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August 7, 2012

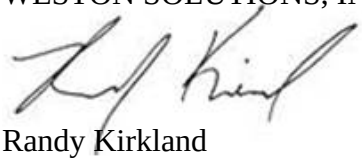
Ms. Shelly Lam
On-Scene Coordinator
Emergency Response Branch
U.S. Environmental Protection Agency Region V
2525 North Shadeland Avenue
Indianapolis, IN 46219

Subject: **Tuchman Cleaners Site Assessment Report, Revision 01**
Indianapolis, Marion County, Indiana
Technical Direction Document No.: S05-0001-1012-034
WESTON START Contract No.: EP-S5-06-04
Document Control No.: 1323-2A-AXEY

Dear Ms. Lam:

The Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START) is submitting the enclosed revised site assessment report for the Tuchman Cleaners Site in Indianapolis, Marion County, Indiana. If you have any questions or comments regarding the report or require additional copies, please contact me at (937) 602-3089.

Sincerely,
WESTON SOLUTIONS, INC.



Randy Kirkland
WESTON START Project Manager

Enclosure

cc: WESTON START DCN File

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SITE ASSESSMENT REPORT, REVISION 01
FOR THE
TUCHMAN CLEANERS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA
SITE ID NO. B5ZU

NPL STATUS: PROPOSED

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V
Emergency Response Branch
2595 North Shadeland Avenue, Suite 100, SE-GI
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Prepared by:

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Date Prepared:	August 7, 2012
Technical Direction Document No.:	S05-0001-1012-034
Document Control No.:	1323-2A-AXEY
Contract No.:	EP-S5-06-04
WESTON START Project Manager:	Randy Kirkland
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U.S. EPA On-Scene Coordinator:	Shelly Lam

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TUCHMAN CLEANERS SITE
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Prepared by:  Date: August 2, 2011

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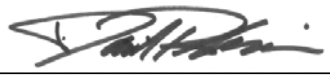
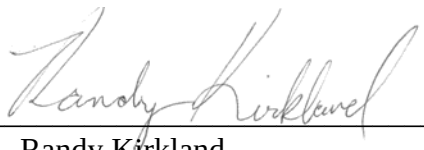
Revised by:  Date: August 7, 2012

David Robinson
WESTON START Project Scientist

Reviewed by:  Date: August 7, 2012

Randy Kirkland
WESTON START Project Manager

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/kg	Microgram per kilogram
µg/L	Microgram per liter
°C	Degree Celsius
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	Below ground surface
CFR	*Code of Federal Regulations*
DHHS	Department of Health and Human Services
HASP	Health and safety plan
IARC	International Agency for Research on Cancer
IDEM	Indiana Department of Environmental Management
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NTP	National Toxicology Program
OSC	On-Scene Coordinator
OSWER	Office of Solid Waste and Emergency Response
PCE	Tetrachloroethene
PID	Photoionization detector
ppbv	Part per billion by volume
PPE	Personal protective equipment
ppm	Part per million
RAL	Removal Action Level
RI	Remedial investigation
RSL	Regional Screening Level
SSL	Soil Screening Level
START	Superfund Technical Assessment and Response Team
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TDD	Technical Direction Document

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

U.S. EPA	United States Environmental Protection Agency
VISL	Vapor Intrusion Screening Level
VOC	Volatile organic compound
WESTON	Weston Solutions, Inc.

1. INTRODUCTION

The United States Environmental Protection Agency (U.S. EPA) tasked the Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START) to assist U.S. EPA in performing a site assessment for the former Tuchman Cleaners Site located at 4401 North Keystone Avenue, Marion County, Indianapolis, Indiana (the Site; see **Figure 1-1**). Specifically, under Technical Direction Document (TDD) No. S05-0001-1012-034, WESTON START was directed to perform the following activities:

- Compile available Site information
- Develop site-specific safety and field sampling plans
- Perform a site reconnaissance
- Collect subsurface soil samples
- Collect groundwater samples
- Collect bulk waste samples
- Collect soil gas samples
- Procure analytical laboratory services for the samples collected
- Provide photographic documentation of the Site (see **Appendix A**)
- Provide a written log documenting all on-site activities
- Validate analytical data (see **Appendix B**)
- Evaluate the potential for imminent and substantial threats to the public health or welfare of the United States or the environment posed by the Site
- Prepare and deliver this site assessment report

The site assessment was performed to evaluate Site conditions and the potential for imminent and substantial threats to the public health or welfare of the United States or the environment in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Title 40 of the *Code of Federal Regulations* (CFR), Part 300.415(b)(2).

