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ See pg 1 Time at Purge Completion: _____
Sample Time 1205 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1115		100	11.02	0.21	4.87	13.38	20033	6.56	-99.1	0.06	47.1	
1120			11.44	0.42	5.29	13.27	20021	6.57	-99.6	0.06	85.3	
1125			11.65	0.21	5.50	13.22	20000	6.58	-100.0	0.07	96.2	
1130			11.71	0.06	5.56	13.06	19880	6.58	-105.8	0.07	46.4	
1135			~~11.94~~	0.23	5.79	12.98	19749	6.60	-111.3	0.07	46.8	
1140			12.12	0.18	5.97	13.03	19702	6.61	-109.7	0.07	35.2	
1145			12.31	0.19	6.16	13.27	19701	6.62	-110.7	0.07	40.8	
1150			12.51	0.20	6.36	13.22	19733	6.64	-113.2	0.08	54.1	
1155			12.62	0.11	6.47	12.70	19873	6.65	-107.7	0.08	45.9	
1200			12.83	0.21	6.68	13.07	19445	6.65	-109.2	0.08	34.5	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/5/17 Page 1 of 2 **Well ID :** MW-201
Field Personnel A. Ray Purging Start Time : 1325
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 12.79 From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time 1530 Signature: [illegible]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder / 10-5 / 50 PSI
Multimeter model and serial number YSI 600XL / 99K0055AB Turbidity meter model and serial number HACH 2100Q / 110800011667
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1330		100	12.83	0.04	0.04	16.21	3048	5.66	55.7	1.41	346	
1335			12.81	+.02	0.02	15.36	2027	5.57	76.5	0.67	249	
1340			12.81	.0	0.02	15.14	1769	5.56	79.3	0.47	247	
1345						15.13	1669	5.56	80.3	0.43	NR	
1350						14.91	1605	5.55	81.7	0.36	NR	
1355						14.65	1573	5.54	82.3	0.33	175	
1400						14.77	1568	5.54	82.3	0.32	167	Screen was frozen
1405						14.77	1568	5.54	82.3	0.32	50.0	
1410						14.77	1568	5.54	82.3	0.32	51.6	
1415						14.77	1568	5.54	82.3	0.32	48.7	
1420						14.77	1568	5.54	82.3	0.32	40.8	
1425						14.77	1568	5.54	82.3	0.32	31.2	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/5/12 Page 2 of 2 **Well ID :** MW-201
Field Personnel N. Zay Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ See PS Time at Purge Completion: _____
Sample Time _____ Signature: N. Zay
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1430		100	12.81	0.02	0.02	15.04	1536	5.54	84.8	0.24	28.0	
1435			12.81	0.02	0.02	15.11	1529	5.54	85.0	0.21	22.8	
1440						14.97	1525	5.54	85.3	0.21	18.2	
1445						14.96	1519	5.54	83.9	0.20	16.5	
1450						14.81	1516	5.54	83.2	0.19	15.2	
1455						14.74	1512	5.54	82.7	0.19	13.9	
1500						15.02	1508	5.54	83.6	0.18	12.1	
1505						15.28	1506	5.54	83.5	0.17	10.9	
1510						15.09	1506	5.54	82.7	0.18	8.42	
1515						15.15	1507	5.54	82.3	0.18	7.51	
1520						14.07	1531	5.54	82.1	0.19	10.7	
1525						15.57	1525	5.54	81.7	0.20	9.7	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11/6/12 Page 1 of 2 **Well ID :** RMW-116A
Field Personnel S. DUBE Purging Start Time : 1450
Well Depth as installed (ft.): Measured Well Depth (ft.): 39.0
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 13.93 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes (No)
Pump/Tubing Intake set (ft.): 38.0 From: Top of PVC Total Volume Purged, Including Drawdown (gallons): ~3.5
Sample Designation Time at Purge Completion: 1655
Sample Time 1600 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108000116 71
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1500		120	15.35	1.42	1.42	11.94	278	7.05	-57.7	6.46	43.7	
1505		120	16.24	0.89	2.31	11.92	263	7.30	-49.5	6.33	11.8	
1510		120	17.11	0.87	3.18	11.88	255	7.44	-38.8	6.44	5.85	
1515		110	17.87	0.76	3.94	11.89	241	7.57	-26.1	6.94	3.70	
1520		110	18.73	0.86	4.80	11.71	230	7.66	-12.7	7.58	2.88	
1525		120	19.59	0.86	5.66	11.83	230	7.70	-4.8	7.67	4.03	
1530		120	20.61	1.02	6.68	11.86	226	7.76	2.6	7.84	1.91	
1535		120	21.57	0.96	7.64	11.86	224	7.78	9.0	7.74	4.57	
1540		120	22.48	0.91	8.55	11.77	228	7.80	9.7	7.54	4.20	
1545		120	23.78	1.30	9.85	11.76	224	7.83	16.6	7.89	2.53	
1550		120	24.20	0.42	10.27	11.76	223	7.84	18.2	7.94	2.17	
1555		120	25.22	1.03	11.30	11.80	223	7.87	29.3	8.07	2.59	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/6/12 Page 2 of 2 **Well ID :** RMW-116A
Field Personnel S. DuBE Purging Start Time : 1450
Well Depth as installed (ft.): Measured Well Depth (ft.): 39.0
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 13.93 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes No
Pump/Tubing Intake set (ft.): 38.0 From: Top of PVC Total Volume Purged, Including Drawdown (gallons):
Sample Designation Time at Purge Completion: 1653
Sample Time 1620 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108000116 71
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1600		130	26.54	1.31	12.61	11.80	223	7.87	34.8	8.13	2.56	Calculated volume purged as 2.41 gal
1605		130	27.77	1.23	13.84	11.76	222	7.87	40.5	8.10	2.17	Calculated drawdown as 2.06 gal
1610		130	28.20	0.43	14.27	11.72	222	7.88	42.8	8.11	2.33	↳ Therefore, none recharge
1615		140	28.82	0.62	14.89	11.68	222	7.87	45.7	8.17	1.90	
1620		140	29.81	0.99	15.88	11.57	222	7.86	49.0	8.15	1.87	
												Calculated volume purged → 3.10 gal
												Calculated drawdown as 2.57 gal
												Depth to GW @ 33.2 ft
												↳ No more water to sample
												Pulling air

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11/6/12 Page 1 of 1 **Well ID :** MW-4A
Field Personnel S. DUBE Purging Start Time : 0910
Well Depth as installed (ft.): Measured Well Depth (ft.): 20.68
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 5.74 From: Top of Steel Pipe Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 18.68 From: Top of Steel Pipe Total Volume Purged, Including Drawdown (gallons): ~3.0
Sample Designation Time at Purge Completion: 1015
Sample Time 1005 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0915		160	5.74	–	–	13.16	80	5.95	58.3	2.33	20.1	
0920		160	5.74	–	–	13.78	79	5.67	54.0	1.78	15.3	
0925		160	5.74	–	–	14.16	77	5.54	59.0	0.72	14.8	
0930		160	5.74	–	–	14.26	74	5.50	62.4	0.54	16.1	
0935		170	5.74	–	–	14.31	72	5.51	63.8	0.56	14.3	
0940		170	5.74	–	–	14.23	71	5.51	64.5	0.44	14.7	
0945		170	5.74	–	–	14.43	68	5.53	68.2	0.44	12.3	
0950		170	5.74	–	–	14.60	67	5.54	69.5	0.44	11.0	
0955		170	5.74	–	–	14.46	67	5.55	70.7	0.47	8.98	
1000		170	5.74	–	–	14.60	67	5.56	72.2	0.49	8.32	
1005		170	5.74	–	–	14.46	67	5.56	72.8	0.50	9.00	Begin sampling

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 11/6/2012 Page 1 of 1 Well ID: MW-04B
Field Personnel M. WEBBER Purging Start Time: 0910
Well Depth as installed (ft.): Measured Well Depth (ft.): 66.3
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 5.71 From: CASING Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2
Sample Designation Time at Purge Completion: 1010
Sample Time 0955 Signature: Matt Webber
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) PERISTALTIC
Multimeter model and serial number YSI 600XL #99K0055AE Turbidity meter model and serial number HACH 2100Q #11080C011667
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0915		200	5.75	0.04	0.04	9.43	1	6.92	-80.5	11.62	7.28	SCREEN FROZEN, DISCONNECT AND RESTART
0920		150	5.75	0.00	0.04	9.43	782	6.07	123.7	2.04	12.2	
0925		150	5.75	0.00	0.04	12.18	788	6.09	25.9	1.70	7.74	
0930		200	5.75	0.00	0.04	12.09	797	6.10	21.6	1.59	6.08	
0935		200	5.75	0.00	0.04	12.06	805	6.12	45.5	1.53	2.93	
0940		150	5.75	0.00	0.04	12.07	821	6.13	82.1	1.42	2.63	
0945		150	5.75	0.00	0.04	12.02	826	6.13	78.6	1.39	1.98	
0950		150	5.75	0.00	0.04	12.10	830	6.13	74.1	1.32	2.11	
0955		SAMPLES	TAKEN									

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/6/12 Page 1 of 1 **Well ID :** MW-403A
Field Personnel J. Stewart Purging Start Time : 0920
Well Depth as installed (ft.): 45 Measured Well Depth (ft.): 47.25
Screen Length in ft. 4 Screen Depth in ft. 41-45 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 7.11 From: PVC ~~Ground Surface~~ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 43 From: ~~PVC~~ Ground Surface Total Volume Purged, Including Drawdown (gallons): 2
Sample Designation Time at Purge Completion: 1030
Sample Time 1015 Signature: Josh S
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri PUMP
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0925		160	7.21	0.10	0.10							Set up Adjust Flow
0930		160	7.21	0.00	0.10							Fill Cell
0935		160	7.21	0.00	0.10	11.70	587	5.46	149.6	2.88	4.89	
0940		160	7.21	0.00	0.10	11.74	592	5.42	163.9	2.88	3.80	
0945		160	7.21	0.00	0.10	11.67	591	5.37	168.9	2.98	1.46	
0950		160	7.21	0.00	0.10	11.56	585	5.31	182.9	2.89	1.48	
0955		160	7.21	0.00	0.10	11.73	572	5.25	193.1	3.00	1.45	
1000		160	7.21	0.00	0.10	11.85	561	5.24	194.8	2.95	1.42	
1005		160	7.21	0.00	0.10	11.85	560	5.22	202.5	2.92	1.40	
1010		160	7.21	0.00	0.10	11.87	556	5.22	204.2	2.97	1.43	
1015							Sample					

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11-6-12 Page 1 of 1
Field Personnel R. Rizza
Well Depth as installed (ft.): 21.80
Screen Length in ft. 5 Screen Depth in ft. 16.80 - 21.80
Depth to GW (ft.): 7.40 From: Top of PVC
Pump/Tubing Intake set (ft.): 19.30 From: Top of PVC
Sample Designation
Sample Time 1009

Well ID : MW-403B
Purging Start Time : 0921
Measured Well Depth (ft.): 21.80
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): ~1.5
Time at Purge Completion: 1041
Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri. Pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100 Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
YSI Data Logger S/N 00M0550AC HACH S/N 11090C012245
Sonde S/N 04C2866AC Peri pump S/N G6349U

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0925		100	8.37	0.97	0.97	12.76	796	6.20	-262.5	1.35	12.3	
0930		100	9.35	0.98	1.95	12.99	791	6.17	-225.7	1.00	15.3	Purge water clear.
0935		80	10.20	0.85	2.80	12.92	770	6.15	-223.8	1.29	6.99	no odor observed.
0940		100	10.95	0.75	3.55	13.10	762	6.15	-200.1	2.39	4.31	
0945		80	11.73	0.78	4.33	13.37	746	6.15	-180.5	3.34	3.11	
0952		80	12.79	1.06	5.39	13.12	733	6.15	-175.8	3.86	2.63	
0959		80	13.60	0.81	6.20	13.01	733	6.15	-170.1	3.88	2.59	
1006		80	14.37	0.77	6.97	12.91	732	6.16	-179.0	3.81	2.19	Sample collected.

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

0930 Spoke to Jeff B. about drawdown. OK to purge at <100 ml/min at this location per Jeff B.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/6/2012 Page 1 of 1 Well ID : MW-04 C

Field Personnel M. WEBBER Purging Start Time : 1130

Well Depth as installed (ft.): 78 Measured Well Depth (ft.): 76.70

Screen Length in ft. 5.0 Screen Depth in ft. 73.0 Parameter Stabilization: (Circle) (Yes) / No

Depth to GW (ft.): 5.31 From: CASING Two Hour Time Limit Reached ? (Circle) Yes / (No)

Pump/Tubing Intake set (ft.): 75.0 From: CASING Total Volume Purged, Including Drawdown (gallons): 1.5

Sample Designation Time at Purge Completion: 1300

Sample Time 1215 Signature: Matt Webb

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) PERISTALTIC

Multimeter model and serial number YSI 600XL #99K0055AE Turbidity meter model and serial number HACH 2100Q # 11080C011667

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1135		200	6.26	0.95	0.95	12.15	287	6.15	75.9	1.93	24.5	
1140		150	6.81	0.45	1.40	12.27	337	6.13	94.5	1.06	20.6	
1145		100	7.76	0.95	2.35	12.58	347	6.13	95.4	0.67	13.9	
1150		100	7.99	0.23	2.58	12.62	348	6.13	104.2	1.00	12.1	
1155		100	8.04	0.05	2.63	12.56	356	6.14	111.4	1.24	14.6	
1200		100	8.09	0.05	2.68	12.49	358	6.15	115.1	0.96	14.0	
1205		100	8.09	0.00	2.68	12.25	353	6.14	120.8	0.88	13.8	
1210		100	8.09	0.00	2.68	12.15	352	6.14	118.1	0.90	13.0	
1215		Samples	Taken									BATTERY DIED, SWITCHED OUT

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11-6-12 Page 1 of 1 **Well ID :** MW-~~30B~~ 304B
Field Personnel B. Rizza Purging Start Time : 1134
Well Depth as installed (ft.): 30.04 Measured Well Depth (ft.): 30.04
Screen Length in ft. 5 Screen Depth in ft. 25.04 - 30.04 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.67 From: Top of pvc Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 27.54 From: Top of pvc Total Volume Purged, Including Drawdown (gallons): ~2.0
Sample Designation Time at Purge Completion: 1251
Sample Time 1226 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic Pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100 Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
YSI Data Logger S/N 00M0550AC HACH S/N 110900012245
Sonde S/N 04C2466AC Peristaltic Pump S/N 66390

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1140		80	4.03	0.36	0.36	12.27	3955	6.33	-274.2	1.58	4.99	
1147		80	4.08	0.05	0.41	12.21	3994	6.37	-261.2	0.88	4.46	Purge water clear and
1154		80	4.11	0.03	0.44	12.17	3957	6.37	-241.5	0.91	3.35	slightly brown. No odor
1201		80	4.11	—	0.44	12.14	3929	6.37	-241.9	0.57	2.83	observed.
1208		80	4.13	0.02	0.46	12.10	3903	6.36	-244.4	0.44	1.54	
1215		80	4.15	0.02	0.48	12.12	3890	6.36	-245.0	0.36	1.21	
1222		80	4.15	—	0.48	12.23	3871	6.35	-240.0	0.39	1.08	Sample collected.

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

I spoke to Jeff B. about drawdown and purge rate OK to purge at 80 ml/min.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11/6/12 Page 1 of 1 **Well ID :** MW-304A
Field Personnel J. Stewart Purging Start Time : 1135
Well Depth as installed (ft.): Measured Well Depth (ft.): 53.60
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.55 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2
Sample Designation Time at Purge Completion: 1255
Sample Time 1220 MS/MSD Signature: JGS
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri Pump
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1140		120	3.83	0.28	0.28							Setup Adjust Flow
1145		120	3.83	0.00	0.28							Fill Cell
1150		120	3.84	0.01	0.29	10.34	10032	6.21	-44.7	1.36	6.37	
1155		120	3.85	0.01	0.30	10.84	10131	6.29	-51.8	1.24	13.7	
1200		120	3.88	0.03	0.33	11.06	10200	6.32	-53.8	1.05	9.74	
1205		120	3.88	0.00	0.33	11.05	10230	6.33	-56.2	1.03	8.35	
1210		120	3.88	0.00	0.33	11.07	10236	6.34	-58.7	0.98	8.52	
1215		120	3.88	0.00	0.33	11.22	10245	6.35	-58.7	0.93	9.24	
1220						Sample						

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11/6/12 Page 1 of 2 **Well ID :** MW-204A
Field Personnel S. DUZE Purging Start Time : 1137
Well Depth as installed (ft.): 4 Measured Well Depth (ft.): 49.22
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 7.30 From: Top of steel pipe Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 48.62 From: Top of steel pipe Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation MW-204A Time at Purge Completion: _____
Sample Time 1340 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Proistalric
Multimeter model and serial number YSI 650 14DS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108C01671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1145		90	7.60	0.30	0.30	15.31	468	6.00	-56.1	1.92	927	
1150		90	7.64	0.04	0.34	15.39	529	6.05	-65.2	1.29	616	
1155		100	7.65	0.01	0.35	15.52	593	6.07	-69.1	0.88	366	
1200		90	7.71	0.06	0.41	15.47	692	6.09	-70.4	0.62	259	
1205		90	7.71	—	—	15.48	786	6.08	-69.0	0.62	182	
1210		90	7.71	—	—	15.63	1118	6.04	-68.1	0.53	118	
1215		90	7.71	—	—	15.53	1630	6.03	-66.6	0.50	80.6	
1220		90	7.72	0.01	0.42	15.35	2025	5.98	-61.8	0.49	53.7	
1225		90	7.72	—	—	15.30	2427	5.93	-54.9	0.49	44.0	
1230		90	7.72	—	—	15.20	2699	5.91	-50.1	0.50	33.0	
1235		90	7.72	—	—	15.07	2942	5.88	-44.3	0.53	29.4	
1240		90	7.72	—	—	15.10	3038	5.88	-42.6	0.52	28.0	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

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Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/6/12 Page 2 of 2 **Well ID :** MW-204A
Field Personnel S. DUBE Purging Start Time : 1137
Well Depth as installed (ft.): Measured Well Depth (ft.): 49.22
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 7.30 From: Top of steel pipe Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 48.62 From: Top of steel pipe Total Volume Purged, Including Drawdown (gallons): ~4.0
Sample Designation Time at Purge Completion: 1405
Sample Time 1340 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bristaltic
Multimeter model and serial number YSI 650 MDS 02E0628AA Turbidity meter model and serial number HACH 2100Q 1108C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1245		100	7.81	0.09	0.51	15.11	3433	5.81	-34.8	0.55	25.0	Stopped, switch from battery to car power
1250		100	7.81	–	–	15.13	3337	5.83	-34.0	0.55	23.6	
1255		100	7.81	–	–	15.14	3456	5.79	-28.9	1.04	18.2	
1300		100	7.82	0.01	0.52	15.15	3508	5.76	-25.7	0.89	20.2	
1305		100	7.82	–	–	15.30	3580	5.75	-22.4	0.70	18.3	
1310		120	7.84	0.02	0.54	15.36	3627	5.74	-20.0	1.90	21.3	
1315		120	7.84	–	–	15.32	3854	5.70	-16.4	1.37	15.9	
1320		110	7.84	–	–	15.31	3889	5.69	-15.3	1.00	15.4	
1325		110	7.84	–	–	15.28	3845	5.68	-14.0	0.83	16.7	
1330		110	7.84	–	–	15.28	3804	5.68	-13.6	0.75	16.7	
1335		110	7.84	–	–	15.35	3741	5.67	-12.4	0.69	17.0	
1340		110	7.84	–	–	15.34	3743	5.67	-12.1	0.68	16.6	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 11/6/2012 Page 1 of 1
Field Personnel M. WEBBER
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): 6.29 From: METAL STICKUP
Pump/Tubing Intake set (ft.): From:
Sample Designation UNKNOWN
Sample Time 1435

Well ID: ~~MW-01E~~ WP-105
Purging Start Time: ~~1450~~ 1350
Measured Well Depth (ft.): ~~76.70~~ 12.30
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 2.5
Time at Purge Completion: 1455
Signature: Matt Webber

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) PERISTALTIC
Multimeter model and serial number YSI 600XL #99K0055AE Turbidity meter model and serial number HACH 2100Q #1080C011667
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1355		150	6.31	0.02	0.02	12.22	404	6.45	78.2	1.95	28.9	
1400		150	6.31	0.00	0.02	12.73	414	6.48	60.0	0.98	12.5	
1405		150	6.31	0.00	0.02	12.63	420	6.49	66.0	0.78	5.33	
1410		150	6.31	0.00	0.02	12.60	422	6.50	59.8	0.64	1.83	
1415		150	6.32	0.01	0.03	12.56	425	6.51	57.3	0.58	1.42	
1420		150	6.32	0.00	0.03	12.55	426	6.51	49.0	0.50	1.68	
1425		150	6.32	0.00	0.03	12.59	426	6.51	46.0	0.50	1.53	
1430		150	6.32	0.00	0.03	12.64	427	6.52	40.5	0.48	1.11	
1435		Samples	Taken									

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11-6-12 Page 1 of 2 **Well ID :** BMW-305A
Field Personnel R. Rizzi Purging Start Time : 1411
Well Depth as installed (ft.): 54.11 Measured Well Depth (ft.): 54.11
Screen Length in ft. 5 Screen Depth in ft. 49.11-54.11 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 6.54 From: Top of casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 51.61 From: Top of casing Total Volume Purged, Including Drawdown (gallons): ~4.2
Sample Designation Time at Purge Completion: 1641
Sample Time 1620 Signature: Richard Rizzi
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri Pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
YSI Data Logger S/N 00M0550AC HACH S/N 1090C012245
Solinst S/N 04C2866AC Peri Pump S/N 66349U

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1415	/	100	6.91	0.37	0.37	12.07	1705	6.99	-277.1	2.25	326	
1420	/	100	6.91	—	0.37	12.26	1754	7.17	-265.0	0.96	239	Purge water is brown.
1425	/	100	6.95	0.04	0.41	12.34	1764	7.21	-255.2	0.73	181	No odor observed.
1430	/	100	6.95	—	0.41	12.52	1771	7.21	-250.0	0.61	78.7	
1435	/	100	6.95	—	0.41	12.56	1773	7.18	-250.8	0.49	63.2	
1440	/	100	6.98	0.03	0.44	12.57	1756	7.17	-251.6	0.45	47.4	
1445	/	80	6.98	—	0.44	12.48	1685	7.12	-252.5	0.43	41.2	
1452	/	80	6.99	0.01	0.45	12.58	1527	7.01	-247.9	0.37	28.3	
1459	/	80	6.99	—	0.45	12.44	1411	6.90	-249.2	0.39	20.6	
1506	/	80	6.99	—	0.45	12.37	1310	6.78	-253.8	0.36	11.6	
1513	/	80	6.99	—	0.45	12.40	1248	6.69	-255.2	0.32	9.12	
1520	/	80	6.99	—	0.45	12.46	1153	6.53	-254.2	0.31	9.59	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

I spoke to Jeff B. about purge rate, ok to purge at 80 ml/min.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11-6-12 Page 2 of 2 **Well ID :** RMW-305A
Field Personnel R. Rizza Purging Start Time :
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons):
Sample Designation See Ff Time at Purge Completion:
Sample Time Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1527		80	6.99	—	0.45	12.43	1096	6.39	-255.6	0.33	10.5	
1534		80	6.99	—	0.45	12.46	1055	6.29	-255.2	0.31	6.42	
1541		80	6.99	—	0.45	12.33	1029	6.21	-255.0	0.33	6.43	
1548		80	6.99	—	0.45	12.33	1021	6.15	-250.9	0.32	5.51	
1555		80	6.99	—	0.45	12.39	1014	6.11	-247.5	0.32	4.90	
1602		80	6.99	—	0.45	12.29	1002	6.06	-243.8	0.34	5.78	
1609		80	6.99	—	0.45	12.32	994	6.03	-244.4	0.32	4.70	
1616		80	6.99	—	0.45	11.69	986	6.01	-254.3	0.33	7.03	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 11/6/12 Page 1 of 1 Well ID: MW-305B
Field Personnel J. Stewart Purging Start Time: 1410
Well Depth as installed (ft.): Measured Well Depth (ft.): 17.25
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 6.90 From: PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 3
Sample Designation Time at Purge Completion: 1535
Sample Time 1510 Signature: Josh
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic Pump
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100a
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1415		180	6.90	0.00	0.00							Adjust Flow setup
1420		180	6.90	0.00	0.00							Fill Cell
1425		180	6.90	0.00	0.00	12.35	293	5.30	181.6	1.13	1.96	
1430		180	6.90	0.00	0.00	12.77	257	5.15	210.8	0.73	0.50	
1435		180	6.90	0.00	0.00	13.04	244	4.94	250.7	0.74	0.48	
1440		180	6.90	0.00	0.00	13.57	211	4.81	272.1	0.52	0.45	
1445		180	6.90	0.00	0.00	13.59	198	4.68	287.9	0.42	0.42	
1450		180	6.90	0.00	0.00	13.68	193	4.63	294.4	0.38	0.46	
1455		180	6.90	0.00	0.00	13.66	188	4.62	302.7	0.34	0.43	
1500		180	6.90	0.00	0.00	13.66	190	4.59	308.2	0.30	0.39	
1505		180	6.90	0.00	0.00	13.46	189	4.58	310.4	0.28	0.38	
1510						Sample						

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11-7-12 Page 1 of 1 **Well ID :** MW-406A
Field Personnel R. Rizza Purging Start Time : 0844
Well Depth as installed (ft.): 62.88 Measured Well Depth (ft.): 62.88
Screen Length in ft. 5 Screen Depth in ft. 57.88-62.88 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 8.18 From: Top of pvc Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 60.38 From: Top of pvc Total Volume Purged, Including Drawdown (gallons): ~2.0
Sample Designation Time at Purge Completion: 1017
Sample Time 0949 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri. Pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
Data Logger S/N 00M0550AC HACH S/N 11090C012245
Sonde S/N 04C2866AC Peri. Pump S/N G6349U

	Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
	HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0850	~~0950~~	M	100	8.55	0.37	0.37	15.26	733	7.50	-283.5	1.21	18.3	
0855	~~0955~~	M	100	8.60	0.05	0.42	14.97	690	7.57	-287.1	0.89	13.5	Purge water clear,
0900	~~1000~~	M	100	8.62	0.02	0.44	14.93	640	7.62	-287.0	0.85	17.2	no odor observed.
0905	~~1005~~	M	100	8.62	—	0.44	14.94	608	7.64	-287.8	0.64	14.2	
0910	~~1010~~	M	100	8.65	0.03	0.47	15.00	593	7.65	-288.6	0.55	10.9	
0915	~~1015~~	M	80	8.68	0.03	0.50	14.84	580	7.65	-289.2	0.51	9.55	
0920	~~1020~~	M	80	8.62	-0.04	0.46	14.67	574	7.65	-289.3	0.47	8.67	
0925	~~1025~~	M	80	8.62	—	0.46	14.64	574	7.65	-285.3	0.46	10.7	
0930	~~1030~~	M	80	8.62	—	0.46	14.63	573	7.65	-285.3	0.45	10.5	
0935	~~1035~~	M	80	8.62	—	0.46	14.62	572	7.65	-282.0	0.45	7.05	
0940	~~1040~~	M	80	8.62	—	0.46	14.44	573	7.67	-284.4	0.48	6.55	
	0945		80	8.62	—	0.46	14.39	573	7.65	-283.6	0.45	6.58	Lab sample collected.

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date: 11/7/12 Page 1 of 1 Well ID: MW-406B
Field Personnel Josh Stewart Purging Start Time: 0845
Well Depth as installed (ft.): Measured Well Depth (ft.): 42.21
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 8.29 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2.5
Sample Designation Time at Purge Completion: 1050
Sample Time 0945 MS/MSD Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Per. Pump
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100a
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0850		140	8.31	0.02	0.02							Set up Adjust Flow
0855		140	8.33	0.02	0.04							Fill Cell
0900		140	8.34	0.01	0.03	14.39	805	6.97	-12.5	1.18	8.40	
0905		140	8.32	-0.02	0.03	14.38	801	7.04	-8.1	0.83	6.87	
0910		140	8.34	0.02	0.05	14.49	797	7.08	-12.9	0.66	5.28	
0915		140	8.34	0.00	0.05	13.86	801	7.15	-23.0	0.70	5.85	
0920		140	8.34	0.00	0.05	13.81	798	7.18	-24.5	0.61	4.13	
0925		140	8.34	0.00	0.05	14.02	791	7.20	-21.3	0.59	4.57	
0930		140	8.34	0.00	0.05	14.01	798	7.22	-16.1	0.50	4.06	
0935		140	8.34	0.00	0.05	13.88	798	7.23	-9.9	0.48	3.88	
0940		140	8.34	0.00	0.05	14.03	793	7.23	-7.8	0.48	3.94	
0945						Sample						

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11/7/12 Page 1 of 2 **Well ID :** MW-302
Field Personnel S.DUBE Purging Start Time : 0900
Well Depth as installed (ft.): Measured Well Depth (ft.): 23.86
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 10.04 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): As installed From: – Total Volume Purged, Including Drawdown (gallons): ~3.0
Sample Designation MW-302 Time at Purge Completion: 1130
Sample Time 10:10 (9B) Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 11080C011670
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Lab Duplicate Sample taken (DUP-002)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0910		100	11.13	1.14	1.14	12.45	3711	4.28	150.3	1.76	138	
0915		60	11.34	0.16	1.30	12.28	3675	4.29	158.7	1.48	104	
0920		60	11.41	0.07	1.37	12.26	3638	4.27	164.7	1.19	62.6	
0925		60	11.50	0.09	1.46	12.32	3586	4.28	171.7	0.98	41.4	
0930		60	11.57	0.07	1.53	12.34	3567	4.29	175.4	0.85	28.2	
0935		50	11.57	–	–	12.03	3558	4.29	178.1	0.77	24.3	
0940		50	11.56	-0.01	1.52	12.02	3506	4.29	180.4	0.73	16.4	
0945		50	11.56	–	–	12.10	3496	4.29	182.7	0.72	15.3	
0950		50	11.58	0.02	1.54	12.10	3495	4.29	184.2	0.71	11.7	
0955		60	11.60	0.02	1.56	12.16	3512	4.29	186.3	0.68	10.0	
1000		60	11.64	0.04	1.60	12.43	3524	4.29	188.9	0.67	10.3	
1005		60	11.64	–	–	12.41	3550	4.29	189.5	0.67	9.49	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11/7/12 Page 2 of 2 **Well ID :** MW-302
Field Personnel
Purging Start Time : 0900
Well Depth as installed (ft.):
Measured Well Depth (ft.): 23.86
Screen Length in ft. Screen Depth in ft.
Parameter Stabilization: (Circle) (Yes) / No
Depth to GW (ft.): 10.04 From: Top of PVC
Two Hour Time Limit Reached ? (Circle) Yes / (No)
Pump/Tubing Intake set (ft.): As Installed From: —
Total Volume Purged, Including Drawdown (gallons): ~3.0
Sample Designation
Time at Purge Completion: 1130
Sample Time 1010
Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 650 MDS 02F0628A Turbidity meter model and serial number HACH 2100Q 110800 11671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) Lab Duplicate Sample taken (DUP-002)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1010		60	10.65	0.01	1.61	12.34	3571	4.29	190.3	0.67	9.66	Stabilized. Begin sampling
												Final DTW → 11.93 ft.

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 11/7/2012 Page 1 of 2 Well ID: MW-401
Field Personnel M. Webber Purging Start Time: 1110
Well Depth as installed (ft.): Measured Well Depth (ft.): 97.55
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.59 From: Casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 3
Sample Designation Unknown Time at Purge Completion: ~~1320~~ 1235
Sample Time 1220 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 600XL # 01M0616AA Turbidity meter model and serial number HACH 2100Q # 1080C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1115		120	4.51	0.62	0.62	11.52	2794	7.26	72.6	2.36	18.1	
1120		100	4.98	0.47	1.09	11.31	2857	7.28	25.3	1.46	7.86	
1125		100	5.30	0.32	1.41	11.08	2862	7.27	11.2	1.18	4.02	
1130		100	5.47	0.17	1.58	11.03	2854	7.27	7.8	0.96	2.53	
1135		100	5.86	0.39	1.97	11.19	2847	7.27	-8.6	0.76	3.43	
1140		100	6.10	0.24	2.21	11.29	2852	7.30	-16.1	0.69	3.27	
1145		100	6.51	0.41	2.62	11.11	2860	7.30	-33.1	0.52	3.16	
1150		100	7.01	0.50	3.12	11.11	2874	7.32	-40.2	0.44	3.45	
1155		100	7.18	0.17	3.29	10.99	2875	7.33	-41.4	0.43	3.31	
1200		100	7.34	0.16	3.45	11.04	2869	7.33	-42.8	0.40	3.09	
1205		100	7.53	0.19	3.64	10.96	2877	7.33	-43.4	0.39	3.22	
1210		100	7.79	0.26	3.90	11.22	2866	7.33	-43.2	0.32	3.57	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 11/7/2012 Page 2 of 2 Well ID: MW-401
Field Personnel M. WEBBER Purging Start Time: 1110
Well Depth as installed (ft.): Measured Well Depth (ft.): 97.55
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.89 From: Casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 3
Sample Designation Unknown Time at Purge Completion: ~~1320~~ 1235
Sample Time 1220 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Per: Peristaltic
Multimeter model and serial number YSI 600XL #01M0616AA Turbidity meter model and serial number HACH 2100Q #11080C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1215		100	7.98	0.19	4.09	11.23	2874	7.33	-43.8	0.35	4.96	
1220		samples	Taken									

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by: (ME)

Date : 11-7-12 Page 1 of 1 **Well ID :** ~~MW-06A~~ 6A
Field Personnel R. Rizza Purging Start Time : 1133
Well Depth as installed (ft.): 12.11 Measured Well Depth (ft.): 12.11
Screen Length in ft. 5 Screen Depth in ft. 7.11-12.11 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 2.55 From: Top of PVC Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 9.61 From: Top of PVC Total Volume Purged, Including Drawdown (gallons): ~3.5
Sample Designation Time at Purge Completion: 1246
Sample Time 1233 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri. Pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
YSI Data Logger S/N 00M058AC HACH S/N 11090C012345
YSI Sonde S/N 04C286AC Peri. Pump S/N 66349U

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1140	/	100	2.55	—	—	12.71	609	5.63	-224.6	1.15	19.8	
1145	/	150	2.55	—	—	13.37	607	5.58	-216.5	0.71	24.6	
1150	/	180	2.55	—	—	13.67	585	5.59	-211.7	0.56	26.6	Purge water clear
1155	/	200	2.55	—	—	13.84	546	5.61	-211.2	0.43	21.8	and L. purple.
1200	/	200	2.55	—	—	13.98	512	5.62	-211.9	0.33	18.5	
1205	/	200	2.55	—	—	14.02	482	5.64	-210.6	0.29	14.9	
1210	/	220	2.55	—	—	14.23	474	5.64	-209.6	0.29	11.4	
1215	/	220	2.55	—	—	14.36	473	5.65	-207.1	0.27	11.8	
1220	/	220	2.55	—	—	14.34	456	5.67	-205.9	0.24	11.7	
1225	/	220	2.55	—	—	14.41	457	5.66	-204.2	0.24	10.6	
1230	/	220	2.55	—	—	14.39	457	5.66	-202.5	0.24	10.9	Lab sample collected
	/											

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 11/7/12 Page 1 of 1 Well ID: MW-110
Field Personnel J. Stewart Purging Start Time: 1135
Well Depth as installed (ft.): Measured Well Depth (ft.): 69.30
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 2.25 From: Two Hour Time Limit Reached ? (Circle) Yes (No)
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2
Sample Designation Time at Purge Completion: 1255
Sample Time 1230 Signature: Josh Stewart
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic Pump
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1140		150	2.75	0.50	0.50							Set UP Adjust Flow
1145		100	2.75	0.00	0.50							Fill Cell
1150		100	2.78	0.03	0.53							
1155		100	2.80	0.02	0.55	10.19	285	6.62	-51.3	1.48	4.82	
1200		100	2.83	0.03	0.58	10.07	286	6.57	-52.9	1.27	4.03	purple Tint
1205		100	2.86	0.03	0.61	10.16	283	6.52	-56.8	1.20	3.78	to Purge water
1210		100	2.89	0.03	0.64	10.23	279	6.51	-59.3	0.95	3.52	
1215		100	2.92	0.03	0.67	10.69	278	6.49	-60.2	0.83	3.48	
1220		100	2.96	0.04	0.71	10.68	278	6.49	-60.5	0.75	3.55	
1225		100	3.00	0.04	0.75	10.93	276	6.48	-60.5	0.75	3.21	
1230						Sample						

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11/7/12 Page 1 of 2 **Well ID :** MW-104A
Field Personnel S. DUBE Purging Start Time : 1155
Well Depth as installed (ft.): Measured Well Depth (ft.): 41.62
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 8.70 From: Top of Steel Pipe Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): As Installed From: – Total Volume Purged, Including Drawdown (gallons): ~2.5
Sample Designation Time at Purge Completion: 1335
Sample Time 1305 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 11080C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1205		100	8.80	0.10	0.10	9.52	1851	6.81	-28.3	3.02	14.6	
1210		100	8.80	–	–	10.39	1807	7.05	-46.0	1.67	12.3	
1215		100	8.82	0.02	0.12	11.01	1775	7.21	-54.7	1.05	9.62	
1220		100	8.87	0.05	0.17	10.77	1787	7.28	-49.4	0.83	7.49	
1225		100	8.89	0.02	0.19	10.83	1783	7.32	-53.3	0.78	10.4	
1230		100	8.90	0.01	0.20	10.91	1784	7.30	-49.5	0.69	9.22	
1235		100	8.91	0.01	0.21	11.13	1815	7.24	-43.5	0.65	8.74	
1240		100	8.91	–	–	11.23	1832	7.19	-39.9	0.60	7.42	
1245		100	8.95	0.04	0.25	11.29	1850	7.17	-37.7	0.56	6.83	
1250		100	8.96	0.01	0.26	11.39	1857	7.15	-36.3	0.54	6.27	
1255		100	8.96	–	–	11.45	1863	7.14	-35.4	0.53	4.47	
1300		100	8.96	–	–	11.51	1878	7.12	-34.2	0.52	4.00	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 11/7/12 Page 2 of 2 **Well ID :** MW-104A
Field Personnel S. DUBE Purging Start Time : 1155
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): 41.62
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 3.70 From: Top of Steel Pipe Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): As Installed From: _____ Total Volume Purged, Including Drawdown (gallons): ~2.5
Sample Designation _____ Time at Purge Completion: 1338
Sample Time 1305 Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 11080C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1305		100	8.96	–	0.26	11.49	1884	7.10	-32.9	0.49	4.87	Stablized. Begin sampling
												Final DTW 12.04 ft

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11-7-12 Page 1 of 2 **Well ID :** MW-9B
Field Personnel B. Rizza Purging Start Time : 1320
Well Depth as installed (ft.): 41.15 Measured Well Depth (ft.): 41.15
Screen Length in ft. 5 Screen Depth in ft. 36.15-41.15 Parameter Stabilization: (Circle) Yes / (No)
Depth to GW (ft.): 5.15 From: Top of casing Two Hour Time Limit Reached ? (Circle) (Yes) / No
Pump/Tubing Intake set (ft.): 38.65 From: Top of casing Total Volume Purged, Including Drawdown (gallons): ~3.0
Sample Designation Time at Purge Completion: 1559
Sample Time 1527 Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri. Pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
YSI Data Logger S/N 00M0550AC HACH S/N 11090C012345
YSI Sonde S/N 04C286AC Peri. Pump S/N G 6349U

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1325	/	80	5.60	0.45	0.45	11.71	1197	6.38	-176.1	5.37	37.2	
1330	/	80	5.60	—	0.45	11.42	1217	6.48	-170.7	5.55	19.8	
1335	/	80	5.54	-0.06	0.39	10.75	1220	6.54	-165.5	6.32	16.4	Purge water was
1340	/	80	5.45	—	0.39	10.65	1223	6.55	-162.4	6.55	13.1	clear and L. brown
1345	/	80	5.50	0.05	0.44	11.02	1223	6.56	-161.0	6.14	11.2	
1350	/	60	5.60	0.10	0.54	11.59	1218	6.55	-160.8	5.24	14.4	
1355	/	60	5.65	0.05	0.59	11.73	1218	6.54	-158.8	4.60	13.2	
1400	/	60	5.72	0.07	0.66	11.89	1212	6.53	-156.5	4.09	12.4	
1405	/	90	5.90	0.18	0.84	12.50	1202	6.51	-157.2	3.22	16.3	
1410	/	60	5.95	0.05	0.89	12.37	1206	6.51	-156.9	2.88	6.22	
1415	/	60	5.75	-0.20	0.69	11.71	1203	6.52	-154.1	3.22	8.85	
1420	/	60	5.59	-0.16	0.53	11.21	1200	6.53	-149.8	3.68	6.24	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

1400 Spoke to Jeff B. about drawdown. OK to purge at < 100 ml/min.

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Low-Flow Field Log

SOP No: SA-003
Date: Mar. 2010
Attachment B, Page 1 of 1
Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 11-7-12 Page 2 of 2 **Well ID :** MW-9B
Field Personnel B. Rizza Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Pg. 1 Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ See Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time _____ Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1425		60	5.52	-0.07	0.46	10.84	1199	6.54	-146.8	4.00	10.9	
1430		80	5.45	-0.07	0.39	10.52	1182	6.53	-146.5	3.94	15.6	
1435		80	5.70	0.25	0.64	11.88	1178	6.51	-144.5	3.10	10.8	
1440		80	5.88	0.18	0.92	12.29	1187	6.50	-145.2	2.45	9.21	
1445		80	5.93	0.05	0.97	12.15	1182	6.50	-144.9	2.36	8.65	
1450		80	5.93	—	0.97	12.14	1180	6.50	-144.6	2.40	11.8	
1455		80	5.93	—	0.97	12.04	1177	6.49	-144.1	2.43	13.0	
1500		80	5.93	—	0.97	11.94	1172	6.49	-144.3	2.46	8.06	
1505		80	5.93	—	0.97	11.88	1167	6.48	-143.9	2.52	4.84	
1510		80	5.93	—	0.97	11.57	1170	6.48	-143.6	2.49	7.68	
1515		80	5.93	—	0.97	11.67	1165	6.48	-143.5	2.49	6.56	
1520		80	5.93	—	0.97	11.69	1161	6.47	-144.3	2.48	5.57	
1525		80	5.93	—	0.97	11.58	1160	6.48	-145.1	2.49	9.63	Lab sample collected.