This site assessment report is organized into the following sections:

- **Introduction** – Provides a brief description of the objective and scope of the site assessment

- **Site Background** – Details the Site description and history
- **Site Assessment Activities** – Discusses observations made and the methods and procedures used during the site assessment
- **Analytical Results** – Discusses analytical results for samples collected during the site assessment
- **Threats to Human Health and the Environment** – Identifies conditions at the Site that warrant a removal action under the NCP
- **Conclusions** – Summarizes the site assessment findings, and presents conclusions based on these findings

Figures and tables are presented after the conclusions section. **Appendix A** of this report provides photographic documentation of Site conditions and activities during the site assessment, and **Appendix B** provides the data validation report and validated analytical results for samples collected during the site assessment.

2. SITE BACKGROUND

This section discusses the Site description and history.

2.1 SITE DESCRIPTION

The Site is located at 4401 North Keystone Avenue in Indianapolis, Marion County, Indiana (see **Figure 1-1**). The Site's geographical coordinates are 39° 50' 11.97" North latitude and 86° 7' 17.28" West longitude. The Site is located in a residential and commercial area approximately 4.5 miles northeast of downtown Indianapolis. The Site is bordered to the north by a commercial business, EZPAWN; to the west by Allisonville Road and a pet hospital, the Keystone Pet Hospital; to the south by East 44th Street and a restaurant, Grady's Champion Deli; and to the east by North Keystone Avenue and a vacant grassy lot. Fall Creek, a tributary of the White River, is located approximately 600 feet south of the Site. The Site is located near two municipal wells in the Fall Creek Wellhead Protection Area.

The Site sits on a 2.2-acre lot and until November 2011 contained an approximately 37,000-square-foot facility building (see **Figure 2-1**). In November 2011, the City of Indianapolis demolished the facility building (see **Figure 2-2**).

According to a remedial investigation (RI) report prepared by URS Corporation, there are three distinct sand and gravel units in the Site's subsurface separated by relatively impermeable glacial till units. Devonian-aged carbonate bedrock is present at the Site at 70 to 72 feet below ground surface (bgs). During the RI, three distinct groundwater zones were identified above bedrock corresponding to the three sand and gravel units. Groundwater in these aquifers predominantly flows southwest.

2.2 SITE HISTORY

Operations at the Site included dry cleaning; cleaning of draperies, leather, and suede; and wet washing of laundry, commercial uniforms, and floor mats. Tuchman Cleaners has been the Site's sole occupant for over 50 years. According to the Indiana Department of Environmental Management (IDEM), past environmental assessments indicate soil and groundwater at the Site have been impacted by historical operations and that the contamination remains. Specifically, in November 2004, URS Corporation conducted a Phase II RI at the Site and reported the presence of chlorinated volatile organic compounds (VOC), specifically tetrachloroethene (PCE) and its associated breakdown products, including trichloroethene (TCE); cis-1,2-dichloroethene; and vinyl chloride. Concentrations were in the parts per million (ppm) range.

In addition, nearby municipal wells in the Fall Creek Wellhead Protection Area have been contaminated with VOCs from the Site. One of the production wells in the wellfield was shut down because of contamination.

In November 2011, the City of Indianapolis demolished the facility building.

3. SITE ASSESSMENT ACTIVITIES

On January 24 through 27, 2011, U.S. EPA and WESTON START conducted a site assessment to document Site conditions and evaluate the Site for a potential time-critical removal action. On May 9 through 10, 2012, U.S. EPA and WESTON START returned to the Site to conduct further investigation and sampling. The following sections discuss Site observations and sampling

activities. **Appendix A** provides photographic documentation of conditions observed and activities conducted during the site assessment.

3.1 SITE OBSERVATIONS

On January 24, 2010, U.S. EPA On-Scene Coordinator (OSC) Shelly Lam and WESTON START members Mike Blair and Keith Hughes mobilized to the Site. During the site assessment, WESTON START conducted air monitoring using a MultiRAE multi-gas air monitor to monitor air in the breathing zone for carbon monoxide, hydrogen sulfide, lower explosive limit, oxygen, and VOC. All ambient air monitoring readings were at or below background levels.