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date : 11/7/12 Page 1 of _____
Field Personnel J. Stewart
Well Depth as installed (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____
Depth to GW (ft.): 5.53 From: _____
Pump/Tubing Intake set (ft.): _____ From: _____
Sample Designation _____
Sample Time 1405

Well ID : MW-9A
Purging Start Time : 1320
Measured Well Depth (ft.): 28.55
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): 2.5
Time at Purge Completion: 1420
Signature: Josh S

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri PUMP
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1325		200	5.55	0.02	0.02							Setup Adjust flow
1330		200	5.55	0.00	0.02							Fill Cell
1335		200	5.55	0.00	0.02	12.31	1352	6.46	-61.5	1.49	4.97	
1340		200	5.55	0.00	0.02	12.91	1358	6.49	-63.4	1.19	4.59	Orange brown
1345		200	5.55	0.00	0.02	12.90	1362	6.51	-64.8	1.03	4.34	Tint
1350		200	5.55	0.00	0.02	12.82	1366	6.51	-64.7	0.84	4.20	
1355		200	5.55	0.00	0.02	12.86	1367	6.52	-63.4	0.85	4.25	
1400		200	5.55	0.00	0.02	12.83	1369	6.52	-63.2	0.87	3.96	
1405						Sample						lost Tubing
												down well after
												sampling

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11/7/12 Page 1 of 2 **Well ID :** MW-104B
Field Personnel S. DUBE Purging Start Time : 1403
Well Depth as installed (ft.): Measured Well Depth (ft.): 17.25
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 9.35 From: Top of Steel Pipe Two Hour Time Limit Reached ? (Circle) Yes No
Pump/Tubing Intake set (ft.): 16.25 From: Top of Steel Pipe Total Volume Purged, Including Drawdown (gallons): ~4.0
Sample Designation MW-104B Time at Purge Completion: 1555
Sample Time 1525 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108C011667
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1410	/	100	9.35	–	–	8.74	791	6.76	-37.2	1.95	343	
1415	/	100	9.35	–	–	10.05	772	6.50	-44.6	0.90	205	
1420	/	100	9.35	–	–	10.67	766	6.41	-49.0	0.62	140	
1425	/	100	9.35	–	–	10.70	768	6.36	-51.5	0.52	99.6	
1430	/	100	9.35	–	–	10.92	764	6.33	-52.7	0.50	40.6	
1435	/	100	9.35	–	–	10.97	764	6.31	-53.4	0.49	47.4	
1440	/	100	9.35	–	–	11.07	764	6.30	-54.8	0.50	43.4	
1445	/	100	9.35	–	–	11.04	765	6.34	-55.7	0.51	37.4	
1450	/	100	9.35	–	–	10.74	765	6.27	-56.4	0.53	38.1	
1455	/	100	9.35	–	–	10.63	761	6.26	-56.8	0.55	28.1	
1500	/	100	9.35	–	–	10.70	761	6.26	-57.1	0.55	20.9	
1505	/	100	9.35	–	–	10.66	762	6.26	-57.3	0.56	21.2	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by:
Reviewed by:

Date : _____ Page 2 of 2

Well ID : MW-104B

Field Personnel S. DUBE

Purging Start Time : 1403

Well Depth as installed (ft.): _____

Measured Well Depth (ft.): 17.25

Screen Length in ft. _____ Screen Depth in ft. _____

Parameter Stabilization: (Circle) Yes / No

Depth to GW (ft.): 9.35 From: Top of Steel Pipe

Two Hour Time Limit Reached ? (Circle) Yes No

Pump/Tubing Intake set (ft.): 16.25 From: Top of Steel Pipe

Total Volume Purged, Including Drawdown (gallons): ~4.0

Sample Designation _____

Time at Purge Completion: 1555

Sample Time 1525

Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic

Multimeter model and serial number VSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108C011667

Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1510		100	9.35	—	—	10.46	762	6.25	-57.4	0.58	19.1	
1515		100	9.35	—	—	10.24	761	6.25	-57.4	0.59	17.5	
1520		100	9.35	—	—	10.29	761	6.25	-57.7	0.60	17.1	
1525		100	9.35	—	—	10.49	760	6.25	-58.2	0.60	18.1	Stablized. Begin sampling
~~1800~~		100										
~~1525~~		100										

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date: 11/7/2012 Page 1 of 1 Well ID: MW-113B
Field Personnel M. WEBBER Purging Start Time: 1410
Well Depth as installed (ft.): Measured Well Depth (ft.): 28.60
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) (CS) / No
Depth to GW (ft.): 2.16 From: CASING Two Hour Time Limit Reached ? (Circle) Yes / (No)
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 3
Sample Designation UNKNOWN Time at Purge Completion: 1525
Sample Time 1505 Signature: [illegible]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peristaltic
Multimeter model and serial number YSI 600XL#01M0616AA Turbidity meter model and serial number HACH 2100Q # 110800011C71
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1415	/	100	2.25	0.09	0.09	10.86	202	6.86	225.7	3.78	7.70	
1420	/	100	2.25	0.00	0.09	11.10	157	6.68	207.8	2.99	8.74	
1425	/	100	2.25	0.00	0.09	11.62	285	6.26	156.8	1.80	9.50	
1430	/	100	2.25	0.00	0.09	11.67	356	6.16	136.1	1.02	8.93	
1435	/	100	2.25	0.00	0.09	11.71	361	6.06	127.5	0.76	5.39	
1440	/	100	2.25	0.00	0.09	11.78	412	6.00	118.6	0.51	5.74	
1445	/	100	2.25	0.00	0.09	11.71	426	5.95	116.8	0.43	5.41	
1450	/	100	2.25	0.00	0.09	11.55	439	5.98	114.3	0.41	4.46	
1455	/	100	2.25	0.00	0.09	11.48	444	5.96	112.8	0.41	3.92	
1500	/	100	2.25	0.00	0.09	11.37	446	5.94	111.1	0.41	4.05	
1505	/	Samples		Taken								
	/											

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11/8/12 Page 1 of 2 Well ID : MW-503B
Field Personnel S. DUBE Purging Start Time : 0935
Well Depth as installed (ft.): Measured Well Depth (ft.): 33.35
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 27.40 From: Top of Steel Pipe Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 32.35 From: Top of Steel Pipe Total Volume Purged, Including Drawdown (gallons): ~3.5
Sample Designation Time at Purge Completion: 1215
Sample Time 1135 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 110800011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0945	/	100	27.68	0.28	0.28	9.85	475	6.06	132.8	6.23	330	
0950	/	100	27.68	—	—	9.72	432	5.90	169.3	5.64	273	
0955	/	90	27.68	—	—	9.73	418	5.87	162.2	5.29	235	
1000	/	90	27.68	—	—	9.77	413	5.86	159.4	5.20	201	
1005	/	90	27.68	—	—	9.78	407	5.86	157.9	4.72	168	
1010	/	90	27.68	—	—	9.48	410	5.86	162.7	4.33	135	
1015	/	90	27.68	—	—	9.62	412	5.86	164.1	3.93	133	
1020	/	90	27.68	—	—	9.62	420	5.87	162.1	3.55	112	
1025	/	90	27.68	—	—	9.64	420	5.88	160.1	3.39	103	
1030	/	90	27.68	—	—	9.73	420	5.89	159.2	3.19	99	
1035	/	90	27.68	—	—	9.70	427	5.89	158.4	2.94	86.0	
1040	/	90	27.68	—	—	9.62	427	5.89	158.5	2.90	78.6	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11/8/12 Page 2 of 2 **Well ID :** MW-503B
Field Personnel S. DUSE Purging Start Time : 0935
Well Depth as installed (ft.): Measured Well Depth (ft.): 33.35
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / (No)
Depth to GW (ft.): 27.40 From: Top of Steel Pipe Two Hour Time Limit Reached ? (Circle) (Yes) / No
Pump/Tubing Intake set (ft.): 32.35 From: Top of Steel Pipe Total Volume Purged, Including Drawdown (gallons): ~3.5
Sample Designation Time at Purge Completion: 1215
Sample Time 1135 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108000011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1045	/	90	27.68	–	–	9.59	432	5.89	158.6	2.73	73.7	
1050	/	90	27.68	–	–	9.71	432	5.90	158.6	2.66	67.9	
1055	/	90	27.68	–	–	9.72	432	5.90	158.9	2.55	56.8	
1100	/	90	27.68	–	–	9.80	432	5.89	159.1	2.43	47.7	
1105	/	90	27.68	–	–	9.65	440	5.88	160.6	2.66	40.6	
1110	/	90	27.68	–	–	9.75	440	5.88	161.0	2.42	34.7	
1115	/	90	27.68	–	–	9.71	446	5.87	162.0	2.31	27.9	
1120	/	90	27.68	–	–	9.76	447	5.87	162.8	2.11	24.4	
1125	/	90	27.68	–	–	9.63	449	5.85	164.2	1.88	22.1	
1130	/	90	27.68	–	–	9.69	451	5.86	165.0	1.75	21.8	
1135	/	90	27.68	–	–	9.70	453	5.86	165.5	1.69	18.6	
	/											

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by:
Reviewed by:

Date : 11-8-12 Page 1 of 2
Field Personnel R. Rizza
Well Depth as installed (ft.): 55
Screen Length in ft. 15 Screen Depth in ft. 40-55
Depth to GW (ft.): 3.25 From: Top of casing
Pump/Tubing Intake set (ft.): 47.5 From: Top of casing
Sample Designation
Sample Time 1153

Well ID : ~~RW-1~~ (RW-1)
Purging Start Time : 1001
Measured Well Depth (ft.): 49.68
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes / No
Total Volume Purged, Including Drawdown (gallons): ~4.5
Time at Purge Completion: 1214
Signature: [signature]

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri. Pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
YSI Data Logger S/N 00BM0550AC HACH S/N 11090C012245
YSI Sonde S/N 04C2866AC Peri. Pump S/N G6349U

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1005		150	3.31	0.06	0.06	12.17	582	5.75	-138.3	2.73	144	
1010		150	3.37	0.06	0.12	12.56	735	5.62	-124.9	0.70	26.1	
1015		120	3.39	0.02	0.14	12.71	745	5.61	-120.5	0.56	18.2	
1020		120	3.37	-0.02	0.12	12.71	749	5.61	-122.7	0.59	19.8	
1025		120	3.37	—	0.12	12.73	749	5.61	-120.0	0.50	13.6	Purge water clear
1030		120	3.37	—	0.12	12.71	745	5.61	-119.3	0.49	15.3	and brown. odor
1035		120	3.37	—	0.12	12.75	740	5.61	-119.3	0.41	15.4	observed. PID
1040		120	3.37	—	0.12	12.74	737	5.60	-120.9	0.38	13.3	readings in breathing
1045		120	3.37	—	0.12	12.84	731	5.61	-117.5	0.39	16.4	zone <1 ppm.
1050		120	3.37	—	0.12	12.84	726	5.61	-118.3	0.37	15.1	
1055		120	3.37	—	0.12	12.85	719	5.61	-117.3	0.37	14.4	
1100		120	3.37	—	0.12	12.83	709	5.61	-117.2	0.37	12.2	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

* spoke to Jeff. B about meas. depth being different than installed depth.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2

Prepared by: _____
Reviewed by: _____

Date : 11-8-12 Page 2 of 2 Well ID : ~~RW-1~~ (RW-1)
Field Personnel R. Rizza Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation See _____ Time at Purge Completion: _____
Sample Time _____ Signature: [signature]
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1105		120	3.37	—	0.12	12.87	683	5.62	-117.6	0.36	14.3	
1110		120	3.37	—	0.12	12.88	671	5.63	-117.7	0.36	13.9	
1115		120	3.37	—	0.12	12.84	660	5.63	-118.1	0.35	13.4	
1120		120	3.37	—	0.12	12.79	649	5.63	-118.6	0.35	10.9	
1125		120	3.37	—	0.12	12.81	636	5.64	-118.6	0.33	9.76	
1130		120	3.37	—	0.12	12.82	627	5.65	-117.8	0.33	10.3	
1135		120	3.37	—	0.12	12.79	606	5.65	-115.9	0.32	6.89	
1140		120	3.37	—	0.12	12.86	577	5.66	-117.4	0.31	5.81	
1145		120	3.37	—	0.12	12.57	573	5.67	-118.7	0.31	5.84	
1150		120	3.37	—	0.12	12.88	564	5.67	-118.8	0.31	5.46	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/8/12 Page 1 of 1 Well ID : MW-B5
Field Personnel J. Stewart Purging Start Time : 0910
Well Depth as installed (ft.): Measured Well Depth (ft.): 46.32
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 2.74 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2
Sample Designation Time at Purge Completion: 1040
Sample Time 1010 Signature: Josh S
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Per. pump
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100a
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0915		120	2.81	0.07	0.07							Set up Adjust Flow
0920		120	2.81	0.00	0.07							Fill Cell Setup
0925		120	2.81	0.00	0.07							Fill Cell
0930		120	2.81	0.00	0.07	10.72	1388	6.70	10.9	2.23	43.8	
0935		120	2.81	0.00	0.07	10.85	1389	6.62	18.7	2.86	31.5	
0940		120	2.81	0.00	0.07	10.69	1371	6.58	30.5	2.19	26.7	
0945		120	2.81	0.00	0.07	10.54	1368	6.56	36.9	2.23	18.0	
0950		120	2.81	0.00	0.07	11.29	1340	6.55	41.8	2.24	16.3	
0955		120	2.81	0.00	0.07	10.85	1340	6.53	45.0	2.25	13.3	
1000		120	2.81	0.00	0.07	11.36	1334	6.53	46.4	2.30	12.2	
1005		120	2.81	0.00	0.07	10.98	1338	6.53	46.7	2.29	12.0	
1010							Sample					

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/8/12 Page 1 of 1 Well ID : MW-113A
Field Personnel Josh Stewart Purging Start Time : 1055
Well Depth as installed (ft.): Measured Well Depth (ft.):
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 2.48 From: Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): From: Total Volume Purged, Including Drawdown (gallons): 2
Sample Designation Time at Purge Completion: 1210
Sample Time 1145 Signature: Josh S
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri Pump
Multimeter model and serial number YSI 600XL Turbidity meter model and serial number HACH 2100 Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1100		120	2.55	0.07	0.00							Setup Adjust Flow
1105		120	2.55	0.00	0.07							Fill Cell
1110		120	2.55	0.00	0.07	8.09	330	6.38	85.5	2.60	20.3	
1115		120	2.55	0.00	0.07	8.34	321	6.35	86.0	2.71	17.9	
1120		120	2.55	0.00	0.07	8.67	309	6.33	86.3	2.42	16.4	
1125		120	2.55	0.00	0.07	8.98	305	6.32	86.7	1.66	13.7	
1130		120	2.55	0.00	0.07	9.68	291	6.29	88.8	0.94	13.5	
1135		120	2.55	0.00	0.07	9.76	290	6.28	89.1	0.95	12.4	
1140		120	2.55	0.00	0.07	9.72	290	6.27	89.1	0.95	12.8	
1145						Sample						

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date: 11.8 Page 1 of 1 Well ID: MW-503A
Field Personnel JNS Purging Start Time: 9:51
Well Depth as installed (ft.): 1 Measured Well Depth (ft.): 17.82
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 15.11 From: TOP OF STANDPIPE Two Hour Time Limit Reached ? (Circle) Yes / (No)
Pump/Tubing Intake set (ft.): 17.4 From: Total Volume Purged, Including Drawdown (gallons):
Sample Designation MW-503A Time at Purge Completion: 10:40 / 9:50 (11.9.12)
Sample Time 11.9 9:50 Signature: Jeff Bu
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments)
Multimeter model and serial number Turbidity meter model and serial number
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
9:51	/	120										FILL CELL
9:53	/	100	15.33			10.62	437	5.76	86.0	1.24		
10:04	/	100	15.52			9.35	389	5.76	92.0	1.17		PUMP STOPPED FOR 5 min.
10:10	/	80	15.70			10.56	353	5.75	107.9	0.77	13.3	
10:15	/	80	15.82			10.50	348	5.75	116.9	0.73	10.6	
10:22	/	80	16.02			10.46	341	5.74	99.3	0.71	8.44	
10:30	/	80	16.93			11.04	329	5.72	92.9	0.57	8.79	
10:40	/	80	17.40			10.99	321	5.72	91.8	0.56	93.3	WELL DRY - WILL ALLOW
	/		17.50									TO RECHARGE & COLLECT SAMPLE
11:30	/		16.17									
11:57	/		15.98									
12:10	/		15.91									

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

WELL SAMPLED 11.9.12 @ 9:50

11.9 9:41 15.36 0.39 GALLONS IN WELL 1514 ml RECHARGE SAMPLED NEXT AM

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: S. Bonis
Approved by: M. Summerlin

Date: 11/9/12 Page 1 of 1 Well ID: MW-B11
Field Personnel J. Stewart Purging Start Time: 0900
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 7.10 From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 15 From: ground surface Total Volume Purged, Including Drawdown (gallons): 1.5
Sample Designation _____ Time at Purge Completion: _____
Sample Time 0945 Signature: Josh Stewart
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri pump
Multimeter model and serial number YSI 600 XL Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.) PID @ well head 4.0 @ breathing zone 1.0-

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0905		150	7.45	0.35	0.35							Adjust flow set up
0910		120	7.45	0.00	0.35							Fill Cell
0915		120	7.45	0.00	0.35	12.21	1648	8.77	-109.4	0.85	NR	
0920		120	7.45	0.00	0.35	12.13	1655	8.87	-115.4	0.58	NR	
0925		120	7.45	0.00	0.35	12.25	1654	8.90	-126.3	0.48	13.1	Purge water
0930		120	7.45	0.00	0.35	12.24	1660	8.91	-127.1	0.47	12.2	dark brown tint
0935		120	7.45	0.00	0.35	12.28	1665	8.91	-121.0	0.46	11.8	Odor and Sheen
0940		120	7.45	0.00	0.35	12.35	1665	8.91	-125.2	0.47	11.2	observed
0945					Sample							

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11-7-12 Page 1 of 2 **Well ID :** SB-600
Field Personnel B. Rizza Purging Start Time : 0913
Well Depth as installed (ft.): 46' Measured Well Depth (ft.): 45.97
Screen Length in ft. 5 Screen Depth in ft. 41-46' Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 6.23 From: Top of inner casing Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 43 From: Top of inner casing Total Volume Purged, Including Drawdown (gallons): 6.0
Sample Designation Time at Purge Completion: 1131
Sample Time 1117 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Peri. Pump
Multimeter model and serial number YSI 650 MDS Turbidity meter model and serial number HACH 2100Q
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)
YSI Data Logger S/N 00M055DAC Peri. Pump S/N 663790
YSI Sonde S/N 04C286CAC HACH S/N 1109C012245

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0920	/	120	6.28	0.05	0.05	12.79	2313	6.72	-199.3	2.37	9.36	
0925	/	120	6.28	—	0.05	12.76	2463	6.65	-166.2	0.77	12.3	
0930	/	120	6.28	—	0.05	12.86	2473	6.65	-164.3	0.72	11.7	Purge water brown
0935	/	150	6.28	—	0.05	12.85	2466	6.65	-167.1	0.53	11.8	and clear. Odor
0940	/	150	6.28	—	0.05	12.39	2476	6.65	-166.2	0.48	10.7	observed.
0945	/	200	6.28	—	0.05	12.72	2466	6.65	-167.2	0.43	11.1	
0950	/	200	6.28	—	0.05	12.88	2463	6.66	-168.4	0.43	10.5	
0955	/	200	6.30	0.02	0.07	12.93	2454	6.66	-168.3	0.45	7.58	
1000	/	200	6.30	—	0.07	12.75	2462	6.66	-169.9	0.41	8.83	
1005	/	200	6.30	—	0.07	12.80	2458	6.66	-172.2	0.40	11.9	
1010	/	200	6.30	—	0.07	12.97	2450	6.66	-175.1	0.38	9.53	
1015	/	200	6.30	—	0.07	12.83	2451	6.66	-177.6	0.33	9.39	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

PID readings near top of purge bucket were 4.4 ppmv (max.). PID readings in breathing zone were 0.8 ppmv. A respirator was worn during the entire purging. Sustained readings of 1.0 ppmv at wellhead.

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by: _____
Reviewed by: _____

Date : 11-9-12 Page 2 of 2 **Well ID :** SB-600
Field Personnel R. Rizza Purging Start Time : _____
Well Depth as installed (ft.): _____ Measured Well Depth (ft.): _____
Screen Length in ft. _____ Screen Depth in ft. _____ Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): _____ From: _____ Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): _____ From: _____ Total Volume Purged, Including Drawdown (gallons): _____
Sample Designation _____ Time at Purge Completion: _____
Sample Time _____ Signature: _____
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) _____
Multimeter model and serial number _____ Turbidity meter model and serial number _____
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1020		200	6.30	—	0.07	12.96	2447	6.66	-182.7	0.32	8.05	
1025		200	6.30	—	0.07	12.93	2456	6.66	-184.3	0.32	6.99	
1030		200	6.30	—	0.07	12.95	2451	6.66	-186.0	0.32	6.87	
1035		200	6.30	—	0.07	13.00	2451	6.66	-186.3	0.32	5.89	
1040		200	6.30	—	0.07	13.00	2455	6.66	-187.7	0.32	9.02	
1045		200	6.30	—	0.07	12.99	2456	6.66	-188.1	0.32	4.70	No DNAPL observed
1050		200	6.30	—	0.07	13.01	2449	6.66	-188.2	0.34	5.77	in purge water.
1055		200	6.30	—	0.07	13.04	2451	6.66	-188.8	0.32	6.56	
1100		200	6.30	—	0.07	13.10	2451	6.66	-189.5	0.33	3.24	
1105		200	6.30	—	0.07	13.02	2451	6.66	-189.5	0.33	5.98	
1110		200	6.30	—	0.07	12.88	2456	6.66	-189.6	0.33	3.75	
1115		200	6.30	—	0.07	13.03	2443	6.66	-189.8	0.33	3.23	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

R:\Standard Operating Procedures\Field Forms\Sampling

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Low-Flow Field Log

SOP No: SA-003 | Attachment B, Page 1 of 1
Date: Mar. 2010 | Rev.: 2
Prepared by:
Reviewed by:

Date : 11/9/12 Page 1 of
Field Personnel S. DUBE
Well Depth as installed (ft.):
Screen Length in ft. Screen Depth in ft.
Depth to GW (ft.): 21.92 From: Top of Steel Pipe
Pump/Tubing Intake set (ft.): 73.95 From: Top of Steel Pipe
Sample Designation
Sample Time 1035

Well ID : MW-402
Purging Start Time : 0923
Measured Well Depth (ft.): 75.95
Parameter Stabilization: (Circle) Yes / No
Two Hour Time Limit Reached ? (Circle) Yes No
Total Volume Purged, Including Drawdown (gallons): ~2.5
Time at Purge Completion: 1110
Signature:

Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 650 MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 11080C011671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
0935		100	22.49	0.57	0.57	11.43	1962	6.47	122.5	2.19	25.0	
0940		160	23.02	0.53	1.10	11.72	1989	6.48	122.7	1.56	31.0	
0945		130	23.26	0.24	1.34	11.82	1997	6.50	121.8	1.39	32.2	
0950		100	23.26	–	–	11.92	2012	6.52	121.2	1.28	27.7	
0955		100	23.26	–	–	12.07	2044	6.51	121.8	1.23	18.1	
1000		100	23.26	–	–	12.16	2089	6.49	123.8	1.21	15.5	
1005		100	23.26	–	–	12.22	2104	6.56	125.4	1.27	12.4	
1010		100	23.26	–	–	12.26	2108	6.51	126.0	1.30	11.6	
1015		100	23.26	–	–	12.11	2119	6.51	127.0	1.37	12.5	
1020		100	23.26	–	–	11.96	2122	6.51	127.6	1.44	11.8	
1025		100	23.26	–	–	11.92	2122	6.52	128.2	1.47	10.1	
1030		100	23.26	–	–	11.84	2123	6.53	129.4	1.48	10.4	

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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Low-Flow Field Log

SOP No: SA-003	Attachment B, Page 1 of 1
Date: Mar. 2010	Rev.: 2
Prepared by:	S. Bonis
Approved by:	M. Summerlin

Date : 11/9/12 Page 2 of 2 **Well ID :** MW-402
Field Personnel S. Duge Purging Start Time : 0923
Well Depth as installed (ft.): Measured Well Depth (ft.): 75.25
Screen Length in ft. Screen Depth in ft. Parameter Stabilization: (Circle) Yes / No
Depth to GW (ft.): 21.92 From: Top of Steel Pipe Two Hour Time Limit Reached ? (Circle) Yes / No
Pump/Tubing Intake set (ft.): 73.95 From: Top of Steel Pipe Total Volume Purged, Including Drawdown (gallons): ~2.5
Sample Designation Time at Purge Completion: 1110
Sample Time 1035 Signature:
Pump Type (include pressure, discharge, and recharge for bladder pump under pump setting and comments) Bladder
Multimeter model and serial number YSI 650MDS 02F0628AA Turbidity meter model and serial number HACH 2100Q 1108C01671
Notes: (initial wellhead PID/FID reading, deviations from SOP, etc.)

Clock Time	Discharge / Refill / Pump Setting	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp. +/- 3%	Spec. Cond. +/- 3%	pH +/- 0.1	ORP +/-10	DO +/- 10% if >0.5 mg/L	Turbidity +/- 10% if > 5 NTU	Comments / Gas Pressure / Observations
HHMM	sec. / sec. or setting	ml/min	ft.	ft.	ft.	°C	µS/cm		mV	mg/L	NTU	
1035		100	23.26	–	–	11.95	2120	6.54	129.6	1.51	10.6	Stable. Begin Sampling

Notes: All depths in feet below top of PVC unless specified.
NR = No Reading
Use the back of the log to record additional observations and descriptions.

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APPENDIX B

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

January 9, 2013

Gail DeRuzzo
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851

Re: PTS File No: 42960
Physical Properties Data
80022; 80022.07

Dear Ms. DeRuzzo:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your 80022; 80022.07 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact Rachel Spitz at (562) 347-2504.

Sincerely,
PTS Laboratories

Michael Mark Brady, P.G.
District Manager

Encl.

PTS Laboratories

Project Name: 80022
Project Number: 80022.07

PTS File No: 42960
Client: Nobis Engineering, Inc.

TEST PROGRAM - 20121226

FLUID ID	Date	Time	Fluid Type	Fluid Properties Pkg.	Fluid Cleaning			
Method:				ASTM D1481, 445, 971	Proprietary			
Date Received: 20121226								
D05251	20121218	1130	NAPL	X	X			225 mL
D05252	20121218	1135	GW					225 mL
D05253	20121218	1300	NAPL	X	X			225 mL
D05254	20121218	1305	GW					225 mL
TOTALS:				2	2			

Laboratory Test Program Notes

Standard TAT for basic analysis is 10 business days.

Fluid Properties Package - DNAPL & Water: Includes dynamic viscosity and fluid density at three temperatures (70, 100, 130°F), surface tension for each fluid, and interfacial tensions (three phase pairs; oil/water, oil/air, and water/air (at ambient laboratory temperature)).

All samples presumably contain high levels of VOCs.

PTS File No: 42960
Client: Nobis Engineering, Inc.

PTS Laboratories

VISCOSITY, DENSITY, and SPECIFIC GRAVITY DATA

(METHODOLOGY: ASTM D445, ASTM D1481, API RP40)

PROJECT NAME: 80022
PROJECT NO: 80022.07

SAMPLE ID	MATRIX	TEMPERATURE, °F	SPECIFIC GRAVITY	DENSITY, g/cc	VISCOSITY	
					centistokes	centipoise
D05252	Water	70	1.000	0.9981	1.03	1.03
		100	1.002	0.9953	0.717	0.714
		130	1.000	0.9860	0.582	0.574
D05251	NAPL	70	1.261	1.258	1.31	1.65
		100	1.251	1.243	1.02	1.27
		130	1.225	1.208	0.823	0.994
D05254	Water	70	1.001	0.9991	1.02	1.02
		100	1.003	0.9962	0.710	0.707
		130	1.000	0.9856	0.543	0.535
D05253	NAPL	70	1.252	1.249	1.79	2.24
		100	1.243	1.234	1.36	1.68
		130	1.218	1.201	1.08	1.30

PTS File No: 42960
Client: Nobis Engineering, Inc.

PTS Laboratories

INTERFACIAL / SURFACE TENSION DATA

(METHODOLOGY: DuNuoy Method - ASTM D971)

PROJECT NAME: 80022
PROJECT NO: 80022.07

PHASE PAIR		TEMPERATURE, °F	INTERFACIAL TENSION, Dynes/centimeter
SAMPLE ID / PHASE	SAMPLE ID / PHASE		
D05252 (Water)	Air	70.7	55.7
D05251 (NAPL)	Air	70.5	37.4
D05251 (NAPL)	D05252 (Water)	70.7	9.6
D05254 (Water)	Air	71.2	53.8
D05253 (NAPL)	Air	71.1	35.9
D05253 (NAPL)	D05254 (Water)	71.1	8.0

QUALITY CONTROL DATA

PHASE PAIR:	DIWATER / AIR
TEMPERATURE, °F:	70.3
IFT, MEASURED:	73.0
IFT, PUBLISHED:	72.6
RPD:	0.61

USEPA CLP Generic COC (LAB COPY)
DateShipped:
CarrierName: FedEx
AirbillNo:

CHAIN OF CUSTODY RECORD
Site #: 80022
Project Code: 80022.07
Cooler #: 1

42960

No: 1-121812-162152-0018
Lab: PTS Laboratories
Lab Contact: Rachel Spitz
Lab Phone: 562-347-2500

Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	For Lab Use Only
D05251	NAPL/ Erik Johnson	Grab	Phys.Test.ASTM D445/D1481	410 (None) (1)	80022-MW113A-NAPL-121812	12/18/2012 11:30	
D05252	Ground Water/ Erik Johnson	Grab	Phys.Test.ASTM D445/D1481	411 (None) (1)	80022-MW113A-GW-121812	12/18/2012 11:35	
D05253	NAPL/ Erik Johnson	Grab	Phys.Test.ASTM D445/D1481	412 (None) (1)	80022-B11-NAPL-121812	12/18/2012 13:00	
D05254	Ground Water/ Erik Johnson	Grab	Phys.Test.ASTM D445/D1481	413 (None) (1)	80022-B11-GW-121812	12/18/2012 13:05	

Special Instructions: Sample pairs are GW/NAPL from MW-113A: D05251/D05252 + B-11: D05253/D05254

- All will presumably contain high levels of VOCs.
- Please contact. Gail DeRuzzo (NOBIS ENGINEERING) w/ any questions or concerns, thanks!

-Erik Johnson

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
TRANSFER HOLDING	Erik Johnson	12/20/12 10:55	[illegible]	12/20/12	10:55 AM						
Transfer FED Ex	[illegible]	12/21/12	[illegible]	12/26/12	1020	62.0°F					

Nobis
Engineering a Sustainable Future

September 27, 2012
Nobis File No. 80022

Mr. Dan Keefe
EPA Site Manager
EPA-New England Region I
5 Post Office Square
Suite 100, Mailcode OSRR07-4
Boston, MA 02109-3912

Re: Contract No. EP-S1-06-03
Task Order No. 0022-RA-RA-0115
Case No. 42759, Sample Delivery Group (SDG) No. A4740
Shealy Environmental Services, Inc., West Columbia, SC
Nyanza Chemical Waste Dump, OU2 Superfund Site
Ashland, Massachusetts
CERCLIS No.: MAD990685422

Tier I Modified Organic Data Validation with Stage 2A Electronic Qualification

Low Volatiles: 18/Aqueous/ A4740, A4741, A4742, A4743, A4744, A4745, A4749, A4750, A4751, A4752, A4753, A4754, A4755, A4759, A4760, A4761, A4762, A4763
1/Trip Blank/A4748
Field Duplicates: A4759/A4760
2/Aqueous PEs/A4746 (VLM0723), A4747 (SV0295)

Dear Mr. Keefe:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the organic analytical data for 18 aqueous groundwater samples, one trip blank and two Performance Evaluation (PE) samples collected by Nobis Engineering, Inc. at the Nyanza Chemical Waste Dump, OU2 Superfund Site located in Ashland, Massachusetts. The samples were analyzed for low level volatile organic compounds (VOCs) and low level semivolatile organic compounds (SVOCs) under the Contract Laboratory Program Routine Analytical Services (CLP RAS) program using the CLP SOM01.2 Statement of Work. A Tier I modified data validation was deemed sufficient at this time.

Stage 2A electronic qualification was performed through EPA's Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM) which uses USEPA's Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review, June 2008 criteria for automated validation. EXES Data Review Report #3 indicates data of non-compliance that resulted in qualification.

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (508) 683-0891

The data were evaluated based on the following parameters:

*	•	Overall Evaluation of Data and Potential Usability Issues
*	•	Data Completeness
*	•	Preservation and Technical Holding Times
	•	Initial and Continuing Calibrations
	•	Blanks
	•	Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
*	•	Laboratory Control Samples
	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
	•	Field Duplicates
NA	•	Laboratory Duplicates
	•	Internal Standards
	•	Performance Evaluation (PE) Sample Results
*	•	Reported Quantitation Limits

* All criteria were met for this parameter.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues
The objectives of the groundwater sampling at the site are to provide a comprehensive evaluation of the shallow and deep groundwater contaminants at the site and to evalutate the feasibility of implementing monitored natural attenuation (MNA) as a remedial alternative for the site.

Data are usable for the purposes of the project except as noted below.

Data Completeness
The data package is complete, except that the first page of the Form I for PE sample A4746 was missing from the data package. It was obtained from the pdf file in EDMS. The original CCS report identified a number of issues which the laboratory addressed in a resubmission. The second CCS report only listed data deficiencies presented below.

Data presented in the Summary Tables include qualifiers assigned by Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM). Qualifications for these parameters were assessed under the Stage 2A Validation Electronic (S2AVE) scenario. Qualification was taken from EXES and data package completeness was done manually.

Blanks
VOCs
Tetrachloroethene, 1,2,3 trichlorobenzene and 1,2,4 trichlorobenzene results were negated in several samples due to method blank contamination.

Initial and Continuing Calibrations
VOCs
The relative response factor (RRF) for 1,4-dioxane was outside acceptance criteria for the initial calibration and the continuing calibration verification standard (CCV) associated with all samples. All results were non-detect and thus qualified as rejected (R). The percent difference results (%Ds) were outside criteria for 1,2-dibromo-3-chloropropane, bromomethane and 1,2,3-

trichlorobenzene in the CCV associated with several samples. Detected and non-detected results for these compounds were qualified as estimated (J/UJ).

SVOCs
The initial calibration percent relative standard deviations (%RSDs) were outside of acceptance criteria for N-nitroso-di-n-propylamine and acenaphthylene. Associated detected and non-detected results were qualified as estimated (J/UJ).

The percent difference results (%Ds) were outside criteria for 4-chloro-3-methylphenol, atrazine and pentachlorophenol in the CCV associated with several samples. Detected and non-detected results for these compounds were qualified as estimated (J/UJ).

Surrogate Recoveries
VOCs
1,1,2,2-Tetrachloroethane-d2 and 1,4-dioxane-d8 recovery values were below the lower limit for several samples. Detected and non-detected results were qualified as estimated (J/UJ) in the associated samples. It should be noted that 1,4-dioxane results were previously rejected due to calibration non-conformances, therefore, further qualification was not required.

The EXES report #3 also reported other surrogates with recoveries above the upper criteria limit. Since the associated sample results were non-detect, no qualifications were required. Diluted samples with dilution factors greater than five were reported with surrogate recoveries below the lower limit for several samples. No qualifications were required on this basis.

SVOCs
Benzo(a)pyrene-d12 and 4-chloroaniline-d4 recovery values were below the lower limit for several samples. Detected and non-detected results were qualified as estimated (J/UJ) in the associated samples.

Matrix Spike/Matrix Spike Duplicates
VOCs
The matrix spike and matrix spike duplicate recoveries for 1,1-dichloroethene were below the lower acceptance limit. The non-detect result in native sample A4752 was qualified as estimated (UJ).

SVOCs
The matrix spike and matrix spike duplicate recoveries for 4-nitrophenol were above the lower acceptance limit. The non-detect result in native sample A4752 was accepted unqualified.

Field Duplicates
VOCs
All detected analytes in the field duplicates A4759 and A4760 were above the relative percent difference (RPD) goal of 30 percent. These analytes were: 1,2-dichlorobenzene, 1,4-dichlorobenzene, chlorobenzene, cis-1,2-dichloroethene, and trichloroethene. The sample collected later from the sample point had higher results. The sample concentrations from these samples should be considered estimated.

Internal Standards
SVOCs

The internal standard area count for perylene-d12 was outside the lower criteria limit in the undiluted and diluted analyses of sample A4755. Detected compounds were qualified as estimated (J) and non-detected compounds were rejected (R).

Performance Evaluation Sample Results

VOCs

The VOC PE sample A4746 (VLM0723) was provided by EPA. The results were evaluated and found acceptable for all TCL analytes with the following exceptions: Non-TCL, 1,2,4-trimethylbenzene, failed and was scored as "TIC Missed". Non-TCL , 1,2,3-Trimethylbenzene, was scored as N.E. (not evaluated) and reported as "Non-spiked TIC". This could indicate a mis-identified TIC. However, no actions were required for non-TCL analytes.

SVOCs

The SVOC PE sample A4747 (SV0295) was provided by EPA. The results were evaluated and found acceptable for all TCL analytes with the following exceptions: hexachloroethane failed and was scored "Action High". All associated sample results were non-detected, and therefore, if validated, would be accepted unqualified. The TCL 4-Chloroaniline was detected above the MDL but below the RL and was scored as not-evaluated. No actions was required.

Please contact me at (978) 703-6021 or gderuzzo@nobiseng.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

for Andrea Mischel
Data Validator

Tables: Data Summary Tables

Enclosures: PE Scores
CCS Reports
Field Sampling Notes
CSF Audit (DC-2 Forms)

Cc: Howard Pham, US EPA Region V (via email)

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4740	A4741	A4742	A4743	A4744	A4745
Sample Location		MW-403A	MW-304B	MW-403B	MW-304A	MW-203B	MW-203A
Lab Sample ID		NH16017-001	NH16017-002	NH16017-003	NH16017-004	NH16017-005	NH16017-006
Station ID		MW-403A-081312A	MW-304B-081312A	MW-403B-081312A	MW-304A-081312A	MW-203B-081312A	MW-203A-081312A
Dilution Factor		1	2	1	20	20	80
Sample Date		13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12
Date Analyzed		20 Aug 12	21 Aug 12	21 Aug 12	21 Aug 12	21 Aug 12	22 Aug 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	5 U	10 U	5 U	100 U	100 U	400 U
1,1,2,2-Tetrachloroethane	5	5 U	10 U	5 UJ	100 U	100 U	400 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	10 U	5 U	100 U	100 U	400 U
1,1,2-Trichloroethane	5	5 U	10 U	5 U	100 U	100 U	400 U
1,1-Dichloroethane	5	5 U	10 U	5 U	100 U	100 U	400 U
1,1-Dichloroethene	5	5 U	10 U	5 U	100 U	100 U	400 U
1,2,3-Trichlorobenzene	5	5 UJ	5.7 J	5 UJ	100 U	130	400 UJ
1,2,4-Trichlorobenzene	5	5 U	27	5 U	100	660	400 U
1,2-Dibromo-3-chloropropane	5	5 UJ	10 U	5 UJ	100 U	100 U	400 UJ
1,2-Dibromoethane	5	5 U	10 U	5 U	100 U	100 U	400 U
1,2-Dichlorobenzene	5	5 U	230	5 U	1400	2000	3000
1,2-Dichloroethane	5	5 U	10 U	5 U	100 U	100 U	400 U
1,2-Dichloropropane	5	5 U	10 U	5 U	100 U	100 U	400 U
1,3-Dichlorobenzene	5	5 U	5.8 J	5 U	100 U	100 U	400 U
1,4-Dichlorobenzene	5	5 U	41	5 U	290	390	500
1,4-Dioxane	100	R	R	R	R	R	R
2-Butanone	10	10 U	20 U	10 U	200 U	200 U	800 U
2-Hexanone	10	10 U	20 U	10 U	200 U	200 U	800 U
4-Methyl-2-pentanone	10	10 U	20 U	10 U	200 U	200 U	800 U
Acetone	10	10 U	20 U	10 U	200 U	200 U	800 U
Benzene	5	5 U	2.3 J	5 U	36 J	34 J	170 J
Bromochloromethane	5	5 U	10 U	5 U	100 U	100 U	400 U
Bromodichloromethane	5	5 U	10 U	5 U	100 U	100 U	400 U
Bromoform	5	5 U	10 U	5 U	100 U	100 U	400 U
Bromomethane	5	5 UJ	10 U	5 UJ	100 U	100 U	400 UJ
Carbon Disulfide	5	5 U	10 U	5 U	100 U	100 U	400 U
Carbon tetrachloride	5	5 U	10 U	5 U	100 U	100 U	400 U
Chlorobenzene	5	5 U	110	5 U	1300	2100	7000
Chloroethane	5	5 U	10 U	5 U	100 U	100 U	400 U
Chloroform	5	5 U	10 U	5 U	100 U	100 U	400 U
Chloromethane	5	5 U	10 U	5 U	100 U	100 U	400 U
cis-1,2-Dichloroethene	5	5 U	200	5 U	660	530	210 J
cis-1,3-Dichloropropene	5	5 U	10 U	5 U	100 U	100 U	400 U
Cyclohexane	5	5 U	10 U	5 U	100 U	100 U	400 U
Dibromochloromethane	5	5 U	10 U	5 U	100 U	100 U	400 U
Dichlorodifluoromethane	5	5 U	10 U	5 U	100 U	100 U	400 U
Ethylbenzene	5	5 U	10 U	5 U	100 U	100 U	400 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4740	A4741	A4742	A4743	A4744	A4745
Sample Location		MW-403A	MW-304B	MW-403B	MW-304A	MW-203B	MW-203A
Lab Sample ID		NH16017-001	NH16017-002	NH16017-003	NH16017-004	NH16017-005	NH16017-006
Station ID		MW-403A-081312A	MW-304B-081312A	MW-403B-081312A	MW-304A-081312A	MW-203B-081312A	MW-203A-081312A
Dilution Factor		1	2	1	20	20	80
Sample Date		13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12
Date Analyzed		20 Aug 12	21 Aug 12	21 Aug 12	21 Aug 12	21 Aug 12	22 Aug 12
Chemical	CRQL						
Isopropylbenzene	5	5 U	10 U	5 U	100 U	100 U	400 U
m,p-Xylene	5	5 U	10 U	5 U	100 U	100 U	400 U
Methyl acetate	5	5 U	10 U	5 U	100 U	100 U	400 U
Methyl tert-butyl ether	5	5 U	10 U	5 U	100 U	100 U	400 U
Methylcyclohexane	5	5 U	10 U	5 U	100 U	100 U	400 U
Methylene chloride	5	5 U	10 U	5 U	100 U	100 U	76 J
o-Xylene	5	5 U	10 U	5 U	100 U	100 U	400 U
Styrene	5	5 U	10 U	5 U	100 U	100 U	400 U
Tetrachloroethene	5	5 U	10 U	5 U	100 U	100 U	400 U
Toluene	5	5 U	10 U	5 U	100 U	100 U	55 J
trans-1,2-Dichloroethene	5	5 U	1.6 J	5 U	100 U	100 U	400 U
trans-1,3-Dichloropropene	5	5 U	10 U	5 U	100 U	100 U	400 U
Trichloroethene	5	5 U	130	0.91 J	2600	1200	4100
Trichlorofluoromethane	5	5 U	10 U	5 U	100 U	100 U	400 U
Vinyl chloride	5	5 U	4.6 J	5 U	29 J	100 U	300 J

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4748	A4749	A4750	A4751	A4752	A4753
Sample Location			MW-6A	RMW-405B	RMW-405A	MW-406A	MW-406B
Lab Sample ID		NH16017-009	NH16017-010	NH16017-011	NH16017-012	NH16017-013	NH16017-014
Station ID		TB-01-081412A	MW-6A-081412A	RMW-405B-081412A	RMW-405A-081412A	MW-406A-081412A	MW-406B-081412A
Dilution Factor		1	1	20	2	1	1
Sample Date		14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12
Date Analyzed		20 Aug 12	21 Aug 12	21 Aug 12	21 Aug 12	17 Aug 12	21 Aug 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	5 U	5 U	100 U	10 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 UJ	100 UJ	10 UJ	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U	100 U	10 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	100 U	10 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	100 U	10 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	100 U	10 U	5 UJ	5 U
1,2,3-Trichlorobenzene	5	5 UJ	6.5 J	100 U	10 U	5 UJ	5 U
1,2,4-Trichlorobenzene	5	5 U	22	130	6.5 J	5 U	5 U
1,2-Dibromo-3-chloropropane	5	5 UJ	5 UJ	100 UJ	10 UJ	5 UJ	5 U
1,2-Dibromoethane	5	5 U	5 U	100 U	10 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	15	2000	140	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	100 U	10 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	100 U	10 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	3.9 J	100 U	10 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	10	360	24	5 U	5 U
1,4-Dioxane	100	R	R	R	R	R	R
2-Butanone	10	10 U	10 U	200 U	20 U	10 U	10 U
2-Hexanone	10	10 U	10 U	200 U	20 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	200 U	20 U	10 U	10 U
Acetone	10	14	10 U	200 U	20 U	10 U	10 U
Benzene	5	5 U	1.2 J	47 J	2.1 J	5 U	5 U
Bromochloromethane	5	5 U	5 U	100 U	10 U	5 U	5 U
Bromodichloromethane	5	5 U	5 U	100 U	10 U	5 U	5 U
Bromoform	5	5 U	5 U	100 U	10 U	5 U	5 U
Bromomethane	5	5 UJ	5 UJ	100 U	10 U	5 UJ	5 U
Carbon Disulfide	5	5 U	5 U	100 U	10 U	5 U	5 U
Carbon tetrachloride	5	5 U	5 U	100 U	10 U	5 U	5 U
Chlorobenzene	5	5 U	58	2800	220	5 U	5 U
Chloroethane	5	5 U	5 U	100 U	10 U	5 U	5 U
Chloroform	5	5 U	5 U	100 U	10 U	5 U	5 U
Chloromethane	5	5 U	5 U	100 U	10 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	76	890	41	5 U	0.66 J
cis-1,3-Dichloropropene	5	5 U	5 U	100 U	10 U	5 U	5 U
Cyclohexane	5	5 U	5 U	100 U	10 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	100 U	10 U	5 U	5 U
Dichlorodifluoromethane	5	5 U	5 U	100 U	10 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	100 U	10 U	5 U	5 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4748	A4749	A4750	A4751	A4752	A4753
Sample Location			MW-6A	RMW-405B	RMW-405A	MW-406A	MW-406B
Lab Sample ID		NH16017-009	NH16017-010	NH16017-011	NH16017-012	NH16017-013	NH16017-014
Station ID		TB-01-081412A	MW-6A-081412A	RMW-405B-081412A	RMW-405A-081412A	MW-406A-081412A	MW-406B-081412A
Dilution Factor		1	1	20	2	1	1
Sample Date		14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12
Date Analyzed		20 Aug 12	21 Aug 12	21 Aug 12	21 Aug 12	17 Aug 12	21 Aug 12
Chemical	CRQL						
Isopropylbenzene	5	5 U	5 U	100 U	10 U	5 U	5 U
m,p-Xylene	5	5 U	5 U	100 U	10 U	5 U	5 U
Methyl acetate	5	5 U	5 U	100 U	10 U	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U	100 U	10 U	5 U	5 U
Methylcyclohexane	5	5 U	5 U	100 U	10 U	5 U	5 U
Methylene chloride	5	5 U	5 U	100 U	10 U	5 U	5 U
o-Xylene	5	5 U	5 U	100 U	10 U	5 U	5 U
Styrene	5	5 U	5 U	100 U	10 U	5 U	5 U
Tetrachloroethene	5	5 U	5 U	100 U	10 U	5 U	1.2 J
Toluene	5	5 U	5 U	100 U	1.9 J	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U	100 U	10 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	100 U	10 U	5 U	5 U
Trichloroethene	5	5 U	22	3000	190	5 U	1.3 J
Trichlorofluoromethane	5	5 U	5 U	100 U	10 U	5 U	5 U
Vinyl chloride	5	5 U	5 U	100 U	10 U	5 U	5 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4754	A4755	A4759	A4760	A4761	A4762
Sample Location		MW-115A	MW-115B	MW-113B	MW-113B	MW-305A	MW-305B
Lab Sample ID		NH16017-015	NH16017-016	NH16017-017	NH16017-018	NH16017-019	NH16017-020
Station ID		MW-115A-081412A	MW-115B-081412A	FDUP-01-081512A	MW-113B-081512A	MW-305A-081512A	MW-305B-081512A
Dilution Factor		20	20	5	5	10	1
Sample Date		14 Aug 12	14 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12
Date Analyzed		22 Aug 12	22 Aug 12	21 Aug 12	22 Aug 12	21 Aug 12	21 Aug 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	100 U	100 U	25 U	25 U	50 U	5 U
1,1,2,2-Tetrachloroethane	5	100 U	100 U	25 U	25 U	50 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	100 U	100 U	25 U	25 U	50 U	5 U
1,1,2-Trichloroethane	5	100 U	100 U	25 U	25 U	50 U	5 U
1,1-Dichloroethane	5	100 U	100 U	25 U	25 U	50 U	5 U
1,1-Dichloroethene	5	100 U	100 U	25 U	25 U	50 U	5 U
1,2,3-Trichlorobenzene	5	100 UJ	100 UJ	25 U	25 UJ	50 U	5 U
1,2,4-Trichlorobenzene	5	100 UJ	120	12 J	25 U	58	5 U
1,2-Dibromo-3-chloropropane	5	100 UJ	100 UJ	25 U	25 UJ	50 U	5 U
1,2-Dibromoethane	5	100 U	100 U	25 U	25 U	50 U	5 U
1,2-Dichlorobenzene	5	820 J	1300	160	99	650	5 U
1,2-Dichloroethane	5	100 U	100 U	25 U	25 U	50 U	5 U
1,2-Dichloropropane	5	100 U	100 U	25 U	25 U	50 U	5 U
1,3-Dichlorobenzene	5	100 UJ	100 U	25 U	25 U	50 U	5 U
1,4-Dichlorobenzene	5	120 J	210	32	17 J	140	5 U
1,4-Dioxane	100	R	R	R	R	R	R
2-Butanone	10	200 U	200 U	50 U	50 U	100 U	10 U
2-Hexanone	10	200 U	200 U	50 U	50 U	100 U	10 U
4-Methyl-2-pentanone	10	14 J	200 U	50 U	50 U	100 U	10 U
Acetone	10	200 U	200 U	50 U	50 U	100 U	10 U
Benzene	5	37 J	30 J	25 U	25 U	50 U	5 U
Bromochloromethane	5	100 U	100 U	25 U	25 U	50 U	5 U
Bromodichloromethane	5	100 U	100 U	25 U	25 U	50 U	5 U
Bromoform	5	100 U	100 U	25 U	25 U	50 U	5 U
Bromomethane	5	100 UJ	100 UJ	25 U	25 UJ	50 U	5 U
Carbon Disulfide	5	100 U	100 U	25 U	25 U	50 U	5 U
Carbon tetrachloride	5	100 U	100 U	25 U	25 U	50 U	5 U
Chlorobenzene	5	1800 J	1300	72	39	290	5 U
Chloroethane	5	100 U	100 U	25 U	25 U	50 U	5 U
Chloroform	5	100 U	100 U	25 U	25 U	14 J	5 U
Chloromethane	5	100 U	100 U	25 U	25 U	50 U	5 U
cis-1,2-Dichloroethene	5	140	320	60	37	90	5 U
cis-1,3-Dichloropropene	5	100 U	100 U	25 U	25 U	50 U	5 U
Cyclohexane	5	100 U	100 U	25 U	25 U	50 U	5 U
Dibromochloromethane	5	100 U	100 U	25 U	25 U	50 U	5 U
Dichlorodifluoromethane	5	100 U	100 U	25 U	25 U	50 U	5 U
Ethylbenzene	5	100 U	100 U	25 U	25 U	50 U	5 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4754	A4755	A4759	A4760	A4761	A4762
Sample Location		MW-115A	MW-115B	MW-113B	MW-113B	MW-305A	MW-305B
Lab Sample ID		NH16017-015	NH16017-016	NH16017-017	NH16017-018	NH16017-019	NH16017-020
Station ID		MW-115A-081412A	MW-115B-081412A	FDUP-01-081512A	MW-113B-081512A	MW-305A-081512A	MW-305B-081512A
Dilution Factor		20	20	5	5	10	1
Sample Date		14 Aug 12	14 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12
Date Analyzed		22 Aug 12	22 Aug 12	21 Aug 12	22 Aug 12	21 Aug 12	21 Aug 12
Chemical	CRQL						
Isopropylbenzene	5	100 U	100 U	25 U	25 U	50 U	5 U
m,p-Xylene	5	100 U	100 U	25 U	25 U	50 U	5 U
Methyl acetate	5	100 U	100 U	25 U	25 U	50 U	5 U
Methyl tert-butyl ether	5	100 U	100 U	25 U	25 U	50 U	5 U
Methylcyclohexane	5	100 U	100 U	25 U	25 U	50 U	5 U
Methylene chloride	5	23 J	13 J	25 U	25 U	50 U	5 U
o-Xylene	5	100 U	100 U	25 U	25 U	50 U	5 U
Styrene	5	100 U	100 U	25 U	25 U	50 U	5 U
Tetrachloroethene	5	100 U	100 U	25 U	25 U	50 U	5 U
Toluene	5	100 U	100 U	25 U	25 U	50 U	5 U
trans-1,2-Dichloroethene	5	100 U	100 U	25 U	25 U	50 U	5 U
trans-1,3-Dichloropropene	5	100 U	100 U	25 U	25 U	50 U	5 U
Trichloroethene	5	1600	2100	510	190	950	2 J
Trichlorofluoromethane	5	100 U	100 U	25 U	25 U	50 U	5 U
Vinyl chloride	5	100 U	100 U	25 U	25 U	50 U	5 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4763
Sample Location		MW-110
Lab Sample ID		NH16017-021
Station ID		MW-110-081512A
Dilution Factor		1
Sample Date		15 Aug 12
Date Analyzed		21 Aug 12
Chemical	CRQL	
1,1,1-Trichloroethane	5	5 U
1,1,2,2-Tetrachloroethane	5	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U
1,1,2-Trichloroethane	5	5 U
1,1-Dichloroethane	5	5 U
1,1-Dichloroethene	5	5 U
1,2,3-Trichlorobenzene	5	21
1,2,4-Trichlorobenzene	5	80
1,2-Dibromo-3-chloropropane	5	5 U
1,2-Dibromoethane	5	5 U
1,2-Dichlorobenzene	5	40
1,2-Dichloroethane	5	5 U
1,2-Dichloropropane	5	5 U
1,3-Dichlorobenzene	5	5 U
1,4-Dichlorobenzene	5	6.8
1,4-Dioxane	100	R
2-Butanone	10	10 U
2-Hexanone	10	10 U
4-Methyl-2-pentanone	10	10 U
Acetone	10	10 U
Benzene	5	0.63 J
Bromochloromethane	5	5 U
Bromodichloromethane	5	5 U
Bromoform	5	5 U
Bromomethane	5	5 U
Carbon Disulfide	5	5 U
Carbon tetrachloride	5	5 U
Chlorobenzene	5	23
Chloroethane	5	5 U
Chloroform	5	5 U
Chloromethane	5	5 U
cis-1,2-Dichloroethene	5	73
cis-1,3-Dichloropropene	5	5 U
Cyclohexane	5	5 U
Dibromochloromethane	5	5 U
Dichlorodifluoromethane	5	5 U
Ethylbenzene	5	5 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4763
Sample Location		MW-110
Lab Sample ID		NH16017-021
Station ID		MW-110-081512A
Dilution Factor		1
Sample Date		15 Aug 12
Date Analyzed		21 Aug 12
Chemical	CRQL	
Isopropylbenzene	5	5 U
m,p-Xylene	5	5 U
Methyl acetate	5	5 U
Methyl tert-butyl ether	5	5 U
Methylcyclohexane	5	5 U
Methylene chloride	5	5 U
o-Xylene	5	5 U
Styrene	5	5 U
Tetrachloroethene	5	5 U
Toluene	5	5 U
trans-1,2-Dichloroethene	5	1.7 J
trans-1,3-Dichloropropene	5	5 U
Trichloroethene	5	15
Trichlorofluoromethane	5	5 U
Vinyl chloride	5	0.6 J