During the site assessment, WESTON START observed that the interior of the facility had an open floor plan with rooms along the periphery. The front office was located on the west side of the building, the maintenance and parts rooms were located on the south side, and the operations and storage areas were located on the north side. The facility contained two catch basins, both with inlet pipes but no outlet pipes. A wastewater treatment room in the northeast area of the facility held a sump suspected to drain to the City of Indianapolis' sanitary sewer system (see **Photograph No. 11** in **Appendix A**). Two self-contained subsurface vaults were observed in the facility, one in a west-central area and the other in a southwest area. The facility had a partial second floor that contained offices.

On May 9, 2012, U.S. EPA OSC Shelly Lam and WESTON START members David Robinson and Greg Roussos mobilized to the Site to (1) oversee the installation of soil gas sampling probes at the Site and in the surrounding neighborhood and (2) collect soil gas samples from each probe. The team initially intended to install approximately 12 soil gas probes, but 3 soil gas probe locations could not be installed because of the presence of underground utilities in the right-of-way area to be sampled. Section 3.2.4 discusses the soil gas sampling activities in detail. The on-site building present during the January 2010 field activities had been demolished before the May 9, 2012 visit. The building slab and parking lot were still present at the Site.

3.2 SAMPLING ACTIVITIES

This section discusses the subsurface soil, groundwater, bulk waste, and soil gas sampling activities.

3.2.1 Subsurface Soil Sampling

Subsurface soil cores were collected from the Site from six locations from 0 to 12 or 0 to 16 feet bgs in 4-foot-long intervals using a track-mounted Geoprobe®. After each 4-foot core was collected, it was opened and inspected and observations were recorded in a soil boring log. Each soil core was field screened for VOCs by collecting a small aliquot (about the volume of a tablespoon) from a location or locations in the core containing suspected contamination, such as locations where stained soil or hydrocarbon odors were observed. These representative aliquots were placed into a small, plastic, Zip-loc-style bag; allowed to volatilize; and then screened for VOCs using a MultiRAE photoionization detector (PID). A sample was retained for laboratory VOC analysis based on if the VOC headspace concentration exceeded 3 ppm on the MultiRAE PID.

WESTON START collected six investigative subsurface soil samples for laboratory analysis: TCS-SB01-012411, TCS-SB02-012411, TCS-SB12-012511, TCS-SB13-012511, TCS-SB14-012511, TCS-SB15-012511. **Figure 3-1** shows the sampling locations, and **Table 3-1** summarizes the type, locations, and analytical parameters for each investigative soil sample collected. The samples were submitted under chain of custody to ALS Environmental in Cincinnati, Ohio, on January 27, 2011, under analytical TDD No. S05-0001-1012-034. The samples were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) using U.S. EPA SW-846 Methods 1311 and 8260, and total VOCs using U.S. EPA SW-846 Method 8260.

In accordance with the approved site-specific health and safety plan (HASP), all subsurface soil sampling activities were conducted in Level D personal protective equipment (PPE). Fresh sampling gloves were donned before sampling activities began at each new location as necessary to avoid cross contamination. Dedicated Terra Core™ soil samplers were used for each subsurface soil sample analyzed for total VOCs.

3.2.2 Groundwater Sampling

WESTON START collected the following nine investigative groundwater samples from existing groundwater monitoring wells at the Site: TCS-GW01-012511, TCS-GW02-012511, TCS-GW03-012611, TCS-GW04-012611, TCS-GW05-012611, TCS-GW06-012611, TCS-GW07-012611, TCS-GW08-012611, and TCS-GW09-012711. **Figure 3-1** shows the sampling locations, and **Table 3-2** summarizes the type, locations, and analytical parameters for each investigative groundwater sample collected. Of the nine samples, five were collected from shallow aquifer monitoring wells (sampling depth 20 feet bgs or less), three from intermediate aquifer monitoring wells (sampling depth 37 to 39 feet bgs), and one from a deep aquifer monitoring well (sampling depth 65 feet bgs).

At each location, the monitoring well lid was removed and a submersible bladder pump with dedicated Teflon tubing slowly was lowered into the well to approximately 3 to 5 feet from the bottom of the well. Next, the bladder pump was used to purge the monitoring well for a minimum of 20 minutes to ensure that the sample was representative of water flowing through the aquifer and not of the well casing. A Yellow Springs Instruments Model 556 multi-parameter water-quality Sonde and a Hanna HI98703 turbidity meter were used monitor the pH, temperature, conductivity, dissolved oxygen content, oxidation-reduction potential, and turbidity of the purge water. Water quality parameters were recorded approximately every 5 minutes. In addition, the depth to static water in the well was monitored to ensure that water was not being taken from the well's casing. WESTON START discontinued purging when water quality parameters were within 10 percent for three consecutive readings.

Groundwater samples were collected in volatile organic analysis vials pre-preserved with hydrochloric acid (20 percent) to ensure a pH of less than 2.0 standard units. Sample bottles were dried, labeled, and placed on ice to cool to 4 degrees Celsius (°C; 39 degrees Fahrenheit). The samples were submitted under chain of custody to ALS Environmental in Cincinnati, Ohio, on January 27, 2011, under analytical TDD No. S05-0001-1012-034. The samples were analyzed for total VOCs using U.S. EPA Drinking Water Analytical Method 524.2.

In accordance with the approved site-specific HASP, sampling activities were conducted in

Level D PPE. Fresh sampling gloves were donned before sampling activities began at each new sampling location as necessary to avoid cross contamination. All generated waste products, including expendable PPE and spent sampling supplies (dedicated nylon tubing, polyethylene bladders, paper towels, etc.) were placed into trash bags and properly disposed of off site in accordance with appropriate local, state, or federal regulations. Decontamination water generated during the site assessment was stored in a 55-gallon drum and left in the facility.

3.2.3 Bulk Waste Sampling

WESTON START collected two bulk waste samples, TCS-SOLID01-012511 and TCS-WTR01-012511, from sediment and liquid, respectively, from the sump in the wastewater treatment room in northeast corner of the facility. **Figure 3-1** shows the sampling locations. The samples were submitted under chain of custody to ALS Environmental in Cincinnati, Ohio, on January 27, 2011, under analytical TDD No. S05-0001-1012-034. TCS-SOLID01-012511 was analyzed for TCLP VOCs using U.S. EPA SW-846 Methods 1311 and 8260, and total VOCs using U.S. EPA SW-846 Method 8260. Sample TCS-WTR01-012511 was analyzed for total VOCs only using U.S. EPA SW-846 Method 8260.

3.2.4 Soil Gas Sampling

On May 9, 2012, U.S. EPA and WESTON START installed nine soil gas probes on the Site and in a public right-of-way in the neighborhood west of the Site. **Figure 3-2** shows the soil gas sampling probe locations. The following nine soil gas samples were collected: TCS-G01-051012, TCS-G02-051012, TCS-G07-051012 through TCS-G09-051012, and TCS-G10-051012, through TCS-G13-051012. A subcontractor drilling firm, IEGS, Inc., used a truck-mounted Geoprobe® unit to install each 2-inch-diameter borehole to approximately 16 to 20 feet bgs at 4-foot-long intervals. After each 4-foot core was advanced, the sleeve was removed from the core and opened. The soil core was inspected, and observations were recorded in a logbook. Each soil core was screened for VOCs by passing a ppbRAE 3000® PID over the length of the core and collecting a small aliquot of soil from each section of the core with suspected contamination into a Ziploc-style bag. Each aliquot was allowed to equilibrate, and then the headspace in each bag was screened for VOCs using the PID.

The soil gas probes were set in each boring at approximately 1 to 2 feet above the static water level near the depth of the core area with the highest VOC reading (if present). Each probe had a 0.5-foot-long screened section and was connected to 0.25-inch-diameter Teflon tubing that rose to the surface. Each boring then was backfilled with sand extending approximately 1 foot above the probe, and the remaining borehole volume was filled with bentonite to the surface. The Teflon tubing was capped at the surface with a plastic cap.