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4740	A4741	A4742	A4743	A4744	A4745
Sample Location		MW-403A	MW-304B	MW-403B	MW-304A	MW-203B	MW-203A
Lab Sample ID		NH16017-001	NH16017-002	NH16017-003	NH16017-004	NH16017-005	NH16017-006
Station ID		MW-403A-081312A	MW-304B-081312A	MW-403B-081312A	MW-304A-081312A	MW-203B-081312A	MW-203A-081312A
Dilution Factor		1	1	1	1/5	2	2
Sample Date		13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12
Date Analyzed		20 Aug 12	20 Aug 12	20 Aug 12	20 Aug 12/31 Aug 12	20 Aug 12	21 Aug 12
Chemical	CRQL						
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U	10 U	10 U
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U	10 U	10 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	5	5 U	5 U	5 U	5 U	10 U	10 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U	3.5 J	10 U
2,4,6-Trichlorophenol	5	5 U	5 U	5 U	5 U	10 U	10 U
2,4-Dichlorophenol	5	5 U	5 U	5 U	5 U	5.6 J	10 U
2,4-Dimethylphenol	5	5 U	5 U	5 U	5 U	10 U	10 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U	20 U	20 U
2,4-Dinitrotoluene	5	5 U	5 U	5 U	5 U	10 U	10 U
2,6-Dinitrotoluene	5	5 U	5 U	5 U	5 U	10 U	10 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U	10 U	10 U
2-Chlorophenol	5	5 U	5 U	5 U	5 U	24	25
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U	10 U	10 U
2-Methylphenol	5	5 U	5 U	5 U	5 U	10 U	10 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U	20 U	20 U
2-Nitrophenol	5	5 U	5 U	5 U	5 U	10 U	10 U
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U	10 U	10 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U	20 U	20 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U	20 U	20 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U	10 U	10 U
4-Chloro-3-methylphenol	5	5 U	5 U	5 U	5 U	10 U	10 U
4-Chloroaniline	5	5 U	5 U	5 U	5 U	10 U	10 U
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U	10 U	10 U
4-Methylphenol	5	5 U	5 U	5 U	5 U	10 U	22
4-Nitroaniline	10	10 U	10 U	10 U	10 U	20 U	20 U
4-Nitrophenol	10	10 U	10 U	10 U	10 U	20 U	20 U
Acenaphthene	5	5 U	5 U	5 U	5 U	10 U	10 U
Acenaphthylene	5	5 U	5 U	5 U	5 U	10 U	10 U
Acetophenone	5	5 U	5 U	5 U	5 U	10 U	10 U
Anthracene	5	5 U	5 U	5 U	5 U	10 U	10 U
Atrazine	5	5 U	5 U	5 U	5 U	10 U	10 U
Benzaldehyde	5	5 U	5 U	5 U	5 U	10 U	10 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U	10 U	10 U
Benzo(a)pyrene	5	5 UJ	5 U	5 U	5 U	10 U	10 U
Benzo(b)fluoranthene	5	5 UJ	5 U	5 U	5 U	10 U	10 U
Benzo(g,h,i)perylene	5	5 UJ	5 U	5 U	5 U	10 U	10 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4740	A4741	A4742	A4743	A4744	A4745
Sample Location		MW-403A	MW-304B	MW-403B	MW-304A	MW-203B	MW-203A
Lab Sample ID		NH16017-001	NH16017-002	NH16017-003	NH16017-004	NH16017-005	NH16017-006
Station ID		MW-403A-081312A	MW-304B-081312A	MW-403B-081312A	MW-304A-081312A	MW-203B-081312A	MW-203A-081312A
Dilution Factor		1	1	1	1/5	2	2
Sample Date		13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12
Date Analyzed		20 Aug 12	20 Aug 12	20 Aug 12	20 Aug 12/31 Aug 12	20 Aug 12	21 Aug 12
Chemical	CRQL						
Benzo(k)fluoranthene	5	5 UJ	5 U	5 U	5 U	10 U	10 U
Bis(2-Chloroethoxy)methane	5	5 U	5 U	5 U	5 U	10 U	10 U
bis(2-Chloroethyl)ether	5	5 U	5 U	5 U	5 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	5	0.55 J	5 U	5 U	5 U	10 U	10 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U	10 U	10 U
Caprolactam	5	5 U	5 U	5 U	2.1 J	10 U	10 U
Carbazole	5	5 U	5 U	5 U	5 U	10 U	10 U
Chrysene	5	5 U	5 U	5 U	5 U	10 U	10 U
Dibenzo(a,h)anthracene	5	5 UJ	5 U	5 U	5 U	10 U	10 U
Dibenzofuran	5	5 U	5 U	5 U	5 U	10 U	10 U
Diethylphthalate	5	5 U	5 U	5 U	5 U	10 U	10 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U	10 U	10 U
Di-n-butylphthalate	5	1.5 J	5 U	5 U	5 U	10 U	10 U
Di-n-octylphthalate	5	5 U	5 U	5 U	5 U	10 U	10 U
Fluoranthene	5	5 U	5 U	5 U	5 U	10 U	10 U
Fluorene	5	5 U	5 U	5 U	5 U	10 U	10 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U	10 U	10 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U	10 U	10 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U	10 U	10 U
Hexachloroethane	5	5 U	5 U	5 U	5 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	5	5 UJ	5 U	5 U	5 U	10 U	10 U
Isophorone	5	5 U	5 U	5 U	5 U	10 U	10 U
Naphthalene	5	5 U	5 U	5 U	4.3 J	10 U	24
Nitrobenzene	5	5 U	5 U	5 U	380	10 U	79
N-Nitroso-di-n-propylamine	5	5 U	5 U	5 U	5 U	10 U	10 U
N-Nitrosodiphenylamine	5	5 U	5 U	5 U	5 U	10 U	10 U
Pentachlorophenol	10	10 U	10 U	10 U	10 U	20 U	20 U
Phenanthrene	5	5 U	5 U	5 U	5 U	10 U	10 U
Phenol	5	5 U	1.9 J	5 U	4.1 J	3.8 J	10 U
Pyrene	5	5 U	5 U	5 U	5 U	10 U	10 U

Nitrobenzene from 1:5 dilution

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4749	A4750	A4751	A4752	A4753	A4754
Sample Location		MW-6A	RMW-405B	RMW-405A	MW-406A	MW-406B	MW-115A
Lab Sample ID		NH16017-010	NH16017-011	NH16017-012	NH16017-013	NH16017-014	NH16017-015
Station ID		MW-6A-081412A	RMW-405B-081412A	RMW-405A-081412A	MW-406A-081412A	MW-406B-081412A	MW-115A-081412A
Dilution Factor		1	2	1	1	1	1
Sample Date		14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12
Date Analyzed		29 Aug 12	21 Aug 12	30 Aug 12	20 Aug 12	20 Aug 12	30 Aug 12
Chemical	CRQL						
1,1'-Biphenyl	5	5 U	10 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	5	5 U	10 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	10 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	10 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	10 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5	5 U	10 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	5 U	10 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 U	10 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	10	10 U	20 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 U	10 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5	5 U	10 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	5	5 U	10 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5	5 U	2.7 J	5 U	5 U	5 U	1.6 J
2-Methylnaphthalene	5	5 U	10 U	5 U	5 U	5 U	5 U
2-Methylphenol	5	5 U	10 U	5 U	5 U	5 U	5 U
2-Nitroaniline	10	10 U	20 U	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	10 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	5 U	10 U	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	20 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	20 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	10 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 U	10 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5	5 U	10 U	0.83 J	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5	5 U	10 U	5 U	5 U	5 U	5 U
4-Methylphenol	5	5 U	10 U	5 U	5 U	5 U	5 U
4-Nitroaniline	10	10 U	20 U	10 U	10 U	10 U	10 U
4-Nitrophenol	10	10 U	20 U	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	10 U	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	10 U	5 U	5 U	5 U	5 U
Acetophenone	5	5 U	10 U	5 U	5 U	5 U	5 U
Anthracene	5	5 U	10 U	5 U	5 U	5 U	5 U
Atrazine	5	5 U	10 U	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 U	10 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	5	5 U	10 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	5 U	10 U	5 U	5 UJ	5 U	5 U
Benzo(b)fluoranthene	5	5 U	10 U	5 U	5 UJ	5 U	5 U
Benzo(g,h,i)perylene	5	5 U	10 U	5 U	5 UJ	5 U	5 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4749	A4750	A4751	A4752	A4753	A4754
Sample Location		MW-6A	RMW-405B	RMW-405A	MW-406A	MW-406B	MW-115A
Lab Sample ID		NH16017-010	NH16017-011	NH16017-012	NH16017-013	NH16017-014	NH16017-015
Station ID		MW-6A-081412A	RMW-405B-081412A	RMW-405A-081412A	MW-406A-081412A	MW-406B-081412A	MW-115A-081412A
Dilution Factor		1	2	1	1	1	1
Sample Date		14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12
Date Analyzed		29 Aug 12	21 Aug 12	30 Aug 12	20 Aug 12	20 Aug 12	30 Aug 12
Chemical	CRQL						
Benzo(k)fluoranthene	5	5 U	10 U	5 U	5 UJ	5 U	5 U
Bis(2-Chloroethoxy)methane	5	5 U	10 U	5 U	5 U	5 U	5 U
bis(2-Chloroethyl)ether	5	5 U	10 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	10 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5	5 U	10 U	5 U	5 U	5 U	5 U
Caprolactam	5	5 U	10 U	5 U	5 U	5 U	5 U
Carbazole	5	5 U	10 U	5 U	5 U	5 U	5 U
Chrysene	5	5 U	10 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	5 U	10 U	5 U	5 UJ	5 U	5 U
Dibenzofuran	5	5 U	10 U	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	10 U	5 U	5 U	5 U	5 U
Dimethylphthalate	5	5 U	10 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	10 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	5 U	10 U	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	10 U	5 U	5 U	5 U	5 U
Fluorene	5	5 U	10 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	10 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	10 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	10 U	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 U	10 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5	5 U	10 U	5 U	5 UJ	5 U	5 U
Isophorone	5	5 U	10 U	5 U	5 U	5 U	5 U
Naphthalene	5	5 U	58	5 U	5 U	5 U	12
Nitrobenzene	5	5 U	10 U	5 U	5 U	5 U	5 U
N-Nitroso-di-n-propylamine	5	5 U	10 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	5	2.3 J	10 U	5 U	5 U	5 U	5 U
Pentachlorophenol	10	10 U	20 U	10 U	10 U	10 U	10 U
Phenanthrene	5	5 U	10 U	5 U	5 U	5 U	5 U
Phenol	5	5 U	2.1 J	2.7 J	5 U	5 U	3.8 J
Pyrene	5	5 U	10 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4755	A4759	A4760	A4761	A4762	A4763
Sample Location		MW-115B	MW-113B	MW-113B	MW-305A	MW-305B	MW-110
Lab Sample ID		NH16017-016	NH16017-017	NH16017-018	NH16017-019	NH16017-020	NH16017-021
Station ID		MW-115B-081412A	FDUP-01-081512A	MW-113B-081512A	MW-305A-081512A	MW-305B-081512A	MW-110-081512A
Dilution Factor		1/2	1/2	1/2	1	1	1
Sample Date		14 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12
Date Analyzed		31 Aug 12	20 Aug 12/31 Aug 12	20 Aug 12/31 Aug 12	20 Aug 12	30 Aug 12	30 Aug 12
Chemical	CRQL						
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5	2.1 J	5 U	5 U	3.1 J	5 U	5 U
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 UJ	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	5	5 U	5 U	5 U	5 U	5 U	5 U
Anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine	5	5 UJ	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	R	5 U	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	5	R	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	5	R	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4740

Sample Name		A4755	A4759	A4760	A4761	A4762	A4763
Sample Location		MW-115B	MW-113B	MW-113B	MW-305A	MW-305B	MW-110
Lab Sample ID		NH16017-016	NH16017-017	NH16017-018	NH16017-019	NH16017-020	NH16017-021
Station ID		MW-115B-081412A	FDUP-01-081512A	MW-113B-081512A	MW-305A-081512A	MW-305B-081512A	MW-110-081512A
Dilution Factor		1/2	1/2	1/2	1	1	1
Sample Date		14 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12
Date Analyzed		31 Aug 12	20 Aug 12/31 Aug 12	20 Aug 12/31 Aug 12	20 Aug 12	30 Aug 12	30 Aug 12
Chemical	CRQL						
Benzo(k)fluoranthene	5	R	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethoxy)methane	5	5 U	5 U	5 U	5 U	5 U	5 U
bis(2-Chloroethyl)ether	5	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	5	5 U	5 U	5 U	5 U	5 U	5 U
Carbazole	5	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	5	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	R	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	5	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	2.8 J	2.4 J	5 U	5 U	5 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	R	5 U	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	5	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5	R	5 U	5 U	5 U	5 U	5 U
Isophorone	5	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	5	130	5 U	5 U	5 U	5 U	5 U
Nitrobenzene	5	5 U	120	110	55	5 U	5 U
N-Nitroso-di-n-propylamine	5	5 U	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	5	5 U	5 U	5 U	5 U	5 U	5 U
Pentachlorophenol	10	2.5 J	10 U	10 U	10 U	10 U	10 U
Phenanthrene	5	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	5	5 U	5 U	5 U	5 U	5 U	5 U
Pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U

Naphthalene from 1:2 dilution Nitrobenzene from 1:2 dilution Nitrobenzene from 1:2 dilution

PES SCORING EVALUATION REPORT

PES VLM0723 Rev: 2 EPA Sample No.: A4746 Report Date: 09/13/2012

Lab Name: Shealy Environmental Inc.
Lab Code: SHEALY
Contract: EP-W-11-035
Case No.: 42759
SAS/Client No.: NA
SDG No.: A4740
Matrix: Water
Lab Sample ID: NH16017-007
Lab File ID: 140821606
Date Received: 8/16/2012
Date Analyzed: 8/21/2012
Sample Wt./Vol. (g/mL): 5 mL
Level: Low
% Moisture (not dec.): NA
Purge Volume (mL): 5 mL
GC Column: DB-624
ID (mm): 0.25
Length (m): NA
Soil Extract. Vol. (uL): NA
Soil Aliquot Vol. (uL): NA
Dilution Factor: 1
Units: ug/L

Analysis Method: SOM01.2
Scoring Method: SOM01.2
Comments:

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
75-71-8	Dichlorodifluoromethane	8.0		PASS	Within Limits
74-87-3	Chloromethane	33		PASS	Within Limits
74-83-9	Bromomethane	11		PASS	Within Limits
75-69-4	Trichlorofluoromethane	27		PASS	Within Limits
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	33		PASS	Within Limits
75-15-0	Carbon Disulfide	32		PASS	Within Limits
156-60-5	trans-1,2-Dichloroethene	53		PASS	Within Limits
1634-04-4	Methyl tert-Butyl Ether	110		PASS	Within Limits
67-66-3	Chloroform	45		PASS	Within Limits
71-55-6	1,1,1-Trichloroethane	23		PASS	Within Limits
56-23-5	Carbon Tetrachloride	59		PASS	Within Limits
107-06-2	1,2-Dichloroethane	44		PASS	Within Limits
108-87-2	Methylcyclohexane	28		PASS	Within Limits
10061-01-5	cis-1,3-Dichloropropene	34		PASS	Within Limits
108-10-1	4-Methyl-2-pentanone	100		PASS	Within Limits
108-88-3	Toluene	51		PASS	Within Limits
79-00-5	1,1,2-Trichloroethane	27		PASS	Within Limits
124-48-1	Dibromochloromethane	49		PASS	Within Limits
106-93-4	1,2-Dibromoethane	41		PASS	Within Limits
179601-23-1	m,p-Xylene	35		PASS	Within Limits
100-42-5	Styrene	39		PASS	Within Limits
79-34-5	1,1,2,2-Tetrachloroethane	26		PASS	Within Limits
106-46-7	1,4-Dichlorobenzene	31		PASS	Within Limits
96-12-8	1,2-Dibromo-3-chloropropane	29		PASS	Within Limits
87-61-6	1,2,3-Trichlorobenzene	59		PASS	Within Limits
123-91-1	1,4-Dioxane	310	J	PASS	Within Limits
95-63-6	1,2,4-Trimethylbenzene	0		FAIL	TIC Missed
****	END Main Analytes	**********	****	****	**********
79-01-6	Trichloroethene	0.85	J	PASS	Less Than CRQL
75-09-2	Methylene Chloride	0.76	J	PASS	Less Than CRQL
526-73-8	Benzene, 1,2,3-trimethyl-	30	NJ	N.E.	Non-spiked TIC
****	END All Analytes	**********	****	****	**********

PES SCORING EVALUATION REPORT

PES SV0295 Rev: 1 EPA Sample No.: A4747 Report Date: 09/14/2012

Lab Name: Shealy Environmental Inc.
Lab Code: SHEALY
Contract: EP-W-11-035
Case No.: 42759
SAS/Client No.: NA
SDG No.: A4740
Matrix: Water
Lab Sample ID: NH16017-008
Lab File ID: 120829D03
Date Received: 08/16/2012
Date Extracted: 08/19/2012
Date Analyzed: 08/29/2012
Sample Wt./Vol. (g/mL): 1000 mL
Level: Low
% Moisture: NA
Decanted: N/A
Conc. Extract Vol. (uL): 1000
Injection Vol. (uL): 10
GPC Cleanup: No
pH: NA
Dilution Factor: 1.0
Extraction Type: CONT
Units: ug/L

Analysis Method: SOM01.2
Scoring Method: SOM01.2
Comments:

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
100-52-7	Benzaldehyde	52		PASS	Within Limits
95-57-8	2-Chlorophenol	44		PASS	Within Limits
108-60-1	2,2'-oxybis(1-Chloropropane)	63		PASS	Within Limits
98-86-2	Acetophenone	46		PASS	Within Limits
67-72-1	Hexachloroethane	31		FAIL	Action High
98-95-3	Nitrobenzene	63		PASS	Within Limits
88-75-5	2-Nitrophenol	56		PASS	Within Limits
120-83-2	2,4-Dichlorophenol	28		PASS	Within Limits
91-20-3	Naphthalene	17		PASS	Within Limits
106-47-8	4-Chloroaniline	2.2	J	N.E.	Not Evaluated
59-50-7	4-Chloro-3-methylphenol	56		PASS	Within Limits
88-06-2	2,4,6-Trichlorophenol	36		PASS	Within Limits
92-52-4	1,1'-Biphenyl	40		PASS	Within Limits
88-74-4	2-Nitroaniline	72		PASS	Within Limits
606-20-2	2,6-Dinitrotoluene	46		PASS	Within Limits
208-96-8	Acenaphthylene	50		PASS	Within Limits
100-02-7	4-Nitrophenol	69		PASS	Within Limits
132-64-9	Dibenzofuran	22		PASS	Within Limits
121-14-2	2,4-Dinitrotoluene	55		PASS	Within Limits
84-66-2	Diethylphthalate	51		PASS	Within Limits
86-73-7	Fluorene	8.9		PASS	Within Limits
86-30-6	N-Nitrosodiphenylamine	53		PASS	Within Limits
95-94-3	1,2,4,5-Tetrachlorobenzene	20		PASS	Within Limits
118-74-1	Hexachlorobenzene	41		PASS	Within Limits
1912-24-9	Atrazine	5.0	U	PASS	Within Limits
87-86-5	Pentachlorophenol	45		PASS	Within Limits
85-01-8	Phenanthrene	34		PASS	Within Limits
84-74-2	Di-n-butylphthalate	43		PASS	Within Limits
129-00-0	Pyrene	17		PASS	Within Limits
91-94-1	3,3'-Dichlorobenzidine	13		PASS	Within Limits
56-55-3	Benzo(a)anthracene	42		PASS	Within Limits
117-84-0	Di-n-octylphthalate	31		PASS	Within Limits
205-99-2	Benzo(b)fluoranthene	34		PASS	Within Limits
50-32-8	Benzo(a)pyrene	21		PASS	Within Limits
53-70-3	Dibenzo(a,h)anthracene	49		PASS	Within Limits
191-24-2	Benzo(g,h,i)perylene	26		PASS	Within Limits
90-12-0	1-Methylnaphthalene	46	NJ	PASS	TIC Found

PES SCORING EVALUATION REPORT

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
****	END Main Analytes	**********	****	****	**********
83-32-9	Acenaphthene	4.8	J	PASS	Less Than CRQL
108-90-7	Chlorobenzene	9.8	NJ	N.E.	Non-spiked TIC
40941-53-5	Quinoline, 7-chlloro-4-methyl-	2.7	NJ	N.E.	Non-spiked TIC
****	END All Analytes	**********	****	****	**********

VLM0723
(1 of 3)

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4746

Lab Name: Shealy Environmental Contract: EP-W-11-035

Lab Code: Shealy Case No.: 42759 Mod. Ref No.: _____ SDG No.: A4740

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: N416017-007

Sample wt/vol: 5 (g/mL) mL Lab File ID: 140821606

Level: (TRACE/LOW/MED) Low Date Received: 8/16/2012

% Moisture: not dec. _____ Date Analyzed: 8/21/2012

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 5 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg)	Q
75-71-8	Dichlorodifluoromethane	8.0	
74-87-3	Chloromethane	33	
75-01-4	Vinyl chloride	5.0	U
74-83-9	Bromomethane	11	
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	27	
75-35-4	1,1-Dichloroethene	5.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	33	
67-64-1	Acetone	10	U
75-15-0	Carbon disulfide	32	
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	0.76	J
156-60-5	trans-1,2-Dichloroethene	53	
1634-04-4	Methyl tert-butyl ether	110	
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-Butanone	10	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	45	
71-55-6	1,1,1-Trichloroethane	23	
110-82-7	Cyclohexane	5.0	U
56-23-5	Carbon tetrachloride	59	
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	44	
123-91-1	1,4-Dioxane	310	J

VLM0723 (2of3)

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4746

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-11-035

Lab Code: SHEALY Case No.: 42759 Mod. Ref No.: _____ SDG No.: A4740

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: NH16017-007

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: 140821b06

Level: (TRACE/LOW/MED) LOW Date Received: 08/16/2012

% Moisture: not dec. _____ Date Analyzed: 08/21/2012

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
79-01-6	Trichloroethene	0.85	J
108-87-2	Methylcyclohexane	28	
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	34	
108-10-1	4-Methyl-2-pentanone	100	
108-88-3	Toluene	51	
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	27	
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	49	
106-93-4	1,2-Dibromoethane	41	
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	35	
100-42-5	Styrene	39	
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	26	
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	31	
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	59	

VLM0723 (3 of 3)

EPA SAMPLE NO.

A4746

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-11-035

Lab Code: SHEALY Case No.: 42759 Mod. Ref No.: _____ SDG No.: A4740

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: NH16017-007

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: 140821b06

Level: (TRACE or LOW/MED) LOW Date Received: 08/16/2012

% Moisture: not dec. _____ Date Analyzed: 08/21/2012

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	526-73-8	Benzene, 1,2,3-trimethyl-	12.780	30	NJ
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

SOM01.2 (10/2006)

SV0295 (1 of 3)

1D - FORM I SV-1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4747

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-11-035

Lab Code: SHEALY Case No.: 42759 Mod. Ref No.: _____ SDG No.: A4740

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: NH16017-008

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 120829D03

Level: (LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 08/16/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 08/19/2012

Injection Volume: 1.0 (uL) GPC Factor: 1.0 Date Analyzed: 08/29/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
100-52-7	Benzaldehyde	52	
108-95-2	Phenol	5.0	U
111-44-4	bis(2-Chloroethyl)ether	5.0	U
95-57-8	2-Chlorophenol	44	
95-48-7	2-Methylphenol	5.0	U
108-60-1	2,2'-Oxybis(1-chloropropane)	63	
98-86-2	Acetophenone	46	
106-44-5	4-Methylphenol	5.0	U
621-64-7	N-Nitroso-di-n-propylamine	5.0	U
67-72-1	Hexachloroethane	21	
98-95-3	Nitrobenzene	63	
78-59-1	Isophorone	5.0	U
88-75-5	2-Nitrophenol	56	
105-67-9	2,4-Dimethylphenol	5.0	U
111-91-1	Bis(2-Chloroethoxy)methane	5.0	U
120-83-2	2,4-Dichlorophenol	28	
91-20-3	Naphthalene	17	
106-47-8	4-Chloroaniline	2.2	J
87-68-3	Hexachlorobutadiene	5.0	U
105-60-2	Caprolactam	5.0	U
59-50-7	4-Chloro-3-methylphenol	56	
91-57-6	2-Methylnaphthalene	5.0	U
77-47-4	Hexachlorocyclopentadiene	5.0	U
88-06-2	2,4,6-Trichlorophenol	36	
95-95-4	2,4,5-Trichlorophenol	5.0	U
92-52-4	1,1'-Biphenyl	40	
91-58-7	2-Chloronaphthalene	5.0	U
88-74-4	2-Nitroaniline	72	
131-11-3	Dimethylphthalate	5.0	U
606-20-2	2,6-Dinitrotoluene	46	
208-96-8	Acenaphthylene	50	
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	4.8	J

SV0295 (2 of 3)

1E - FORM I SV-2
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4747

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-11-035

Lab Code: SHEALY Case No.: 42759 Mod. Ref No.: _____ SDG No.: A4740

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: NH16017-008

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 120829D03

Level: (LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 08/16/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 08/19/2012

Injection Volume: 1.0 (uL) GPC Factor: 1.0 Date Analyzed: 08/29/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	69	
132-64-9	Dibenzofuran	22	
121-14-2	2,4-Dinitrotoluene	55	
84-66-2	Diethylphthalate	51	
86-73-7	Fluorene	8.9	
7005-72-3	4-Chlorophenyl-phenylether	5.0	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4,6-Dinitro-2-methylphenol	10	U
86-30-6	N-Nitrosodiphenylamine [1]	53	
95-94-3	1,2,4,5-Tetrachlorobenzene	20	
101-55-3	4-Bromophenyl-phenylether	5.0	U
118-74-1	Hexachlorobenzene	41	
1912-24-9	Atrazine	5.0	U
87-86-5	Pentachlorophenol	45	
85-01-8	Phenanthrene	34	
120-12-7	Anthracene	5.0	U
86-74-8	Carbazole	5.0	U
84-74-2	Di-n-butylphthalate	43	
206-44-0	Fluoranthene	5.0	U
129-00-0	Pyrene	17	
85-68-7	Butylbenzylphthalate	5.0	U
91-94-1	3,3'-Dichlorobenzidine	13	
56-55-3	Benzo(a)anthracene	42	
218-01-9	Chrysene	5.0	U
117-81-7	Bis(2-ethylhexyl)phthalate	5.0	U
117-84-0	Di-n-octylphthalate	31	
205-99-2	Benzo(b)fluoranthene	34	
207-08-9	Benzo(k)fluoranthene	5.0	U
50-32-8	Benzo(a)pyrene	21	
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	U
53-70-3	Dibenzo(a,h)anthracene	49	
191-24-2	Benzo(g,h,i)perylene	26	
58-90-2	2,3,4,6-Tetrachlorophenol	5.0	U

[1] Cannot be separated from Diphenylamine

SV0295
(3 of 3)

EPA SAMPLE NO.

A4747

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-11-035

Lab Code: SHEALY Case No.: 42759 Mod. Ref No.: _____ SDG No.: A4740

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: NH16017-008

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 120829D03

Level: (TRACE or LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 08/16/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 08/19/2012

Injection Volume: 1.0 (uL) GPC Factor: 1.0 Date Analyzed: 08/29/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	3.640	4.3	J
02		Unknown-02	4.010	6.8	J
03	108-90-7	Benzene, chloro-	4.150	9.8	NJ
04	90-12-0	Naphthalene, 1-methyl-	8.250	46	NJ
05	40941-53-5	Quinoline, 7-chloro-4-methyl-	9.830	2.7	NJ
06		Unknown-03	10.380	4.6	J
07		Unknown-04	10.700	10	J
08		Unknown-05	12.960	2.0	J
09		Unknown-06	14.970	17	J
10					
11					
12					
13					
14					
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19					
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21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A		

[2]EPA-designated Registry Number.

Regional CCS Defect Report

15:16 Mon, Sep 10, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159182 **Version** 8.039

DRD 09/06/2012 **LRD** 08/16/2012 **Mailed** 09/10/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Sample Summary and Lab Receipt Date

Sample/Number	VOA Trace	VOA SIM	VOA	BNA	BNA SIM	PEST	AROCLOR	Automated	Manual
A4740			08/16/2012	08/16/2012				X	X
A4741			08/16/2012	08/16/2012				X	X
A4742			08/16/2012	08/16/2012				X	
A4743			08/16/2012	08/16/2012				X	X
A4743DL				08/16/2012				X	X
A4744			08/16/2012	08/16/2012				X	
A4745			08/16/2012	08/16/2012				X	X
A4746			08/16/2012					X	
A4747				08/16/2012				X	X
A4748			08/16/2012					X	
A4749			08/16/2012	08/16/2012				X	X
A4750			08/16/2012	08/16/2012				X	X
A4751			08/16/2012	08/16/2012				X	X
A4752			08/16/2012	08/16/2012				X	X
A4752MS			08/16/2012	08/16/2012				X	
A4752MSD			08/16/2012	08/16/2012				X	
A4753			08/16/2012	08/16/2012				X	X
A4754			08/16/2012	08/16/2012				X	X
A4755			08/16/2012	08/16/2012				X	X
A4755DL				08/16/2012				X	X
A4759			08/16/2012	08/16/2012				X	X
A4759DL				08/16/2012				X	X
A4760			08/16/2012	08/16/2012				X	X
A4760DL				08/16/2012				X	X
A4761			08/16/2012	08/16/2012				X	X
A4762			08/16/2012	08/16/2012				X	X
A4763			08/16/2012	08/16/2012				X	X
Totals	**0**	**0**	**22**	**25**	**0**	**0**	**0**		

Regional CCS Defect Report

15:16 Mon, Sep 10, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159182 **Version** 8.039
DRD 09/06/2012 **LRD** 08/16/2012 **Mailed** 09/10/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Summary

Method	Defect Message	Samples with defect
VOA_Low_Med	One or more compounds in the closing CCV standard have a percent difference value outside the range of +/- 50%.	22
BNA	Percent Difference is incorrect for the compound in the CCV standard.	20
	One or more compounds in the closing CCV standard have a percent difference value outside the range of +/- 50%.	5
	Quantitation Report is incomplete for Sample.	1
	TIC Spectra is missing for Sample.	20
	TIC Spectra is missing for Blank.	6
	Percent Recovery is incorrect for the DMC compound in the sample.	2
	Percent Recovery is incorrect for Matrix Spike.	1
	Percent Recovery is incorrect for Matrix Spike Duplicate.	1
	Relative Percent Difference is incorrect for Matrix Spike Duplicate.	1
		79

Regional CCS Defect Report

15:16 Mon, Sep 10, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159182 **Version** 8.039

DRD 09/06/2012 **LRD** 08/16/2012 **Mailed** 09/10/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Detail

METHOD = VOA Low Med

Defect **One or more compounds in the closing CCV standard have a percent difference value outside the range of +/- 50%.**

Associated Samples: **A4755, A4746, A4763, A4745, A4744, A4762, A4752, A4743, A4742, A4751, A4741, A4754, A4740, A4753, A4759, A4749, A4748, A4752MSD, A4752MS, A4750, A4760, A4761**

Comments:

Regional CCS Defect Report

15:16 Mon, Sep 10, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159182 **Version** 8.039
DRD 09/06/2012 **LRD** 08/16/2012 **Mailed** 09/10/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Detail

METHOD = BNA

Defect **Percent Difference is incorrect for the compound in the CCV standard.**
Associated Samples: **A4747, A4755, A4745, A4744, A4743, A4752, A4742, A4741, A4753, A4740, A4755DL, A4760DL, A4759, A4752MSD, A4743DL, A4752MS, A4750, A4760, A4759DL, A4761**
Comments:

Defect **One or more compounds in the closing CCV standard have a percent difference value outside the range of +/- 50%.**
Associated Samples: **A4755, A4743DL, A4755DL, A4760DL, A4759DL**
Comments:

Defect **Percent Recovery is incorrect for the DMC compound in the sample.**
Associated Samples: **A4742, A4753**
Comments:

Defect **Percent Recovery is incorrect for Matrix Spike.**
Associated Samples: **A4752MS**
Comments:

Defect **Percent Recovery is incorrect for Matrix Spike Duplicate.**
Associated Samples: **A4752MSD**
Comments:

Defect **Relative Percent Difference is incorrect for Matrix Spike Duplicate.**
Associated Samples: **A4752MSD**
Comments:

Regional CCS Defect Report

15:16 Mon, Sep 10, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159182 **Version** 8.039

DRD 09/06/2012 **LRD** 08/16/2012 **Mailed** 09/10/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Manual Defect Detail

METHOD = BNA

Defect **Quantitation Report is incomplete for Sample.**

Associated Samples: **A4740**

Comments: **Compound bis(2-ethylhexyl)phthalate is on Form 1 but doesn't appear on quantitation report.**

Defect **TIC Spectra is missing for Sample.**

Associated Samples: **A4747, A4755, A4745, A4763, A4762, A4743, A4752, A4751, A4754, A4741, A4753, A4755DL, A4760DL, A4759, A4749, A4743DL, A4750, A4760, A4759DL, A4761**

Comments: **The first TIC reported on Form 1K is missing from each of the listed samples. For example in sample A4741, refer to RT=3.45 on Form 1K but the TIC spectra is missing in the hardcopy data as well as in the PDF hardcopy deliverable.**

Defect **TIC Spectra is missing for Blank.**

Associated Samples: **A4747, A4763, A4762, A4751, A4754, A4749**

Comments: **Refer to RT=3.64 on Form 1K. This is also missing in the PDF hardcopy deliverable.**

Regional CCS Defect Report

15:16 Mon, Sep 10, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159182 **Version** 8.039

DRD 09/06/2012 **LRD** 08/16/2012 **Mailed** 09/10/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

General Comments

NONE FOUND

Regional CCS Defect Report

11:51 Thu, Sep 20, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 160220 **Version** 8.039

DRD 09/17/2012 **LRD** 08/16/2012 **Mailed** 09/20/2012 **Submission Type** Recon **Screening Type** Semi-Automated

Sample Summary and Lab Receipt Date

Sample/Number	VOA Trace	VOA SIM	VOA	BNA	BNA SIM	PEST	AROCLOR	Automated	Manual
A4740			08/16/2012	08/16/2012				X	
A4741			08/16/2012	08/16/2012				X	
A4742			08/16/2012	08/16/2012				X	
A4743			08/16/2012	08/16/2012				X	
A4743DL				08/16/2012				X	
A4744			08/16/2012	08/16/2012				X	
A4745			08/16/2012	08/16/2012				X	
A4746			08/16/2012					X	
A4747				08/16/2012					
A4748			08/16/2012					X	
A4749			08/16/2012	08/16/2012				X	
A4750			08/16/2012	08/16/2012				X	
A4751			08/16/2012	08/16/2012				X	
A4752			08/16/2012	08/16/2012				X	
A4752MS			08/16/2012	08/16/2012				X	
A4752MSD			08/16/2012	08/16/2012				X	
A4753			08/16/2012	08/16/2012				X	
A4754			08/16/2012	08/16/2012				X	
A4755			08/16/2012	08/16/2012				X	
A4755DL				08/16/2012				X	
A4759			08/16/2012	08/16/2012				X	
A4759DL				08/16/2012				X	
A4760			08/16/2012	08/16/2012				X	
A4760DL				08/16/2012				X	
A4761			08/16/2012	08/16/2012				X	
A4762			08/16/2012	08/16/2012				X	
A4763			08/16/2012	08/16/2012				X	
Totals	**0**	**0**	**22**	**25**	**0**	**0**	**0**		

Regional CCS Defect Report

11:51 Thu, Sep 20, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 160220 **Version** 8.039

DRD 09/17/2012 **LRD** 08/16/2012 **Mailed** 09/20/2012 **Submission Type** Recon **Screening Type** Semi-Automated

Regional Defect Summary

Method	Defect Message	Samples with defect
VOA_Low_Med	One or more compounds in the closing CCV standard have a percent difference value outside the range of +/- 50%.	22
BNA	One or more compounds in the closing CCV standard have a percent difference value outside the range of +/- 50%.	5
		27

Regional CCS Defect Report

11:51 Thu, Sep 20, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 160220 **Version** 8.039

DRD 09/17/2012 **LRD** 08/16/2012 **Mailed** 09/20/2012 **Submission Type** Recon **Screening Type** Semi-Automated

Regional Defect Detail

METHOD = VOA_Low_Med

Defect **One or more compounds in the closing CCV standard have a percent difference value outside the range of +/- 50%.**

Associated Samples: **A4755, A4746, A4745, A4763, A4744, A4762, A4743, A4752, A4742, A4751, A4754, A4741, A4753, A4740, A4759, A4749, A4748, A4752MSD, A4752MS, A4750, A4760, A4761**

Comments:

Regional CCS Defect Report

11:51 Thu, Sep 20, 2012

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 160220 **Version** 8.039

DRD 09/17/2012 **LRD** 08/16/2012 **Mailed** 09/20/2012 **Submission Type** Recon **Screening Type** Semi-Automated

Regional Defect Detail

METHOD = BNA

Defect **One or more compounds in the closing CCV standard have a percent difference value outside the range of +/- 50%.**

Associated Samples: **A4755, A4743DL, A4755DL, A4760DL, A4759DL**

Comments:

Regional CCS Defect Report

SDG A4740 **Lab** SHEALY **Case** 42759 **Contract** EPW11035 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 160220 **Version** 8.039

DRD 09/17/2012 **LRD** 08/16/2012 **Mailed** 09/20/2012 **Submission Type** Recon **Screening Type** Semi-Automated

General Comments

NONE FOUND

trailer to load out.

1700 Load out back of Nyacol & 135-137 Pleasant Street. Stove off-site

1800 Load off RR & move to Decon Major Heads over to Mill to Load up Remaining Equipment

1835 Load out from Mill, move to Nyacol to unload Bobcat to move drums out back.

1700 JNB off-site Mahor unloaded drums & Headed off-site

Groundwater Sampling 8/13/12

88° Sunny

630 Arrive @ office, Meet w/ Westin & Sample Team, Hold Safety Mtg, Go over scope.

Calibrate field equipment & load up trucks - Mob to site

Josh Stewart
Drew Kathouse
David Kammer
Erik Johnson

800 Head to site.
900 Arrive @ Nyacol Factory, Meet Invit on site, Area, Scope, Etc.

JNB/EHJ Help Westin setup on MW-403 A/B
Show Westin how to use/run Bladder Pumps.

Meet up w/ Josh @ MW-203 A/B - JNB/EHJ Run back & forth between sample

8.13

CREWS TO HELP W/ SET-UP DELIVER EQUIPMENT

EHJ/JNB HEAD OUT TO GAUGE WELLS - WELL DATA RECORDED ON GAUGING SHEET.

1200 HEAD OVER TO MW-403 A/B TO SHOW WESTIN HOW TO DISASSEMBLE / DECON BLADDER PUMPS. - STOP TO BUY ICE FOR SAMPLES.

1300 SHOW WESTIN NEXT SAMPLE LOCATION, WESTIN CREW SETS UP TO SAMPLE NEXT WELL SET

1330 JNB/EHJ CONTINUE W/ SYNOPTIC GAUGING ROUND.

GAUGING CONDUCTED FROM CLEANEST TO DIRTIES WELLS

WELLS W/ POTENTIAL DNAPL GAUGED W/ INTERFACE PROBE

8.13

1430 CONTINUE W/ GAUGING STREAM GAUGES SG-3 & SG-5 UNABLE TO BE LOCATED. SG-4 APPEARS DAMAGED.

UNABLE TO LOCATE MW-301 ACCESS TO LANDFILL WELLS NOT GRANTED DUE TO LOCKED GATE - WILL GAUGE LF WELLS IN AM.

1530 CONTINUE GAUGING WELLS

1600 SAMPLE CREWS WRAPPING UP FOR TODAY. BEGIN PACK-UP

1630 CREWS OFF-SITE TO HEAD TO OFFICE TO POST CAL, DECON, & PROCESS SAMPLES

GW SAMPLING 8.14.12

88° Sunny

630 AT SEL OFFICE W/ WESTIN & NOBIS FOR MORNING CAL, SAFETY MTG, & LOAD OUT

843 SAMPLE CREW ON-SITE — JWB/WESTIN HEAD OVER TO RMW-405A/B LOCATION. JWB SHOWS THEM WELLS & GIVE THEM CONSTRUCTION DETAILS. WESTIN TO INSTALL NEW TUBING

900 JWB HEAD OVER TO ERIK @ MW-406A/B MW-406B COVERED BY DUMP TRUCK. JWB HELP ERIK & STEVE SET UP

935 JWB HEAD UP TO LANDFILL TO GAUGE WELLS MW-503 A/B & MW-301.

945 JWB GAUGE 503 A & B, JWB HEAD DOWN HILL TO FIND MW-301.

1015 CONTINUE LOOKING FOR MW-301.

1030 JWB TALKS TO JEFF McCULLOUGH ABOUT DRIVERS INVOICE/OVERLAGES.

8.14.12

1045 JWB UNABLE TO LOCATE MW-301 HEAD OVER TO GAUGE B-11 FOR DNAPL. JWB EMPTIES 4 DRUMS OF DRILLING WATER FROM RMW 305A.

1055 ~17" OF DNAPL RETRIEVED FROM B/MW-11 W/ CLEAR VIOLS BAILER

1100 JWB COLLECTS DNAPL SAMPLING PID SCREENING 390 PPM @ WELLHEAD 2.5 PPM IN BREATHING ZONE

JWB COLLECTS Vinyl CHLORIDE DRAEGER TUBE SAMPLE — NO INDICATION OF VC FROM DRAEGER TUBE SAMPLE

ERIK PRESENT IN EXCLUSION ZONE AS JWB SAMPLED DNAPL FROM BAILER WHILE DONNING RESPIRATOR/PPE (PID SCREENING/DRAEGER READINGS/ GAUGING & SAMPLING CONDUCTED WHILE IN LEVEL C).

ERIK STATES THAT DC PUMP COMPRESSOR @ 406 IS NOT WORKING.

1130 JWB CALLS DENIS M TO SECURE LAB FOR DNAPL SAMPLE. JWB CALL JEFF M. – JEFF WILL CHECK TO CONFIRM SAMPLE VOLUME OF NAPL NEEDED FOR ANALYSIS.

1200 JWB @ 406 WELL PAIR – JWB FIX DC COMPRESSOR & SHOWS EHJ & DUBE HOW TO START GAS COMPRESSOR.

* 9:25 WESTIN HAS HIGH pH & CONDUCTIVITY IN RMW-405 A/B JWB GAVE WESTIN CAL STDS TO CHECK READINGS. METERS CHECK OK.

1300 WESTIN SETTING UP ON MW-115 A/B – JWB STOP BY TO DELIVER TUBING & HELP – BLOCKAGE IN WELL 115B – JWB ABLE TO RETRIEVE TUBING THAT FELL IN WELL.

1320 JWB BEGIN DEVELOPING RMW-305 A WELL DEVELOPED W/ LOHALE PUMP.

1430 WELL DEVELOPMENT COMPLETE
DTB: 53.82 35 GALS PURGED
TURB: 12.1 NTU 0.2 PPM ON PID.

1500 JWB CHECK IN W/ SAMPLE TEAMS. CREWS CONTINUE TO SAMPLE.

1530 JWB HEAD OVER TO MW-113A/B TO GAUGE FOR DNAPL.

JWB DOWS LEVEL C TO PULL BAILER 870 PPM ON PID
JWB PULLS DUALER TUBE SAMPLE SLIGHT PURPLE HUE ACROSS ENTIRE VC TUBE RANGE (0.5 - 30 PPM) NO DEFINITIVE/STRONG COLOR CHANGE.

1600 JWB COLLECTS MW-113A DNAPL SAMPLE.

MW-113B GAUGED FOR DNAPL – NONE PRESENT IN BAILER.

1630 JWB COORDINATE W/ JOSH STEWART & JEFF M ABOUT SAMPLES COLLECTED

HEAD OVER TO NYACOL TO DRUM CONTAMINATED MEDIA AS SAMPLE CREWS PACK UP.

1645 CREWS HEAD TO OFFICE FOR POST CAL

Groundwater Sampling

8-15

Rain → Sunny 80°

630 Sample crew @ office - Hold safety meeting, calibrate equipment etc.

730 Depart for site

900 Arrive @ site - Rain, sometimes heavy. Heavy traffic due to weather

EHJ setting up on MW 305 A/B

JNB & David Kammer help Drew set up on MW-113B.

Bladder pump would not fit down well to targeted pumping depth. Peristaltic pump used instead of bladder pump.

945 Drew setting up - Head over to MW-110 location & help David set up.

8-15

1015 JNB head over to MW-305 A/B to check on EHJ & S. Dube.

1045 Head over to Nyacol property to pack up truck, drum IDW, label drums, etc.

1115 Drew almost ready to sample - JNB delivers duplicate sample bottle ware to Drew.

When JNB arrived @ MW-113B, Drew had packed up some of the sample equipment because parameters were stable. When JNB had asked about turbidity, Drew said it was stable (within 10%) but above 5NTU & it was still slowly dropping. JNB had Drew re-set up on the well & continue monitoring since other samplers were still monitoring & the 2hr limit had not yet been reached.

1120 Samplers (Steve & David) ready to

8.15.12

COLLECT SAMPLES

1215 LAST OF THE SAMPLES COLLECTED
SAMPLE CREWS PACKING UP EQUIPMENT

1300 CREWS MEET UP @ NYACOL FACILITY
JNB & DREW HEAD OUT BACK TO
COMPLETE THE LAST OF THE DRUM
INVENTORY & TO DRUM & SEAL UP
IDW/PPE DRUMS.

4 EMPTY DRUMS
1 ADDITIONAL D NAPL DRUM FROM
SAMPLING MW-113A & B/MW-11.

1330 CREWS HEAD BACK TO OFFICE TO
DECON, UNLOAD/DEMOB, & SHIP
SAMPLES

SITE SECURE
NOBTS & WESTON OFF-SITE.

WASTE CHARACTERIZATION 8.22.12
SAMPLING OVERSIGHT 85° Sunny

1000 MEET KEVIN Schmit FROM
ENPRO @ SITE TO INVENTORY &
SAMPLE DRUMS FOR WASTE
CHARACTERIZATION.

HEAD OVER TO DRUMS AREA

RE INVENTORY DRUMS & RELABEL (LABELS
SUN FADED).

ENPRO COLLECTS SAMPLES

1 COMPOSITE WATER SAMPLE FROM 5
B-11 WASH WATER DRUMS. - SAMPLE
COLLECTED THROUGH BUNG HOLE USING
MICRO BAILER

1 SOIL SAMPLE COLLECTED FROM SOIL
CUTTINGS DRUM - SAMPLE BOTTLES FILLED
BY SCRAPING SOIL FROM TOP OF PILE
IN DRUM UNTIL BOTTLES WERE FULL

2 COMPOSITE DEBRIS SAMPLES COLLECTED

DG/ESAT

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2

NYANZA CHEMICAL
NOBIS /RZ

LABORATORY NAME Shealy Environmental Services, Inc.
CITY/STATE West Columbia, SC
CASE NO. 42759 SDG NO. A4740
SDG NOs. TO FOLLOW n/a
MOD. REF. NO. N/A
CONTRACT NO. EP-W-11-035
SOW NO. SOM01.2

SEP - 6 2012

All documents delivered in the Complete SDG File (CSF) must be original documents where possible.

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK USEPA
1. **Inventory Sheet** (Form DC-2) (Do not number)		BD 9/11/12	X	✓
2. **SDG Case Narrative**	2	~~9~~ 10	X	✓
3. **SDG Cover Sheet/Traffic Report**	11	15	X	✓
4. **Trace Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1 and VOA-2)	N/A	N/A	X	NA
Matrix Spike/Matrix Spike Duplicate Recovery (Form III VOA) (if requested by USEPA Region)	N/A	N/A	X	
Method Blank Summary (Form IV VOA)	N/A	N/A	X	
GC/MS Instrument Performance Check (Form V VOA)	N/A	N/A	X	
Internal Standard Area and RT Summary (Form VIII VOA)	N/A	N/A	X	
b. Sample Data	N/A	N/A	X	
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)			X	
Tentatively Identified Compounds (Form I VOA-TIC)			X	
Reconstructed total ion chromatograms (RIC) for each sample			X	
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			X	
Quantitation reports			X	
Mass Spectra of all reported TICs with three best library matches			X	
c. Standards Data (All Instruments)	N/A	N/A		
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)			X	
RICs and Quantitation Reports for all Standards			X	
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)			X	
RICs and Quantitation Reports for all Standards			X	
d. Raw/Quality Control (QC) Data			X	
BFB	N/A	N/A	X	
Blank Data	N/A	N/A	X	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4740 SDG NOS. TO FOLLOW n/a

MOD. REF. NO. N/A

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK USEPA
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)	N/A	N/A	X	NA
e. Trace SIM Data (Place at the end of the Trace Volatiles Section)	N/A	N/A	X	✓
[Form I VOA-SIM; Form II VOA-SIM1 and VOA-SIM2; Form IV-VOA-SIM; Form VI VOA-SIM; Form VII VOA-SIM; Form VIII VOA-SIM; and all raw data for QC, Samples, and Standards.]				
5. **Low/Med Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1, VOA-2, VOA-3, VOA-4)	18	20	X	✓
Matrix Spike/Matrix Spike Duplicate Recovery (Form III VOA-1 and VOA-2) (if requested by USEPA Region)	21	22	X	✓
Method Blank Summary (Form IV VOA)	23	28	X	✓
GC/MS Instrument Performance Check (Form V VOA)	29	33	X	✓
Internal Standard Area and RT Summary (Form VIII VOA)	34	39	X	✓
b. Sample Data	40	329		
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)			X	✓
Tentatively Identified Compounds (Form I VOA-TIC)			X	✓
Reconstructed total ion chromatograms (RIC) for each sample			X	✓
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			X	✓
Quantitation reports			X	✓
Mass Spectra of all reported TICs with three best library matches			X	✓
c. Standards Data (All Instruments)	330	426		
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)			X	✓
RICs and Quantitation Reports for all Standards			X	✓
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)			X	✓
RICs and Quantitation Reports for all Standards			X	✓
d. Raw/Quality Control (QC) Data				
BFB	428	444	X	✓
Blank Data	445	496	X	✓

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4740 SDG NOS. TO FOLLOW n/a

MOD. REF. NO. N/A

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK USEPA
Martix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)	497	508	X	✓
6. **Semivolatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II SV-1, SV-2, SV-3, SV-4)	511	513	X	✓
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III SV-1 and SV-2) (if requested by USEPA Region)	514	515	X	✓
Method Blank Summary (Form IV SV)	516	518	X	✓
GC/MS Instrument Performance Check (Form V SV)	519	524	X	✓
Internal Standard Area and RT Summary (Form VIII SV-1 and SV-2)	525	535	X	✓
b. Sample Data	536	1159		
TCL Results - Organics Analysis Data Sheet (Form I SV-1 and SV-2)			X	✓
Tentatively Identified Compounds (Form I SV-TIC)			X	✓
Reconstructed total ion chromatograms (RICs) for each sample	x		X	✓
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds			X	✓
Quantitation reports			X	✓
Mass Spectra of TICs with three best library matches			X	✓
GPC chromatograms (if GPC is required)			N/A	NA
c. Standards Data (All Instruments)	1160	1309		
Initial Calibration Data (Form VI SV-1, SV-2, SV-3)			X	✓
RICs and Quantitation Reports for all Standards			X	✓
Continuing Calibration Data (Form VII SV-1, SV-2, SV-3)			X	✓
RICs and Quantitation Reports for all Standards			X	✓
d. Raw QC Data				
DFTPP	1311	1335	X	✓
Blank Data	1336	1355	X	✓
MS/MSD Data (if requested by USEPA Region)	1356	1370	X	✓
e. Raw GPC Data	N/A	N/A	X	NA

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4740 SDG NOS. TO FOLLOW N/A

MOD. REF. NO. N/A

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK USEPA
f. Semivolatile SIM Data	N/A	N/A	X	NA
[Form I SV-SIM; Form II SV-SIM1 and SV-SIM2; Form III SV-SIM1 and SV-SIM2 (if required); Form IV SV-SIM; Form VI SV-SIM; Form VII SV-SIM; Form VIII SV-SIM1 and SV-SIM2; and all raw data for QC, Samples, and Standards.]				
7. **Pesticides Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II PEST-1 and PEST-2)	N/A	N/A	X	NA
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III PEST-1 and PEST-2)	N/A	N/A	X	
Laboratory Control Sample Recovery (Form III PEST-3 and PEST-4)	N/A	N/A	X	
Method Blank Summary (Form IV PEST)	N/A	N/A	X	
b. Sample Data	N/A	N/A		
TCL Results - Organics Analysis Data Sheet (Form I PEST)			X	
Chromatograms (Primary Column)			X	
Chromatograms from second GC column confirmation			X	
GC Integration report or data system printout			X	
Manual work sheets			X	
For pesticides by GC/MS				
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			X	
c. Standards Data	N/A	N/A		
Initial Calibration of Single Component Analytes (Form VI PEST-1 and PEST-2)			X	
Toxaphene Initial Calibration (Form VI PEST-3 and PEST-4)			X	
Analyte Resolution Summary (Form VI PEST-5, per column)			X	
Performance Evaluation Mixture (Form VI PEST-6)			X	
Individual Standard Mixture A (Form VI PEST-7)			X	
Individual Standard Mixture B (Form VI PEST-8)			X	
Individual Standard Mixture C (Form VI PEST-9 and PEST-10)			X	
Calibration Verification Summary (Form VII PEST-1)			X	
Calibration Verification Summary (Form VII PEST-2)			X	
Calibration Verification Summary (Form VII PEST-3)			X	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4740 SDG NOS. TO FOLLOW N/A

MOD. REF. NO. N/A

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK USEPA
Calibration Verification Summary (Form VII PEST-4)			X	NA
Analytical Sequence (Form VIII PEST)			X	
Florisil Cartridge Check (Form IX PEST-1)			X	
Pesticide GPC Calibration (Form IX PEST-2)			X	
Identification Summary for Single Component Analytes (Form X PEST-1)			X	
Identification Summary for Toxaphene (Form X PEST-2)			X	
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights			X	
d. Raw QC Data				
Blank Data	N/A	N/A	X	NA
Matrix Spike/Matrix Spike Duplicate Data	N/A	N/A	X	
Laboratory Control Sample Data	N/A	N/A	X	
e. Raw GPC Data	N/A	N/A	X	
f. Raw Florisil Data	N/A	N/A	X	
8. **Aroclor Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II ARO-1 and ARO-2)	N/A	N/A	X	NA
Matrix Spike/Matrix Spike Duplicate Summary (Form III ARO-1 and ARO-2)	N/A	N/A	X	
Laboratory Control Sample Recovery(Form III ARO-3 and ARO-4)	N/A	N/A	X	
Method Blank Summary (Form IV ARO)	N/A	N/A	X	
b. Sample Data	N/A	N/A		
TCL Results - Organics Analysis Data Sheet (Form I ARO)			X	
Chromatograms (Primary Column)			X	
Chromatograms from second GC column confirmation			X	
GC Integration report or data system printout			X	
Manual work sheets			X	
For Aroclors by GC/MS				
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			X	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A740 SDG NOS. TO FOLLOW N/A

MOD. REF. NO. N/A

	PAGE NOs		CHECK	
	FROM	TO	LAB	USEPA
c. Standards Data	N/A	N/A		
Aroclors Initial Calibration (Form VI ARO-1, ARO-2, and ARO-3)			x	NA
Calibration Verification Summary (Form VII ARO-1)			x	
Analytical Sequence (Form VIII ARO)			x	
Identification Summary for Multicomponent Analytes (Form X ARO)			x	
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights			x	
d. Raw QC Data				
Blank Data	N/A	N/A	X	
Matrix Spike/Matrix Spike Duplicate Data	N/A	N/A	X	
Laboratory Control Sample (LCS) Data	N/A	N/A	X	
e. Raw GPC Data (if performed)	N/A	N/A	X	✓
9. Miscellaneous Data				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	1372	1429	x	✓
Internal sample and sample extract transfer chain-of-custody records	1430	1434	X	✓
Screening records	N/A		x	N/A
All instrument output, including strip charts from screening activities (describe or list)				
10. EPA Shipping/Receiving Documents				
Airbills (No. of shipments 1)	1435	1439	X	✓
Chain of Custody Records	1440	1442	X	✓
Sample Tags			X	✓
Sample Log-in Sheet (Lab & DC-1)	1443	1448	X	✓
Miscellaneous Shipping/Receiving Records (describe or list)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4740 SDG NOS. TO FOLLOW N/A

MOD. REF. NO. N/A

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK USEPA
11. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
N/A				
N/A				
12. **Other Records** (describe or list)				
PE instructions	1449	1450	X	✓
emails	1451	1453	X	✓
	N/A			
13. **Comments**				
N/A	**N/A**		**X**	

Completed by: (CLP Lab)	(Signature)	Jennifer Jones/Data Reviewer (Printed Name/Title)	09/05/12 (Date)
Verified by: (CLP Lab)	Kerry S. Hinshaw (Signature)	Kerry Hinshaw/Technical Director (Printed Name/Title)	09/05/12 (Date)
Audited by: (USEPA)	(Signature)	Steven Dube / Intern (Printed Name/Title)	09/11/12 (Date)

For

Engineering a Sustainable Future

September 27, 2012
Nobis File No. 80022

Mr. Dan Keefe
EPA Site Manager
EPA-New England Region I
5 Post Office Square
Suite 100, Mailcode OSRR07-4
Boston, MA 02109-3912

Re: Contract No. EP-S1-06-03
Task Order No. 0022-RA-RA-0115
Case No. 42759, Sample Delivery Group (SDG) No. A4756
KAP Technologies, Inc., The Woodlands, TX
Nyanza Chemical Waste Dump, OU2 Superfund Site
Ashland, Massachusetts
CERCLIS No.: MAD990685422

Tier I Modified Organic Data Validation with Stage 2A Electronic Qualification

Medium Level Volatiles and Semivolatiles: 2/DNAPL/ A4756, A4757

Dear Mr. Keefe:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the organic analytical data for 2 dense non-aqueous phase liquid (DNAPL) samples collected by Nobis Engineering, Inc. at the Nyanza Chemical Waste Dump, OU2 Superfund Site located in Ashland, Massachusetts. The samples were analyzed for medium level volatile organic compounds (VOCs) and medium level semivolatile organic compounds (SVOCs) under the Contract Laboratory Program Routine Analytical Services (CLP RAS) program using the CLP SOM01.2 Statement of Work with CLP modifications 1744.1 and 1745.1 requiring waste dilutions to apply to the sample matrix. A Tier I modified data validation was deemed sufficient at this time.

Stage 2A electronic qualification was performed through EPA's Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM) which uses USEPA's Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review, June 2008 criteria for automated validation. EXES Data Review Report #3 indicates data of non-compliance that resulted in qualification.

The data were evaluated based on the following parameters:

* • Overall Evaluation of Data and Potential Usability Issues
* • Data Completeness
* • Preservation and Technical Holding Times

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (508) 683-0891

	•	Initial and Continuing Calibrations
	•	Blanks
	•	Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
*	•	Laboratory Control Samples
*	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
NA	•	Field Duplicates
NA	•	Laboratory Duplicates
	•	Internal Standards
NA	•	Performance Evaluation (PE) Sample Results
*	•	Reported Quantitation Limits

* All criteria were met for this parameter.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The objectives of the groundwater and DNAPL sampling at the site are to provide a comprehensive evaluation of the shallow and deep groundwater contaminants at the site and to evaluate the feasibility of implementing monitored natural attenuation (MNA) as a remedial alternative for the site.

Data are usable for the purposes of the project except as noted below.

Data Completeness

The data package is complete.

Data presented in the Summary Tables include qualifiers assigned by Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM). Qualifications for these parameters were assessed under the Stage 2A Validation Electronic (S2AVE) scenario. Qualification was taken from EXES and data package completeness was done manually.

Blanks

VOCs

1,2,3-Trichlorobenzene and 1,2,4-trichlorobenzene results were negated in several sample analyses due to method blank contamination.

Initial and Continuing Calibrations

VOCs

The percent relative standard deviations (%RSDs) were outside acceptance criteria for m,p-xylene, bromomethane, toluene and 1,2,3-trichlorobenzene for the initial calibration associated with all sample analyses. All detected results for these compounds were qualified as estimated (J). The percent difference results (%Ds) were outside criteria for bromomethane and toluene in the CCV associated with sample A4756. Detected and non-detected results for these compounds were qualified as estimated (J/UJ).

SVOCs

The initial calibration percent relative standard deviation (%RSD) was outside of acceptance criteria for pentachlorophenol. Detected and non-detected results in all samples were qualified as estimated (J/UJ). The %Ds were outside criteria for 4-bromophenyl-phenyl ether and

pentachlorophenol in the CCV associated with all sample analyses. Detected and non-detected results were qualified as estimated (J/UJ).

Surrogate Recoveries

VOCs

1,2-Dichlorobenzene-d4 recovery was below the lower limit for sample A4756. Associated detected and non-detected results were qualified as estimated (J/UJ).

The EXES report #3 also reported vinyl chloride-d3 in the analysis and reanalysis of sample A4756 with recoveries above the upper criteria limit. Since the associated sample results were non-detect, no qualifications were required.

SVOCs

2,4-Dichlorophenol-d3, nitrobenzene-d5 and acenaphthylene-d8 recovery values were below the lower limit for the analyses and reanalyses of both soil samples. Detected results were qualified as estimated (J) and non-detected results were accepted unqualified in the associated samples.

Internal Standards

SVOCs

The internal standard area counts for acenaphthene-d10, naphthalene-d8 and/or 1,4-dichlorobenzene-d4 were outside the lower criteria limit in the analyses of both soil samples. Detected compounds were qualified as estimated (J) and non-detected compounds were rejected (R).

Please contact me at (978) 703-6021 or gderuzzo@nobiseng.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Andrea Mischel
Data Validator

Tables: Data Summary Tables

Enclosures: CCS Reports
Field Sampling Notes
CSF Audit (DC-2 Forms)

Cc: Nick Gannon, US EPA Region VI (via email)

DATA SUMMARY TABLE
Tier I, ZAVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4756

Sample Name		A4756	A4757
Sample Location		B-11	MW-113A
Lab Sample ID		S-5101.01	S-5101.02
Station ID		B-11-081412A	MW-113A-081412A
Dilution Factor		1/1000	1/2000
Sample Date		14 Aug 12	14 Aug 12
Date Analyzed		30 Aug 12	30 Aug 12
Chemical	CRQL		
1,1'-Biphenyl	5000	14000	9600 J
1,2,4,5-Tetrachlorobenzene	5000	10000 J	8800 J
2,2'-Oxybis(1-chloropropane)	5000	10000 U	10000 U
2,3,4,6-Tetrachlorophenol	5000	10000 U	R
2,4,5-Trichlorophenol	5000	10000 U	R
2,4,6-Trichlorophenol	5000	10000 U	R
2,4-Dichlorophenol	5000	R	R
2,4-Dimethylphenol	5000	R	R
2,4-Dinitrophenol	10000	20000 U	R
2,4-Dinitrotoluene	5000	10000 U	R
2,6-Dinitrotoluene	5000	10000 U	R
2-Chloronaphthalene	5000	10000 U	R
2-Chlorophenol	5000	10000 U	10000 U
2-Methylnaphthalene	5000	R	R
2-Methylphenol	5000	10000 U	10000 U
2-Nitroaniline	10000	20000 U	R
2-Nitrophenol	5000	R	R
3,3'-Dichlorobenzidine	5000	10000 U	10000 U
3-Nitroaniline	10000	20000 U	7800 J
4,6-Dinitro-2-methylphenol	10000	20000 U	20000 U
4-Bromophenyl-phenylether	5000	10000 UJ	10000 UJ
4-Chloro-3-methylphenol	5000	R	R
4-Chloroaniline	5000	4200 J	R
4-Chlorophenyl-phenylether	5000	10000 U	R
4-Methylphenol	5000	10000 U	10000 U
4-Nitroaniline	10000	20000 U	R
4-Nitrophenol	10000	20000 U	R
Acenaphthene	5000	10000 U	R
Acenaphthylene	5000	10000 U	R
Acetophenone	5000	10000 U	10000 U
Anthracene	5000	10000 U	10000 U
Atrazine	5000	10000 U	10000 U
Benzaldehyde	5000	10000 U	10000 U
Benzo(a)anthracene	5000	10000 U	10000 U
Benzo(a)pyrene	5000	10000 U	10000 U
Benzo(b)fluoranthene	5000	10000 U	10000 U
Benzo(g,h,i)perylene	5000	10000 U	10000 U
Benzo(k)fluoranthene	5000	10000 U	10000 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4756

	Sample Name	A4756	A4757
	Sample Location	B-11	MW-113A
	Lab Sample ID	S-5101.01	S-5101.02
	Station ID	B-11-081412A	MW-113A-081412A
	Dilution Factor	1/1000	1/2000
	Sample Date	14 Aug 12	14 Aug 12
	Date Analyzed	30 Aug 12	30 Aug 12
Chemical	CRQL		
Bis(2-chloroethoxy)methane	5000	R	R
Bis(2-chloroethyl)ether	5000	10000 U	10000 U
Bis(2-ethylhexyl)phthalate	5000	39000	15000
Butylbenzylphthalate	5000	10000 U	10000 U
Caprolactam	5000	R	R
Carbazole	5000	10000 U	10000 U
Chrysene	5000	10000 U	10000 U
Dibenzo(a,h)anthracene	5000	10000 U	10000 U
Dibenzofuran	5000	10000 U	R
Diethylphthalate	5000	10000 U	R
Dimethylphthalate	5000	10000 U	R
Di-n-butylphthalate	5000	10000 U	10000 U
Di-n-octylphthalate	5000	10000 U	10000 U
Fluoranthene	5000	12000	7700 J
Fluorene	5000	10000 U	R
Hexachlorobenzene	5000	10000 U	10000 U
Hexachlorobutadiene	5000	R	R
Hexachlorocyclopentadiene	5000	10000 U	R
Hexachloroethane	5000	10000 U	10000 U
Indeno(1,2,3-cd)pyrene	5000	10000 U	10000 U
Isophorone	5000	R	R
Naphthalene	5000	69000 J	48000 J
Nitrobenzene	5000	110000000 J	220000000 J
N-Nitroso-di-n-propylamine	5000	10000 U	10000 U
N-Nitrosodiphenylamine	5000	10000 U	10000 U
Pentachlorophenol	10000	22000 J	9700 J
Phenanthrene	5000	16000	10000
Phenol	5000	10000 U	10000 U
Pyrene	5000	11000	6300 J

Nitrobenzene from 1:1000 dilution Nitrobenzene from 1:2000 dilution

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
DNAPL - ug/kg

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4756

	Sample Name	A4756	A4757
	Sample Location	B-11	MW-113A
	Lab Sample ID	S-5101.01	S-5101.02
	Station ID	B-11-081412A	MW-113A-081412A
	Dilution Factor	1/50	5/25
	Sample Date	14 Aug 12	14 Aug 12
	Date Analyzed	24 Aug 12/27 Aug 12	27 Aug 12
Chemical	CRQL		
1,1,1-Trichloroethane	250	25000 U	130000 U
1,1,2,2-Tetrachloroethane	250	25000 U	130000 U
1,1,2-Trichloro-1,2,2-trifluoroethane	250	25000 U	130000 U
1,1,2-Trichloroethane	250	25000 U	130000 U
1,1-Dichloroethane	250	25000 U	130000 U
1,1-Dichloroethene	250	25000 U	130000 U
1,2,3-Trichlorobenzene	250	32000 J	130000 U
1,2,4-Trichlorobenzene	250	210000 J	450000
1,2-Dibromo-3-chloropropane	250	25000 U	130000 U
1,2-Dibromoethane	250	25000 U	130000 U
1,2-Dichlorobenzene	250	25000000 J	14000000
1,2-Dichloroethane	250	25000 U	130000 U
1,2-Dichloropropane	250	25000 U	130000 U
1,3-Dichlorobenzene	250	1400000 J	740000
1,4-Dichlorobenzene	250	6800000 J	3300000
1,4-Dioxane	5000	500000 U	2500000 U
2-Butanone	500	50000 U	250000 U
2-Hexanone	500	50000 U	250000 U
4-Methyl-2-pentanone	500	50000 U	250000 U
Acetone	500	50000 U	250000 U
Benzene	250	25000 U	130000 U
Bromochloromethane	250	25000 U	130000 U
Bromodichloromethane	250	25000 U	130000 U
Bromoform	250	25000 U	130000 U
Bromomethane	250	25000 UJ	130000 U
Carbon disulfide	250	25000 U	130000 U
Carbon tetrachloride	250	25000 U	130000 U
Chlorobenzene	250	9400000 J	3900000
Chloroethane	250	25000 U	130000 U
Chloroform	250	25000 U	130000 U
Chloromethane	250	25000 U	130000 U
cis-1,2-Dichloroethene	250	25000 U	130000 U
cis-1,3-Dichloropropene	250	25000 U	130000 U
Cyclohexane	250	25000 U	130000 U
Dibromochloromethane	250	25000 U	130000 U
Dichlorodifluoromethane	250	25000 U	130000 U
Ethylbenzene	250	25000 U	130000 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Semi-Volatile Organics Analysis
DNAPL - ug/kg

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 42759 SDG NO.: A4756

	Sample Name	A4756	A4757
	Sample Location	B-11	MW-113A
	Lab Sample ID	S-5101.01	S-5101.02
	Station ID	B-11-081412A	MW-113A-081412A
	Dilution Factor	1/50	5/25
	Sample Date	14 Aug 12	14 Aug 12
	Date Analyzed	24 Aug 12/27 Aug 12	27 Aug 12
Chemical	CRQL		
Isopropylbenzene	250	25000 U	130000 U
m,p-Xylene	250	26000 J	130000 U
Methyl acetate	250	25000 U	130000 U
Methyl tert-butyl ether	250	25000 U	130000 U
Methylcyclohexane	250	25000 U	130000 U
Methylene chloride	250	25000 U	130000 U
o-Xylene	250	12000 J	130000 U
Styrene	250	25000 U	130000 U
Tetrachloroethene	250	22000 J	130000 U
Toluene	250	46000 J	130000 U
trans-1,2-Dichloroethene	250	25000 U	130000 U
trans-1,3-Dichloropropene	250	25000 U	130000 U
Trichloroethene	250	2200000	2700000
Trichlorofluoromethane	250	25000 U	130000 U
Vinyl chloride	250	25000 U	130000 U

DCBs, Chlorobenzene, TCE
results from 1:50 dilution 1,4-DCB from 1:25 dilution

Regional CCS Defect Report

08:11 Tue, Sep 11, 2012

SDG A4756 **Lab** KAP **Case** 42759 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159176 **Version** 8.039

DRD 09/06/2012 **LRD** 08/17/2012 **Mailed** 09/11/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Sample Summary and Lab Receipt Date

Sample/Number	VOA Trace	VOA SIM	VOA	BNA	BNA SIM	PEST	AROCLOR	Automated	Manual
A4756			08/17/2012	08/17/2012					
A4756DL			08/17/2012	08/17/2012					
A4756RE				08/17/2012					
A4757			08/17/2012	08/17/2012					
A4757DL			08/17/2012	08/17/2012					
A4757RE				08/17/2012					
Totals	**0**	**0**	**4**	**6**	**0**	**0**	**0**		

Regional CCS Defect Report

08:11 Tue, Sep 11, 2012

SDG A4756 **Lab** KAP **Case** 42759 **Contract** EPW11031 **Client** EPA Region I **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159176 **Version** 8.039

DRD 09/06/2012 **LRD** 08/17/2012 **Mailed** 09/11/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Detail

NONE FOUND

Regional CCS Defect Report

08:11 Tue, Sep 11, 2012

SDG A4756 **Lab** KAP **Case** 42759 **Contract** EPW11031 **Client** EPA Region I **SOW** SOM01.2 **Stage** 3 **Tracking ID** 159176 **Version** 8.039

DRD 09/06/2012 **LRD** 08/17/2012 **Mailed** 09/11/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

General Comments

NONE FOUND

trailer to load out.

1700 LOAD OUT BACK OF NYACOL & 135-137 PLEASANT STREET. STEVE OFF-SITE

1800 LOAD OFF RR & MOVE TO DECON MAJOR HEADS OVER TO MILL TO LOAD UP REMAINING EQUIPMENT

1835 LOAD OUT FROM MILL, MOVE TO NYACOL TO UNLOAD BOBCAT TO MOVE DRUMS OUT BACK.

1700 JWB OFF-SITE MAJOR UNLOADED DRUMS & HEADED OFF-SITE

GROUNDWATER SAMPLING 8.13.12

88° Sunny

630 ARRIVE @ OFFICE, MEET W/ WESTIN & SAMPLE TEAM, HOLD SAFETY MTG, GO OVER SCOPE.

CALIBRATE FIELD EQUIPMENT & LOAD UP TRUCKS - MOB TO SITE

JOSH STEWART
DREW KAPPHOUTZ
DAVID KAMMER
ERIK JOHNSON

800 HEAD TO SITE

900 ARRIVE @ NYACOL FACILITY, MEETING ON SITE, AREA, SCOPE, ETC.

JWB/EHJ HELP WESTIN SETUP ON MW-403 A/B

SHOW WESTIN HOW TO USE/RUN BLADDER PUMPS.

MEET UP W/ JOSH @ MW-203 A/B - JWB/EHJ RUN BACK & FORTH BETWEEN SAMPLE

8.13

CREWS TO HELP W/ SET-UP DELIVER EQUIPMENT

EHJ/JNB HEAD OUT TO GAUGE WELLS - WELL DATA RECORDED ON GAUGING SHEET.

1200 HEAD OUT TO MW-403 A/B TO SHOW WESTIN HELP TO DISASSEMBLE/DECON BLADDER PUMPS. - STOP TO BUY ICE FOR SAMPLES.

1300 SHOW WESTIN NEXT SAMPLE LOCATION, WESTIN CREW SETS UP TO SAMPLE NEXT WELL SET

1330 JNB/EHJ CONTINUE W/ SYNOPTIC GAUGING ROUND.

GAUGING CONDUCTED FROM UPGRADIENT TO DIRTIES WELLS

WELLS W/ POTENTIAL DNAPL GAUGED W/ INTERFACE PROBE

8.13

1430 CONTINUE W/ GAUGING STREAM GAUGES SG-3 & SG-5 UNABLE TO BE LOCATED. SG-4 APPEARS DAMAGED

UNABLE TO LOCATE MW-301

ACCESS TO LANDFILL WELLS NOT GRANTED DUE TO LOCKED GATE - WILL GAUGE LF WELLS IN AM.

1530 CONTINUE GAUGING WELLS

1600 SAMPLE CREWS WRAPPING UP FOR TODAY. BEGIN PICK-UP

1630 CREWS OFF-SITE TO HEAD TO OFFICE TO POST CAL, DECON, & PROCESS SAMPLES

GW SAMPLING 8.14.12

88° Sunny

630 AT SEL OFFICE W/ WESTIN & NOBIS FOR MORNING CAL, SAFETY MTG, & LOAD OUT

843 SAMPLE CREW ON-SITE — JWB/WESTIN HEAD OVER TO RMW-405A/B LOCATION. JWB SHOWS THEM WELLS & GIVE THEM CONSTRUCTION DETAILS. WESTIN TO INSTALL NEW TUBING

900 JWB HEAD OVER TO ERIK @ MW-406A/B MW-406B COVERED BY DUMP TRUCK. JWB HELP ERIK & STEVE SET UP

935 JWB HEAD UP TO LANDFILL TO GAUGE WELLS MW-503 A/B & MW-301.

945 JWB GAUGE 503 A & B, JWB HEAD DOWN HILL TO FIND MW-301.

1015 CONTINUE LOOKING FOR MW-301.

1030 JWB TALKS TO JEFF McCULLOUGH ABOUT DRIVERS INVOICE/OVERLAGES.

8.14.12

1045 JWB UNABLE TO LOCATE MW-301 HEAD OVER TO GAUGE B-11 FOR DNAPL. JWB EMPTIES 4 DRUMS OF DRILLING WATER FROM RMW 305A.

1055 ~ 7" OF DNAPL RETRIEVED FROM B/MW-11 W/ CLEARVIEW BAILER

1100 JWB COLLECTS DNAPL SAMPLING PID SCREENING 390 PPM @ WELLHEAD 2.5 PPM IN BREATHING ZONE

JWB COLLECTS Vinyl CHLORIDE DREAGER TUBE SAMPLE — NO INDICATION OF VC FROM DRAGER TUBE SAMPLE

ERIK PRESENT IN EXCLUSION ZONE AS JWB SAMPLED DNAPL FROM BAILER WHILE DONNING RESPIRATOR/PPE (PID SCREENING/DRAGER READINGS/GAUGING & SAMPLING CONDUCTED WHILE IN LEVEL C).

ERIK STATES THAT DC PUMP COMPRESSOR @ 406 IS NOT WORKING.

1130 JWB CALLS DENIS N1 TO SERVICE LAB FOR DNAPL SAMPLE. JWB CALL JEFF M. – JEFF WILL CHECK TO CONFIRM SAMPLE VOLUME OF NAPL NEEDED FOR ANALYSIS.

1200 JWB @ 406 WELL PAIR – JWB FIX DC COMPRESSOR & SHOWS EHJ & DUKE HOW TO START GAS COMPRESSOR.

* 9:25 WESTIN HAS HIGH pH & CONDUCTIVITY in RMW-405A/B JWB GAVE WESTIN CAL STDS TO CHECK READINGS. METERS CHECK OK.

1300 WESTIN SETTING UP ON MW-115A/B – JWB STOP BY TO DELIVER TUBING & HELP – BLOCKAGE IN WELL 115B – JWB ABLE TO RETRIEVE TUBING THAT FELL IN WELL.

1320 JWB BEGIN DEVELOPING RMW-305A WELL DEVELOPED W/ LOWFLOW PUMP.

1430 WELL DEVELOPMENT COMPLETE
DTB: 53.82 35 GALS PURGED
TURB: 12.1 NTU 0.2 ppm on PID.

1500 JWB CHECK IN W/ SAMPLE TEAMS. CREWS CONTINUE TO SAMPLE.

1530 JWB HEAD OVER TO MW-113A/B TO GAUGE FOR DNAPL.

JWB DONS LEVEL C TO PULL BAILER
870 ppm ON PID
JWB PULLS DUNGER TUBE SAMPLE
SLIGHT PURPLE HUE ACROSS ENTIRE VC TUBE RANGE (0.5 - 30 ppm)
NO DEFINITIVE/STRONG COLOR CHANGE.

1600 JWB collects MW-113A DNAPL SAMPLE.

MW-113B GAUGED FOR DNAPL – NONE PRESENT IN BAILER.

1630 JWB COORDINATES W/ JOSH STEWART & JEFF M ABOUT SAMPLES COLLECTED

HEAD OVER TO MW-COL TO DRUM CONTAMINATED MEDIA AS SAMPLE CREWS PACK UP.

1645 CREWS HEAD TO OFFICE FOR POST CAL.

Groundwater Sampling 8-15

Rain → Msunny 80°

630 Sample crew @ office - Hold safety meeting, calibrate equipment etc.

750 Depart for site

900 Arrive @ site - Rain, sometimes heavy. Heavy traffic due to weather

EHJ setting up on MW 305 A/B

JNB & David Kammer help Drew set up on MW-113B.

Bladder pump would not fit down well to targeted pumping depth. Peristaltic pump used instead of bladder pump.

945 Drew setting up - Head over to MW-110 location & help David set up.

8-15

1015 JNB head over to MW-305 A/B to check on EHJ & S. Dube.

1045 Head over to Nyacol property to pack up truck, drum IDW, label drums, etc.

1115 Drew almost ready to sample - JNB delivers duplicate sample bottle ware to Drew.

When JNB arrived @ MW-113B, Drew had packed up some of the sample equipment because parameters were stable. When JNB had asked about turbidity, Drew said it was stable (within 10%) but above 5NTU & it was still slowly dropping. JNB had Drew re-set up on the well & continue monitoring since other samplers were still monitoring & the 2hr limit had not yet been reached.

1120 Samplers (Steve & David) ready to

8.15.12

collect samples

1215 Last of the samples collected
Sample crews packing up equipment

1300 Crews meet up @ Nyacol facility
JNB & Drew head out back to
complete the last of the drum
inventory & to drum & seal up
IDW/PPE drums.

4 Empty drums
1 additional D NAPL drum from
sampling MW-113A & B/MW-11.

1330 Crews head back to office to
Delon, unload/demob, & ship
samples

Site secure
Nobis & Weston off-site.

Waste Characterization 8.22.12
Sampling oversight 85° Sunny

1000 Meet Kevin Schmit from
Enpro @ site to inventory &
sample drums for waste
characterization.

Head over to drums area

Re inventory drums & relabel (labels
sun faded).

Enpro collects samples

1 composite water sample from 5
B-11 wash water drums. - Sample
collected through bung hole using
micro bailer

1 soil sample collected from soil
cuttings drum - Sample bottles filled
by scraping soil from top of pile
in drum until bottles were full

2 composite debris samples collected

SEP - 7 2012

Nyanza Chemical

NOBIS

DG/ESAT

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2

LABORATORY NAME. KAP TECHNOLOGIES, INC.
CITY/STATE. THE WOODLANDS/TX
CASE NO. 42759 SDG NO. A4756
SDG NOs. TO FOLLOW - - -
MOD. REF. NO. 1744.1, 1745.1
CONTRACT NO. EPW11031
SOW NO. SOM1.2

All documents delivered in the Complete SDG File (CSF) must be original documents where possible.

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK FOR USEPA
1. **Inventory Sheet** (DC-2) (Do not number)			✓	✓
2. **SDG Case Narrative**	01	11	✓	✓
3. **SDG Cover Sheet/Traffic Report**	12	13	✓	✓
4. **Trace Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1 and VOA-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Recover (Form III VOA) (if requested by USEPA Region)				
Method Blank Summary (Form IV VOA)				
GC/MS Instrument Performance Check (Form V VOA)				
Internal Standard Area and RT Summary (Form VIII VOA)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)				
Tentatively Identified Compounds (Form I VOA-TIC)				
Reconstructed total ion chromatograms (RIC) for each sample				
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified				
Quantitation reports				
Mass Spectra of all reported TICs with three best library matches				
c. Standards Data (All Instruments)				
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)				
RICs and Quantitaation Reports for all Standards				
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)				
RICs and Quantitation Reports for all Standards				
d. Raw/Quality Control (QC) Data				
BFB				
Blank Data				
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4756 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. 1744.1, 1745.1

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
	—	—	—	NA
e. Trace SIM Data (Place at the end of the Trace Volatiles Section)	NA	NA	NA	↓
[Form I VOA-SIM; Form II VOA-SIM1 and VOA-SIM2; Form IV-VOA-SIM; Form VI VOA-SIM; Form VII VOA-SIM; Form VIII VOA-SIM; and all raw data for QC, Samples, and Standards.]				
5. **Low/Med Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1, VOA-2, VOA-3, VOA-4)	14	17	✓	✓
Matrix Spike/Matrix Spike Duplicate Recovery (Form III VOA-1 and VOA-2) (if requested by USEPA Region)	—	—	—	NA
Method Blank Summary (Form IV VOA)	18	20	✓	✓
GC/MS Instrument Performance Check (Form V VOA)	21	24	✓	✓
Internal Standard Area and RT Summary (Form VIII VOA)	25	27	✓	✓
b. Sample Data	28	109		
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)			✓	✓
Tentatively Identified Compounds (Form I VOA-TIC)			✓	✓
Reconstructed total ion chromatograms (RIC) for each sample			✓	✓
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			✓	✓
Quantitation reports			✓	✓
Mass Spectra of all reported TICs with three best library matches			✓	✓
c. Standards Data (All Instruments)	110	219		
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
d. Raw/Quality Control (QC) Data				
BFB	220	243	✓	✓
Blank Data	244	314	✓	✓
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)	—	—	—	NA

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4756 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. 1744.1, 1745.1

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
6. **Semivolatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II SV-1, SV-2, SV-3, SV-4)	315	316	✓	✓
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III SV-1 and SV-2) (if requested by USEPA Region)	—	—	—	NA
Method Blank Summary (Form IV SV)	317	317	✓	✓
GC/MS Instrument Performance Check (Form V SV)	318	320	✓	✓
Internal Standard Area and RT Summary (Form VIII SV-1 and SV-2)	321	324	✓	✓
b. Sample Data	325	556		
TCL Results - Organics Analysis Data Sheet (Form I SV-1 and SV-2)			✓	✓
Tentatively Identified Compounds (Form I SV-TIC)			✓	✓
Reconstructed total ion chromatograms (RIC) for each sample			✓	✓
For each sample:	—	—		
Raw Spectra and background-subtracted mass spectra of target compounds			✓	✓
Quantitation reports			✓	✓
Mass Spectra of TICs with three best library matches			✓	✓
GPC chromatograms (if GPC is required)			✓	✓
c. Standards Data (All Instruments)	557	620		
Initial Calibration Data (Form VI SV-1, SV-2, SV-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
Continuing Calibration Data (Form VII SV-1, SV-2, SV-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
d. Raw (QC) Data				
DFTPP	621	660	✓	✓
Blank Data	661	681	✓	✓
MS/MSD Data (if requested by USEPA Region)	—	—	—	NA
e. Raw GPC Data	682	696	✓	✓

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4756 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. 1744.1, 1745.1

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Semivolatile SIM Data	NA	NA	NA	NA
[Form I SV-SIM; Form II SV-SIM1 and SV-SIM2; Form III-SV-SIM1 and SV-SIM2 (if required; Form IV SV-SIM; Form VI SV-SIM; Form VII SV-SIM; Form VIII SV-SIM1 and SV-SIM2; and all raw data for QC, Samples, and Standards.]				
7. **Pesticides Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II PEST-1 and PEST-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III PEST-1 and PEST-2)				
Laboratory Control Sample Recovery (Form III PEST-3 and PEST-4)				
Method Blank Summary (Form IV PEST)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I PEST)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report or data system printout				
Manual work sheets				
For Pesticides by GC/MS				
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)				
c. Standards Data				
Initial Calibration of Single Component Analytes (Form VI PEST-1 and PEST-2)				
Toxaphene Initial Calibration (Form VI PEST-3 and PEST-4)				
Analyte Resolution Summary (Form VI PEST-5, per column)				
Performance Evaluation Mixture (Form VI PEST-6)				
Individual Standard Mixture A (Form VI PEST-7)				
Individual Standard Mixture B (Form VI PEST-8)				
Individual Standard Mixture C (Form VI PEST-9 and PEST-10)				
Calibration Verification Summary (Form VII PEST-1)				
Calibration Verification Summary (Form VII PEST-2)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4756 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. 1744.1, 1745.1

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Calibration Verification Summary (Form VII PEST-3)			NA	N/A
Calibration Verification Summary (Form VII PEST-4)				
Analytical Sequence (Form VIII PEST)				
Florisil Cartridge Check (Form IX PEST-1)				
Pesticide GPC Calibration (Form IX PEST-2)				
Identification Summary for Single Component Analytes (Form X PEST-1)				
Identification Summary for Toxaphene Form X PEST-2)				
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data	NA	NA	NA	
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample				
e. Raw GPC Data				
f. Raw Florisil Data				
8. **Aroclor Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II ARO-1 and ARO-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Summary (Form III ARO-1 and ARO-2)				
Laboratory Control Sample Recovery (Form III ARO-3 and ARO-4)				
Method Blank Summary (Form IV ARO)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I ARO)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report of data system printout				
Manual work sheets				
For Aroclors by GC/MS				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4756 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. 1744.1, 1745.1

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			NA	NA
c. Standards Data	NA	NA		
Aroclors Initial Calibration (Form VI ARO-1, ARO-2, and ARO-3)				
Calibration Verification Summary (Form VII ARO-1)				
Analytical Sequence (Form VIII ARO)				
Identification Summary for Multicomponent Analytes (Form X ARO)				
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data				
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample (LCS) Data				
e. Raw GPC Data (if performed)				
9. Miscellaneous Data				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	697	710	✓	✓
Internal sample and sample extract transfer chain-of-custody records	711	712	✓	✓
Screening records	NA	NA	NA	NA
All instrument output, including strip charts from screening activities (describe or list)				
----------	NA	NA	NA	NA
----------	NA	NA	NA	NA
10. EPA Shipping/Receiving Documents				
Airbills (No. of shipments 1)	713	713	✓	✓
Chain of Custody Records	714	714	✓	✓
Sample Tags	715	715	✓	✓
Sample Log-in Sheet (Lab & DC-1)	716	716	✓	✓
Miscellaneous Shipping/Receiving Records (describe or list)				
CUSTODY SEALS	717	717	✓	✓
----------	NA	NA	NA	NA

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 42759 SDG NO. A4756 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. 1744.1, 1745.1

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
11. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
---	---	---	---	NA
---	---	---	---	↓
12. **Other Records** (describe or list)				
Telephone Communication Log	---	---	---	NA
PE SAMPLE INSTRUCTIONS	—	—	—	↓
EMAIL COMMUNICATION	718	718	✓	✓

13. **Comments**

9/5/12

Completed by: Nicole Hogue (Signature) NICOLE HOGUE/CLP COORDINATOR (Printed Name/Title) 9/5/12 (Date)
(CLP Lab)

Verified by: (Signature) VISHNUVARDAHN DAVLAPUR/P.M. (Printed Name/Title) 9/5/12 (Date)
(CLP Lab)

Audited by: (Signature) Gail DePuzzo / Lead Chemist (Printed Name/Title) 9/13/12 (Date)
(USEPA) for
NUS Engineering

1

Engineering a Sustainable Future

December 27, 2012
Nobis File No. 80022

Mr. Dan Keefe
EPA Site Manager
EPA-New England Region I
5 Post Office Square
Suite 100, Mailcode OSRR07-4
Boston, MA 02109-3912

Re: Contract No. EP-S1-06-03
Task Order No. 0022-RA-RA-0115
Case No. 43082, Sample Delivery Group (SDG) No. A4850
KAP Technologies, Inc.,The Woodlands, TX
Nyanza Chemical Waste Dump, OU2 Superfund Site
Ashland, Massachusetts
CERCLIS No.: MAD990685422

Tier I Modified Organic Data Validation with Stage 2A Electronic Qualification

Low Level Volatiles and Semivolatiles:
19/Groundwater: A4850-A4858, A4862-A4871
Field Duplicates: A4850/A4851
1/Trip Blank: A4859
2/PE Samples: A4860 (SV0317), A4861 (VLM0153)

Dear Mr. Keefe:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the organic analytical data for 19 groundwater samples, one trip blank, and two performance evaluation (PE) samples collected by Nobis Engineering, Inc. at the Nyanza Chemical Waste Dump, OU2 Superfund Site located in Ashland, Massachusetts. The samples were analyzed for low level volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) under the Contract Laboratory Program Routine Analytical Services (CLP RAS) program using the CLP SOM01.2 Statement of Work. A Tier I modified data validation was deemed sufficient at this time.