After the soil gas probes equilibrated for a minimum of 24 hours, WESTON START returned to collect the soil gas samples. Soil gas was screened using a RAE Systems, Inc., ppbRAE detector. The ppbRAE was attached to the end of the Teflon tubing, and when the VOC concentration had stabilized, the reading was recorded and the ppbRAE removed. The soil gas sample was collected using an evacuated, 6-liter SUMMA stainless-steel canister. The canister was attached to the soil gas probe, and then the shut-off valve was slowly opened to collect a "grab" sample. When the canister was 80 to 90 percent full, the valve was shut, the system was disassembled, and the canister was tightly capped for shipment to the laboratory. The samples were submitted under chain of custody to Air Toxics, Ltd., in Folsom, California, on May 10, 2012, under analytical TDD No. S05-001-1012-035, for analysis for VOCs using U.S. EPA Method TO-15.

4. ANALYTICAL RESULTS

Analytical results for the subsurface soil and bulk waste samples analyzed for TCLP VOCs were compared to the screening criteria at 40 CFR, Part 261.24 (Subpart C), to determine if the samples represent hazardous waste. Analytical results for subsurface soil samples analyzed for total VOCs were compared to the U.S. EPA Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites: Protection of Groundwater Soil Screening Levels (SSL). RSLs are considered protective of human health and the environment and may be used to set initial cleanup criteria or help identify areas, contaminants, and conditions that require further federal attention. Groundwater analytical results for VOCs were compared to U.S. EPA Superfund Removal Action Levels (RAL). Superfund RALs are drinking water contaminant concentrations considered, along with other factors, to determine if alternate water supplies must

be provided under Superfund removal authority. The U.S. EPA Office of Solid Waste and Emergency Response (OSWER) developed the Superfund RALs, which are presented in "Numeric Removal Action Levels for Contaminated Drinking Water Sites" dated November 10, 1998.

Appendix B provides the data validation and validated analytical results for the samples. The following sections summarize the subsurface soil, groundwater, bulk waste, and soil gas sample results.

4.1 SUBSURFACE SOIL SAMPLE RESULTS

Table 4-1 summarizes the subsurface soil sample results. No subsurface soil samples contained TCLP VOCs at concentrations exceeding TCLP VOC regulatory limits. Therefore, according to 40 CFR 261.24, no subsurface soil sample collected from the Site represents a material that meets the definition of hazardous waste by virtue of the characteristic of toxicity.

Subsurface soil sample TCS-SB15-012511 contained 2-hexanone at a concentration of 900 micrograms per kilogram (µg/kg), which exceeds the U.S. EPA RSL of 11 µg/kg. Subsurface soil samples TCS-SB01-012411 and TCS-SB12-012511 contained n-propylbenzene at concentrations of 4,200 and 3,400 µg/kg, respectively, which exceed the U.S. EPA RSL of 2,500 µg/kg. Subsurface soil sample TCS-SB15-012511 contained 1,1,2,2-tetrachloroethane at a concentration of 11,000 µg/kg, which exceeds the U.S. EPA RSL of 0.026 µg/kg. Subsurface soil samples TCS-SB02-012411, TCS-SB13-012511, and TCS-SB14-012511 contained PCE at concentrations of 4,000; 35; and 680 µg/kg, respectively, which exceed the U.S. EPA RSL of 0.049 µg/kg. Subsurface soil sample TCS-SB02-012411 contained TCE at a concentration of 29 µg/kg, which exceeds the U.S. EPA RSL of 0.72 µg/kg. Subsurface soil samples TCS-SB01-012411 and TCS-SB15-012511 contained 1,2,4-trimethylbenzene at concentrations of 20,000 and 1,800 µg/kg, respectively, which exceed the U.S. EPA RSL of 21 µg/kg.

4.2 GROUNDWATER SAMPLE RESULTS

Table 4-2 summarizes the groundwater sample results. Groundwater samples TCS-GW04-012611, TCS-GW06-012611, and TCS-GW08-012611 contained cis-1,2-dichloroethene at

concentrations of 640; 1,200; and 1,000 micrograms per liter (µg/L), respectively, which exceed the U.S. EPA RAL of 400 µg/L. Groundwater samples TCS-GW01-012511, TCS-GW02-012511, TCS-GW03-012611, TCS-GW04-012611, and TCS-GW08-012611 contained PCE at concentrations of 2,100; 49,000; 780; 1,100; and 6,100 µg/L, respectively, which exceed the U.S. EPA RAL of 70 µg/L. Groundwater samples TCS-GW02-012511 and TCS-GW08-012611 contained TCE at concentrations of 1,200 and 2,300 µg/L, respectively, which exceed the U.S. EPA RAL of 300 µg/L. Groundwater samples TCS-GW02-012511, TCS-GW03-012611, TCS-GW04-012611, TCS-GW06-012611, and TCS-GW08-012611 contained vinyl chloride at concentrations of 3.2, 5.4, 23, 220, and 14 µg/L, respectively, which exceed the U.S. EPA RAL of 2 µg/L.

4.3 BULK WASTE SAMPLE RESULTS

Table 4-3 summarizes the bulk waste sample results. No bulk waste samples contained TCLP VOCs at concentrations exceeding TCLP VOC regulatory limits. Therefore, according to 40 CFR 261.24, no bulk waste sample collected from the Site represents a material that meets the definition of hazardous waste by virtue of the characteristic of toxicity.

4.4 SOIL GAS SAMPLE RESULTS

Table 4-4 summarizes the soil gas sample results. Soil gas VOC analytical results were compared to the U.S. EPA's Office of Superfund Remediation and Technology Innovation's "Vapor Intrusion Screening Levels" (VISL) for shallow soil gas, which are based on U.S. EPA's RSLs. A target risk of 1×10^{-4} was used to calculate the VISLs.

One of the nine soil gas samples contained chloroform at a concentration exceeding the current VISL of 22.5 parts per billion by volume (ppbv). Sample TCS-G12-051012 contained chloroform at 260 ppbv.

One of the nine soil gas samples contained propylbenzene at a concentration exceeding the current VISL of 2,036 ppbv. Sample TCS-G02-051012 contained propylbenzene at 4,500 ppbv.

Three of the nine soil gas samples contained PCE at concentrations exceeding the VISL of 60.4

ppbv. Samples TCS-G01-051012 , TCS-G02-051012, and TCS-G11-051012 contained PCE at 36,000, 150, and 1,400 ppbv, respectively.

Seven of the nine soil gas samples contained TCE at concentrations exceeding the VISL of 3.9 ppbv. Samples TCS-G01-051012, TCS-G02-051012, TCS-G08-051012, TCS-G09-051012, TCS-G10-051012, TCS-G11-051012, and TCS-G12-051012 contained TCE at 110, 13, 8.2, 54, 4.2, 57, and 210 ppbv, respectively.

5. THREATS TO HUMAN HEALTH AND THE ENVIRONMENT

Factors to be considered when determining the appropriateness of a potential removal action at a site are delineated in the NCP at 40 CFR 300.415(b)(2). The factors applicable to the Site are summarized below.

- **Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances or pollutants or contaminants**

  During the site assessment, subsurface soil samples contained 2-hexanone; n-propylbenzene; 1,1,2,2-tetrachloroethane; PCE; TCE; and 1,2,4-trimethylbenzene at maximum concentrations of 900; 4,200; 11,000; 4,000; 29; and 20,000 µg/kg, respectively, which exceed the U.S. EPA RSLs for Chemical Contaminants at Superfund Sites: Protection of Groundwater SSLs. Groundwater samples contained cis-1,2-dichloroethene; PCE; TCE; and vinyl chloride at maximum concentrations of 1,200; 49,000; 2,300; and 220 µg/L, which exceed the U.S. EPA Superfund RALs. In May 2012, soil gas samples collected from the Site and surrounding neighborhood contained chloroform, propylbenzene, PCE, and TCE at maximum concentrations of 260; 4,500; 36,000; and 210 ppbv, respectively, which exceed the U.S. EPA's VISLs for vapor intrusion risk.

  Soil gas sampling results support the possibility that contamination in Site subsurface soil and groundwater could migrate to residential and commercial properties through the vapor intrusion pathway and to drinking water supplies (see the next bulleted item). Potential receptors include nearby residents, animals, and future Site workers. Direct contact with hazardous substances is possible, and the close proximity of residential and commercial areas to the Site increases the likelihood of exposure of human populations. Potential exposure could cause imminent endangerment to the public health or welfare of the United States or the environment.

  PCE; TCE; cis-1,2-dichloroethene; and vinyl chloride are hazardous substances as defined by Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act. Information about each substance is provided below from the Agency for Toxic Substances and Disease Registry (ATSDR)

ToxFAQs.