Stage 2A electronic qualification was performed through EPA's Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM) which uses USEPA's Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review, June 2008 criteria for automated validation. EXES Data Review Report #3 indicates data of non-compliance that resulted in qualification based on blank contamination, calibration criteria, and surrogate recoveries.

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (508) 683-0891

The data were evaluated based on the following parameters:

*	•	Overall Evaluation of Data and Potential Usability Issues
*	•	Data Completeness
*	•	Preservation and Technical Holding Times
	•	Initial and Continuing Calibrations
	•	Blanks
	•	Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
*	•	Laboratory Control Samples
*	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
*	•	Field Duplicates
NA	•	Laboratory Duplicates
*	•	Internal Standards
*	•	Performance Evaluation (PE) Sample Results
*	•	Reported Quantitation Limits

* All criteria were met for this parameter.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The objectives of the groundwater and DNAPL sampling at the site are to provide a comprehensive evaluation of the shallow and deep groundwater contaminants at the site and to evaluate the feasibility of implementing monitored natural attenuation (MNA) as a remedial alternative for the site.

Data are usable for the purposes of the project except as noted below.

Data Completeness

The data package is complete. There were no issues noted in the contract compliance screening (CCS) report.

Data presented in the Summary Tables include qualifiers assigned by Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM). Qualifications for these parameters were assessed under the Stage 2A Validation Electronic (S2AVE) scenario. Qualification was taken from EXES and data package completeness was done manually.

Initial and Continuing Calibrations

VOCs

The percent relative standard deviations (%RSDs) were outside acceptance criteria for bromoform and bromomethane for the initial calibration associated with all sample analyses. Detected results for these compounds were qualified as estimated (J), non-detected results were accepted unqualified.

Blanks

VOCs

Methylene chloride results were negated in several sample analyses due to method and/or storage blank contamination.

It should be noted that methylene chloride was reported in trip blank sample A4859 above the method detection limit (MDL) but below the contract required quantitation limit (CRQL). Since all associated sample results were non-detected or negated for methylene chloride due to laboratory blank contamination, no further actions were required.

Surrogate Recoveries

VOCs

The EXES report #3 reported that the chloroform-d recovery was below the lower limit for sample A4853. The sample was diluted 10-fold; therefore, results were accepted unqualified.

SVOCs

Bis(2-chloroethyl)ether-d8 recovery values were above the upper limit in samples A4853 and A4857. Associated results were non-detected in both samples; the results were accepted unqualified.

2-Chlorophenol-d4, 2-nitrophenol-d4, nitrobenzene-d5 and phenol-d5 recovered below the lower acceptance limits in sample A4852. The associated results were non-detected and were qualified as estimated (UJ).

MS/MSD Results

SVOCs

MS/MSD analyses were performed on sample A4862. EXES report #3 reported that 4-chloro-3-methylphenol and 4-nitrophenol recovered above the upper acceptance limit. Both compounds were non-detected in the native sample; therefore, data were accepted unqualified.

Field Duplicates

Samples A4850 and A4851 were the field duplicate pair submitted with this sample set. All relative percent differences (RPDs) were within criteria. Precision was deemed acceptable.

PE Sample Results

VOC PE sample A4861 (VLM0153) and SVOC PE sample A4860 (SV0317) were provided by EPA and reported with this SDG. All target results received a passing score. Several non-spiked TICs were reported in both PE samples, however, no qualifications to sample results were required on this basis.

Reported Quantitation Limits

Several samples were analyzed for VOCs and sample A4853 for SVOCs with dilutions to obtain target analytes within the calibration range. Reporting limits were adjusted accordingly.

Please contact me at (978) 703-6021 or gderuzzo@nobiseng.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

for Andrea Mischel
Data Validator

Tables: Data Summary Tables

Enclosures: PE Scores
EXES Report #3
CCS Reports
CSF Audit (DC-2 Forms)

Cc: Raymond Flores, US EPA Region VI (w/PE Scores via email)

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4850	A4851	A4852	A4853	A4854	A4855
	Sample Location	MW-115A	MW-115A	MW-405B	MW-115B	MW-405A	MW-203B
	Lab Sample ID	S-5279.01	S-5279.02	S-5279.03	S-5279.04	S-5279.05	S-5279.06
	Station ID	MW115A-110512	MW115A-110512D	MW-405B-110512	MW115B-110512	MW405A-110512	MW203B-110512
	Dilution Factor	10/50	10/50	10/50	10/50	1	5/25
	Sample Date	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12
	Date Analyzed	14 Nov 12/15 Nov 12	14 Nov 12/15 Nov 12	14 Nov 12/15 Nov 12	15 Nov 12	14 Nov 12	15 Nov 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,1,2,2-Tetrachloroethane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,1,2-Trichloroethane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,1-Dichloroethane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,1-Dichloroethene	5	50 U	50 U	50 U	50 U	5 U	25 U
1,2,3-Trichlorobenzene	5	50 U	50 U	50 U	50 U	5 U	130
1,2,4-Trichlorobenzene	5	110	130	130	220	5 U	620
1,2-Dibromo-3-chloropropane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,2-Dibromoethane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,2-Dichlorobenzene	5	1600	1600	1800	1800	24	2000
1,2-Dichloroethane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,2-Dichloropropane	5	50 U	50 U	50 U	50 U	5 U	25 U
1,3-Dichlorobenzene	5	50 U	50 U	50 U	50 U	5 U	34
1,4-Dichlorobenzene	5	280	270	290	320	5 U	290
1,4-Dioxane	100	1000 U	1000 U	1000 U	1000 U	100 U	500 U
2-Butanone	10	100 U	100 U	100 U	100 U	10 U	50 U
2-Hexanone	10	100 U	100 U	100 U	100 U	10 U	50 U
4-Methyl-2-pentanone	10	100 U	100 U	100 U	100 U	10 U	50 U
Acetone	10	100 U	100 U	100 U	100 U	10 U	50 U
Benzene	5	46 J	46 J	37 J	50 U	5 U	30
Bromochloromethane	5	50 U	50 U	50 U	50 U	5 U	25 U
Bromodichloromethane	5	50 U	50 U	50 U	50 U	5 U	25 U
Bromoform	5	50 U	50 U	50 U	50 U	5 U	25 U
Bromomethane	5	50 U	50 U	50 U	50 U	5 U	25 U
Carbon disulfide	5	50 U	50 U	50 U	50 U	5 U	25 U
Carbon tetrachloride	5	50 U	50 U	50 U	50 U	5 U	25 U
Chlorobenzene	5	2600	2500	2400	1600	57	1800
Chloroethane	5	50 U	50 U	50 U	50 U	5 U	25 U
Chloroform	5	50 U	50 U	50 U	50 U	5 U	25 U
Chloromethane	5	50 U	50 U	50 U	50 U	5 U	25 U
cis-1,2-Dichloroethene	5	130	130	810	290	19	370
cis-1,3-Dichloropropene	5	50 U	50 U	50 U	50 U	5 U	25 U
Cyclohexane	5	50 U	50 U	50 U	50 U	5 U	25 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4850	A4851	A4852	A4853	A4854	A4855
	Sample Location	MW-115A	MW-115A	MW-405B	MW-115B	MW-405A	MW-203B
	Lab Sample ID	S-5279.01	S-5279.02	S-5279.03	S-5279.04	S-5279.05	S-5279.06
	Station ID	MW115A-110512	MW115A-110512D	MW-405B-110512	MW115B-110512	MW405A-110512	MW203B-110512
	Dilution Factor	10/50	10/50	10/50	10/50	1	5/25
	Sample Date	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12
	Date Analyzed	14 Nov 12/15 Nov 12	14 Nov 12/15 Nov 12	14 Nov 12/15 Nov 12	15 Nov 12	14 Nov 12	15 Nov 12
Chemical	CRQL						
Dibromochloromethane	5	50 U	50 U	50 U	50 U	5 U	25 U
Dichlorodifluoromethane	5	50 U	50 U	50 U	50 U	5 U	25 U
Ethylbenzene	5	50 U	50 U	50 U	50 U	5 U	25 U
Isopropylbenzene	5	50 U	50 U	50 U	50 U	5 U	25 U
m,p-Xylene	5	50 U	50 U	50 U	50 U	5 U	25 U
Methyl acetate	5	50 U	50 U	50 U	50 U	5 U	25 U
Methyl tert-butyl ether	5	50 U	50 U	50 U	50 U	5 U	25 U
Methylcyclohexane	5	50 U	50 U	50 U	50 U	5 U	25 U
Methylene chloride	5	50 U	50 U	50 U	50 U	5 U	25 U
o-Xylene	5	50 U	50 U	50 U	50 U	5 U	25 U
Styrene	5	50 U	50 U	50 U	50 U	5 U	25 U
Tetrachloroethene	5	50 U	50 U	50 U	50 U	5 U	25 U
Toluene	5	50 U	50 U	50 U	50 U	5 U	25 U
trans-1,2-Dichloroethene	5	50 U	50 U	50 U	50 U	5 U	25 U
trans-1,3-Dichloropropene	5	50 U	50 U	50 U	50 U	5 U	25 U
Trichloroethene	5	2300	2200	2200	2500	51	800
Trichlorofluoromethane	5	50 U	50 U	50 U	50 U	5 U	25 U
Vinyl chloride	5	50 U	50 U	50 U	50 U	5 U	25 U
		Chlorobenzene and TCE results from 1:50 dilution	Chlorobenzene and TCE results from 1:50 dilution	Chlorobenzene and TCE results from 1:50 dilution	TCE results from 1:50 dilution		Chlorobenzene and 1,2-dichlorobenzene results from 1:25 dilution

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4856	A4857	A4858	A4859	A4862	A4863
	Sample Location	MW-202	MW-203A	MW-201		MW-04C	MW-04B
	Lab Sample ID	S-5279.07	S-5279.08	S-5279.09	S-5279.10	S-5288.01	S-5288.02
	Station ID	MW202-110512	MW203A-110512	MW201-110512	TB-01	MW04C-110612	MW04B-110612
	Dilution Factor	5	8/50	1/5	1	1	1
	Sample Date	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	06 Nov 12	06 Nov 12
	Date Analyzed	15 Nov 12	15 Nov 12	15 Nov 12/16 Nov 12	14 Nov 12	16 Nov 12	16 Nov 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	25 U	40 U	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	160	40 U	26	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	800	140	120	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	2600	3200	460	5 U	5 U	5 U
1,2-Dichloroethane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	25 U	40 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	45	49	8.2	5 U	5 U	5 U
1,4-Dichlorobenzene	5	390	500	66	5 U	5 U	5 U
1,4-Dioxane	100	500 U	800 U	100 U	100 U	100 U	100 U
2-Butanone	10	50 U	80 U	10 U	10 U	10 U	10 U
2-Hexanone	10	50 U	80 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	50 U	80 U	10 U	10 U	10 U	10 U
Acetone	10	50 U	80 U	10 U	10 U	10 U	10 U
Benzene	5	52	140	7.4	5 U	5 U	5 U
Bromochloromethane	5	25 U	40 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5	25 U	40 U	5 U	5 U	5 U	5 U
Bromoform	5	25 U	40 U	5 U	5 U	5 U	5 U
Bromomethane	5	25 U	40 U	5 U	5 U	5 U	5 U
Carbon disulfide	5	25 U	40 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5	25 U	40 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	2500	6400	390	5 U	5 U	5 U
Chloroethane	5	25 U	40 U	5 U	5 U	5 U	5 U
Chloroform	5	25 U	40 U	5 U	5 U	5 U	5 U
Chloromethane	5	25 U	40 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	360	220	100	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	25 U	40 U	5 U	5 U	5 U	5 U
Cyclohexane	5	25 U	40 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4856	A4857	A4858	A4859	A4862	A4863
	Sample Location	MW-202	MW-203A	MW-201		MW-04C	MW-04B
	Lab Sample ID	S-5279.07	S-5279.08	S-5279.09	S-5279.10	S-5288.01	S-5288.02
	Station ID	MW202-110512	MW203A-110512	MW201-110512	TB-01	MW04C-110612	MW04B-110612
	Dilution Factor	5	8/50	1/5	1	1	1
	Sample Date	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	06 Nov 12	06 Nov 12
	Date Analyzed	15 Nov 12	15 Nov 12	15 Nov 12/16 Nov 12	14 Nov 12	16 Nov 12	16 Nov 12
Chemical	CRQL						
Dibromochloromethane	5	25 U	40 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5	25 U	40 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	25 U	40 U	5 U	5 U	5 U	5 U
Isopropylbenzene	5	25 U	40 U	5 U	5 U	5 U	5 U
m,p-Xylene	5	25 U	40 U	5 U	5 U	5 U	5 U
Methyl acetate	5	25 U	40 U	5 U	5 U	5 U	5 U
Methyl tert-butyl ether	5	25 U	40 U	5 U	5 U	5 U	5 U
Methylcyclohexane	5	25 U	40 U	5 U	5 U	5 U	5 U
Methylene chloride	5	25 U	40 U	5 U	4 J	5 U	5 U
o-Xylene	5	25 U	40 U	5 U	5 U	5 U	5 U
Styrene	5	25 U	40 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	25 U	40 U	5 U	5 U	5 U	5 U
Toluene	5	25 U	44	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	25 U	40 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	25 U	40 U	5 U	5 U	5 U	5 U
Trichloroethene	5	1500	2800	180	5 U	11	34
Trichlorofluoromethane	5	25 U	40 U	5 U	5 U	5 U	5 U
Vinyl chloride	5	25 U	350	5 U	5 U	5 U	5 U
		Chlorobenzene, TCE, and 1,2-dichlorobenzene results from 1:50 dilution	Chlorobenzene, TCE, and 1,2-dichlorobenzene results from 1:50 dilution	Chlorobenzene and 1,2-dichlorobenzene results from 1:5 dilution			

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

Sample Name		A4864	A4865	A4866	A4867	A4868	A4869
Sample Location		WP-105	RMW-305A	MW-304B	MW-403B	RMW-116A	MW-04A
Lab Sample ID		S-5288.03	S-5288.04	S-5288.05	S-5288.06	S-5288.07	S-5288.08
Station ID		WP105-110612	RMW305A-110612	MW304B-110612	MW403B-110612	RMW116A-110612	MW4A-110612
Dilution Factor		1	1/10	1	1	1	1
Sample Date		06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12
Date Analyzed		16 Nov 12	16 Nov 12/17 Nov 12	17 Nov 12	17 Nov 12	16 Nov 12	17 Nov 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	5 U	5.1	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	49	9.2	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	730	93	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	18	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	100	17	5 U	5 U	5 U
1,4-Dioxane	100	100 U	100 U	100 U	100 U	100 U	100 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U	5 U	5.6 J	5 U
Carbon disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	180	51	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	60	63	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	5	5 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4864	A4865	A4866	A4867	A4868	A4869
	Sample Location	WP-105	RMW-305A	MW-304B	MW-403B	RMW-116A	MW-04A
	Lab Sample ID	S-5288.03	S-5288.04	S-5288.05	S-5288.06	S-5288.07	S-5288.08
	Station ID	WP105-110612	RMW305A-110612	MW304B-110612	MW403B-110612	RMW116A-110612	MW4A-110612
	Dilution Factor	1	1/10	1	1	1	1
	Sample Date	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12
	Date Analyzed	16 Nov 12	16 Nov 12/17 Nov 12	17 Nov 12	17 Nov 12	16 Nov 12	17 Nov 12
Chemical	CRQL						
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
m,p-Xylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Methyl acetate	5	5 U	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U	5 U	5 U	5 U	5 U
Methylcyclohexane	5	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5	5 U	5 U	5 U	5 U	5 U	5 U
o-Xylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	870	55	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl chloride	5	5 U	5 U	5 U	5 U	5 U	5 U

TCE and 1,2-dichlorobenzene results from 1:10 dilution

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4870	A4871
	Sample Location	MW-204A	MW-305B
	Lab Sample ID	S-5288.09	S-5288.10
	Station ID	MW204A-110612	MW305B-110612
	Dilution Factor	1	1
	Sample Date	06 Nov 12	06 Nov 12
	Date Analyzed	17 Nov 12	17 Nov 12
Chemical	CRQL		
1,1,1-Trichloroethane	5	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U
1,2,3-Trichlorobenzene	5	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U
1,2-Dibromo-3-chloropropane	5	5 U	5 U
1,2-Dibromoethane	5	5 U	5 U
1,2-Dichlorobenzene	5	32	5 U
1,2-Dichloroethane	5	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U
1,4-Dichlorobenzene	5	5.6	5 U
1,4-Dioxane	100	100 U	100 U
2-Butanone	10	10 U	10 U
2-Hexanone	10	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U
Acetone	10	10 U	10 U
Benzene	5	5 U	5 U
Bromochloromethane	5	5 U	5 U
Bromodichloromethane	5	5 U	5 U
Bromoform	5	5 U	5 U
Bromomethane	5	5 U	5 U
Carbon disulfide	5	5 U	5 U
Carbon tetrachloride	5	5 U	5 U
Chlorobenzene	5	24	5 U
Chloroethane	5	5 U	5 U
Chloroform	5	5 U	5 U
Chloromethane	5	5 U	5 U
cis-1,2-Dichloroethene	5	10	5 U
cis-1,3-Dichloropropene	5	5 U	5 U
Cyclohexane	5	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4870	A4871
	Sample Location	MW-204A	MW-305B
	Lab Sample ID	S-5288.09	S-5288.10
	Station ID	MW204A-110612	MW305B-110612
	Dilution Factor	1	1
	Sample Date	06 Nov 12	06 Nov 12
	Date Analyzed	17 Nov 12	17 Nov 12
Chemical	CRQL		
Dibromochloromethane	5	5 U	5 U
Dichlorodifluoromethane	5	5 U	5 U
Ethylbenzene	5	5 U	5 U
Isopropylbenzene	5	5 U	5 U
m,p-Xylene	5	5 U	5 U
Methyl acetate	5	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U
Methylcyclohexane	5	5 U	5 U
Methylene chloride	5	5 U	5 U
o-Xylene	5	5 U	5 U
Styrene	5	5 U	5 U
Tetrachloroethene	5	5 U	5 U
Toluene	5	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U
Trichloroethene	5	69	5 U
Trichlorofluoromethane	5	5 U	5 U
Vinyl chloride	5	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4850	A4851	A4852	A4853	A4854	A4855	A4856
	Sample Location	MW-115A	MW-115A	MW-405B	MW-115B	MW-405A	MW-203B	MW-202
	Lab Sample ID	S-5279.01	S-5279.02	S-5279.03	S-5279.04	S-5279.05	S-5279.06	S-5279.07
	Station ID	MW115A-110512	MW115A-110512D	MW-405B-110512	MW115B-110512	MW405A-110512	MW203B-110512	MW202-110512
	Dilution Factor	1	1	1	1	1	1	1
	Sample Date	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12
	Date Analyzed	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12
Chemical	CRQL							
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U	5 U	5 U	2.6 J
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	2.4 J	5 U
2,4,6-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5	5 U	5 U	5 UJ	5 U	5 U	12	2.5 J
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5	5 U	5 U	6.9	9.9	5 U	3.2 J	4 J
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
Anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

Sample Name		A4850	A4851	A4852	A4853	A4854	A4855	A4856
Sample Location		MW-115A	MW-115A	MW-405B	MW-115B	MW-405A	MW-203B	MW-202
Lab Sample ID		S-5279.01	S-5279.02	S-5279.03	S-5279.04	S-5279.05	S-5279.06	S-5279.07
Station ID		MW115A-110512	MW115A-110512D	MW-405B-110512	MW115B-110512	MW405A-110512	MW203B-110512	MW202-110512
Dilution Factor		1	1	1	1	1	1	1
Sample Date		05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12
Chemical	CRQL							
Benzo(k)fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethoxy)methane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethyl)ether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5.3	5 U	5.9	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbazole	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
Naphthalene	5	3.1 J	4.9 J	7.9		5 U	5 U	5 U
Nitrobenzene	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
N-Nitroso-di-n-propylamine	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	5	5 U	5 U	5 UJ	5 U	5 U	2.5 J	2.1 J
Pentachlorophenol	10	10 U	10 U	10 U	2.3 J	10 U	10 U	10 U
Phenanthrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
Pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

Sample Name		A4857	A4858	A4862	A4863	A4864	A4865	A4866
Sample Location		MW-203A	MW-201	MW-04C	MW-04B	WP-105	RMW-305A	MW-304B
Lab Sample ID		S-5279.08	S-5279.09	S-5288.01	S-5288.02	S-5288.03	S-5288.04	S-5288.05
Station ID		MW203A-110512	MW201-110512	MW04C-110612	MW04B-110612	WP105-110612	RMW305A-110612	MW304B-110612
Dilution Factor		1	1	1	1	1	1	1
Sample Date		05 Nov 12	05 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12
Chemical	CRQL							
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	4.5 J	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5	14	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	5	3.6 J	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5	9.7	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

Sample Name		A4857	A4858	A4862	A4863	A4864	A4865	A4866
Sample Location		MW-203A	MW-201	MW-04C	MW-04B	WP-105	RMW-305A	MW-304B
Lab Sample ID		S-5279.08	S-5279.09	S-5288.01	S-5288.02	S-5288.03	S-5288.04	S-5288.05
Station ID		MW203A-110512	MW201-110512	MW04C-110612	MW04B-110612	WP105-110612	RMW305A-110612	MW304B-110612
Dilution Factor		1	1	1	1	1	1	1
Sample Date		05 Nov 12	05 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12
Chemical	CRQL							
Benzo(k)fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethoxy)methane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethyl)ether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	5 U	5 U	5 U	5 U	2.7 J	5 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbazole	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	5	18	5 U	5 U	5 U	5 U	5 U	5 U
Nitrobenzene	5	4.2 J	5 U	5 U	5 U	5 U	29	5 U
N-Nitroso-di-n-propylamine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

Sample Name		A4867	A4868	A4869	A4870	A4871
Sample Location		MW-403B	RMW-116A	MW-04A	MW-204A	MW-305B
Lab Sample ID		S-5288.06	S-5288.07	S-5288.08	S-5288.09	S-5288.10
Station ID		MW403B-110612	RMW116A-110612	MW4A-110612	MW204A-110612	MW305B-110612
Dilution Factor		1	1	1	1	1
Sample Date		06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12	20 Nov 12	21 Nov 12	21 Nov 12
Chemical	CRQL					
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	5	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	5	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	5 U	5 U	5 U	5 U
Acetophenone	5	5 U	5 U	5 U	5 U	5 U
Anthracene	5	5 U	5 U	5 U	5 U	5 U
Atrazine	5	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	5 U	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	5	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	5	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4850

	Sample Name	A4867	A4868	A4869	A4870	A4871
	Sample Location	MW-403B	RMW-116A	MW-04A	MW-204A	MW-305B
	Lab Sample ID	S-5288.06	S-5288.07	S-5288.08	S-5288.09	S-5288.10
	Station ID	MW403B-110612	RMW116A-110612	MW4A-110612	MW204A-110612	MW305B-110612
	Dilution Factor	1	1	1	1	1
	Sample Date	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12
	Date Analyzed	20 Nov 12	20 Nov 12	20 Nov 12	21 Nov 12	21 Nov 12
Chemical	CRQL					
Benzo(k)fluoranthene	5	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethoxy)methane	5	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethyl)ether	5	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U	5 U
Caprolactam	5	5 U	5 U	5 U	3.8 J	5 U
Carbazole	5	5 U	5 U	5 U	4.4 J	5 U
Chrysene	5	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	5	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	5 U	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	5 U	5 U	2.5 J	5 U
Fluorene	5	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5	5 U	5 U	5 U	5 U	5 U
Isophorone	5	5 U	5 U	5 U	5 U	5 U
Naphthalene	5	5 U	5 U	5 U	5 U	5 U
Nitrobenzene	5	5 U	5 U	5 U	5 U	5 U
N-Nitroso-di-n-propylamine	5	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	5	5 U	5 U	5 U	5 U	5 U
Pentachlorophenol	10	10 U	10 U	10 U	10 U	10 U
Phenanthrene	5	5 U	5 U	5 U	2.8 J	5 U
Phenol	5	5 U	5 U	5 U	5 U	5 U
Pyrene	5	5 U	5 U	5 U	5 U	5 U

PES SCORING EVALUATION REPORT

PES VLM0153 Rev: 1 EPA Sample No.: A4861 Report Date: 12/14/2012

Lab Name: KAP Technologies Inc.
Contract: EPW11031
SDG No.: A4850
Lab File ID: G21702
Sample Wt./Vol. (g/mL): 5.0 ML
Purge Volume (mL): 5.0 mL
Length (m): NA
Dilution Factor: 1.0

Case No.: 43082
Matrix: Water
Date Received: 11/07/2012
Level: Low
GC Column: RTX-VMS
Soil Extract. Vol. (uL): NA
Units: ug/L

Lab Code: KAP
SAS/Client No.: NA
Lab Sample ID: S-5279.12
Date Analyzed: 11/16/2012
% Moisture (not dec.): NA
ID (mm): 0.25
Soil Aliquot Vol. (uL): NA

Analysis Method: SOM01.2
Scoring Method: SOM01.2
Comments:

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
75-01-4	Vinyl Chloride	55		PASS	Within Limits
75-00-3	Chloroethane	65		PASS	Within Limits
75-35-4	1,1-Dichloroethene	47		PASS	Within Limits
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	28		PASS	Within Limits
67-64-1	Acetone	100		PASS	Within Limits
75-09-2	Methylene Chloride	52	B	PASS	Within Limits
75-34-3	1,1-Dichloroethane	80		PASS	Within Limits
156-59-2	cis-1,2-Dichloroethene	29		PASS	Within Limits
78-93-3	2-Butanone	71		PASS	Within Limits
74-97-5	Bromochloromethane	45		PASS	Within Limits
110-82-7	Cyclohexane	110		PASS	Within Limits
71-43-2	Benzene	17		PASS	Within Limits
79-01-6	Trichloroethene	19		PASS	Within Limits
78-87-5	1,2-Dichloropropane	26		PASS	Within Limits
75-27-4	Bromodichloromethane	40		PASS	Within Limits
108-88-3	Toluene	33		PASS	Within Limits
10061-02-6	trans-1,3-Dichloropropene	23		PASS	Within Limits
127-18-4	Tetrachloroethene	29		PASS	Within Limits
591-78-6	2-Hexanone	120		PASS	Within Limits
108-90-7	Chlorobenzene	52		PASS	Within Limits
100-41-4	Ethylbenzene	31		PASS	Within Limits
75-25-2	Bromoform	21		PASS	Within Limits
98-82-8	Isopropylbenzene	45		PASS	Within Limits
541-73-1	1,3-Dichlorobenzene	54		PASS	Within Limits
96-12-8	1,2-Dibromo-3-chloropropane	21		PASS	Within Limits
120-82-1	1,2,4-Trichlorobenzene	41		PASS	Within Limits
123-91-1	1,4-Dioxane	57	J	PASS	Within Limits
96-18-4	1,2,3-Trichloropropane	300	NJ	PASS	TIC Found
****	END Main Analytes	**********	****	****	**********
****	END All Analytes	**********	****	****	**********

PES SCORING EVALUATION REPORT

PES SV0317 Rev: 1 EPA Sample No.: A4860 Report Date: 12/14/2012

Lab Name: KAP Technologies Inc.
Lab Code: KAP
Contract: EPW11031
Case No.: 43082
SAS/Client No.: NA
SDG No.: A4850
Matrix: Water
Lab Sample ID: S-5279.11
Lab File ID: F49385
Date Received: 11/07/2012
Date Extracted: 11/10/2012
Date Analyzed: 11/21/2012
Sample Wt./Vol. (g/mL): 1000 ML
Level: Low
% Moisture: NA
Decanted: No
Conc. Extract Vol. (uL): 1000
Injection Vol. (uL): 1.0
GPC Cleanup: No
pH: NA
Dilution Factor: 1.0
Extraction Type: CONT
Units: ug/L

Analysis Method: SOM01.2
Scoring Method: SOM01.2
Comments:

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
100-52-7	Benzaldehyde	2.2	J	PASS	Within Limits
95-57-8	2-Chlorophenol	40		PASS	Within Limits
108-60-1	2,2'-oxybis(1-Chloropropane)	48		PASS	Within Limits
98-86-2	Acetophenone	36		PASS	Within Limits
67-72-1	Hexachloroethane	18		PASS	Within Limits
98-95-3	Nitrobenzene	53		PASS	Within Limits
88-75-5	2-Nitrophenol	48		PASS	Within Limits
120-83-2	2,4-Dichlorophenol	26		PASS	Within Limits
91-20-3	Naphthalene	16		PASS	Within Limits
106-47-8	4-Chloroaniline	5.0	U	N.E.	Not Evaluated
59-50-7	4-Chloro-3-methylphenol	48		PASS	Within Limits
88-06-2	2,4,6-Trichlorophenol	32		PASS	Within Limits
92-52-4	1,1'-Biphenyl	39		PASS	Within Limits
88-74-4	2-Nitroaniline	58		PASS	Within Limits
606-20-2	2,6-Dinitrotoluene	40		PASS	Within Limits
208-96-8	Acenaphthylene	47		PASS	Within Limits
100-02-7	4-Nitrophenol	54		PASS	Within Limits
132-64-9	Dibenzofuran	22		PASS	Within Limits
121-14-2	2,4-Dinitrotoluene	50		PASS	Within Limits
84-66-2	Diethylphthalate	42		PASS	Within Limits
86-73-7	Fluorene	9.0		PASS	Within Limits
86-30-6	N-Nitrosodiphenylamine	48		PASS	Within Limits
95-94-3	1,2,4,5-Tetrachlorobenzene	20		PASS	Within Limits
118-74-1	Hexachlorobenzene	42		PASS	Within Limits
1912-24-9	Atrazine	5.0	U	N.E.	Not Evaluated
87-86-5	Pentachlorophenol	40		PASS	Within Limits
85-01-8	Phenanthrene	33		PASS	Within Limits
84-74-2	Di-n-butylphthalate	33		PASS	Within Limits
129-00-0	Pyrene	15		PASS	Within Limits
91-94-1	3,3'-Dichlorobenzidine	13		PASS	Within Limits
56-55-3	Benzo(a)anthracene	34		PASS	Within Limits
117-84-0	Di-n-octylphthalate	19		PASS	Within Limits
205-99-2	Benzo(b)fluoranthene	28		PASS	Within Limits
50-32-8	Benzo(a)pyrene	18		PASS	Within Limits
53-70-3	Dibenzo(a,h)anthracene	42		PASS	Within Limits
191-24-2	Benzo(g,h,i)perylene	23		PASS	Within Limits
90-12-0	1-Methylnaphthalene	65	NJ	PASS	TIC Found

PES SCORING EVALUATION REPORT

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
****	END Main Analytes	**********	****	****	**********
001125-88-8	Benzaldehyde dimethyl acetal	47	NJ	N.E.	Non-spiked TIC
040941-53-5	Quinoline,7-chloro-4-methyl-	14	NJ	N.E.	Non-spiked TIC
****	END All Analytes	**********	****	****	**********

VLM0153
(1 of 3)

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4861

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4850

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5279.12

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: G21702

Level: (TRACE/LOW/MED) LOW Date Received: 11/07/2012

% Moisture: not dec. _____ Date Analyzed: 11/16/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 5.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	55	
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	65	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	47	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	28	
67-64-1	Acetone	100	
75-15-0	Carbon disulfide	5.0	U
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	52	B
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	80	
156-59-2	cis-1,2-Dichloroethene	29	
78-93-3	2-Butanone	71	
74-97-5	Bromochloromethane	45	
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
110-82-7	Cyclohexane	110	
56-23-5	Carbon tetrachloride	5.0	U
71-43-2	Benzene	17	
107-06-2	1,2-Dichloroethane	5.0	U
123-91-1	1,4-Dioxane	57	J

Report 1,4-Dioxane for Low-Medium VOA analysis only

VLM0153
(2of3)

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4861

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4850

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5279.12

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: G21702

Level: (TRACE/LOW/MED) LOW Date Received: 11/07/2012

% Moisture: not dec. _____ Date Analyzed: 11/16/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 5.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	19	
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	26	
75-27-4	Bromodichloromethane	40	
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	33	
10061-02-6	trans-1,3-Dichloropropene	23	
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	29	
591-78-6	2-Hexanone	120	
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	52	
100-41-4	Ethylbenzene	31	
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	21	
98-82-8	Isopropylbenzene	45	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	54	
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	21	
120-82-1	1,2,4-Trichlorobenzene	41	
87-61-6	1,2,3-Trichlorobenzene	5.0	U

VLM0153
(3of3)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
A4861

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4850

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5279.12

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: G21702

Level: (TRACE or LOW/MED) LOW Date Received: 11/07/2012

% Moisture: not dec. _____ Date Analyzed: 11/16/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	10.72	59	J
02	000096-18-4	Propane, 1,2,3-trichloro-	16.25	30	NJ
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

SV0317
(1 of 3)

1D - FORM I SV-1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4860

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4850

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5279.11

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F49385

Level: (LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N Date Received: 11/07/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 11/10/2012

Injection Volume: 1.0 (uL) GPC Factor: _____ Date Analyzed: 11/21/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	2.2	J
108-95-2	Phenol	5.0	U
111-44-4	Bis(2-chloroethyl)ether	5.0	U
95-57-8	2-Chlorophenol	40	
95-48-7	2-Methylphenol	5.0	U
108-60-1	2,2'-Oxybis(1-chloropropane)	48	
98-86-2	Acetophenone	36	
106-44-5	4-Methylphenol	5.0	U
621-64-7	N-Nitroso-di-n-propylamine	5.0	U
67-72-1	Hexachloroethane	18	
98-95-3	Nitrobenzene	53	
78-59-1	Isophorone	5.0	U
88-75-5	2-Nitrophenol	48	
105-67-9	2,4-Dimethylphenol	5.0	U
111-91-1	Bis(2-chloroethoxy)methane	5.0	U
120-83-2	2,4-Dichlorophenol	26	
91-20-3	Naphthalene	16	
106-47-8	4-Chloroaniline	5.0	U
87-68-3	Hexachlorobutadiene	5.0	U
105-60-2	Caprolactam	5.0	U
59-50-7	4-Chloro-3-methylphenol	48	
91-57-6	2-Methylnaphthalene	5.0	U
77-47-4	Hexachlorocyclopentadiene	5.0	U
88-06-2	2,4,6-Trichlorophenol	32	
95-95-4	2,4,5-Trichlorophenol	5.0	U
92-52-4	1,1'-Biphenyl	39	
91-58-7	2-Chloronaphthalene	5.0	U
88-74-4	2-Nitroaniline	58	
131-11-3	Dimethylphthalate	5.0	U
606-20-2	2,6-Dinitrotoluene	40	
208-96-8	Acenaphthylene	47	
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	5.0	U

SV0317
(2of3)

1E - FORM I SV-2
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4860

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4850

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5279.11

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F49385

Level: (LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N Date Received: 11/07/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 11/10/2012

Injection Volume: 1.0 (uL) GPC Factor: _____ Date Analyzed: 11/21/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	54	
132-64-9	Dibenzofuran	22	
121-14-2	2,4-Dinitrotoluene	50	
84-66-2	Diethylphthalate	42	
86-73-7	Fluorene	9.0	
7005-72-3	4-Chlorophenyl-phenylether	5.0	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4,6-Dinitro-2-methylphenol	10	U
86-30-6	N-Nitrosodiphenylamine [1]	48	
95-94-3	1,2,4,5-Tetrachlorobenzene	20	
101-55-3	4-Bromophenyl-phenylether	5.0	U
118-74-1	Hexachlorobenzene	42	
1912-24-9	Atrazine	5.0	U
87-86-5	Pentachlorophenol	40	
85-01-8	Phenanthrene	33	
120-12-7	Anthracene	5.0	U
86-74-8	Carbazole	5.0	U
84-74-2	Di-n-butylphthalate	33	
206-44-0	Fluoranthene	5.0	U
129-00-0	Pyrene	15	
85-68-7	Butylbenzylphthalate	5.0	U
91-94-1	3,3'-Dichlorobenzidine	13	
56-55-3	Benzo(a)anthracene	34	
218-01-9	Chrysene	5.0	U
117-81-7	Bis(2-ethylhexyl)phthalate	5.0	U
117-84-0	Di-n-octylphthalate	19	
205-99-2	Benzo(b)fluoranthene	28	
207-08-9	Benzo(k)fluoranthene	5.0	U
50-32-8	Benzo(a)pyrene	18	
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	U
53-70-3	Dibenzo(a,h)anthracene	42	
191-24-2	Benzo(g,h,i)perylene	23	
58-90-2	2,3,4,6-Tetrachlorophenol	5.0	U

[1] Cannot be separated from Diphenylamine

0964

SV0317
(3 of 3)

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
A4860

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4850

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5279.11

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F49385

Level: (LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N Date Received: 11/07/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 11/10/2012

Injection Volume: 1.0 (uL) Date Analyzed: 11/21/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CONCENTRATION UNITS:(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	001125-88-8	Benzaldehyde dimethyl acetal	7.23	47	NJ
02		Unknown-01	7.74	2.8	J
03		Unknown-02	10.03	6.7	J
04	000090-12-0	Naphthalene, 1-methyl-	10.28	65	NJ
05		Unknown-03	12.34	7.8	J
06	040941-53-5	Quinoline, 7-chloro-4-methyl-	12.83	14	NJ
07		Unknown-04	17.50	14	J
08		Unknown-05	18.67	2.6	J
09		Unknown-06	19.78	2.8	J
10		Unknown-07	21.13	2.7	J
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A		

[2] EPA-designated Registry Number.

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4850 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166044 **SOW** SOM01.2

Data Review Reports

Blanks

Blanks	**VOA_Low_Med**
VLB11	The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank common contaminant concentration is less than 2x the concentration criteria Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrationshave been elevated to the CRQL.
	A4858DL, A4859MS, A4859MSD, A4862, A4863, A4864, A4865, A4865DL, A4866, A4867, A4868, A4869, A4870, A4871
	Methylene chloride A4858DL, A4859MS, A4859MSD, A4862, A4863, A4864, A4865, A4865DL, A4866, A4867, A4868, A4869, A4870, A4871
Blanks	**VOA_Low_Med**
VLB46	The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated storage blank common contaminant concentration is less than 2x the concentration criteria Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.
	A4850, A4851, A4852, A4858DL, A4859MS, A4859MSD, A4862, A4863, A4864, A4865, A4865DL, A4866, A4867, A4868, A4869, A4870, A4871
	Methylene chloride A4850, A4851, A4852, A4858DL, A4859MS, A4859MSD, A4862, A4863, A4864, A4865, A4865DL, A4866, A4867, A4868, A4869, A4870, A4871
Blanks	**VOA_Low_Med**
VLB55	The following volatile samples have common contaminant analyte concentrations reported greater than or equal to 2x the CRQL. The associated storage blank common contaminant concentration is less than 2x the concentration criteria. Detected and nondetected compounds are not qualified.
	A4861
	Methylene chloride A4861

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4850 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166044 **SOW** SOM01.2

Data Review Reports

DMC/Surrogate

DMC/Surrogate	VOA_Low_Med
VDSS42	The following diluted volatile samples with dilution factors greater than 5 have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected and nondetected compounds are not qualified.
	A4853
	Chloroform-d A4853
	1,1-Dichloroethane, Bromochloromethane, Bromoform, Chloroform, Dibromochloromethane

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4850 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166044 **SOW** SOM01.2

Data Review Reports

DMC/Surrogate

DMC/Surrogate	BNA
BDSS14	The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4853, A4857
	Bis(2-chloroethyl)ether-d8 A4853, A4857
	2,2'-Oxybis(1-chloropropane), Bis(2-chloroethoxy)methane, Bis(2-chloroethyl)ether
DMC/Surrogate	**BNA**
BDSS15	The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4852
	2-Chlorophenol-d4 A4852
	2-Chlorophenol
	2-Nitrophenol-d4 A4852
	2-Nitrophenol, Isophorone
	Nitrobenzene-d5 A4852
	2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Acetophenone, Hexachloroethane, N-Nitroso-di-n-propylamine, N-Nitrosodiphenylamine, Nitrobenzene
	Phenol-d5 A4852
	Benzaldehyde, Phenol

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4850 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166044 **SOW** SOM01.2

Data Review Reports

Initial Calibration

Initial Calibration	VOA_Low_Med
VC6	The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified. Use professional judgement to qualify non-detected compounds.
	A4850, A4850DL, A4851, A4851DL, A4852, A4852DL, A4853, A4853DL, A4854, A4855, A4855DL, A4856, A4856DL, A4857, A4857DL, A4858, A4858DL, A4859, A4859MS, A4859MSD, A4861, A4862, A4863, A4864, A4865, A4865DL, A4866, A4867, A4868, A4869, A4870, A4871, VBLK5G, VBLK5J, VBLK5L, VBLK5N, VHBLK01
	Bromoform VSTD0055G
	Bromomethane VSTD0055G
	A4850, A4850DL, A4851, A4851DL, A4852, A4852DL, A4853, A4853DL, A4854, A4855, A4855DL, A4856, A4856DL, A4857, A4857DL, A4858, A4858DL, A4859, A4859MS, A4859MSD, A4861, A4862, A4863, A4864, A4865, A4865DL, A4866, A4867, A4868, A4869, A4870, A4871, VBLK5G, VBLK5J, VBLK5L, VBLK5N, VHBLK01

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4850 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166044 **SOW** SOM01.2

Data Review Reports

Matrix Spikes

Matrix Spikes	BNA
BMS2	The following semivolatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4862MS, A4862MSD
	4-Chloro-3-methylphenol A4862MS, A4862MSD
	4-Nitrophenol A4862MS, A4862MSD

Regional CCS Defect Report

15:47 Mon, Dec 3, 2012

SDG A4850 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166044 **Version** 8.049

DRD 11/29/2012 **LRD** 11/08/2012 **Mailed** 12/03/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Sample Summary and Lab Receipt Date

Sample/Number	VOA Trace	VOA SIM	VOA	BNA	BNA SIM	PEST	AROCLOR	Automated	Manual
A4850			11/07/2012	11/07/2012					
A4850DL			11/07/2012						
A4851			11/07/2012	11/07/2012					
A4851DL			11/07/2012						
A4852			11/07/2012	11/07/2012					
A4852DL			11/07/2012						
A4853			11/07/2012	11/07/2012					
A4853DL			11/07/2012	11/07/2012					
A4854			11/07/2012	11/07/2012					
A4855			11/07/2012	11/07/2012					
A4855DL			11/07/2012						
A4856			11/07/2012	11/07/2012					
A4856DL			11/07/2012						
A4857			11/07/2012	11/07/2012					
A4857DL			11/07/2012						
A4858			11/07/2012	11/07/2012					
A4858DL			11/07/2012						
A4859			11/07/2012						
A4859MS			11/07/2012						
A4859MSD			11/07/2012						
A4860				11/07/2012					
A4861			11/07/2012						
A4862			11/08/2012	11/08/2012					
A4862MS				11/08/2012					
A4862MSD				11/08/2012					
A4863			11/08/2012	11/08/2012					
A4864			11/08/2012	11/08/2012					
A4865			11/08/2012	11/08/2012					
A4865DL			11/08/2012						
A4866			11/08/2012	11/08/2012					
A4867			11/08/2012	11/08/2012					
A4868			11/08/2012	11/08/2012					
A4869			11/08/2012	11/08/2012					
A4870			11/08/2012	11/08/2012					
A4871			11/08/2012	11/08/2012					
Totals	**0**	**0**	**32**	**23**	**0**	**0**	**0**		

Regional CCS Defect Report

15:47 Mon, Dec 3, 2012

SDG A4850 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166044 **Version** 8.049

DRD 11/29/2012 **LRD** 11/08/2012 **Mailed** 12/03/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional CCS Defect Report

15:47 Mon, Dec 3, 2012

SDG A4850 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region I **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166044 **Version** 8.049

DRD 11/29/2012 **LRD** 11/08/2012 **Mailed** 12/03/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Detail

NONE FOUND

Regional CCS Defect Report

15:47 Mon, Dec 3, 2012

SDG A4850 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166044 **Version** 8.049

DRD 11/29/2012 **LRD** 11/08/2012 **Mailed** 12/03/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

General Comments

NONE FOUND

NOV 29 2012
Nyanza Chemical
NOBIS

DG/ESAT
11/29/12PM

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2

LABORATORY NAME. KAP TECHNOLOGIES, INC.
CITY/STATE. THE WOODLANDS/TX
CASE NO. 43082 SDG NO. A4850
SDG NOs. TO FOLLOW - - -
MOD. REF. NO. ----------
CONTRACT NO. EPW11031
SOW NO. SOM1.2

All documents delivered in the Complete SDG File (CSF) must be original documents where possible.

	PAGE NOs. FROM	TO	CHECK LAB	FOR USEPA
1. **Inventory Sheet** (DC-2) (Do not number)			✓	✓
2. **SDG Case Narrative**	01	04	✓	✓
3. **SDG Cover Sheet/Traffic Report**	05	09	✓	✓
4. **Trace Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1 and VOA-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Recover (Form III VOA) (if requested by USEPA Region)				
Method Blank Summary (Form IV VOA)				
GC/MS Instrument Performance Check (Form V VOA)				
Internal Standard Area and RT Summary (Form VIII VOA)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)				
Tentatively Identified Compounds (Form I VOA-TIC)				
Reconstructed total ion chromatograms (RIC) for each sample				
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified				
Quantitation reports				
Mass Spectra of all reported TICs with three best library matches				
c. Standards Data (All Instruments)				
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)				
RICs and Quantitaation Reports for all Standards				
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)				
RICs and Quantitation Reports for all Standards				
d. Raw/Quality Control (QC) Data				
BFB				
Blank Data				
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4850 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
e. Trace SIM Data (Place at the end of the Trace Volatiles Section)	NA	NA	NA	NA
[Form I VOA-SIM; Form II VOA-SIM1 and VOA-SIM2; Form IV-VOA-SIM; Form VI VOA-SIM; Form VII VOA-SIM; Form VIII VOA-SIM; and all raw data for QC, Samples, and Standards.]				
5. **Low/Med Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1, VOA-2, VOA-3, VOA-4)	10	13	✓	✓
Matrix Spike/Matrix Spike Duplicate Recovery (Form III VOA-1 and VOA-2) (if requested by USEPA Region)	14	14	✓	✓
Method Blank Summary (Form IV VOA)	15	18	✓	✓
GC/MS Instrument Performance Check (Form V VOA)	19	22	✓	✓
Internal Standard Area and RT Summary (Form VIII VOA)	23	26	✓	✓
b. Sample Data	27	442		
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)			✓	✓
Tentatively Identified Compounds (Form I VOA-TIC)			✓	✓
Reconstructed total ion chromatograms (RIC) for each sample			✓	✓
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			✓	✓
Quantitation reports			✓	✓
Mass Spectra of all reported TICs with three best library matches			✓	✓
c. Standards Data (All Instruments)	443	531		
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
d. Raw/Quality Control (QC) Data				
BFB	532	571	✓	✓
Blank Data	572	705	✓	✓
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)	706	713	✓	✓

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4850 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
6. **Semivolatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II SV-1, SV-2, SV-3, SV-4)	714	715	✓	✓
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III SV-1 and SV-2) (if requested by USEPA Region)	716	716	✓	✓
Method Blank Summary (Form IV SV)	717	717	✓	✓
GC/MS Instrument Performance Check (Form V SV)	718	722	✓	✓
Internal Standard Area and RT Summary (Form VIII SV-1 and SV-2)	723	730	✓	✓
b. Sample Data	731	1168		
TCL Results - Organics Analysis Data Sheet (Form I SV-1 and SV-2)			✓	✓
Tentatively Identified Compounds (Form I SV-TIC)			✓	✓
Reconstructed total ion chromatograms (RIC) for each sample			✓	✓
For each sample:	—	—		
Raw Spectra and background-subtracted mass spectra of target compounds			✓	✓
Quantitation reports			✓	✓
Mass Spectra of TICs with three best library matches			✓	✓
GPC chromatograms (if GPC is required)			✓	✓
c. Standards Data (All Instruments)	1169	1256		
Initial Calibration Data (Form VI SV-1, SV-2, SV-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
Continuing Calibration Data (Form VII SV-1, SV-2, SV-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
d. Raw (QC) Data				
DFTPP	1257	1343	✓	✓
Blank Data	1344	1359	✓	✓
MS/MSD Data (if requested by USEPA Region)	1360	1367	✓	✓
e. Raw GPC Data	—	—	—	

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082	SDG NO. A4850	SDG NOs. TO FOLLOW ----
-----	---- MOD. REF. NO. ----------	

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Semivolatile SIM Data	NA	NA	NA	NA
[Form I SV-SIM; Form II SV-SIM1 and SV-SIM2; Form III-SV-SIM1 and SV-SIM2 (if required; Form IV SV-SIM; Form VI SV-SIM; Form VII SV-SIM; Form VIII SV-SIM1 and SV-SIM2; and all raw data for QC, Samples, and Standards.]				
7. **Pesticides Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II PEST-1 and PEST-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III PEST-1 and PEST-2)				
Laboratory Control Sample Recovery (Form III PEST-3 and PEST-4)				
Method Blank Summary (Form IV PEST)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I PEST)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report or data system printout				
Manual work sheets				
For Pesticides by GC/MS				
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)				
c. Standards Data				
Initial Calibration of Single Component Analytes (Form VI PEST-1 and PEST-2)				
Toxaphene Initial Calibration (Form VI PEST-3 and PEST-4)				
Analyte Resolution Summary (Form VI PEST-5, per column)				
Performance Evaluation Mixture (Form VI PEST-6)				
Individual Standard Mixture A (Form VI PEST-7)				
Individual Standard Mixture B (Form VI PEST-8)				
Individual Standard Mixture C (Form VI PEST-9 and PEST-10)				
Calibration Verification Summary (Form VII PEST-1)				
Calibration Verification Summary (Form VII PEST-2)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4850 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Calibration Verification Summary (Form VII PEST-3)			NA	NA
Calibration Verification Summary (Form VII PEST-4)				
Analytical Sequence (Form VIII PEST)				
Florisil Cartridge Check (Form IX PEST-1)				
Pesticide GPC Calibration (Form IX PEST-2)				
Identification Summary for Single Component Analytes (Form X PEST-1)				
Identification Summary for Toxaphene Form X PEST-2)				
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data	NA	NA	NA	
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample				
e. Raw GPC Data				
f. Raw Florisil Data				
8. **Aroclor Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II ARO-1 and ARO-2)	NA	NA	NA	
Matrix Spike/Matrix Spike Duplicate Summary (Form III ARO-1 and ARO-2)				
Laboratory Control Sample Recovery (Form III ARO-3 and ARO-4)				
Method Blank Summary (Form IV ARO)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I ARO)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report of data system printout				
Manual work sheets				
For Aroclors by GC/MS				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4850 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			NA	NA
c. Standards Data	NA	NA		
Aroclors Initial Calibration (Form VI ARO-1, ARO-2, and ARO-3)				
Calibration Verification Summary (Form VII ARO-1)				
Analytical Sequence (Form VIII ARO)				
Identification Summary for Multicomponent Analytes (Form X ARO)				
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data				
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample (LCS) Data				
e. Raw GPC Data (if performed)				
9. Miscellaneous Data				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	1368	1382	✓	✓
Internal sample and sample extract transfer chain-of-custody records	1383	1386	✓	✓
Screening records	NA	NA	NA	NA
All instrument output, including strip charts from screening activities (describe or list)				
----------	NA	NA	NA	NA
----------	NA	NA	NA	NA
10. EPA Shipping/Receiving Documents				
Airbills (No. of shipments 5)	1387	1391	✓	✓
Chain of Custody Records	1392	1395	✓	✓
Sample Tags	1396	1406	✓	✓
Sample Log-in Sheet (Lab & DC-1)	1407	1411	✓	✓
Miscellaneous Shipping/Receiving Records (describe or list)				
CUSTODY SEALS	1412	1416	✓	✓
----------	NA	NA	NA	NA

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4850 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
11. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
---	---	---	---	—
---	---	---	---	—
12. **Other Records** (describe or list)				
Telephone Communication Log	---	---	---	—
PE SAMPLE INSTRUCTIONS	1417	1421	✓	✓
EMAIL COMMUNICATION				

13. **Comments**

11/28/12

Completed by: Nicole Hogue (Signature) NICOLE HOGUE/CLP COORDINATOR (Printed Name/Title) 11/28/12 (Date)
(CLP Lab)

Verified by: (Signature) VISHNUVARDAHN DAVLAPUR/P.M. (Printed Name/Title) 11/28/12 (Date)
(CLP Lab)

Audited by: (Signature) Steven Dube / Intern (Printed Name/Title) 12/6/12 (Date)
For (USEPA) NOBIS Engineering

1

Engineering a Sustainable Future

December 27, 2012
Nobis File No. 80022

Mr. Dan Keefe
EPA Site Manager
EPA-New England Region I
5 Post Office Square
Suite 100, Mailcode OSRR07-4
Boston, MA 02109-3912

Re: Contract No. EP-S1-06-03
Task Order No. 0022-RA-RA-0115
Case No. 43082, Sample Delivery Group (SDG) No. A4872
KAP Technologies, Inc.,The Woodlands, TX
Nyanza Chemical Waste Dump, OU2 Superfund Site
Ashland, Massachusetts
CERCLIS No.: MAD990685422

Tier I Modified Organic Data Validation with Stage 2A Electronic Qualification

Low Level Volatiles and Semivolatiles:
18/Groundwater: A4872-A4873, A4875-A4887, A4891-A4893
Field Duplicates: (A4882/A4883); (A4884/A4887)
2/Trip Blanks: A4874, A4890
2/PE Samples: A4888 (VLM0850), A4889 (SV0390)

Dear Mr. Keefe:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the organic analytical data for 18 groundwater samples, two trip blank samples, and two performance evaluation (PE) samples collected by Nobis Engineering, Inc. at the Nyanza Chemical Waste Dump, OU2 Superfund Site located in Ashland, Massachusetts. The samples were analyzed for low level volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) under the Contract Laboratory Program Routine Analytical Services (CLP RAS) program using the CLP SOM01.2 Statement of Work. A Tier I modified data validation was deemed sufficient at this time.

Stage 2A electronic qualification was performed through EPA's Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM) which uses USEPA's Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review, June 2008 criteria for automated validation. EXES Data Review Report #3 indicates data of non-compliance that resulted in qualification based on blank contamination, calibration criteria, surrogate recoveries, spike recoveries, and PE results.

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (508) 683-0891

The data were evaluated based on the following parameters:

*	•	Overall Evaluation of Data and Potential Usability Issues
*	•	Data Completeness
*	•	Preservation and Technical Holding Times
	•	Initial and Continuing Calibrations
	•	Blanks
	•	Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
*	•	Laboratory Control Samples
	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
*	•	Field Duplicates
NA	•	Laboratory Duplicates
*	•	Internal Standards
	•	Performance Evaluation (PE) Sample Results
*	•	Reported Quantitation Limits

* All criteria were met for this parameter.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The objectives of the groundwater and DNAPL sampling at the site are to provide a comprehensive evaluation of the shallow and deep groundwater contaminants at the site and to evaluate the feasibility of implementing monitored natural attenuation (MNA) as a remedial alternative for the site.

Data are usable for the purposes of the project except as noted below.

Data Completeness

The data package is complete. It was noted in the contract compliance screening (CCS) report that the pH information for SVOC analysis of sample A4883 was missing. The laboratory responded to the CCS on other issues but was not able to provide the missing pH data. There were no other issues noted in the contract compliance screening (CCS) report.

Data presented in the Summary Tables include qualifiers assigned by Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM). Qualifications for these parameters were assessed under the Stage 2A Validation Electronic (S2AVE) scenario. Qualification was taken from EXES and data package completeness was done manually.

Initial and Continuing Calibrations

VOCs

The percent relative standard deviations (%RSDs) were outside acceptance criteria for bromoform, m,p-xylene, bromomethane and 1,2,3-trichlorobenzene for the initial calibration associated with all sample analyses. Detected results for these compounds were qualified as estimated (J); non-detected results were accepted unqualified.

The percent difference (%D) was outside acceptance criteria for 1,2,3-trichlorobenzene in the continuing calibration verification standard (CCV) associated with samples A4892 and A4893. Positive and non-detected results were qualified as estimated (J/UJ).

SVOCs

The percent difference (%D) was outside acceptance criteria for pentachlorophenol in the continuing calibration verification standard (CCV) associated with all samples. Positive and non-detected results were qualified as estimated (J/UJ).

Blanks

VOCs

1,2,3-Trichlorobenzene was negated in associated sample A4891 and 1,2,4-trichlorobenzene was negated in A4891DL due to method blank contamination. Methylene chloride was detected in method and/or storage blanks associated with all samples. All positive methylene chloride results that were less than two times the contract required quantitation limit (CRQL) were negated. The positive result for sample A4881 was greater than two times the CRQL and thus, was accepted unqualified.

It should be noted that methyl acetate was reported in trip blank sample A4890 above the method detection limit (MDL) but below the CRQL. All associated sample results were non-detected with the exception of PE sample A4888. No qualifications were applied to PE samples for trip blank contamination.

Surrogate Recoveries

VOCs

The EXES report #3 reported chloroethane-d5 and chloroform-d recoveries below the lower limit for sample A4881. The associated non-detected sample results were qualified as estimated (UJ). 1,4-Dioxane-d8 recovered below 20% in sample A4872. The associated non-detected result was rejected and is considered unusable.

In addition, the EXES report #3 reported several samples with surrogate recoveries that were above the upper acceptance criteria limit. All associated sample results were either non-detected or were reported with dilution factors greater than five; therefore, were accepted unqualified.

SVOCs

Bis (2-chloroethyl)ether-d8 recovery values were above the upper limit in samples A4885 and A4887. Associated results were non-detected in both samples; the results were accepted unqualified.

4-Nitrophenol-d4, nitrobenzene-d5, 4-methylphenol-d8, 4,6-dinitro-2-methylphenol-d2 and phenol-d5 recovered below the lower acceptance limits in samples A4885, A4887 and/or A4889. The associated results were qualified as estimated (J/UJ).

MS/MSD Results

VOCs

MS/MSD analyses were performed on sample A4872. EXES report #3 reported trichloroethene, chlorobenzene, benzene and 1,1-dichloroethene with percent recoveries below the lower acceptance limits. The positive results for benzene and 1,1-dichloroethene were qualified as estimated (J). The native concentrations for trichloroethene and chlorobenzene were greater than four times the MS/MSD spike concentrations; results were accepted unqualified.

SVOCs

MS/MSD analyses were performed on sample A4872. EXES report #3 reported that 4-nitrophenol recovered above the upper acceptance limit. 4-Nitrophenol was non-detected in the native sample; therefore, the data were accepted unqualified.

Field Duplicates

Field duplicate pairs A4882/A4883 and A4884/A4887 were submitted with this sample set. All relative percent differences (RPDs) were within criteria with the exception of nitrobenzene and naphthalene in field duplicate pair A4884/A4887. If validated, these sample results would be qualified as estimated (J) due to poor field duplicate precision.

PE Sample Results

VOC PE sample A4888 (VLM0850) and SVOC PE sample A4889 (SV0390) were provided by EPA and reported with this SDG. All target results received a passing score with the exception of toluene and m,p-xylenes in A4888. Toluene and m,p-xylenes were scored as "Failed, Action High". All associated sample results were non-detected for toluene and m,p-xylenes except samples A4872 and A4883. Toluene was reported in samples A4872 and A4883 at 5.1 and 1.6 J ug/L, respectively. If validated, these sample results would be qualified as estimated with a potential high bias. Several non-spiked TICs were reported in both PE samples, however, no qualifications to sample results were required on this basis.

Reported Quantitation Limits

Several samples were analyzed for VOCs and SVOCs with dilutions to obtain target analytes within the calibration range. Reporting limits were adjusted accordingly.

Please contact me at (978) 703-6021 or gderuzzo@nobiseng.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

for Andrea Mischel
Data Validator

Tables: Data Summary Tables

Enclosures: PE Scores
EXES Report #3
CCS Reports
CSF Audit (DC-2 Forms)

Cc: Raymond Flores, US EPA Region VI (w/PE Scores via email)

DATA SUMMARY TABLE
Tier I - 2AVE Valdiated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4872	A4873	A4874	A4875	A4876	A4877
Sample Location		MW-304A	MW-403A		MW-06A	MW-09A	MW-09B
Lab Sample ID		S-5289.01	S-5289.02	S-5289.03	S-5298.01	S-5298.02	S-5298.03
Station ID		MW304A-110612	MW403A-110612	TB02-110712	MW6A-110712	MW9A-110712	MW9B-110712
Dilution Factor		1/20	1	1	1	1	1
Sample Date		06 Nov 12	06 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed		17 Nov 12	17 Nov 12	17 Nov 12	18 Nov 12	18 Nov 12	17 Nov 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	6.2 J	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	7.5	5 U	5 U	5.8	5 U	5 U
1,2,4-Trichlorobenzene	5	42	5 U	5 U	14	5 U	5 U
1,2-Dibromo-3-chloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	1200	5 U	5 U	12	16	48
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	24	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	180	5 U	5 U	5.4	5.7	5.4
1,4-Dioxane	100	R	100 U	100 U	100 U	100 U	100 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	5	27 J	5 U	5 U	5 U	5 U	5 U
Bromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U	4 J	5 U	5 U
Carbon disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	1000	5 U	5 U	27	24	5 U
Chloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	480	5 U	5 U	19	6.2	16
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	5	5 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Valdiated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4872	A4873	A4874	A4875	A4876	A4877
Sample Location		MW-304A	MW-403A		MW-06A	MW-09A	MW-09B
Lab Sample ID		S-5289.01	S-5289.02	S-5289.03	S-5298.01	S-5298.02	S-5298.03
Station ID		MW304A-110612	MW403A-110612	TB02-110712	MW6A-110712	MW9A-110712	MW9B-110712
Dilution Factor		1/20	1	1	1	1	1
Sample Date		06 Nov 12	06 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed		17 Nov 12	17 Nov 12	17 Nov 12	18 Nov 12	18 Nov 12	17 Nov 12
Chemical	CRQL						
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
m,p-Xylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Methyl acetate	5	5 U	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U	5 U	5 U	5 U	5 U
Methylcyclohexane	5	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5	5 U	5 U	5 U	5 U	5 U	5 U
o-Xylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5.1	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	6.1	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	1700	5 U	5 U	9.8	5 U	4.6 J
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl chloride	5	46	5 U	5 U	5 U	5 U	5 U

Chlorobenzene, 1,2-dichlorobenzene, cis-1,2-dichloroethene, and TCE results from 1:20 dilution.

DATA SUMMARY TABLE
Tier I - 2AVE Valdiated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4878	A4879	A4880	A4881	A4882	A4883
Sample Location		MW-104A	MW-104B	MW-110	MW-113B	MW-302	MW-302
Lab Sample ID		S-5298.04	S-5298.05	S-5298.06	S-5298.07	S-5298.08	S-5298.09
Station ID		MW104A-110712	MW104B-110712	MW110-110712	MW113B-110712	MW302-110712	MW302-110712D
Dilution Factor		4/20	1	1	1/4	1/4	1/4
Sample Date		07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed		19 Nov 12	18 Nov 12	18 Nov 12	18 Nov 12/19 Nov 02	18 Nov 12/19 Nov 02	18 Nov 12/19 Nov 02
Chemical	CRQL						
1,1,1-Trichloroethane	5	20 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	20 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	20 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	20 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	20 U	5 U	5 U	5 UJ	5 U	5 U
1,1-Dichloroethene	5	20 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	20 U	5 U	10	5 U	3.9 J	3.8 J
1,2,4-Trichlorobenzene	5	20 U	5 U	43	26	15	14
1,2-Dibromo-3-chloropropane	5	20 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	5	20 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	2000	11	29	240	610	550
1,2-Dichloroethane	5	20 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	20 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	15 J	5 U	5 U	9.7	6.3	5.7
1,4-Dichlorobenzene	5	200	5 U	4.6 J	42	65	59
1,4-Dioxane	100	400 U	100 U	100 U	100 U	100 U	100 U
2-Butanone	10	40 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	40 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	40 U	10 U	10 U	10 U	10 U	10 U
Acetone	10	40 U	10 U	10 U	10 U	10 U	10 U
Benzene	5	20 U	5 U	5 U	5 U	41	39
Bromochloromethane	5	20 U	5 U	5 U	5 UJ	5 U	5 U
Bromodichloromethane	5	20 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	20 U	5 U	5 U	5 UJ	5 U	5 U
Bromomethane	5	20 U	5 U	3.8 J	5 UJ	5 U	3.4 J
Carbon disulfide	5	20 U	5 U	5 U	5 UJ	5 U	5 U
Carbon tetrachloride	5	20 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	50	5 U	15	64	370	350
Chloroethane	5	20 U	5 U	5 U	5 UJ	5 U	5 U
Chloroform	5	20 U	5 U	5 U	5 UJ	5 U	5 U
Chloromethane	5	20 U	5 U	5 U	5 UJ	5 U	1.2 J
cis-1,2-Dichloroethene	5	710	28	28	67	160	150
cis-1,3-Dichloropropene	5	20 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	5	20 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Valdiated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4878	A4879	A4880	A4881	A4882	A4883
Sample Location		MW-104A	MW-104B	MW-110	MW-113B	MW-302	MW-302
Lab Sample ID		S-5298.04	S-5298.05	S-5298.06	S-5298.07	S-5298.08	S-5298.09
Station ID		MW104A-110712	MW104B-110712	MW110-110712	MW113B-110712	MW302-110712	MW302-110712D
Dilution Factor		4/20	1	1	1/4	1/4	1/4
Sample Date		07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed		19 Nov 12	18 Nov 12	18 Nov 12	18 Nov 12/19 Nov 02	18 Nov 12/19 Nov 02	18 Nov 12/19 Nov 02
Chemical	CRQL						
Dibromochloromethane	5	20 U	5 U	5 U	5 UJ	5 U	5 U
Dichlorodifluoromethane	5	20 U	5 U	5 U	5 UJ	5 U	5 U
Ethylbenzene	5	20 U	5 U	5 U	5 U	4.6 J	4 J
Isopropylbenzene	5	20 U	5 U	5 U	5 U	5 U	5 U
m,p-Xylene	5	20 U	5 U	5 U	5 U	5 U	5 U
Methyl acetate	5	20 U	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl ether	5	20 U	5 U	5 U	5 U	12	12
Methylcyclohexane	5	20 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5	20 U	5 U	5 U	41	5 U	5 U
o-Xylene	5	20 U	5 U	5 U	5 U	5.2	4.7 J
Styrene	5	20 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	20 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	20 U	5 U	5 U	5 U	5 U	1.6 J
trans-1,2-Dichloroethene	5	20 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	20 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	1700	7.8	6.5	290	330	290
Trichlorofluoromethane	5	20 U	5 U	5 U	5 U	5 U	5 U
Vinyl chloride	5	20 U	5 U	5 U	5 U	5 U	5 U
		1,2-dichlorobenzene, and TCE results from 1:20 dilution.			1,2-dichlorobenzene, and TCE results from 1:4 dilution.	Chlorobenzene, 1,2-dichlorobenzene, and TCE results from 1:4 dilution.	Chlorobenzene, 1,2-dichlorobenzene, and TCE results from 1:4 dilution.

DATA SUMMARY TABLE
Tier I - 2AVE Valdiated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4884	A4885	A4886	A4887	A4890	A4891
Sample Location		MW-401	MW-406B	MW-406A	MW-401		MW-503B
Lab Sample ID		S-5298.10	S-5298.11	S-5298.12	S-5298.13	S-5298.16	S-5310.01
Station ID		MW401-110712	MW406B-110712	MW406A-110712	MW401-110712D	TB03-110812	MW503B-110812
Dilution Factor		50/80	1	1	50/100	1	1/8
Sample Date		07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	08 Nov 12	08 Nov 12
Date Analyzed		19 Nov 12	19 Nov 12	18 Nov 12	19 Nov 12	18 Nov 12	20 Nov 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,1,2-Trichloroethane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,1-Dichloroethane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,1-Dichloroethene	5	250 U	5 U	5 U	250 U	5 U	5 U
1,2,3-Trichlorobenzene	5	250 U	5 U	5 U	250 U	5 U	5 U
1,2,4-Trichlorobenzene	5	250 U	5 U	5 U	250 U	5 U	5.4
1,2-Dibromo-3-chloropropane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,2-Dibromoethane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,2-Dichlorobenzene	5	3900	5 U	14	3500	5 U	180
1,2-Dichloroethane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,2-Dichloropropane	5	250 U	5 U	5 U	250 U	5 U	5 U
1,3-Dichlorobenzene	5	250 U	5 U	5 U	96 J	5 U	13
1,4-Dichlorobenzene	5	700	5 U	5 U	670	5 U	25
1,4-Dioxane	100	5000 U	100 U	100 U	5000 U	100 U	100 U
2-Butanone	10	500 U	10 U	10 U	500 U	10 U	10 U
2-Hexanone	10	500 U	10 U	10 U	500 U	10 U	10 U
4-Methyl-2-pentanone	10	500 U	10 U	10 U	500 U	10 U	10 U
Acetone	10	500 U	10 U	10 U	500 U	10 U	10 U
Benzene	5	250 U	5 U	5 U	250 U	5 U	5 U
Bromochloromethane	5	250 U	5 U	5 U	250 U	5 U	5 U
Bromodichloromethane	5	250 U	5 U	5 U	250 U	5 U	5 U
Bromoform	5	250 U	5 U	5 U	250 U	5 U	5 U
Bromomethane	5	250 U	3.8 J	5 U	250 U	5 U	4.6 J
Carbon disulfide	5	250 U	5 U	5 U	250 U	5 U	5 U
Carbon tetrachloride	5	250 U	5 U	5 U	250 U	5 U	5 U
Chlorobenzene	5	4200	5 U	4.3 J	3900	5 U	4.1 J
Chloroethane	5	250 U	5 U	5 U	250 U	5 U	5 U
Chloroform	5	250 U	5 U	5 U	250 U	5 U	5 U
Chloromethane	5	250 U	5 U	5 U	250 U	5 U	5 U
cis-1,2-Dichloroethene	5	150 J	5 U	5 U	250 U	5 U	6
cis-1,3-Dichloropropene	5	250 U	5 U	5 U	250 U	5 U	5 U
Cyclohexane	5	250 U	5 U	5 U	250 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Valdiated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4884	A4885	A4886	A4887	A4890	A4891
Sample Location		MW-401	MW-406B	MW-406A	MW-401		MW-503B
Lab Sample ID		S-5298.10	S-5298.11	S-5298.12	S-5298.13	S-5298.16	S-5310.01
Station ID		MW401-110712	MW406B-110712	MW406A-110712	MW401-110712D	TB03-110812	MW503B-110812
Dilution Factor		50/80	1	1	50/100	1	1/8
Sample Date		07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	08 Nov 12	08 Nov 12
Date Analyzed		19 Nov 12	19 Nov 12	18 Nov 12	19 Nov 12	18 Nov 12	20 Nov 12
Chemical	CRQL						
Dibromochloromethane	5	250 U	5 U	5 U	250 U	5 U	5 U
Dichlorodifluoromethane	5	250 U	5 U	5 U	250 U	5 U	5 U
Ethylbenzene	5	250 U	5 U	5 U	250 U	5 U	5 U
Isopropylbenzene	5	250 U	5 U	5 U	250 U	5 U	5 U
m,p-Xylene	5	250 U	5 U	5 U	250 U	5 U	5 U
Methyl acetate	5	250 U	5 U	5 U	250 U	3.9 J	5 U
Methyl tert-butyl ether	5	250 U	5 U	5 U	250 U	5 U	5 U
Methylcyclohexane	5	250 U	5 U	5 U	250 U	5 U	5 U
Methylene chloride	5	250 U	5 U	5 U	250 U	5 U	5 U
o-Xylene	5	250 U	5 U	5 U	250 U	5 U	5 U
Styrene	5	250 U	5 U	5 U	250 U	5 U	5 U
Tetrachloroethene	5	250 U	5 U	5 U	250 U	5 U	5 U
Toluene	5	250 U	5 U	5 U	250 U	5 U	5 U
trans-1,2-Dichloroethene	5	250 U	5 U	5 U	250 U	5 U	5 U
trans-1,3-Dichloropropene	5	250 U	5 U	5 U	250 U	5 U	5 U
Trichloroethene	5	12000	5 U	8	14000	5 U	240
Trichlorofluoromethane	5	250 U	5 U	5 U	250 U	5 U	5 U
Vinyl chloride	5	250 U	5 U	5 U	250 U	5 U	5 U

TCE results from 1:80 dilution.

TCE results from 1:100 dilution.

TCE results from 1:8 dilution.

DATA SUMMARY TABLE
Tier I - 2AVE Valdiated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4892	A4893
Sample Location		RW-1	B/MW-05
Lab Sample ID		S-5310.02	S-5310.03
Station ID		RWS1-110812	MWB5-110812
Dilution Factor		20/50	100/500
Sample Date		08 Nov 12	08 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12
Chemical	CRQL		
1,1,1-Trichloroethane	5	100 U	500 U
1,1,2,2-Tetrachloroethane	5	100 U	500 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	100 U	500 U
1,1,2-Trichloroethane	5	100 U	500 U
1,1-Dichloroethane	5	100 U	500 U
1,1-Dichloroethene	5	100 U	500 U
1,2,3-Trichlorobenzene	5	100 UJ	500 UJ
1,2,4-Trichlorobenzene	5	75 J	500 U
1,2-Dibromo-3-chloropropane	5	100 U	500 U
1,2-Dibromoethane	5	100 U	500 U
1,2-Dichlorobenzene	5	4600	20000
1,2-Dichloroethane	5	100 U	500 U
1,2-Dichloropropane	5	100 U	500 U
1,3-Dichlorobenzene	5	180	820
1,4-Dichlorobenzene	5	1200	5500
1,4-Dioxane	100	2000 U	10000 U
2-Butanone	10	200 U	1000 U
2-Hexanone	10	200 U	1000 U
4-Methyl-2-pentanone	10	200 U	1000 U
Acetone	10	200 U	1000 U
Benzene	5	100 U	500 U
Bromochloromethane	5	100 U	500 U
Bromodichloromethane	5	100 U	500 U
Bromoform	5	100 U	500 U
Bromomethane	5	100 U	500 U
Carbon disulfide	5	100 U	500 U
Carbon tetrachloride	5	100 U	500 U
Chlorobenzene	5	1600	15000
Chloroethane	5	100 U	500 U
Chloroform	5	100 U	500 U
Chloromethane	5	100 U	500 U
cis-1,2-Dichloroethene	5	80 J	500 U
cis-1,3-Dichloropropene	5	100 U	500 U
Cyclohexane	5	100 U	500 U

DATA SUMMARY TABLE
Tier I - 2AVE Valdiated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4892	A4893
Sample Location		RW-1	B/MW-05
Lab Sample ID		S-5310.02	S-5310.03
Station ID		RWS1-110812	MWB5-110812
Dilution Factor		20/50	100/500
Sample Date		08 Nov 12	08 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12
Chemical	CRQL		
Dibromochloromethane	5	100 U	500 U
Dichlorodifluoromethane	5	100 U	500 U
Ethylbenzene	5	100 U	500 U
Isopropylbenzene	5	100 U	500 U
m,p-Xylene	5	100 U	500 U
Methyl acetate	5	100 U	500 U
Methyl tert-butyl ether	5	100 U	500 U
Methylcyclohexane	5	100 U	500 U
Methylene chloride	5	100 U	500 U
o-Xylene	5	100 U	500 U
Styrene	5	100 U	500 U
Tetrachloroethene	5	100 U	500 U
Toluene	5	100 U	500 U
trans-1,2-Dichloroethene	5	100 U	500 U
trans-1,3-Dichloropropene	5	100 U	500 U
Trichloroethene	5	1700	7100
Trichlorofluoromethane	5	100 U	500 U
Vinyl chloride	5	100 U	500 U

1,2-dichlorobenzene results from 1:50 dilution.

1,2-dichlorobenzene results from 1:500 dilution.

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4872	A4873	A4875	A4876	A4877	A4878	A4879
Sample Location		MW-304A	MW-403A	MW-06A	MW-09A	MW-09B	MW-104A	MW-104B
Lab Sample ID		S-5289.01	S-5289.02	S-5298.01	S-5298.02	S-5298.03	S-5298.04	S-5298.05
Station ID		MW304A-110612	MW403A-110612	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712	MW104B-110712
Dilution Factor		1/5	1	1	1	1	1	1
Sample Date		06 Nov 12	06 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed		21 Nov 12/27 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12
Chemical	CRQL							
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	5	2.2 J	5 U	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	2.6 J	10 U
4-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4872	A4873	A4875	A4876	A4877	A4878	A4879
Sample Location		MW-304A	MW-403A	MW-06A	MW-09A	MW-09B	MW-104A	MW-104B
Lab Sample ID		S-5289.01	S-5289.02	S-5298.01	S-5298.02	S-5298.03	S-5298.04	S-5298.05
Station ID		MW304A-110612	MW403A-110612	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712	MW104B-110712
Dilution Factor		1/5	1	1	1	1	1	1
Sample Date		06 Nov 12	06 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed		21 Nov 12/27 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12
Chemical	CRQL							
Benzo(k)fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethoxy)methane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethyl)ether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbazole	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	5	3.7 J	5 U	5 U	5 U	5 U	5 U	5 U
Nitrobenzene	5	150	5 U	5 U	5 U	5 U	28	5 U
N-Nitroso-di-n-propylamine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachlorophenol	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Phenanthrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	5	4.2 J	5 U	5 U	5 U	5 U	5 U	5 U
Pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Nitrobenzene from 1:5 dilution

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4880	A4881	A4882	A4883	A4884	A4885	A4886
Sample Location		MW-110	MW-113B	MW-302	MW-302	MW-401	MW-406B	MW-406A
Lab Sample ID		S-5298.06	S-5298.07	S-5298.08	S-5298.09	S-5298.10	S-5298.11	S-5298.12
Station ID		MW110-110712	MW113B-110712	MW302-110712	MW302-110712D	MW401-110712	MW406B-110712	MW406A-110712
Dilution Factor		1	1	1	1	1	1/500	1
Sample Date		07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed		21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12/27 Nov 12	21 Nov 12
Chemical	CRQL							
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
2,6-Dinitrotoluene	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5	5 U	5 U	3.6 J	5 U	4 J	2.9 J	5 U
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
4-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Atrazine	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4880	A4881	A4882	A4883	A4884	A4885	A4886
Sample Location		MW-110	MW-113B	MW-302	MW-302	MW-401	MW-406B	MW-406A
Lab Sample ID		S-5298.06	S-5298.07	S-5298.08	S-5298.09	S-5298.10	S-5298.11	S-5298.12
Station ID		MW110-110712	MW113B-110712	MW302-110712	MW302-110712D	MW401-110712	MW406B-110712	MW406A-110712
Dilution Factor		1	1	1	1	1	1/500	1
Sample Date		07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed		21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12	21 Nov 12/27 Nov 12	21 Nov 12
Chemical	CRQL							
Benzo(k)fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethoxy)methane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethyl)ether	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U	5 U	13	5 U
Caprolactam	5	5 U	5 U	5 U	5 U	5 U	2.6 J	5 U
Carbazole	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chrysene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Fluorene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Indeno(1,2,3-cd)pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isophorone	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	5	5 U	5 U	28	5 U	31	2.1 J	5 U
Nitrobenzene	5	5 U	12	5 U	5 U	5.9	20000	12
N-Nitroso-di-n-propylamine	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
N-Nitrosodiphenylamine	5	2 J	5 U	5 U	5 U	5 U	5 UJ	5 U
Pentachlorophenol	10	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	4.5 J	10 UJ
Phenanthrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	5	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Pyrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Nitrobenzene from 1:500 dilution

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4887	A4891	A4892	A4893
Sample Location		MW-401	MW-503B	RW-1	B/MW-05
Lab Sample ID		S-5298.13	S-5310.01	S-5310.02	S-5310.03
Station ID		MW401-110712D	MW503B-110812	RWS1-110812	MWB5-110812
Dilution Factor		1/500	1	1/20	1/500
Sample Date		07 Nov 12	08 Nov 12	08 Nov 12	08 Nov 12
Date Analyzed		21 Nov 12/27 Nov 12	27 Nov 12	27 Nov 12	27 Nov 12
Chemical	CRQL				
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 UJ	5 U	5 U	5 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 UJ	5 U	5 U	5 U
2,6-Dinitrotoluene	5	5 UJ	5 U	5 U	5 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U
2-Chlorophenol	5	5 U	5 U	5 U	5 U
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U
2-Methylphenol	5	5 UJ	5 U	5 U	5 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	5 U	5 U	8.9
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 U	5 U	5 U	5 U
4-Chloroaniline	5	4.2 J	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U
4-Methylphenol	5	5 UJ	5 U	5 U	5 U
4-Nitroaniline	10	10 U	10 U	10 U	2.8 J
4-Nitrophenol	10	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	5 U	5 U	5 U
Acetophenone	5	5 UJ	5 U	5 U	5 U
Anthracene	5	5 U	5 U	5 U	5 U
Atrazine	5	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 UJ	5 U	5 U	5 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	5	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	5	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4872

Sample Name		A4887	A4891	A4892	A4893
Sample Location		MW-401	MW-503B	RW-1	B/MW-05
Lab Sample ID		S-5298.13	S-5310.01	S-5310.02	S-5310.03
Station ID		MW401-110712D	MW503B-110812	RWS1-110812	MWB5-110812
Dilution Factor		1/500	1	1/20	1/500
Sample Date		07 Nov 12	08 Nov 12	08 Nov 12	08 Nov 12
Date Analyzed		21 Nov 12/27 Nov 12	27 Nov 12	27 Nov 12	27 Nov 12
Chemical	CRQL				
Benzo(k)fluoranthene	5	5 U	5 U	5 U	5 U
Bis(2-chloroethoxy)methane	5	5 U	5 U	5 U	5 U
Bis(2-chloroethyl)ether	5	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U
Caprolactam	5	5 U	5 U	5 U	5 U
Carbazole	5	5 U	5 U	5 U	5 U
Chrysene	5	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	5 U	5 U	5 U	5 U
Dibenzofuran	5	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	5 U	5 U	5 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	5 U	5 U	5 U
Fluorene	5	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 UJ	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5	5 U	5 U	5 U	5 U
Isophorone	5	5 U	5 U	5 U	5 U
Naphthalene	5	2.2 J	5 U	5 U	2.7 J
Nitrobenzene	5	18000	3.6 J	1000	32000
N-Nitroso-di-n-propylamine	5	5 UJ	5 U	5 U	5 U
N-Nitrosodiphenylamine	5	5 UJ	5 U	5 U	5 U
Pentachlorophenol	10	4.3 J	10 U	10 U	2.6 J
Phenanthrene	5	5 U	5 U	5 U	5 U
Phenol	5	5 UJ	5 U	5 U	5 U
Pyrene	5	5 U	5 U	5 U	5 U
		Nitrobenzene from 1:500 dilution		Nitrobenzene from 1:20 dilution	Nitrobenzene from 1:500 dilution

PES SCORING EVALUATION REPORT

PES VLM0850 Rev: 1 EPA Sample No.: A4888 Report Date: 12/14/2012

Lab Name: KAP Technologies Inc. Lab Code: KAP
Contract: EPW11031 Case No.: 43082 SAS/Client No.: NA
SDG No.: A4872 Matrix: Water Lab Sample ID: S-5298.14
Lab File ID: G21795 Date Received: 11/09/2012 Date Analyzed: 11/19/2012
Sample Wt./Vol. (g/mL): 5.0 ML Level: Low % Moisture (not dec.): NA
Purge Volume (mL): 5.0 mL GC Column: RTX-VMS ID (mm): 0.25
Length (m): NA Soil Extract. Vol. (uL): NA Soil Aliquot Vol. (uL): NA
Dilution Factor: 1.0 Units: ug/L

Analysis Method: SOM01.2
Scoring Method: SOM01.2
Comments:

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
75-71-8	Dichlorodifluoromethane	8.6		PASS	Within Limits
74-87-3	Chloromethane	29		PASS	Within Limits
74-83-9	Bromomethane	10		PASS	Within Limits
75-69-4	Trichlorofluoromethane	23		PASS	Within Limits
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	26		PASS	Within Limits
75-15-0	Carbon Disulfide	28		PASS	Within Limits
156-60-5	trans-1,2-Dichloroethene	50		PASS	Within Limits
1634-04-4	Methyl tert-Butyl Ether	110		PASS	Within Limits
67-66-3	Chloroform	38		PASS	Within Limits
71-55-6	1,1,1-Trichloroethane	19		PASS	Within Limits
56-23-5	Carbon Tetrachloride	49		PASS	Within Limits
107-06-2	1,2-Dichloroethane	43		PASS	Within Limits
108-87-2	Methylcyclohexane	25		PASS	Within Limits
10061-01-5	cis-1,3-Dichloropropene	33		PASS	Within Limits
108-10-1	4-Methyl-2-pentanone	110		PASS	Within Limits
108-88-3	Toluene	75		FAIL	Action High
79-00-5	1,1,2-Trichloroethane	26		PASS	Within Limits
124-48-1	Dibromochloromethane	47		PASS	Within Limits
106-93-4	1,2-Dibromoethane	40		PASS	Within Limits
179601-23-1	m,p-Xylene	51		FAIL	Action High
100-42-5	Styrene	38		PASS	Within Limits
79-34-5	1,1,2,2-Tetrachloroethane	25		PASS	Within Limits
106-46-7	1,4-Dichlorobenzene	30		PASS	Within Limits
96-12-8	1,2-Dibromo-3-chloropropane	29		PASS	Within Limits
87-61-6	1,2,3-Trichlorobenzene	50		PASS	Within Limits
123-91-1	1,4-Dioxane	100	U	PASS	Within Limits
95-63-6	1,2,4-Trimethylbenzene	0		N.E.	Scorer Request
****	END Main Analytes	**********	****	****	**********
79-20-9	Methyl Acetate	3.1	J	PASS	Less Than CRQL
75-09-2	Methylene Chloride	3.0	JB	PASS	Less Than CRQL
000107-83-5	Pentane,2-methyl-	34	NJ	N.E.	Non-spiked TIC
000526-73-8	Benzene, 1,2,3-trimethyl-	63	NJ	N.E.	Non-spiked TIC
****	END All Analytes	**********	****	****	**********

PES SCORING EVALUATION REPORT

Lab Name: KAP Technologies Inc.
Lab Code: KAP
Contract: EPW11031
Case No.: 43082
SAS/Client No.: NA
SDG No.: A4872
Matrix: Water
Lab Sample ID: S-5298.15
Lab File ID: D08528
Date Received: 11/09/2012
Date Extracted: 11/13/2012
Date Analyzed: 11/21/2012
Sample Wt./Vol. (g/mL): 1000 ML
Level: Low
% Moisture: NA
Decanted: No
Conc. Extract Vol. (uL): 1000
Injection Vol. (uL): 1.0
GPC Cleanup: No
pH: 1.0
Dilution Factor: 1.0
Extraction Type: CONT
Units: ug/L

Analysis Method: SOM01.2
Scoring Method: SOM01.2
Comments:

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
100-52-7	Benzaldehyde	19		PASS	Within Limits
95-57-8	2-Chlorophenol	35		PASS	Within Limits
108-60-1	2,2'-oxybis(1-Chloropropane)	61		PASS	Within Limits
98-86-2	Acetophenone	42		PASS	Within Limits
67-72-1	Hexachloroethane	15		PASS	Within Limits
98-95-3	Nitrobenzene	58		PASS	Within Limits
88-75-5	2-Nitrophenol	42		PASS	Within Limits
120-83-2	2,4-Dichlorophenol	23		PASS	Within Limits
91-20-3	Naphthalene	14		PASS	Within Limits
106-47-8	4-Chloroaniline	4.1	J	N.E.	Not Evaluated
59-50-7	4-Chloro-3-methylphenol	51		PASS	Within Limits
88-06-2	2,4,6-Trichlorophenol	33		PASS	Within Limits
92-52-4	1,1'-Biphenyl	37		PASS	Within Limits
88-74-4	2-Nitroaniline	67		PASS	Within Limits
606-20-2	2,6-Dinitrotoluene	42		PASS	Within Limits
208-96-8	Acenaphthylene	48		PASS	Within Limits
100-02-7	4-Nitrophenol	68		PASS	Within Limits
132-64-9	Dibenzofuran	21		PASS	Within Limits
121-14-2	2,4-Dinitrotoluene	51		PASS	Within Limits
84-66-2	Diethylphthalate	52		PASS	Within Limits
86-73-7	Fluorene	8.7		PASS	Within Limits
86-30-6	N-Nitrosodiphenylamine	51		PASS	Within Limits
95-94-3	1,2,4,5-Tetrachlorobenzene	17		PASS	Within Limits
118-74-1	Hexachlorobenzene	44		PASS	Within Limits
1912-24-9	Atrazine	5.0	U	N.E.	Not Evaluated
87-86-5	Pentachlorophenol	46		PASS	Within Limits
85-01-8	Phenanthrene	34		PASS	Within Limits
84-74-2	Di-n-butylphthalate	42		PASS	Within Limits
129-00-0	Pyrene	17		PASS	Within Limits
91-94-1	3,3'-Dichlorobenzidine	11		PASS	Within Limits
56-55-3	Benzo(a)anthracene	43		PASS	Within Limits
117-84-0	Di-n-octylphthalate	25		PASS	Within Limits
205-99-2	Benzo(b)fluoranthene	35		PASS	Within Limits
50-32-8	Benzo(a)pyrene	20		PASS	Within Limits
53-70-3	Dibenzo(a,h)anthracene	47		PASS	Within Limits
191-24-2	Benzo(g,h,i)perylene	25		PASS	Within Limits
90-12-0	1-Methylnaphthalene	44	NJ	PASS	TIC Found

PES SCORING EVALUATION REPORT

CAS No.	Analyte	Laboratory Results		PES Evaluation	
		Concentration	Q		
****	END Main Analytes	**********	****	****	**********
001125-88-8	Benzaldehyde dimethyl acetal	31	NJ	N.E.	Non-spiked TIC
040941-53-5	Quinoline, 7-chloro-4-methyl-	6.6	NJ	N.E.	Non-spiked TIC
****	END All Analytes	**********	****	****	**********

VLM0850
(1 of 3)

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4888

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4872

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5298.14

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: G21795

Level: (TRACE/LOW/MED) LOW Date Received: 11/09/2012

% Moisture: not dec. _____ Date Analyzed: 11/19/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 5.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	8.6	
74-87-3	Chloromethane	29	
75-01-4	Vinyl chloride	5.0	U
74-83-9	Bromomethane	10	
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	23	
75-35-4	1,1-Dichloroethene	5.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	26	
67-64-1	Acetone	10	U
75-15-0	Carbon disulfide	28	
79-20-9	Methyl acetate	3.1	J
75-09-2	Methylene chloride	3.0	JB
156-60-5	trans-1,2-Dichloroethene	50	
1634-04-4	Methyl tert-butyl ether	110	
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-Butanone	10	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	38	
71-55-6	1,1,1-Trichloroethane	19	
110-82-7	Cyclohexane	5.0	U
56-23-5	Carbon tetrachloride	49	
71-43-2	Benzene	7.9	
107-06-2	1,2-Dichloroethane	43	
123-91-1	1,4-Dioxane	100	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

VLM 0850
(2 of 3)

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4888

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4872

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5298.14

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: G21795

Level: (TRACE/LOW/MED) LOW Date Received: 11/09/2012

% Moisture: not dec. _____ Date Analyzed: 11/19/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 5.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	25	
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	33	
108-10-1	4-Methyl-2-pentanone	110	
108-88-3	Toluene	75	
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	26	
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	47	
106-93-4	1,2-Dibromoethane	40	
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	7.7	
95-47-6	o-Xylene	16	
179601-23-1	m,p-Xylene	51	
100-42-5	Styrene	38	
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	25	
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	30	
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	29	
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	50	

VLM0858
(30-13)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
A4888

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4872

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5298.14

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: G21795

Level: (TRACE or LOW/MED) LOW Date Received: 11/09/2012

% Moisture: not dec. _____ Date Analyzed: 11/19/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	3.11	4.0	J
02	000107-83-5	Pentane, 2-methyl-	4.22	34	NJ
03		Unknown-02	7.79	51	J
04		Unknown-03	10.16	5.6	J
05	000526-73-8	Benzene, 1,2,3-trimethyl-	16.97	63	NJ
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

SV0390
(1of3)

1D - FORM I SV-1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4889

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4872

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5298.15

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D08528

Level: (LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N Date Received: 11/09/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 11/13/2012

Injection Volume: 1.0 (uL) GPC Factor: _____ Date Analyzed: 11/21/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	19	
108-95-2	Phenol	5.0	U
111-44-4	Bis(2-chloroethyl)ether	5.0	U
95-57-8	2-Chlorophenol	35	
95-48-7	2-Methylphenol	5.0	U
108-60-1	2,2'-Oxybis(1-chloropropane)	61	
98-86-2	Acetophenone	42	
106-44-5	4-Methylphenol	5.0	U
621-64-7	N-Nitroso-di-n-propylamine	5.0	U
67-72-1	Hexachloroethane	15	
98-95-3	Nitrobenzene	58	
78-59-1	Isophorone	5.0	U
88-75-5	2-Nitrophenol	42	
105-67-9	2,4-Dimethylphenol	5.0	U
111-91-1	Bis(2-chloroethoxy)methane	5.0	U
120-83-2	2,4-Dichlorophenol	23	
91-20-3	Naphthalene	14	
106-47-8	4-Chloroaniline	4.1	J
87-68-3	Hexachlorobutadiene	5.0	U
105-60-2	Caprolactam	5.0	U
59-50-7	4-Chloro-3-methylphenol	51	
91-57-6	2-Methylnaphthalene	5.0	U
77-47-4	Hexachlorocyclopentadiene	5.0	U
88-06-2	2,4,6-Trichlorophenol	33	
95-95-4	2,4,5-Trichlorophenol	5.0	U
92-52-4	1,1'-Biphenyl	37	
91-58-7	2-Chloronaphthalene	5.0	U
88-74-4	2-Nitroaniline	67	
131-11-3	Dimethylphthalate	5.0	U
606-20-2	2,6-Dinitrotoluene	42	
208-96-8	Acenaphthylene	48	
99-09-2	3-Nitroaniline	10	U
83-32-9	Acenaphthene	4.4	J

SV0390
(2of3)

1E - FORM I SV-2
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A4889

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4872

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5298.15

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D08528

Level: (LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N Date Received: 11/09/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 11/13/2012

Injection Volume: 1.0 (uL) GPC Factor: _____ Date Analyzed: 11/21/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	10	U
100-02-7	4-Nitrophenol	68	
132-64-9	Dibenzofuran	21	
121-14-2	2,4-Dinitrotoluene	51	
84-66-2	Diethylphthalate	52	
86-73-7	Fluorene	8.7	
7005-72-3	4-Chlorophenyl-phenylether	5.0	U
100-01-6	4-Nitroaniline	10	U
534-52-1	4,6-Dinitro-2-methylphenol	10	U
86-30-6	N-Nitrosodiphenylamine [1]	51	
95-94-3	1,2,4,5-Tetrachlorobenzene	17	
101-55-3	4-Bromophenyl-phenylether	5.0	U
118-74-1	Hexachlorobenzene	44	
1912-24-9	Atrazine	5.0	U
87-86-5	Pentachlorophenol	46	
85-01-8	Phenanthrene	34	
120-12-7	Anthracene	5.0	U
86-74-8	Carbazole	5.0	U
84-74-2	Di-n-butylphthalate	42	
206-44-0	Fluoranthene	5.0	U
129-00-0	Pyrene	17	
85-68-7	Butylbenzylphthalate	5.0	U
91-94-1	3,3'-Dichlorobenzidine	11	
56-55-3	Benzo(a)anthracene	43	
218-01-9	Chrysene	5.0	U
117-81-7	Bis(2-ethylhexyl)phthalate	5.0	U
117-84-0	Di-n-octylphthalate	25	
205-99-2	Benzo(b)fluoranthene	35	
207-08-9	Benzo(k)fluoranthene	5.0	U
50-32-8	Benzo(a)pyrene	20	
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	U
53-70-3	Dibenzo(a,h)anthracene	47	
191-24-2	Benzo(g,h,i)perylene	25	
58-90-2	2,3,4,6-Tetrachlorophenol	5.0	U

[1] Cannot be separated from Diphenylamine

SV0390
(3 of 3)

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
A4889

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 43082 Mod. Ref No.: _____ SDG No.: A4872

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-5298.15

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D08528

Level: (LOW/MED) LOW Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N Date Received: 11/09/2012

Concentrated Extract Volume: 1000 (uL) Date Extracted: 11/13/2012

Injection Volume: 1.0 (uL) Date Analyzed: 11/21/2012

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	001125-88-8	Benzaldehyde dimethyl acetal	7.73	31	NJ
02	000090-12-0	Naphthalene, 1-methyl-	10.82	44	NJ
03	040941-53-5	Quinoline, 7-chloro-4-methyl-	13.20	6.6	NJ
04		Unknown-01	17.92	16	J
05		Unknown-02	20.11	5.4	J
06		Unknown-03	20.29	6.5	J
07		Unknown-04	20.61	5.5	J
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A	23	J

[2] EPA-designated Registry Number.