PCE: Inhalation of high levels of PCE can cause dizziness, headache, sleepiness, confusion, nausea, difficulty speaking and walking, unconsciousness, and death. The Department of Health and Human Services (DHHS) has determined that PCE may reasonably be anticipated to be a human carcinogen.

TCE: Inhalation of small amounts of TCE may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating. Inhalation of large amounts of TCE may cause impaired heart function, unconsciousness, and death. Inhalation of TCE for long periods of time may cause nerve, kidney, and liver damage. Ingestion of large amounts of TCE may cause nausea, liver damage, unconsciousness, impaired heart function, and death, and ingestion of small amounts of TCE for long periods of time may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women.

In its 9th Report on Carcinogens, the National Toxicology Program (NTP) determined that TCE is "reasonably anticipated to be a human carcinogen." Additionally, the International Agency for Research on Cancer (IARC) has determined that TCE is probably human carcinogen.

cis-1,2-Dichloroethene: Inhalation of high levels of 1,2-dichloroethene can cause nausea, drowsiness, sleepiness, and death. When ingested in low doses, cis-1,2-dichloroethene has been shown to cause a decrease in red blood cells and has been shown to have an effect on the liver. Although the long-term (365 days or longer) human health effects after exposure to low concentrations of 1,2-dichloroethene are unknown, one animal study suggests slower development of exposed fetuses.

Vinyl Chloride: Inhalation of vinyl chloride can cause dizziness or sleepiness, and high levels can cause unconsciousness and death. Long-term exposure to vinyl chloride can result in changes in the structure of the liver, cause nerve damage, and cause immune reactions. The DHHS has determined that vinyl chloride is a known carcinogen. Studies of workers who inhaled vinyl chloride over many years show an increased risk of liver, brain, lung, and blood cancer.

- **Actual or potential contamination of drinking water supplies or sensitive ecosystems**

  The site assessment indicates that groundwater samples collected from the Site contained cis-1,2-dichloroethene; PCE; TCE; and vinyl chloride at maximum concentrations of 1,200; 49,000; 2,300; and 220 µg/L, which exceed the U.S. EPA Superfund RALs. All but TCE were detected in both the upper and intermediate aquifers. In addition, nearby municipal wells in the Fall Creek Wellhead Protection Area have been contaminated with VOCs from the Site. One of the production wells in the wellfield was shut down because of contamination.

- **High levels of hazardous substances or pollutants or contaminants in soils at or near the surface that may migrate**

During the site assessment, subsurface soil samples collected from the Site contained 2-hexanone; n-propylbenzene; 1,1,2,2-tetrachloroethane; PCE; TCE; and 1,2,4-trimethylbenzene at maximum concentrations of 900; 4,200; 11,000; 4,000; 29; and 20,000 µg/kg, respectively, which exceed the U.S. EPA RSLs for Chemical Contaminants at Superfund Sites: Protection of Groundwater SSLs. Contamination was detected from 8 to 16 feet bgs. In addition, groundwater samples collected during the site assessment contained cis-1,2-dichloroethene; PCE; TCE; and vinyl chloride at maximum concentrations of 1,200; 49,000; 2,300; and 220 µg/L, which exceed the U.S. EPA Superfund RALs. The soil and groundwater sample results indicate that near-surface contamination could migrate off site and impact city drinking water supplies. In addition, nearby municipal wells in the Fall Creek Wellhead Protection Area have been contaminated with VOCs from the Site. One of the production wells in the wellfield was shut down because of contamination.

Soil gas samples collected from the Site and surrounding neighborhood in May 2012 contained chloroform, propylbenzene, PCE, and TCE at maximum concentrations of 260; 4,500; 36,000; and 210 ppbv; respectively. One or more of these compounds was detected in five of the six off-site soil gas sampling locations at concentrations exceeding the VISLs. Contaminated soil gas at the Site and in the surrounding neighborhood could migrate into nearby residential and commercial buildings.

- **The availability of other appropriate federal or state response mechanisms to respond to the release**

  In an e-mail message dated September 15, 2010, Harry Atkinson of IDEM requested assistance from the U.S. EPA in conducting time-critical removal activities at the Site.