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

Blanks

Blanks	**VOA_Low_Med**
VLB11	The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank common contaminant concentration is less than 2x the concentration criteria Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrationshave been elevated to the CRQL.
	A4872, A4872DL, A4873, A4874, A4877, A4883DL, A4884, A4884DL, A4887, A4887DL, A4888, A4891, A4891DL, A4892, A4893DL
	Methylene chloride A4872, A4872DL, A4873, A4874, A4877, A4883DL, A4884, A4884DL, A4887, A4887DL, A4888, A4891, A4891DL, A4892, A4893DL
Blanks	**VOA_Low_Med**
VLB12	The following volatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.
	A4891, A4891DL
	1,2,3-Trichlorobenzene A4891
	1,2,4-Trichlorobenzene A4891DL
Blanks	**VOA_Low_Med**
VLB13	The following volatile samples have analyte concentrations reported greater than or equal to the CRQL. The associated method blank is less than the concentration criteria. Detected and nondetected compounds are not qualified.
	A4891
	1,2,4-Trichlorobenzene A4891
Blanks	**VOA_Low_Med**
VLB46	The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated storage blank common contaminant concentration is less than 2x the concentration criteria Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.
	A4872, A4872DL, A4872MS, A4872MSD, A4873, A4874, A4877, A4878, A4882, A4883, A4883DL, A4884, A4884DL, A4885, A4887, A4887DL, A4888, A4891, A4891DL, A4892, A4893DL
	Methylene chloride A4872, A4872DL, A4872MS, A4872MSD, A4873, A4874, A4877, A4878, A4882, A4883, A4883DL, A4884, A4884DL, A4885, A4887, A4887DL, A4888, A4891, A4891DL, A4892, A4893DL
Blanks	**VOA_Low_Med**
VLB55	The following volatile samples have common contaminant analyte concentrations reported greater than or equal to 2x the CRQL. The associated storage blank common contaminant concentration is less than 2x the concentration criteria. Detected and nondetected compounds are not qualified.
	A4881
	Methylene chloride A4881

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

Continuing Calibration Verification

Continuing Calibration Verification	VOA_Low_Med
VC8	The following volatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4892, A4892DL, A4893, A4893DL, VBLKFN
	1,2,3-Trichlorobenzene VSTD050FM
	A4892, A4892DL, A4893, A4893DL, VBLKFN

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

Continuing Calibration Verification

Continuing Calibration Verification	**BNA**
BC10	The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4872, A4873, A4875, A4876, A4877, A4878, A4879, A4880, A4881, A4882, A4883, A4884, A4885, A4886, A4887, A4889, SBLK28
	Pentachlorophenol SSTD0209X
	A4872, A4873, A4875, A4876, A4877, A4878, A4879, A4880, A4881, A4882, A4883, A4884, A4885, A4886, A4887, A4889, SBLK28

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

DMC/Surrogate

DMC/Surrogate	**VOA_Low_Med**
VDSS3	The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4876, A4883, A4886, A4891
	1,1,2,2-Tetrachloroethane-d2 A4876, A4886, A4891
	1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane
	2-Hexanone-d5 A4883, A4891
	2-Hexanone, 4-Methyl-2-pentanone
	1,2-Dichloroethane-d4 A4876
	1,1,1-Trichloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,2-Dibromoethane, 1,2-Dichloroethane, Carbon tetrachloride, Methyl acetate, Methyl tert-butyl ether, Methylene chloride, Trichlorofluoromethane
DMC/Surrogate	**VOA_Low_Med**
VDSS320	The following diluted volatile samples with dilution factors less than or equal to 5 have DMC/SMC recoveries above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.
	A4878
	2-Hexanone-d5 A4878
	2-Hexanone, 4-Methyl-2-pentanone
DMC/Surrogate	**VOA_Low_Med**
VDSS4	The following volatile samples have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4881
	Chloroethane-d5 A4881
	Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane
	Chloroform-d A4881
	1,1-Dichloroethane, Bromochloromethane, Bromoform, Chloroform, Dibromochloromethane
DMC/Surrogate	**VOA_Low_Med**
VDSS42	The following diluted volatile samples with dilution factors greater than 5 have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected and nondetected compounds are not qualified.
	A4887DL
	1,4-Dioxane-d8 A4887DL
	1,4-Dioxane
DMC/Surrogate	**VOA_Low_Med**

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

DMC/Surrogate

DMC/Surrogate	VOA_Low_Med
VDSS5	The following volatile samples have DMC/SMC recoveries below the expanded lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified R.
	A4872
	1,4-Dioxane-d8 A4872
	1,4-Dioxane

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

DMC/Surrogate

DMC/Surrogate	BNA
BDSS14	The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4885, A4887
	Bis(2-chloroethyl)ether-d8 A4885, A4887
	2,2'-Oxybis(1-chloropropane), Bis(2-chloroethoxy)methane, Bis(2-chloroethyl)ether
DMC/Surrogate	**BNA**
BDSS15	The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4885, A4887, A4889
	4-Nitrophenol-d4 A4889
	2,4-Dinitrophenol, 2-Nitroaniline, 3-Nitroaniline, 4-Nitroaniline, 4-Nitrophenol
	Nitrobenzene-d5 A4885, A4887
	2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Acetophenone, Hexachloroethane, N-Nitroso-di-n-propylamine, N-Nitrosodiphenylamine, Nitrobenzene
	4-Methylphenol-d8 A4885, A4887
	2,4-Dimethylphenol, 2-Methylphenol, 4-Methylphenol
	4,6-Dinitro-2-methylphenol-d2 A4889
	4,6-Dinitro-2-methylphenol
	Phenol-d5 A4885, A4887
	Benzaldehyde, Phenol

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

Initial Calibration

Initial Calibration	VOA_Low_Med
VC6	The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified. Use professional judgement to qualify non-detected compounds.
	A4872, A4872DL, A4872MS, A4872MSD, A4873, A4874, A4875, A4876, A4877, A4878, A4878DL, A4879, A4880, A4881, A4881DL, A4882, A4882DL, A4883, A4883DL, A4884, A4884DL, A4885, A4886, A4887, A4887DL, A4888, A4890, A4891, A4891DL, A4892, A4892DL, A4893, A4893DL, VBLK5N, VBLK5Q, VBLK5S, VBLK5U, VBLK5W, VBLK5Y, VBLK7A, VBLKFN, VHBLK01
	Bromoform VSTD0055G
	m,p-Xylene VSTD005GA
	Bromomethane VSTD0055G
	1,2,3-Trichlorobenzene VSTD005GA
	A4872, A4872DL, A4872MS, A4872MSD, A4873, A4874, A4875, A4876, A4877, A4878, A4878DL, A4879, A4880, A4881, A4881DL, A4882, A4882DL, A4883, A4883DL, A4884, A4884DL, A4885, A4886, A4887, A4887DL, A4888, A4890, A4891, A4891DL, A4892, A4892DL, A4893, A4893DL, VBLK5N, VBLK5Q, VBLK5S, VBLK5U, VBLK5W, VBLK5Y, VBLK7A, VBLKFN, VHBLK01

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

Matrix Spikes

Matrix Spikes	**VOA_Low_Med**
VFQ13	The relative percent difference between volatile analyte results is less than the lower acceptance limit Detected and nondetected compounds are not qualified.
	A4872MS, A4872MSD
	Trichloroethene A4872MS, A4872MSD
	Chlorobenzene A4872MS, A4872MSD
Matrix Spikes	**VOA_Low_Med**
VMS2	The relative percent difference (RPD) between the following volatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4872MS, A4872MSD
	1,1-Dichloroethene A4872MS, A4872MSD
Matrix Spikes	**VOA_Low_Med**
VMS5	The following volatile matrix spike/matrix spike duplicate samples have percent recovery greater than or equal to the expanded lower acceptance limit but less than the primary lower acceptance limit Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4872MS, A4872MSD
	1,1-Dichloroethene A4872MS, A4872MSD
	Benzene A4872MS, A4872MSD
Matrix Spikes	**VOA_Low_Med**
VMS6	The following volatile matrix spike/matrix spike duplicate samples have percent recoveries that are less than the expanded lower acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4872MS, A4872MSD
	Trichloroethene A4872MS, A4872MSD
	Chlorobenzene A4872MS, A4872MSD

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4872 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166246 **SOW** SOM01.2

Data Review Reports

Matrix Spikes

Matrix Spikes	BNA
BMS2	The following semivolatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4872MSD
	4-Nitrophenol A4872MSD

Regional CCS Defect Report

12:24 Thu, Dec 6, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166246 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Sample Summary and Lab Receipt Date

Sample/Number	VOA Trace	VOA SIM	VOA	BNA	BNA SIM	PEST	AROCLOR	Automated	Manual
A4872			11/08/2012	11/08/2012					
A4872DL			11/08/2012	11/08/2012					
A4872MS			11/08/2012	11/08/2012					
A4872MSD			11/08/2012	11/08/2012					
A4873			11/08/2012	11/08/2012					
A4874			11/08/2012						
A4875			11/09/2012	11/09/2012					
A4876			11/09/2012	11/09/2012					
A4877			11/09/2012	11/09/2012					
A4878			11/09/2012	11/09/2012					
A4878DL			11/09/2012						
A4879			11/09/2012	11/09/2012					
A4880			11/09/2012	11/09/2012					
A4881			11/09/2012	11/09/2012					
A4881DL			11/09/2012						
A4882			11/09/2012	11/09/2012					
A4882DL			11/09/2012						
A4883			11/09/2012	11/09/2012				X	
A4883DL			11/09/2012						
A4884			11/09/2012	11/09/2012					X
A4884DL			11/09/2012						
A4885			11/09/2012	11/09/2012					
A4885DL				11/09/2012					
A4886			11/09/2012	11/09/2012					
A4887			11/09/2012	11/09/2012					
A4887DL			11/09/2012	11/09/2012					
A4888			11/09/2012						
A4889				11/09/2012					
A4890			11/09/2012						
A4891			11/10/2012	11/10/2012					
A4891DL			11/10/2012						
A4892			11/10/2012	11/10/2012					
A4892DL			11/10/2012	11/10/2012					
A4893			11/10/2012	11/10/2012					
A4893DL			11/10/2012	11/10/2012					
Totals	**0**	**0**	**33**	**26**	**0**	**0**	**0**		

Regional CCS Defect Report

12:24 Thu, Dec 6, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166246 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional CCS Defect Report

12:24 Thu, Dec 6, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166246 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Summary

Method	Defect Message	Samples with defect
VOA_Low_Med	EPA Sample ID is incorrect on the RIC for sample.	1
	EPA Sample ID is incorrect on the spectra for sample.	1
BNA	pH is missing for the sample.	1
		3

Regional CCS Defect Report

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166246 **Version** 8.05
DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Detail
METHOD = BNA

Defect **pH is missing for the sample.**
Associated Samples: **A4883**
Comments:

Regional CCS Defect Report

12:24 Thu, Dec 6, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166246 **Version** 8.05
DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Manual Defect Detail

METHOD = VOA_Low_Med

Defect **EPA Sample ID is incorrect on the RIC for sample.**
Associated Samples: **A4884**
Comments: **EPA sample number is incorreclty reported on RIC and quantitation report as A4884DL. This applies to PDF hardcopy deliverable as well.**

Defect **EPA Sample ID is incorrect on the spectra for sample.**
Associated Samples: **A4884**
Comments: **EPA sample number is incorrectly reported on Spectra and TIC Spectra as A4884DL. This applies to PDF hardcopy deliverable as well.**

Regional CCS Defect Report

12:24 Thu, Dec 6, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166246 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

General Comments

NONE FOUND

Regional CCS Defect Report

12:35 Fri, Dec 14, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166974 **Version**

DRD 12/13/2012 **LRD** 11/10/2012 **Mailed** 12/14/2012 **Submission Type** Recon **Screening Type** Semi-Automated

Sample Summary and Lab Receipt Date

Sample/Number	VOA Trace	VOA SIM	VOA	BNA	BNA SIM	PEST	AROCLOR	Automated	Manual
A4872			11/08/2012	11/08/2012					
A4872DL			11/08/2012	11/08/2012					
A4872MS			11/08/2012	11/08/2012					
A4872MSD			11/08/2012	11/08/2012					
A4873			11/08/2012	11/08/2012					
A4874			11/08/2012						
A4875			11/09/2012	11/09/2012					
A4876			11/09/2012	11/09/2012					
A4877			11/09/2012	11/09/2012					
A4878			11/09/2012	11/09/2012					
A4878DL			11/09/2012						
A4879			11/09/2012	11/09/2012					
A4880			11/09/2012	11/09/2012					
A4881			11/09/2012	11/09/2012					
A4881DL			11/09/2012						
A4882			11/09/2012	11/09/2012					
A4882DL			11/09/2012						
A4883			11/09/2012	11/09/2012				X	
A4883DL			11/09/2012						
A4884			11/09/2012	11/09/2012					
A4884DL			11/09/2012						
A4885			11/09/2012	11/09/2012					
A4885DL				11/09/2012					
A4886			11/09/2012	11/09/2012					
A4887			11/09/2012	11/09/2012					
A4887DL			11/09/2012	11/09/2012					
A4888			11/09/2012						
A4889				11/09/2012					
A4890			11/09/2012						
A4891			11/10/2012	11/10/2012					
A4891DL			11/10/2012						
A4892			11/10/2012	11/10/2012					
A4892DL			11/10/2012	11/10/2012					
A4893			11/10/2012	11/10/2012					
A4893DL			11/10/2012	11/10/2012					
Totals	**0**	**0**	**33**	**26**	**0**	**0**	**0**		

Regional CCS Defect Report

12:35 Fri, Dec 14, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166974 **Version**

DRD 12/13/2012 **LRD** 11/10/2012 **Mailed** 12/14/2012 **Submission Type** Recon **Screening Type** Semi-Automated

Regional CCS Defect Report

12:35 Fri, Dec 14, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166974 **Version**
DRD 12/13/2012 **LRD** 11/10/2012 **Mailed** 12/14/2012 **Submission Type** Recon **Screening Type** Semi-Automated

Regional Defect Summary

Method	Defect Message	Samples with defect
BNA	pH is missing for the sample.	1
		1

Regional CCS Defect Report

12:35 Fri, Dec 14, 2012

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166974 **Version**

DRD 12/13/2012 **LRD** 11/10/2012 **Mailed** 12/14/2012 **Submission Type** Recon **Screening Type** Semi-Automated

Regional Defect Detail

METHOD = BNA

Defect **pH is missing for the sample.**

Associated Samples: **A4883**

Comments:

Regional CCS Defect Report

SDG A4872 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166974 **Version**
DRD 12/13/2012 **LRD** 11/10/2012 **Mailed** 12/14/2012 **Submission Type** Recon **Screening Type** Semi-Automated

General Comments

NONE FOUND

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2

Nyanza Chemical
NOBIS

DG/ESAT
12-4-12

LABORATORY NAME. KAP TECHNOLOGIES, INC.
CITY/STATE. THE WOODLANDS/TX
CASE NO. 43082 SDG NO. A4872
SDG NOs. TO FOLLOW - - -
MOD. REF. NO. ----------
CONTRACT NO. EPW11031
SOW NO. SOM1.2

All documents delivered in the Complete SDG File (CSF) must be original documents where possible.

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK FOR USEPA
1. **Inventory Sheet** (DC-2) (Do not number)				✓
2. **SDG Case Narrative**	01	04	✓	✓
3. **SDG Cover Sheet/Traffic Report**	05	10	✓	✓
4. **Trace Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1 and VOA-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Recover (Form III VOA) (if requested by USEPA Region)				
Method Blank Summary (Form IV VOA)				
GC/MS Instrument Performance Check (Form V VOA)				
Internal Standard Area and RT Summary (Form VIII VOA)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)				
Tentatively Identified Compounds (Form I VOA-TIC)				
Reconstructed total ion chromatograms (RIC) for each sample				
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified				
Quantitation reports				
Mass Spectra of all reported TICs with three best library matches				
c. Standards Data (All Instruments)				
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)				
RICs and Quantitaation Reports for all Standards				
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)				
RICs and Quantitation Reports for all Standards				
d. Raw/Quality Control (QC) Data				
BFB				
Blank Data				
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4872 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
e. Trace SIM Data (Place at the end of the Trace Volatiles Section)	—	—	—	NA
[Form I VOA-SIM; Form II VOA-SIM1 and VOA-SIM2; Form IV-VOA-SIM; Form VI VOA-SIM; Form VII VOA-SIM; Form VIII VOA-SIM; and all raw data for QC, Samples, and Standards.]	NA	NA	NA	NA
5. **Low/Med Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1, VOA-2, VOA-3, VOA-4)	11	14	✓	✓
Matrix Spike/Matrix Spike Duplicate Recovery (Form III VOA-1 and VOA-2) (if requested by USEPA Region)	15	15	✓	✓
Method Blank Summary (Form IV VOA)	16	23	✓	✓
GC/MS Instrument Performance Check (Form V VOA)	24	33	✓	✓
Internal Standard Area and RT Summary (Form VIII VOA)	34	41	✓	✓
b. Sample Data	42	537		
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)			✓	✓
Tentatively Identified Compounds (Form I VOA-TIC)			✓	✓
Reconstructed total ion chromatograms (RIC) for each sample			✓	✓
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			✓	✓
Quantitation reports			✓	✓
Mass Spectra of all reported TICs with three best library matches			✓	✓
c. Standards Data (All Instruments)	538	721		
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
d. Raw/Quality Control (QC) Data				
BFB	722	806	✓	✓
Blank Data	807	1011	✓	✓
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)	1012	1019	✓	✓

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4872 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
6. **Semivolatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II SV-1, SV-2, SV-3, SV-4)	1020	1021	✓	✓
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III SV-1 and SV-2) (if requested by USEPA Region)	1022	1022	✓	✓
Method Blank Summary (Form IV SV)	1023	1023	✓	✓
GC/MS Instrument Performance Check (Form V SV)	1024	1026	✓	✓
Internal Standard Area and RT Summary (Form VIII SV-1 and SV-2)	1027	1030	✓	✓
b. Sample Data	1031	1488		
TCL Results - Organics Analysis Data Sheet (Form I SV-1 and SV-2)			✓	✓
Tentatively Identified Compounds (Form I SV-TIC)			✓	✓
Reconstructed total ion chromatograms (RIC) for each sample			✓	✓
For each sample:	—	—		
Raw Spectra and background-subtracted mass spectra of target compounds			✓	✓
Quantitation reports			✓	✓
Mass Spectra of TICs with three best library matches			✓	✓
GPC chromatograms (if GPC is required)			✓	✓
c. Standards Data (All Instruments)	1489	1549		
Initial Calibration Data (Form VI SV-1, SV-2, SV-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
Continuing Calibration Data (Form VII SV-1, SV-2, SV-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
d. Raw (QC) Data				
DFTPP	1550	1579	✓	✓
Blank Data	1580	1592	✓	✓
MS/MSD Data (if requested by USEPA Region)	1593	1600	✓	✓
e. Raw GPC Data	—	—	—	—

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082	SDG NO. A4872	SDG NOs. TO FOLLOW ----
-----	---- MOD. REF. NO. ----------	

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Semivolatile SIM Data	NA	NA	NA	NA
[Form I SV-SIM; Form II SV-SIM1 and SV-SIM2; Form III-SV-SIM1 and SV-SIM2 (if required; Form IV SV-SIM; Form VI SV-SIM; Form VII SV-SIM; Form VIII SV-SIM1 and SV-SIM2; and all raw data for QC, Samples, and Standards.]				
7. **Pesticides Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II PEST-1 and PEST-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III PEST-1 and PEST-2)				
Laboratory Control Sample Recovery (Form III PEST-3 and PEST-4)				
Method Blank Summary (Form IV PEST)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I PEST)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report or data system printout				
Manual work sheets				
For Pesticides by GC/MS				
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)				
c. Standards Data				
Initial Calibration of Single Component Analytes (Form VI PEST-1 and PEST-2)				
Toxaphene Initial Calibration (Form VI PEST-3 and PEST-4)				
Analyte Resolution Summary (Form VI PEST-5, per column)				
Performance Evaluation Mixture (Form VI PEST-6)				
Individual Standard Mixture A (Form VI PEST-7)				
Individual Standard Mixture B (Form VI PEST-8)				
Individual Standard Mixture C (Form VI PEST-9 and PEST-10)				
Calibration Verification Summary (Form VII PEST-1)				
Calibration Verification Summary (Form VII PEST-2)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4872 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Calibration Verification Summary (Form VII PEST-3)			NA	NA
Calibration Verification Summary (Form VII PEST-4)				
Analytical Sequence (Form VIII PEST)				
Florisil Cartridge Check (Form IX PEST-1)				
Pesticide GPC Calibration (Form IX PEST-2)				
Identification Summary for Single Component Analytes (Form X PEST-1)				
Identification Summary for Toxaphene Form X PEST-2)				
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample				
e. Raw GPC Data				
f. Raw Florisil Data				
8. **Aroclor Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II ARO-1 and ARO-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Summary (Form III ARO-1 and ARO-2)				
Laboratory Control Sample Recovery (Form III ARO-3 and ARO-4)				
Method Blank Summary (Form IV ARO)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I ARO)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report of data system printout				
Manual work sheets				
For Aroclors by GC/MS				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4872 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			NA	NA
c. Standards Data	NA	NA		
Aroclors Initial Calibration (Form VI ARO-1, ARO-2, and ARO-3)				
Calibration Verification Summary (Form VII ARO-1)				
Analytical Sequence (Form VIII ARO)				
Identification Summary for Multicomponent Analytes (Form X ARO)				
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data				
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample (LCS) Data				
e. Raw GPC Data (if performed)				
9. Miscellaneous Data				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	1601	1619	✓	✓
Internal sample and sample extract transfer chain-of-custody records	1620	1628	✓	✓
Screening records	NA	NA	NA	NA
All instrument output, including strip charts from screening activities (describe or list)				
----------	NA	NA	NA	NA
----------	NA	NA	NA	NA
10. EPA Shipping/Receiving Documents				
Airbills (No. of shipments 7)	1629	1635	✓	✓
Chain of Custody Records	1636	1640	✓	✓
Sample Tags	1641	1652	✓	✓
Sample Log-in Sheet (Lab & DC-1)	1653	1659	✓	✓
Miscellaneous Shipping/Receiving Records (describe or list)				
CUSTODY SEALS	1660	1666	✓	✓
----------	NA	NA	NA	NA

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4872 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
11. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
---	---	---	---	—
---	---	---	---	—
12. **Other Records** (describe or list)				
Telephone Communication Log	---	---	---	—
PE SAMPLE INSTRUCTIONS	1667	1671	✓	✓
EMAIL COMMUNICATION	1672	1672	✓	✓

13. **Comments**

Completed by: Nicole Hogue (Signature) NICOLE HOGUE/CLP COORDINATOR (Printed Name/Title) 12/01/12 (Date)
(CLP Lab)

Verified by: (Signature) VISHNUVARDAHN DAVLAPUR/P.M. (Printed Name/Title) 12/1/12 (Date)
(CLP Lab)

Audited by: (Signature) Steven Dube (Printed Name/Title) 12/6/12 (Date)
FOR (USEPA) NOBIS Engineering

1

Nobis
Engineering a Sustainable Future

December 27, 2012
Nobis File No. 80022

Mr. Dan Keefe
EPA Site Manager
EPA-New England Region I
5 Post Office Square
Suite 100, Mailcode OSRR07-4
Boston, MA 02109-3912

Re: Contract No. EP-S1-06-03
Task Order No. 0022-RA-RA-0115
Case No. 43082, Sample Delivery Group (SDG) No. A4894
KAP Technologies, Inc.,The Woodlands, TX
Nyanza Chemical Waste Dump, OU2 Superfund Site
Ashland, Massachusetts
CERCLIS No.: MAD990685422

Tier I Modified Organic Data Validation with Stage 2A Electronic Qualification

Low Level Volatiles and Semivolatiles:
6/Groundwater: A4894, A4896, A4897, A4898, A4899, A4900
1/Trip Blank: A4901
1/Equipment Blank: A4895

Dear Mr. Keefe:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the organic analytical data for 6 groundwater samples, one trip blank, and one equipment blank collected by Nobis Engineering, Inc. at the Nyanza Chemical Waste Dump, OU2 Superfund Site located in Ashland, Massachusetts. The samples were analyzed for low level volatile organic compounds (VOCs) and medium level semivolatile organic compounds (SVOCs) under the Contract Laboratory Program Routine Analytical Services (CLP RAS) program using the CLP SOM01.2 Statement of Work. A Tier I modified data validation was deemed sufficient at this time.

Stage 2A electronic qualification was performed through EPA's Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM) which uses USEPA's Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review, June 2008 criteria for automated validation. EXES Data Review Report #3 indicates data of non-compliance that resulted in qualification based on blank contamination, calibration criteria, surrogate recoveries, and matrix spike recoveries.

The data were evaluated based on the following parameters:

* • Overall Evaluation of Data and Potential Usability Issues

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (508) 683-0891

*	•	Data Completeness
*	•	Preservation and Technical Holding Times
	•	Initial and Continuing Calibrations
	•	Blanks
	•	Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
*	•	Laboratory Control Samples
	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
NA	•	Field Duplicates
NA	•	Laboratory Duplicates
*	•	Internal Standards
NA	•	Performance Evaluation (PE) Sample Results
*	•	Reported Quantitation Limits

* All criteria were met for this parameter.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The objectives of the groundwater and DNAPL sampling at the site are to provide a comprehensive evaluation of the shallow and deep groundwater contaminants at the site and to evaluate the feasibility of implementing monitored natural attenuation (MNA) as a remedial alternative for the site.

Data are usable for the purposes of the project except as noted below.

Data Completeness

The data package is complete. The contract compliance screening (CCS) report noted the following issues:

- MS/MSD samples A4897MS and A4897MSD were not analyzed within 10 days of validated time of sample receipt (VTSR). The sample collection and analysis times were verified and found to be within the sample holding time acceptance criteria of 14 days from sample collection. No further actions are required.

- The pH results for SVOC samples A4896, A4896DL, A4897 and A4897DL were not reported. It was confirmed that the pH results were missing from the analytical report. The sample preparation log sheets listed both samples as "No sample volume left".

- The BFB tuning injection time was not reported in the correct format (military time format) in the raw data of the final laboratory report. The tuning injection time was checked in the laboratory report. The reported format of the time was incorrect in the raw data but reported correctly in the summary QC forms (Form V). No further action is required.

Data presented in the Summary Tables include qualifiers assigned by Environmental Data Exchange and Evaluation System (EXES) Data Manager (EDM). Qualifications for these parameters were assessed under the Stage 2A Validation Electronic (S2AVE) scenario. Qualification was taken from EXES and data package completeness was done manually.

Initial and Continuing Calibrations

VOCs

The percent relative standard deviations (%RSDs) were outside acceptance criteria for bromoform, m,p-xylene, bromomethane and 1,2,3-trichlorobenzene for the initial calibration associated with all sample analyses. All results for these compounds were non-detected; therefore, the data were accepted unqualified.

The continuing calibration verification percent difference (%D) was outside acceptance criteria for 1,2,3-trichlorobenzene. Associated positive and non-detected sample results were qualified as estimated (J/UJ).

Blanks

VOCs

Methylene chloride results were negated in several sample analyses due to method and/or storage blank contamination.

It should be noted that acetone and chloroform were detected in trip blank A4901 at concentrations greater than MDL but less than CRQL. All associated sample results were non-detect for acetone and chloroform with the exception of sample A4900. Acetone was reported in sample A4900 at a concentration of 22 ug/L, two times the reporting limit of 10 ug/L. If validated, the result would be accepted unqualified.

Surrogate Recoveries

VOCs

The EXES report #3 reported that the chloroform-d recovery was above the upper limit for samples A4895 and A4897. The associated sample results were non-detected; therefore, results were accepted unqualified. The recovery for 1,1,2,2-tetrachloroethane-d2 was reported below the lower acceptance limit in sample A4896DL. No qualifications were required since the sample was diluted greater than five-fold.

SVOCs

Bis(2-chloroethyl)ether-d8 was recovered above the upper acceptance limit in sample A4896. Associated results were non-detected and were accepted unqualified.

Nitrobenzene-d5 was recovered below the lower acceptance limit in sample A4896. The associated results were non-detected and were qualified as estimated (UJ).

MS/MSD Results

VOCs

MS/MSD analyses were performed on sample A4897. EXES report #3 reported that benzene recovered at 74%, outside of QC acceptance limits (76-127%). The non-detected result for benzene in the native sample was qualified as estimated (UJ).

PE Sample Results

There were no PE samples reported with this SDG. .

Reported Quantitation Limits

Several samples were analyzed for VOCs and SVOCs with dilutions to obtain target analytes within the calibration range. Reporting limits were adjusted accordingly.

Please contact me at (978) 703-6021 or gderuzzo@nobiseng.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Andrea Mischel
Data Validator

Tables: Data Summary Tables

Enclosures: EXES Report #3
CCS Reports
CSF Audit (DC-2 Forms)

Cc: Raymond Flores, US EPA Region VI (via email)

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4894

Sample Name		A4894	A4895	A4896	A4897	A4898	A4899
Sample Location		MW-113A		MW-B11	MW-503A	MW-402	SB-600
Lab Sample ID		S-5311.01	S-5311.02	S-5311.03	S-5311.04	S-5311.05	S-5311.06
Station ID		MW113A-110812	EB01-110712	MWB11-110912	MW503A-110912	MW402-110912	SB600-110912
Dilution Factor		80/500	1	80/500	1	25/50	80/500
Sample Date		08 Nov 12	08 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12
Chemical	CRQL						
1,1,1-Trichloroethane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,1,2,2-Tetrachloroethane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,1,2-Trichloroethane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,1-Dichloroethane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,1-Dichloroethene	5	400 U	5 U	400 U	5 U	130 U	400 U
1,2,3-Trichlorobenzene	5	400 UJ	5 UJ	400 UJ	5 UJ	130 U	400 UJ
1,2,4-Trichlorobenzene	5	400 U	5 U	240 J	5 U	130 U	400 U
1,2-Dibromo-3-chloropropane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,2-Dibromoethane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,2-Dichlorobenzene	5	28000	5 U	46000	5 U	610	400 U
1,2-Dichloroethane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,2-Dichloropropane	5	400 U	5 U	400 U	5 U	130 U	400 U
1,3-Dichlorobenzene	5	890	5 U	1200	5 U	130 U	400 U
1,4-Dichlorobenzene	5	6100	5 U	8400	5 U	130 U	400 U
1,4-Dioxane	100	8000 U	100 U	8000 U	100 U	2500 U	8000 U
2-Butanone	10	800 U	10 U	800 U	10 U	250 U	800 U
2-Hexanone	10	800 U	10 U	800 U	10 U	250 U	800 U
4-Methyl-2-pentanone	10	800 U	10 U	800 U	10 U	250 U	800 U
Acetone	10	800 U	10 U	800 U	10 U	250 U	800 U
Benzene	5	400 U	5 U	400 U	5 UJ	130 U	400 U
Bromochloromethane	5	400 U	5 U	400 U	5 U	130 U	400 U
Bromodichloromethane	5	400 U	5 U	400 U	5 U	130 U	400 U
Bromoform	5	400 U	5 U	400 U	5 U	130 U	400 U
Bromomethane	5	400 U	5 U	400 U	5 U	130 U	400 U
Carbon disulfide	5	400 U	5 U	400 U	5 U	130 U	400 U
Carbon tetrachloride	5	400 U	5 U	400 U	5 U	130 U	400 U
Chlorobenzene	5	19000	5 U	30000	5 U	130 U	400 U
Chloroethane	5	400 U	5 U	400 U	5 U	130 U	400 U
Chloroform	5	400 U	5 U	400 U	5 U	130 U	400 U
Chloromethane	5	400 U	5 U	400 U	5 U	130 U	400 U
cis-1,2-Dichloroethene	5	400 U	5 U	190 J	5 U	520	400 U
cis-1,3-Dichloropropene	5	400 U	5 U	400 U	5 U	130 U	400 U
Cyclohexane	5	400 U	5 U	400 U	5 U	130 U	400 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4894

Sample Name		A4894	A4895	A4896	A4897	A4898	A4899
Sample Location		MW-113A		MW-B11	MW-503A	MW-402	SB-600
Lab Sample ID		S-5311.01	S-5311.02	S-5311.03	S-5311.04	S-5311.05	S-5311.06
Station ID		MW113A-110812	EB01-110712	MWB11-110912	MW503A-110912	MW402-110912	SB600-110912
Dilution Factor		80/500	1	80/500	1	25/50	80/500
Sample Date		08 Nov 12	08 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12	20 Nov 12
Chemical	CRQL						
Dibromochloromethane	5	400 U	5 U	400 U	5 U	130 U	400 U
Dichlorodifluoromethane	5	400 U	5 U	400 U	5 U	130 U	400 U
Ethylbenzene	5	400 U	5 U	400 U	5 U	130 U	400 U
Isopropylbenzene	5	400 U	5 U	400 U	5 U	130 U	400 U
m,p-Xylene	5	400 U	5 U	400 U	5 U	130 U	400 U
Methyl acetate	5	400 U	5 U	400 U	5 U	130 U	400 U
Methyl tert-butyl ether	5	400 U	5 U	400 U	5 U	130 U	400 U
Methylcyclohexane	5	400 U	5 U	400 U	5 U	130 U	400 U
Methylene chloride	5	400 U	5 U	400 U	5 U	130 U	400 U
o-Xylene	5	400 U	5 U	400 U	5 U	130 U	400 U
Styrene	5	400 U	5 U	400 U	5 U	130 U	400 U
Tetrachloroethene	5	400 U	5 U	400 U	5 U	130 U	400 U
Toluene	5	400 U	5 U	400 U	5 U	130 U	400 U
trans-1,2-Dichloroethene	5	400 U	5 U	400 U	5 U	130 U	400 U
trans-1,3-Dichloropropene	5	400 U	5 U	400 U	5 U	130 U	400 U
Trichloroethene	5	17000	5 U	6900	4 J	8000	23000
Trichlorofluoromethane	5	400 U	5 U	400 U	5 U	130 U	400 U
Vinyl chloride	5	400 U	5 U	400 U	5 U	130 U	400 U
		Chlorobenzene, 1,2-dichlorobenzene, and TCE from 1:500 dilution.		Chlorobenzene and 1,2-dichlorobenzene from 1:500 dilution.		TCE from 1:50 dilution.	TCE from 1:500 dilution.

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4894

Sample Name		A4900	A4901
Sample Location		MADEP-MW-1	
Lab Sample ID		S-5311.07	S-5311.08
Station ID		MADEPMW1-110912	TB04-110912
Dilution Factor		1	1
Sample Date		09 Nov 12	09 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12
Chemical	CRQL		
1,1,1-Trichloroethane	5	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U
1,2,3-Trichlorobenzene	5	5 UJ	5 UJ
1,2,4-Trichlorobenzene	5	3.4 J	5 U
1,2-Dibromo-3-chloropropane	5	5 U	5 U
1,2-Dibromoethane	5	5 U	5 U
1,2-Dichlorobenzene	5	22	5 U
1,2-Dichloroethane	5	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U
1,4-Dioxane	100	100 U	100 U
2-Butanone	10	10 U	10 U
2-Hexanone	10	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U
Acetone	10	22	8.9 J
Benzene	5	5 U	5 U
Bromochloromethane	5	5 U	5 U
Bromodichloromethane	5	5 U	5 U
Bromoform	5	5 U	5 U
Bromomethane	5	5 U	5 U
Carbon disulfide	5	5 U	5 U
Carbon tetrachloride	5	5 U	5 U
Chlorobenzene	5	19	5 U
Chloroethane	5	5 U	5 U
Chloroform	5	5 U	3.4 J
Chloromethane	5	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U
Cyclohexane	5	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Volatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4894

Sample Name		A4900	A4901
Sample Location		MADEP-MW-1	
Lab Sample ID		S-5311.07	S-5311.08
Station ID		MADEPMW1-110912	TB04-110912
Dilution Factor		1	1
Sample Date		09 Nov 12	09 Nov 12
Date Analyzed		20 Nov 12	20 Nov 12
Chemical	CRQL		
Dibromochloromethane	5	5 U	5 U
Dichlorodifluoromethane	5	5 U	5 U
Ethylbenzene	5	5 U	5 U
Isopropylbenzene	5	5 U	5 U
m,p-Xylene	5	5 U	5 U
Methyl acetate	5	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U
Methylcyclohexane	5	5 U	5 U
Methylene chloride	5	5 U	5 U
o-Xylene	5	5 U	5 U
Styrene	5	5 U	5 U
Tetrachloroethene	5	5 U	5 U
Toluene	5	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U
Trichloroethene	5	5.5	5 U
Trichlorofluoromethane	5	5 U	5 U
Vinyl chloride	5	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4894

Sample Name		A4895	A4896	A4897	A4898	A4899
Sample Location			MW-B11	MW-503A	MW-402	SB-600
Lab Sample ID		S-5311.02	S-5311.03	S-5311.04	S-5311.05	S-5311.06
Station ID		EB01-110712	MWB11-110912	MW503A-110912	MW402-110912	SB600-110912
Dilution Factor		1	1/500	1	1/50	1/500
Sample Date		08 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12
Date Analyzed		26 Nov 12	26 Nov 12/28 Nov 12	26 Nov 12	26 Nov 12/29 Nov 02	26 Nov 12/28 Nov 02
Chemical	CRQL					
1,1'-Biphenyl	5	5 U	5 U	5 U	5 U	5 U
1,2,4,5-Tetrachlorobenzene	5	5 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5	5 U	5 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	5	5 U	2.2 J	5 U	5 U	5 U
2,4,5-Trichlorophenol	5	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5	5 U	2.1 J	5 U	5 U	5 U
2,4-Dichlorophenol	5	5 U	3.3 J	5 U	5 U	5 U
2,4-Dimethylphenol	5	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	5	5 U	5 UJ	5 U	5 U	5 U
2,6-Dinitrotoluene	5	5 U	5 UJ	5 U	5 U	5 U
2-Chloronaphthalene	5	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	5	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	5	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	5	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	10	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	10	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5	5 U	42	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	5	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	10	10 U	10	10 U	3.3 J	10 U
4-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
Acenaphthene	5	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5	5 U	5 U	5 U	5 U	5 U
Acetophenone	5	5 U	5 UJ	5 U	5 U	5 U
Anthracene	5	5 U	5 U	5 U	5 U	5 U
Atrazine	5	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	5	5 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	5	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5	5 U	5 U	5 U	5 U	5 U
Benzo(b)fluoranthene	5	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)perylene	5	5 U	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier I - 2AVE Validated Data
Semivolatile Organics Analysis
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 43082 SDG NO.: A4894

Sample Name		A4895	A4896	A4897	A4898	A4899
Sample Location			MW-B11	MW-503A	MW-402	SB-600
Lab Sample ID		S-5311.02	S-5311.03	S-5311.04	S-5311.05	S-5311.06
Station ID		EB01-110712	MWB11-110912	MW503A-110912	MW402-110912	SB600-110912
Dilution Factor		1	1/500	1	1/50	1/500
Sample Date		08 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12
Date Analyzed		26 Nov 12	26 Nov 12/28 Nov 12	26 Nov 12	26 Nov 12/29 Nov 02	26 Nov 12/28 Nov 02
Chemical	CRQL					
Benzo(k)fluoranthene	5	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethoxy)methane	5	5 U	5 U	5 U	5 U	5 U
Bis(2-chloroethyl)ether	5	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5	5 U	5 U	5 U	5 U	5 U
Caprolactam	5	5 U	5 U	5 U	5 U	5 U
Carbazole	5	5 U	5 U	5 U	5 U	5 U
Chrysene	5	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)anthracene	5	5 U	5 U	5 U	5 U	5 U
Dibenzofuran	5	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	5	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	5	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	5	5 U	5 U	5 U	5 U	5 U
Fluoranthene	5	5 U	5 U	5 U	5 U	5 U
Fluorene	5	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	5	5 U	5 UJ	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5	5 U	5 U	5 U	5 U	5 U
Isophorone	5	5 U	5 U	5 U	5 U	5 U
Naphthalene	5	5 U	10	5 U	5 U	2.2 J
Nitrobenzene	5	5.9	39000	33	610	32000
N-Nitroso-di-n-propylamine	5	5 U	5 UJ	5 U	5 U	5 U
N-Nitrosodiphenylamine	5	5 U	5 UJ	5 U	5 U	5 U
Pentachlorophenol	10	10 U	9.3 J	10 U	10 U	10 U
Phenanthrene	5	5 U	5 U	5 U	5 U	5 U
Phenol	5	5 U	5 U	5 U	5 U	5 U
Pyrene	5	5 U	5 U	5 U	5 U	5 U
			Nitrobenzene from 1:500 dilution.		Nitrobenzene from 1:50 dilution.	Nitrobenzene from 1:500 dilution.

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4894 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166245 **SOW** SOM01.2

Data Review Reports

Blanks

Blanks	**VOA_Low_Med**
VLB11	The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank common contaminant concentration is less than 2x the concentration criteria Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrationshave been elevated to the CRQL.
	A4894, A4894DL, A4895, A4896, A4897, A4897MS, A4897MSD, A4898, A4898DL, A4899, A4899DL, A4900, A4901
	Methylene chloride A4894, A4894DL, A4895, A4896, A4897, A4897MS, A4897MSD, A4898, A4898DL, A4899, A4899DL, A4900, A4901
Blanks	**VOA_Low_Med**
VLB46	The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated storage blank common contaminant concentration is less than 2x the concentration criteria Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.
	A4894, A4894DL, A4895, A4896, A4897, A4897MS, A4897MSD, A4898, A4898DL, A4899, A4899DL, A4900, A4901
	Methylene chloride A4894, A4894DL, A4895, A4896, A4897, A4897MS, A4897MSD, A4898, A4898DL, A4899, A4899DL, A4900, A4901

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4894 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166245 **SOW** SOM01.2

Data Review Reports

Continuing Calibration Verification

Continuing Calibration Verification	**VOA_Low_Med**
VC8	The following volatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4894, A4895, A4896, A4897, A4897MS, A4897MSD, A4898DL, A4899, A4900, A4901, VBLKFN, VBLKFS
	1,2,3-Trichlorobenzene VSTD050FM, VSTD050FS
	A4894, A4895, A4896, A4897, A4897MS, A4897MSD, A4898DL, A4899, A4900, A4901, VBLKFN, VBLKFS

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4894 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166245 **SOW** SOM01.2

Data Review Reports

DMC/Surrogate

DMC/Surrogate	**VOA_Low_Med**
VDSS3	The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4895, A4897
	Chloroform-d A4895, A4897
	1,1-Dichloroethane, Bromochloromethane, Bromoform, Chloroform, Dibromochloromethane
DMC/Surrogate	**VOA_Low_Med**
VDSS42	The following diluted volatile samples with dilution factors greater than 5 have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected and nondetected compounds are not qualified.
	A4896DL
	1,1,2,2-Tetrachloroethane-d2 A4896DL
	1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4894 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166245 **SOW** SOM01.2

Data Review Reports

DMC/Surrogate

DMC/Surrogate	**BNA**
BDSS14	The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4896
	Bis(2-chloroethyl)ether-d8 A4896
	2,2'-Oxybis(1-chloropropane), Bis(2-chloroethoxy)methane, Bis(2-chloroethyl)ether
DMC/Surrogate	**BNA**
BDSS15	The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4896
	Nitrobenzene-d5 A4896
	2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Acetophenone, Hexachloroethane, N-Nitroso-di-n-propylamine, N-Nitrosodiphenylamine, Nitrobenzene

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4894 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166245 **SOW** SOM01.2

Data Review Reports

Initial Calibration

Initial Calibration	VOA_Low_Med
VC6	The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified. Use professional judgement to qualify non-detected compounds.
	A4894, A4894DL, A4895, A4896, A4896DL, A4897, A4897MS, A4897MSD, A4898, A4898DL, A4899, A4899DL, A4900, A4901, VBLK7A, VBLKFN, VBLKFQ, VBLKFS, VHBLK01
	Bromoform VSTD0055G
	m,p-Xylene VSTD005GA
	Bromomethane VSTD0055G
	1,2,3-Trichlorobenzene VSTD005GA
	A4894, A4894DL, A4895, A4896, A4896DL, A4897, A4897MS, A4897MSD, A4898, A4898DL, A4899, A4899DL, A4900, A4901, VBLK7A, VBLKFN, VBLKFQ, VBLKFS, VHBLK01

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4894 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166245 **SOW** SOM01.2

Data Review Reports

Matrix Spikes

Matrix Spikes	VOA_Low_Med
VMS5	The following volatile matrix spike/matrix spike duplicate samples have percent recovery greater than or equal to the expanded lower acceptance limit but less than the primary lower acceptance limit Detected compounds are qualified J. Nondetected compounds are qualified UJ.
	A4897MS
	Benzene A4897MS

National Functional Guidelines Report #03

Lab KAP(KAP Technologies, Inc.) **SDG** A4894 **Case** 43082 **Contract** EPW11031 **Region** 1 **DDTID** 166245 **SOW** SOM01.2

Data Review Reports

Matrix Spikes

Matrix Spikes	BNA
BMS2	The following semivolatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.
	A4895MS, A4895MSD
	4-Nitrophenol A4895MS, A4895MSD

Regional CCS Defect Report

11:51 Thu, Dec 6, 2012

SDG A4894 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166245 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Sample Summary and Lab Receipt Date

Sample/Number	VOA Trace	VOA SIM	VOA	BNA	BNA SIM	PEST	AROCLOR	Automated	Manual
A4894			11/10/2012						
A4894DL			11/10/2012						
A4895			11/10/2012	11/10/2012					
A4895MS				11/10/2012					
A4895MSD				11/10/2012					
A4896			11/10/2012	11/10/2012				X	
A4896DL			11/10/2012	11/10/2012				X	
A4897			11/10/2012	11/10/2012					
A4897MS			11/10/2012					X	
A4897MSD			11/10/2012					X	
A4898			11/10/2012	11/10/2012					
A4898DL			11/10/2012	11/10/2012					
A4899			11/10/2012	11/10/2012				X	
A4899DL			11/10/2012	11/10/2012				X	
A4900			11/10/2012						
A4901			11/10/2012						
Totals	**0**	**0**	**14**	**10**	**0**	**0**	**0**		

Regional CCS Defect Report

11:51 Thu, Dec 6, 2012

SDG A4894 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166245 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Summary

Method	Defect Message	Samples with defect
VOA Low Med	Sample was not analyzed within 10 days of validated time of sample receipt (VTSR).	2
BNA	pH is missing for the sample.	4
		6

Regional CCS Defect Report

11:51 Thu, Dec 6, 2012

SDG A4894 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166245 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Detail

METHOD = VOA_Low_Med

Defect **Sample was not analyzed within 10 days of validated time of sample receipt (VTSR).**

Associated Samples: **A4897MSD, A4897MS**

Comments:

Regional CCS Defect Report

11:51 Thu, Dec 6, 2012

SDG A4894 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166245 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

Regional Defect Detail

METHOD = BNA

Defect **pH is missing for the sample.**

Associated Samples: **A4896DL, A4896, A4899, A4899DL**

Comments:

Regional CCS Defect Report

11:51 Thu, Dec 6, 2012

SDG A4894 **Lab** KAP **Case** 43082 **Contract** EPW11031 **Client** EPA Region 1 **SOW** SOM01.2 **Stage** 3 **Tracking ID** 166245 **Version** 8.05

DRD 12/03/2012 **LRD** 11/10/2012 **Mailed** 12/06/2012 **Submission Type** First Submission **Screening Type** Semi-Automated

General Comments

Method	Sample	Criterion	Comment
VOA	BFBFQ	*	BFB tuning injection time is not reported in a military time format in the mass listing raw data as well as in the PDF hardcopy deliverable, refer to pages 370 thru 374.

DG/ESAT
12-4-12

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2

Nyanza Chemical
NOBIS

LABORATORY NAME. KAP TECHNOLOGIES, INC.
CITY/STATE. THE WOODLANDS/TX
CASE NO. 43082 SDG NO. A4894
SDG NOs. TO FOLLOW - - -
MOD. REF. NO. ----------
CONTRACT NO. EPW11031
SOW NO. SOM1.2

All documents delivered in the Complete SDG File (CSF) must be original documents where possible.

	PAGE NOs. FROM	PAGE NOs. TO	CHECK FOR LAB	CHECK FOR USEPA
1. **Inventory Sheet** (DC-2) (Do not number)			✓	✓
2. **SDG Case Narrative**	001	004	✓	✓
3. **SDG Cover Sheet/Traffic Report**	005	~~008~~ 0007 SD 12/6/12	✓	✗
4. **Trace Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1 and VOA-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Recover (Form III VOA) (if requested by USEPA Region)				
Method Blank Summary (Form IV VOA)				
GC/MS Instrument Performance Check (Form V VOA)				
Internal Standard Area and RT Summary (Form VIII VOA)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)				
Tentatively Identified Compounds (Form I VOA-TIC)				
Reconstructed total ion chromatograms (RIC) for each sample				
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified				
Quantitation reports				
Mass Spectra of all reported TICs with three best library matches				
c. Standards Data (All Instruments)				
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)				
RICs and Quantitaation Reports for all Standards				
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)				
RICs and Quantitation Reports for all Standards				
d. Raw/Quality Control (QC) Data				
BFB				
Blank Data				
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4894 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
e. Trace SIM Data (Place at the end of the Trace Volatiles Section)	NA	NA	NA	NA
[Form I VOA-SIM; Form II VOA-SIM1 and VOA-SIM2; Form IV-VOA-SIM; Form VI VOA-SIM; Form VII VOA-SIM; Form VIII VOA-SIM; and all raw data for QC, Samples, and Standards.]				
5. **Low/Med Volatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1, VOA-2, VOA-3, VOA-4)	008	009	✓	✓
Matrix Spike/Matrix Spike Duplicate Recovery (Form III VOA-1 and VOA-2) (if requested by USEPA Region)	010	010	✓	✓
Method Blank Summary (Form IV VOA)	011	014	✓	✓
GC/MS Instrument Performance Check (Form V VOA)	015	020	✓	✓
Internal Standard Area and RT Summary (Form VIII VOA)	021	024	✓	✓
b. Sample Data	025	~~235~~ OK (SD)		
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)			✓	✓
Tentatively Identified Compounds (Form I VOA-TIC)			✓	✓
Reconstructed total ion chromatograms (RIC) for each sample			✓	✓
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			✓	✓
Quantitation reports			✓	✓
Mass Spectra of all reported TICs with three best library matches			✓	✓
c. Standards Data (All Instruments)	~~0237~~	0356		
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)	0236	(SD) 12/6/12	✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
d. Raw/Quality Control (QC) Data				
BFB	0357	0400	✓	✓
Blank Data	0401	0503	✓	✓
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)	0504	0511	✓	✓

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4894 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
6. **Semivolatiles Data**				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II SV-1, SV-2, SV-3, SV-4)	0512	0513	✓	✓
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III SV-1 and SV-2) (if requested by USEPA Region)	0514	0514	✓	✓
Method Blank Summary (Form IV SV)	0515	0515	✓	✓
GC/MS Instrument Performance Check (Form V SV)	0516	0519	✓	✓
Internal Standard Area and RT Summary (Form VIII SV-1 and SV-2)	0520	0525	✓	✓
b. Sample Data	0527	0672		
TCL Results - Organics Analysis Data Sheet (Form I SV-1 and SV-2)			✓	✓
Tentatively Identified Compounds (Form I SV-TIC)			✓	✓
Reconstructed total ion chromatograms (RIC) for each sample			✓	✓
For each sample:	—	—		
Raw Spectra and background-subtracted mass spectra of target compounds			✓	✓
Quantitation reports			✓	✓
Mass Spectra of TICs with three best library matches			✓	✓
GPC chromatograms (if GPC is required)			✓	✓
c. Standards Data (All Instruments)	0673	0750		
Initial Calibration Data (Form VI SV-1, SV-2, SV-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
Continuing Calibration Data (Form VII SV-1, SV-2, SV-3)			✓	✓
RICs and Quantitation Reports for all Standards			✓	✓
d. Raw (QC) Data				
DFTPP	0751	0790	✓	✓
Blank Data	0791	0806	✓	✓
MS/MSD Data (if requested by USEPA Region)	0807	0814	✓	✓
e. Raw GPC Data	—	—	✓	—

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4894 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Semivolatile SIM Data	NA	NA	NA	NA
[Form I SV-SIM; Form II SV-SIM1 and SV-SIM2; Form III-SV-SIM1 and SV-SIM2 (if required; Form IV SV-SIM; Form VI SV-SIM; Form VII SV-SIM; Form VIII SV-SIM1 and SV-SIM2; and all raw data for QC, Samples, and Standards.]				
7. **Pesticides Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II PEST-1 and PEST-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III PEST-1 and PEST-2)				
Laboratory Control Sample Recovery (Form III PEST-3 and PEST-4)				
Method Blank Summary (Form IV PEST)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I PEST)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report or data system printout				
Manual work sheets				
For Pesticides by GC/MS				
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)				
c. Standards Data				
Initial Calibration of Single Component Analytes (Form VI PEST-1 and PEST-2)				
Toxaphene Initial Calibration (Form VI PEST-3 and PEST-4)				
Analyte Resolution Summary (Form VI PEST-5, per column)				
Performance Evaluation Mixture (Form VI PEST-6)				
Individual Standard Mixture A (Form VI PEST-7)				
Individual Standard Mixture B (Form VI PEST-8)				
Individual Standard Mixture C (Form VI PEST-9 and PEST-10)				
Calibration Verification Summary (Form VII PEST-1)				
Calibration Verification Summary (Form VII PEST-2)				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4894 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Calibration Verification Summary (Form VII PEST-3)			NA	NA
Calibration Verification Summary (Form VII PEST-4)				
Analytical Sequence (Form VIII PEST)				
Florisil Cartridge Check (Form IX PEST-1)				
Pesticide GPC Calibration (Form IX PEST-2)				
Identification Summary for Single Component Analytes (Form X PEST-1)				
Identification Summary for Toxaphene Form X PEST-2)				
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample				
e. Raw GPC Data				
f. Raw Florisil Data				
8. **Aroclor Data**				
a. QC Summary				
Surrogate Recovery Summary (Form II ARO-1 and ARO-2)	NA	NA	NA	NA
Matrix Spike/Matrix Spike Duplicate Summary (Form III ARO-1 and ARO-2)				
Laboratory Control Sample Recovery (Form III ARO-3 and ARO-4)				
Method Blank Summary (Form IV ARO)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I ARO)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report of data system printout				
Manual work sheets				
For Aroclors by GC/MS				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4894 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			NA	NA
c. Standards Data	NA	NA		
Aroclors Initial Calibration (Form VI ARO-1, ARO-2, and ARO-3)				
Calibration Verification Summary (Form VII ARO-1)				
Analytical Sequence (Form VIII ARO)				
Identification Summary for Multicomponent Analytes (Form X ARO)				
Chromatograms and data system printouts A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data				
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample (LCS) Data				
e. Raw GPC Data (if performed)	—	—	—	
9. Miscellaneous Data				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	0815	0831 ~~0829~~	✓	✓
Internal sample and sample extract transfer chain-of-custody records	—	—	✓	✓
Screening records	NA	NA	NA	NA
All instrument output, including strip charts from screening activities (describe or list)				
----------	NA	NA	NA	NA
----------	NA	NA	NA	NA
10. EPA Shipping/Receiving Documents				
Airbills (No. of shipments 2)	0832	0833	✓	✓
Chain of Custody Records	0833	0835	✓	✓
Sample Tags			✓	✓
Sample Log-in Sheet (Lab & DC-1)	0836	0841	✓	✓
Miscellaneous Shipping/Receiving Records (describe or list)				
CUSTODY SEALS	0842	0843	✓	✓
----------	NA	NA	NA	NA

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 43082 SDG NO. A4894 SDG NOs. TO FOLLOW ----
----- ---- MOD. REF. NO. ----------

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
11. **Internal Lab Sample Transfer Records and Tracking Sheets** (describe or list)				
---	---	---	---	—
---	---	---	---	—
12. **Other Records** (describe or list)				
Telephone Communication Log	---	---	---	—
PE SAMPLE INSTRUCTIONS E-Mail	~~8345~~	~~8345~~	✓	X
EMAIL COMMUNICATION	0844			
	(SD) 12/6/12			

13. **Comments**

Completed by: Nicole Hogue (Signature) NICOLE HOGUE/CLP COORDINATOR (Printed Name/Title) 12/01/12 (Date)
(CLP Lab)

Verified by: [illegible] (Signature) VISHNUVARDAHN DAVLAPUR/P.M. (Printed Name/Title) 12/01/12 (Date)
(CLP Lab) for

Audited by: [illegible] (Signature) Steven Dube / Intern (Printed Name/Title) 12/6/12 (Date)
FOR (USEPA) NOBIS ENGINEERING

1

Tier 4 ACTUAL Sampling Event – Part 2

Field Sampling Contractor/Contract: Nobis Engineering, Inc./EP-S1-06-03		Ship to Lab Date: 11/9/12	Data Package Receipt Date: 11/28/12
DAS Case No.: 0106S		SDG: D05047	Data Turnaround Time: 19 days
Site Name: Nyanza Chemical Waste Dump, OU2		Site Location: Ashland, MA	CERCLIS #: MAD990685422
Site ID: 0115	Action Code: Remedial Action (RA)	Operable Unit:00	Purpose Code: Remedial Action (RA)
Lab Name: Spectrum Analytical, Inc.		Lab Location: Warwick, RI	Lab Code: Mitkem
No. of Samples: 9 (Total-Including PES & Blanks)		Sample IDs: D05047-D05055	Case Complete: **Yes** or No Total Cost: $450

Parameter	Cost per Parameter, Matrix & Sample	Matrix	No. of Samples	Associated PE Sample Numbers	Associated Field Duplicates	Associated Spike/ Duplicates	Associated MS/MSD Samples	Associated Blanks & Type
DISGAS/MEE	$50	GW	9		D05047/D05048			

Note: The Chain of Custody and Data Validation Memo must be attached.
List the Parameter and Matrix from the NEST Look-Up Table. If the parameter does not exist in the look-up table, send a copy of the Method or a definition along with this form to the RSCC for entry into NESTS.

USEPA CLP Generic COC (REGION COPY)
DateShipped:
CarrierName: FedEx
AirbillNo: 801706099620

CHAIN OF CUSTODY RECORD
Nyanza
Project Code:
Cooler #:

No: 1-110612-095758-0008
Lab: Mitkem
Lab Contact: Ed Lawler
Lab Phone: 401-732-3400

Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Sample Type
D05047	Ground Water/ Josh Stewart	Grab	Dis.Gas, Dis.Gas, Dis.Gas	7 (HCl), 8 (HCl), 9 (HCl) (3)	MW115A-110512	11/05/2012 10:15	Field Duplicate 01
D05048	Ground Water/ Josh Stewart	Grab	Dis.Gas, Dis.Gas, Dis.Gas	18 (HCl), 19 (HCl), 20 (HCl) (3)	MW115A-110512D	11/05/2012 10:40	Field Duplicate 01
D05049	Ground Water/ Josh Stewart	Grab	Dis.Gas, Dis.Gas, Dis.Gas	27 (HCl), 28 (HCl), 29 (HCl) (3)	MW-405B-110512	11/05/2012 15:25	Field Sample
D05050	Ground Water/ Rich Rizza	Grab	Dis.Gas, Dis.Gas, Dis.Gas	36 (HCl), 37 (HCl), 38 (HCl) (3)	MW115B-110512	11/05/2012 10:58	Field Sample
D05051	Ground Water/ Rich Rizza	Grab	Dis.Gas, Dis.Gas, Dis.Gas	45 (HCl), 46 (HCl), 47 (HCl) (3)	MW405A-110512	11/05/2012 15:38	Field Sample
D05052	Ground Water/ Steve Dube	Grab	Dis.Gas, Dis.Gas, Dis.Gas	54 (HCl), 55 (HCl), 56 (HCl) (3)	MW203B-110512	11/05/2012 11:30	Field Sample
D05053	Ground Water/ Adam Roy	Grab	Dis.Gas, Dis.Gas, Dis.Gas	72 (HCl), 73 (HCl), 74 (HCl) (3)	MW203A-110512	11/05/2012 12:05	Field Sample
D05054	Ground Water/ Adam Roy	Grab	Dis.Gas, Dis.Gas, Dis.Gas	81 (HCl), 82 (HCl), 83 (HCl) (3)	MW201-110512	11/05/2012 15:30	Field Sample

Special Instructions:	**Shipment for Case Complete? N**
	Samples Transferred From Chain of Custody #
Analysis Key: Dis.Gas=Dissolved Gasses	

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time

USEPA CLP Generic COC (REGION COPY)

DateShipped:

CarrierName: FedEx

AirbillNo: 801706099516

CHAIN OF CUSTODY RECORD

Nyanza

Project Code:

Cooler #:

No: 1-110912-104840-0015

Lab: Mitkem

Lab Contact: Ed Lawler

Lab Phone: 401-732-3400

Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Sample Type
D05055	Ground Water/ Josh Stewart	Grab	Dis.Gas, Dis.Gas, Dis.Gas	351 (HCl), 354 (HCl), 355 (HCl) (3)	MWB5-110812	11/08/2012 10:10	Field Sample

Special Instructions:	**Shipment for Case Complete? Y**
	Samples Transferred From Chain of Custody #
Analysis Key: Dis.Gas=Dissolved Gasses	

Items/Reason	Relinquished by	Date	Received by	Date	Time		Items/Reason	Relinquished By	Date	Received by	Date	Time

Nobis
Engineering a Sustainable Future

December 7, 2012
Nobis File No. 80022

Mr. Dan Keefe
EPA Site Manager
EPA-New England Region I
5 Post Office Square
Suite 100, Mailcode OSRR07-4
Boston, MA 02109-3912

Re: Contract No. EP-S1-06-03
Task Order No. 0022-RA-RA-0115
Case No. 0106S, Sample Delivery Group (SDG) No. D05047
Spectrum Analytical, Inc., Warwick, Rhode Island
Nyanza Chemical Waste Dump, OU2 Superfund Site
Ashland, Massachusetts
CERCLIS No.: MAD990685422

Tier I Modified Organic Data Validation

Dissolved Gases: 9/Aqueous/ D05047-D05055
Field Duplicate: D05047/D05048

Dear Mr. Keefe:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the organic analytical data for 9 aqueous groundwater samples collected by Nobis Engineering, Inc. at the Nyanza Chemical Waste Dump, OU2 Superfund Site located in Ashland, Massachusetts. The samples were analyzed for dissolved gases (methane, ethane, and ethene) by RSK 175 using gas chromatography-flame ionization detection. A Tier I modified data validation was deemed sufficient at this time.

The data were evaluated based on the following parameters:

*	•	Overall Evaluation of Data and Potential Usability Issues
*	•	Data Completeness
*	•	Preservation and Technical Holding Times
NE	•	Initial and Continuing Calibrations
*	•	Blanks
NA	•	Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
*	•	Laboratory Control Samples
NA	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
*	•	Field Duplicates
NA	•	Laboratory Duplicates

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (508) 683-0891

NA	•	Internal Standards
NA	•	Performance Evaluation (PE) Sample Results
*	•	Reported Quantitation Limits

* All criteria were met for this parameter.
NA – Not applicable.
NE – Not evaluated.

Overall Evaluation of Data and Potential Usability Issues

The objectives of the groundwater sampling at the site are to provide a comprehensive evaluation of the shallow and deep groundwater contaminants at the site and to evaluate the feasibility of implementing monitored natural attenuation (MNA) as a remedial alternative for the site.

Data are usable for the purposes of the project except as noted below.

Data Completeness

The data report was completed. (Laboratory report number L2367.) All submitted samples were analyzed and reported. No issues were noted during analysis of the samples.

Please contact me at (978) 703-6021 or gderuzzo@nobiseng.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Tables: Data Summary Tables

Enclosure:

DATA SUMMARY TABLE
Dissolved Gases
Tier I Validated Data
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 0106S SDG NO.: L2367

Sample Name	D05047	D05048	D05049	D05050	D05051
Sample Location	MW-115A	MW-115A	MW-405B	MW-115B	MW-405A
Lab Sample ID	L2367-01	L2367-02	L2367-03	L2367-04	L2367-05
Station ID	MW115A-110512	MW115A-110512D	MW-405B-110512	MW115B-110512	MW405A-110512
Dilution Factor	1	1	1	1	1
Sample Date	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12
Date Analyzed	14 Nov 12	14 Nov 12	14 Nov 12	14 Nov 12	14 Nov 12
Chemical					
Ethane	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U
Ethylene	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U
Methane	98	96	98	88	6.9

DATA SUMMARY TABLE
Dissolved Gases
Tier I Validated Data
Aqueous - ug/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: 0106S SDG NO.: L2367

Sample Name	D05052	D05053	D05054	D05055
Sample Location	MW-203B	MW-203A	MW-201	B/MW-05
Lab Sample ID	L2367-06	L2367-07	L2367-08	L2367-09
Station ID	MW203B-110512	MW203A-110512	MW201-110512	MWB5-110812
Dilution Factor	1	1	1	1
Sample Date	05 Nov 12	05 Nov 12	05 Nov 12	08 Nov 12
Date Analyzed	14 Nov 12	14 Nov 12	14 Nov 12	14 Nov 12
Chemical				
Ethane	1.3 U	1.4	1.3 U	1.3 U
Ethylene	1.7 U	18	1.7 U	1.6 U
Methane	53	98	17	17

Engineering a Sustainable Future

December 4, 2012
Nobis File No. 80022

Mr. Dan Keefe
EPA Site Manager
EPA-New England Region I
5 Post Office Square
Suite 100, Mailcode OSRR07-4
Boston, MA 02109-3912

Re: Contract No. EP-S1-06-03
Task Order No. 0022-RA-RA-0115
Case No. E013S, Sample Delivery Group (SDG) No. EP0700
Region I OEME Laboratory, North Chelmsford, Massachusetts 01863
Nyanza Chemical Waste Dump, OU2 Superfund Site
Ashland, Massachusetts
CERCLIS No.: MAD990685422

Tier I Modified Inorganic Data Validation

Anions: 18/Aqueous/ EP0700-EP0717
Field Duplicate: EP0715/EP0716

Dear Mr. Keefe:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the inorganic analytical data for 18 aqueous groundwater samples collected by Nobis Engineering, Inc. at the Nyanza Chemical Waste Dump, OU2 Superfund Site located in Ashland, Massachusetts. The samples were analyzed for anions (bromide, fluoride, chloride, sulfate, nitrate, and nitrite) by EPA method 300.0. A Tier I modified data validation was deemed sufficient at this time.

The data were evaluated based on the following parameters:

*	•	Overall Evaluation of Data and Potential Usability Issues
*	•	Data Completeness
*	•	Preservation and Technical Holding Times
NE	•	Initial and Continuing Calibrations
*	•	Blanks
NA	•	Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
*	•	Laboratory Control Samples
	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
*	•	Field Duplicates
*	•	Laboratory Duplicates

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (508) 683-0891

NA	•	Internal Standards
NA	•	Performance Evaluation (PE) Sample Results
	•	Reported Quantitation Limits

* All criteria were met for this parameter.
NA – Not applicable.
NE – Not evaluated.

Overall Evaluation of Data and Potential Usability Issues
The objectives of the groundwater sampling at the site are to provide a comprehensive evaluation of the shallow and deep groundwater contaminants at the site and to evalutate the feasibility of implementing monitored natural attenuation (MNA) as a remedial alternative for the site.

Data are usable for the purposes of the project except as noted below.

Data Completeness
Three data reports were submitted: 12080035; 12080036; and 12080042. All submitted samples were analyzed and reported.

Matrix Spike/Matrix Spike Duplicates
EP0700 was analyzed as a matrix spike. Nitrate was recovered above the upper control limit. Results for this analyte may be considered biased high. EP0717 was analyzed as a matrix spike. Sulfate was recovered below the lower control limit. Results for this analyte may be considered biased low. Chloride spike results were not evaluated in all three spike samples (EP0700, EP0710, and EP0717) because the sample concentrations were greater than 4 times the spike amount.

Reporting Limits
All samples except for EP0700, EP0711, EP0714, and EP0717 required dilution for one or more analytes. Reporting limits were raised accordingly.

Please contact me at (978) 703-6021 or gderuzzo@nobiseng.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Tables: Data Summary Tables

Enclosure: Data Review Checklist

Nobis

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Anions Analysis
Aqueous - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA

CASE NO.: E013S OEME PROJECT NUMBERS:
12080035, 12080036 and 12080042

	Sample Name	EP0700	EP0704	EP0705	EP0703	EP0702	EP0701
	Sample Location	MW-403A	MW-304B	MW-403B	MW-304A	MW-203B	MW-203A
	Lab Sample ID	AB31918	AB31922	AB31923	AB31921	AB31920	AB31919
	Station ID	MW-403A-081312A	MW-304B-081312A	MW-403B-081312A	MW-304A-081312A	MW-203B-081312A	MW-203A-081312A
	Dilution Factor	1	1/20	1/10	200	1/20	200
	Sample Date	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12	13 Aug 12
	Date Analyzed	14-Aug-12	15-Aug-12	15-Aug-12	15-Aug-12	15-Aug-12	15-Aug-12
Chemical	RL						
Bromide	0.1	0.2	0.6	0.5	20 U	0.6	20 U
Chloride	1	150	950	190	2900	320	6900
Fluoride	0.1	0.3	0.16	0.16	20 U	0.4	20 U
Nitrate	0.05	11	0.26	1.7	10 U	4.7	10 U
Nitrite	0.05	0.05 U	0.05 U	0.05 U	10 U	0.05 U	10 U
Sulfate	0.1	34	620	33	1500	540	3700
Nitrate as Nitrogen	0.011	2.5	0.06	0.38	2.2 U	0.03	2.2 U
Nitrite as Nitrogen	0.015	0.015 U	0.015 U	0.015 U	3 U	0.015 U	3 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Anions Analysis
Aqueous - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA

CASE NO.: E013S OEME PROJECT NUMBERS:
12080035, 12080036 and 12080042

	Sample Name	EP0712	EP0709	EP0708	EP0710	EP0711	EP0706
	Sample Location	MW-6A	RMW-405B	RMW-405A	MW-406A	MW-406B	MW-115A
	Lab Sample ID	AB31930	AB31927	AB31926	AB31928	AB31929	AB31924
	Station ID	MW-6A-081412A	RMW-405B-081412A	RMW-405A-081412A	MW-406A-081412A	MW-406B-081412A	MW-115A-081412A
	Dilution Factor	1/10	200	1/20	1/10	1	200
	Sample Date	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12	14 Aug 12
	Date Analyzed	16-Aug-12	16-Aug-12	16-Aug-12	16-Aug-12	16-Aug-12	16-Aug-12
Chemical	RL						
Bromide	0.1	0.1 U	20 U	1.1	0.45	0.5	20 U
Chloride	1	120	3700	420	220	190	4000
Fluoride	0.1	0.1 U	20 U	0.85	1.4	0.77	20 U
Nitrate	0.05	0.05 U	10 U	1.3	0.05 U	0.05 U	10 U
Nitrite	0.05	0.05 U	10 U	0.05 U	0.05 U	0.05 U	10 U
Sulfate	0.1	38	2800	220	29	35	2100
Nitrate as Nitrogen	0.011	0.011 U	2.2 U	0.29	0.011 U	0.011 U	2.2 U
Nitrite as Nitrogen	0.015	0.015 U	3.1 U	0.015 U	0.015 U	0.015 U	3.1 U

DATA SUMMARY TABLE
Tier I, 2AVE Validated Data
Anions Analysis
Aqueous - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA

CASE NO.: E013S OEME PROJECT NUMBERS:
12080035, 12080036 and 12080042

Sample Name		EP0707	EP0717	EP0716	EP0713	EP0715	EP0714
Sample Location		MW-115B	MW-305B	MW-113B	MW-305A	MW-113B	MW-110
Lab Sample ID		AB31925	AB31995	AB31994	AB31991	AB31993	AB31992
Station ID		MW-115B-081412A	MW-305B-081512A	MW-113B-081512A	MW-305A-081512A	FDUP-01-081512A	MW-110-081512A
Dilution Factor		100	1	1/10	1/10	1/10	1
Sample Date		14 Aug 12	15 Aug 12	15 Aug 12	15 Aug 12	15-Aug-12	15 Aug 12
Date Analyzed		16-Aug-12	17-Aug-12	17-Aug-12	17-Aug-12	17-Aug-12	17-Aug-12
Chemical	RL						
Bromide	0.1	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chloride	1	2000	35	37	100	35	46
Fluoride	0.1	10 U	0.1 U	0.1	1	0.1	0.16
Nitrate	0.05	5 U	1.9	0.93	0.05 U	0.95	0.05 U
Nitrite	0.05	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Sulfate	0.1	1900	42	62	250	62	38
Nitrate as Nitrogen	0.011	1.1 U	0.43	0.21	0.011 U	0.21	0.011 U
Nitrite as Nitrogen	0.015	1.5 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U

Engineering a Sustainable Future

Generic Data Review Checklist

Project: Nyanza OU2
Project #: 80022
Case#: E013S
Date: 12/4/12
Methods: 300.0
Laboratory: OEME
SDG: 12080035, 12080036, 12080042
Reviewer: Gail DeRuzzo

1. Case Narrative and Data Package Completeness (COC and Analyte List Review)

3 reports; EP0700-EP0717
12080035 – EP0700-EP0705
12080036 – EP0706-EP0712
12080042 – EP0713-EP0717

2. Holding Time and Sample Preservation Compliance

OK

3. Lab and Field Blanks

OK

4. Laboratory Control Samples

OK

5. Field Duplicate Precision

EP0715/EP0716 - ok

6. Laboratory Duplicate Precision

EP0700 and EP0710 and EP0717 - ok

7. Matrix Spikes

EP0700 – nitrate and chloride conc. High. Cl sample amount >4x sample conc.

EP0710 – CL sample amount >4x sample conc.
EP0717 – sulfate low, CL sample amount >4x sample conc.

8. Surrogate Spikes

NA

9. Internal Standards

NA

10. Performance Evaluation Samples

NA

11. Reporting Limits

EP0704, 702, 708 (20x), EP0705, 712, 710, 716, 713, 715 (10x), EP0703, 701, 706, 709 (200x), EP0707 (100x)

12. Calibration Issues

Not reviewed

13. Other

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January 25, 2013
Nobis File No. 80022

Mr. Dan Keefe
EPA Site Manager
EPA-New England Region I
5 Post Office Square
Suite 100, Mailcode OSRR07-4
Boston, MA 02109-3912

Re: Contract No. EP-S1-06-03
Task Order No. 0022-RA-RA-0115
Case No. E014S, Sample Delivery Group (SDG) No. EP0726
Region I OEME Laboratory, North Chelmsford, Massachusetts 01863
Nyanza Chemical Waste Dump, OU2 Superfund Site
Ashland, Massachusetts
CERCLIS No.: MAD990685422

Tier I Modified Inorganic Data Validation

Anions: 42/Aqueous/ EP0726-EP0763, EP0765-EP0768
Field Duplicates: (EP0726/EP0727); (EP0754/EP0755); (EP0756/EP0759)
1/Equipment Blank: EP0764

Dear Mr. Keefe:

Nobis Engineering, Inc. performed a Tier I data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the inorganic analytical data for 42 aqueous groundwater samples collected by Nobis Engineering, Inc. at the Nyanza Chemical Waste Dump, OU2 Superfund Site located in Ashland, Massachusetts. The samples were analyzed for anions (chloride, sulfate, nitrate, and nitrite) by EPA method 300.0. A Tier I modified data validation was deemed sufficient at this time.

The data were evaluated based on the following parameters:

*	•	Overall Evaluation of Data and Potential Usability Issues
*	•	Data Completeness
*	•	Preservation and Technical Holding Times
NE	•	Initial and Continuing Calibrations
	•	Blanks
*	•	Laboratory Control Samples
	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
	•	Field Duplicates
*	•	Laboratory Duplicates

NA
- Performance Evaluation (PE) Sample Results
- Reported Quantitation Limits

* All criteria were met for this parameter.
NA – Not applicable.
NE – Not evaluated.

Overall Evaluation of Data and Potential Usability Issues
The objectives of the groundwater sampling at the site are to provide a comprehensive evaluation of the shallow and deep groundwater contaminants at the site and to evaluate the feasibility of implementing monitored natural attenuation (MNA) as a remedial alternative for the site.

Data are usable for the purposes of the project except as noted below.

Data Completeness
Five data reports were submitted: 12110007; 12110010; 12110013; 12110017; and 12110020. All submitted samples were analyzed and reported.

Blanks
Sample EP0764 was submitted as an equipment blank. Sulfate was detected in the blank at a concentration of 1.9 mg/L. All samples had levels greater than 5 times the blank concentration except for sample EP0737. If a Tier II/III validation was performed, the result (4.8 mg/L) for this sample would be reported as U at that value.

Field Duplicates
Three duplicate pairs were analyzed with the samples. All analytes in the three pairs were within in acceptance criteria (30% RPD), except for nitrate in the field duplicate pair, EP0726/EP0727. If a Tier II/III validation was performed, nitrate for these two samples would be estimated (J) to indicate variability.

Matrix Spike/Matrix Spike Duplicates
Chloride spike results were not evaluated in three spike samples (EP0730, EP0736, and EP0746) because the sample concentrations were greater than 4 times the spike amount. Sulfate spike results were not evaluated in three spike samples (EP0746, EP0757, and EP0766) because the sample concentrations were greater than 4 times the spike amount. Nitrite recoveries were biased high due to matrix interference owing to high chloride concentrations in samples EP0757, EP0758, and EP0761. The laboratory qualified the sample data for nitrite as estimated.

Reporting Limits
All samples except for EP0741-742, EP0744, EP0746, EP0752, EP0763-764, and EP0766 required dilution for one or more analytes. Reporting limits were raised accordingly.

Please contact me at (978) 703-6021 or gderuzzo@nobiseng.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS ENGINEERING, INC.

Gail DeRuzzo
Lead Chemist

Tables: Data Summary Tables

Enclosure: Data Review Checklist

DATA SUMMARY TABLE
Tier I Validated Data
Anions - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: E014S SDG NO.: 12110007

Sample Name	EP0728	EP0729	EP0730	EP0731	EP0733	EP0734
Sample Location	MW-405B	MW-115B	MW-405A	MW-203B	MW-203A	MW-201
Lab Sample ID	AB35846	AB35847	AB35848	AB35849	AB35850	AB35851
Station ID	MW-405B-110512	MW115B-110512	MW405A-110512	MW203B-110512	MW203A-110512	MW201-110512
Dilution Factor	20/200	20/100	20	20	20/500	1/20
Sample Date	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12	05 Nov 12
Date Analyzed	06 Nov 12/07 Nov 12	06 Nov 12/07 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12/07 Nov 12	06 Nov 12/07 Nov 12
Chemical						
Chloride	3200	1700	360	280	5900	270
Nitrate	6.9	1 U	1.2	1 U	5.3	0.6
Nitrate as Nitrogen	1.6	0.22 U	0.27	0.22 U	1.2	0.14
Nitrite	1 U	1 U	1 U	1 U	1 U	0.05 U
Nitrite as Nitrogen	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.03 U
Sulfate	2600	1800	180	490	3200	220
	Cl/SO4 from 1:200 dilution	Cl/SO4 from 1:100 dilution			Cl/SO4 from 1:500 dilution	Cl/SO4 from 1:20 dilution

DATA SUMMARY TABLE
Tier I Validated Data
Anions - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: E014S SDG NO.: 12110007

Sample Name	EP7026	EP7027	EP7032
Sample Location	MW-115A	MW-115A	MW-202
Lab Sample ID	AB35852	AB35853	AB35854
Station ID	MW115A-110512	MW115A-110512D	MW202-110512
Dilution Factor	20/200	20/200	20
Sample Date	05 Nov 12	05 Nov 12	05 Nov 12
Date Analyzed	06 Nov 12/07 Nov 12	06 Nov 12/07 Nov 12	06 Nov 12
Chemical			
Chloride	3300	3500	450
Nitrate	10	6.5	2.1
Nitrate as Nitrogen	2.3	1.5	0.47
Nitrite	1 U	1 U	1 U
Nitrite as Nitrogen	0.3 U	0.3 U	0.3 U
Sulfate	1700	1800	710

Cl/SO4 from 1:200 dilution

Cl/SO4 from 1:200 dilution

DATA SUMMARY TABLE
Tier I Validated Data
Anions - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: E014S SDG NO.: 12110010

Sample Name	EP0735	EP0736	EP0737	EP0738	EP0739	EP0740
Sample Location	MW-04C	MW-04B	WP-105	RMW-305A	MW-304B	MW-403B
Lab Sample ID	AB35878	AB35879	AB35880	AB35881	AB35882	AB35883
Station ID	MW04C-110612	MW04B-110612	WP105-110612	RMW305A-110612	MW304B-110612	MW403B-110612
Dilution Factor	1/20	1/20	1/20	1/20	1/20	1/20
Sample Date	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12	06 Nov 12
Date Analyzed	07 Nov 12	08 Nov 12/07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	08 Nov 12/07 Nov 12
Chemical						
Chloride	59	140	95	97	970	170
Nitrate	0.05 U	2.6	0.05 U	0.05 U	0.05 U	1.2
Nitrate as Nitrogen	0.011 U	0.59	0.011 U	0.011 U	0.011 U	0.27
Nitrite	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U
Nitrite as Nitrogen	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Sulfate	60	130	4.8	270	610	37
	Cl/SO4 from 1:20 dilution	Cl/SO4 from 1:20 dilution	Cl from 1:20 dilution	Cl/SO4 from 1:20 dilution	Cl/SO4 from 1:20 dilution	Cl from 1:20 dilution

DATA SUMMARY TABLE
Tier I Validated Data
Anions - mg/L

EP0741 RMW-116A AB35884 RMW116A-110612 1 06 Nov 12 08 Nov 12	EP0742 MW-04A AB35885 MW4A-110612 1 06 Nov 12 08 Nov 12	EP0743 MW-204A AB35886 MW204A-110612 1/20/50 06 Nov 12 07 Nov 12/08 Nov 12	EP0744 MW-305B AB35887 MW305B-110612 1 06 Nov 12 08 Nov 12	EP0745 MW-304A AB35888 MW304A-110612 1/100 06 Nov 12 07 Nov 12/08 Nov 12	EP0746 MW-403A AB35889 MW403A-110612 1/20 06 Nov 12 08 Nov 12
11	4.7	580	24	2800	130
0.87	0.66	0.05 U	0.81	0.05 U	9.9
0.2	0.15	0.011 U	0.18	0.011 U	2.2
0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
27	10	1200	45	1400	36

Cl from 1:20 dilution;
SO4 from 1:50 dilution

Cl/SO4 from 1:100
dilution

Cl from 1:20 dilution

DATA SUMMARY TABLE
Tier I Validated Data
Anions - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: E014S SDG NO.: 12110013

Sample Name	EP0747	EP0748	EP0749	EP0750	EP0751	EP0752
Sample Location	MW-06A	MW-09A	MW-09B	MW-104A	MW-104B	MW-110
Lab Sample ID	AB35917	AB35918	AB35919	AB35920	AB35921	AB35922
Station ID	MW6A-110712	MW9A-110712	MW9B-110712	MW104A-110712	MW104B-110712	MW110-110712
Dilution Factor	1/20	20	1/20	20	1/20	1
Sample Date	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12	07 Nov 12
Date Analyzed	08 Nov 12	08 Nov 12	08 Nov 12	08 Nov 12	08 Nov 12	08 Nov 12
Chemical						
Chloride	92	110	23	290	16	34
Nitrate	0.05 U	1 U	0.05 U	1 U	0.05 U	0.05 U
Nitrate as Nitrogen	0.011 U	0.22 U	0.011 U	0.22 U	0.011 U	0.011 U
Nitrite	0.05 U	1 U	0.05 U	1 U	0.05 U	0.05 U
Nitrite as Nitrogen	0.015 U	0.3 U	0.015 U	0.3 U	0.015 U	0.015 U
Sulfate	42	420	430	410	--	34

Cl from 1:20 dilution SO4 from 1:20 dilution SO4 from 1:20 dilution

DATA SUMMARY TABLE
Tier I Validated Data
Anions - mg/L

EP0753 MW-113B AB35923 MW113B-110712 1/20 07 Nov 12 08 Nov 12	EP0754 MW-302 AB35924 MW302-110712 20 07 Nov 12 08 Nov 12	EP0755 MW-302 AB35925 MW302-110712D 20 07 Nov 12 08 Nov 12	EP0756 MW-401 AB35926 MW401-110712 20 07 Nov 12 08 Nov 12	EP0757 MW-406B AB35927 MW406B-110712 1/20 07 Nov 12 09 Nov 12/08 Nov 12	EP0758 MW-406A AB35928 MW406A-110712 1/20 07 Nov 12 09 Nov 12/08 Nov 12	EP0759 MW-401 AB35929 MW401-110712D 20 07 Nov 12 08 Nov 12
53	890	900	650	170	110	640
0.05 U	1 U	1 U	1 U	0.05 U	0.05 U	1 U
0.011 U	0.22 U	0.22 U	0.22 U	0.011 U	0.011 U	0.22 U
0.05 U	1 U	1 U	1 U	0.05 UJ	0.05 UJ	1 U
0.015 U	0.3 U	0.3 U	0.3 U	0.015 U	0.015 U	0.3 U
96	600	600	500	37	16	500

Cl/SO4 from 1:20 dilution

Cl from 1:20 dilution

Cl from 1:20 dilution

DATA SUMMARY TABLE
Tier I Validated Data
Anions - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: E014S SDG NO.: 12110017

Sample Name	EP0760	EP0761	EP0762	EP0763	EP0764
Sample Location	MW-503B	RW-1	B/MW-05	MW-113A	
Lab Sample ID	AB36082	AB36083	AB36084	AB36085	AB36086
Station ID	MW503B-110812	RWS1-110812	MWB5-110812	MW113A-110812	EB01-110712
Dilution Factor	1/20	1/20	1/20	1	1
Sample Date	08 Nov 12	08 Nov 12	08 Nov 12	08 Nov 12	08 Nov 12
Date Analyzed	09 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12
Chemical					
Chloride	27	72	160	13	0.1 U
Nitrate	5.7	3.3	70	0.26	0.05 U
Nitrate as Nitrogen	1.3	0.74	16	0.06	0.011 U
Nitrite	0.05 U	0.05 UJ	4.5	0.05 U	0.05 U
Nitrite as Nitrogen	0.015 U	0.015 U	1.4	0.015 U	0.015 U
Sulfate	57	130	320	22	1.9

SO4 from 1:20 dilution

Cl/SO4 from 1:20 dilution

NO2 from undiluted run

DATA SUMMARY TABLE
Tier I Validated Data
Anions - mg/L

SITE: Nyanza Chemical Waste Dump - Ashland, MA
CASE NO.: E014S SDG NO.: 12110020

Sample Name	EP0765	EP0766	EP0767	EP0768
Sample Location	MW-B11	MW-503A	MW-402	SB-600
Lab Sample ID	AB36158	AB36159	AB36160	AB36161
Station ID	MWB11-110912	MW503A-110912	MW402-110912	SB600-110912
Dilution Factor	1/20	1	1/20	1/20
Sample Date	09 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12
Date Analyzed	09 Nov 12	09 Nov 12	09 Nov 12	09 Nov 12
Chemical				
Chloride	72	1	210	510
Nitrate	2.7	2.5	5.1	1.8
Nitrate as Nitrogen	0.61	0.56	1.2	0.41
Nitrite	4.6	0.22	0.05 U	0.05 U
Nitrite as Nitrogen	1.4	0.07	0.015 U	0.015 U
Sulfate	700	45	590	460

Cl/SO4 from 1:20 dilution

Cl/SO4 from 1:20 dilution

Cl/SO4 from 1:20 dilution

Engineering a Sustainable Future

Generic Data Review Checklist

Project: Nyanza OU2
Project #: 80022
Case#: E014S
Date: 1/25/13
Methods: 300.0
Laboratory: OEME
SDG: 12110007, 12110010, 12110013, 12110017, 12110020
Reviewer: Gail DeRuzzo

1. Case Narrative and Data Package Completeness (COC and Analyte List Review)

5 reports; EP0726-EP0768
12110007 – EP0728-EP0734, 26, 27 (9)
12110010 – EP0735-EP0746 (12)
12110013 – EP0747-EP0759 (13)
12110017 – EP0760 –EP0764 (5) – 764 = EB
12110020 – EP0765 – EP0768 (4)

2. Holding Time and Sample Preservation Compliance

OK

3. Lab and Field Blanks

EB= 764 – SO4 at 1.9 mg/L – only one sample (EP0737) had a result <5x the MB level – would be reported U.

4. Laboratory Control Samples

OK

5. Field Duplicate Precision

EP0726/EP0727 – nitrate >30% (42) – result would be J
EP0754/EP0755 - ok
EP0756/EP0759 - ok

6. Laboratory Duplicate Precision

AB35851(EP0734) – ok
AB35878 (EP0735) – ok

AB35887 (EP0744) – ok
AB35920 (EP0750) – ok
AB35926 (EP0756) – ok
AB36082 (EP0760) – ok
AB36160 (EP0767) - ok

7. Matrix Spikes

AB35848 - EP0730 – chloride conc. High. Cl sample amount >4x sample conc.
AB35879 - EP0736 – CL sample amount >4x sample conc.
AB35889 - EP0746 – sulfate and CL sample amount >4x sample conc.
AB35927 – EP0757 - CL/SO4 – sample amount >4x sample conc.; NO2 high due to CL conc. – J by lab
AB35928 – EP0758 - NO2 high due to CL conc. – J by lab
AB36083 – EP0761 – NO2 high due to CL conc. – J by lab
AB36159 – EP0766 – SO4 sample amount >4x sample conc.

8. Surrogate Spikes

NA

9. Internal Standards

NA

10. Performance Evaluation Samples

NA

11. Reporting Limits

EP0726-740, 743, 747-751, 753-762, 765, 767-768 (20x), EP0743 (50x), EP0729, 745 (100x), EP0726-728 (200x), EP0733 (500x)

12. Calibration Issues

Not reviewed

13. Other
EP0736 and 746 – nitrite results qualified by lab with J due to matrix interference.