6. CONCLUSIONS

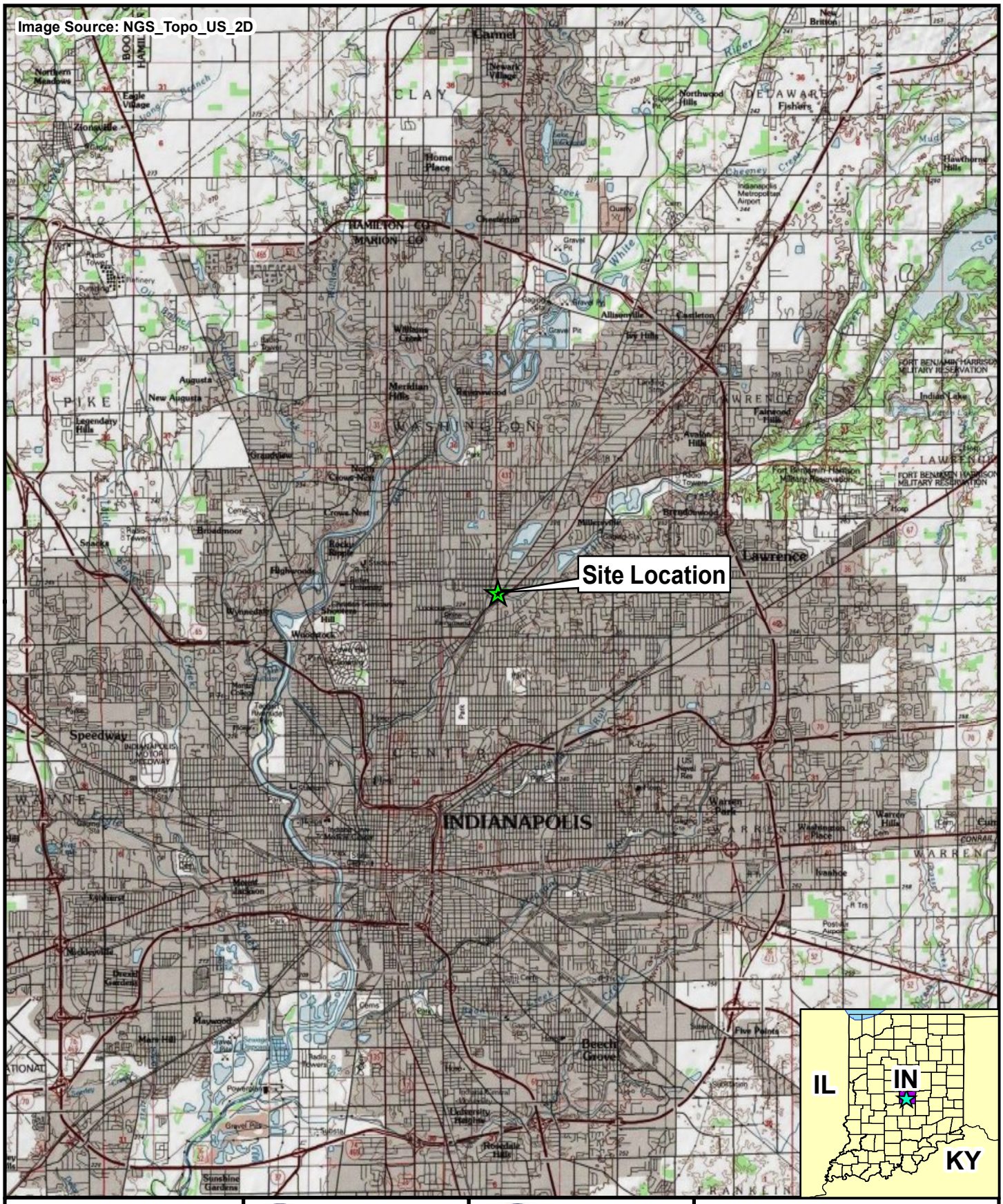
The site assessment consisted of a site reconnaissance and a field sampling event conducted from January 24 to 27, 2011, and a field sampling event conducted on May 9 and 10, 2012. During the January 2011 site assessment, WESTON START observed that the facility contained two catch basins, a wastewater treatment room in the northeast area, and two self-contained subsurface vaults. Subsurface soil samples collected during the site assessment contained 2-hexanone; n-propylbenzene; 1,1,2,2-tetrachloroethane; PCE; TCE; and 1,2,4-trimethylbenzene at maximum concentrations of 900; 4,200; 11,000; 4,000; 29; and 20,000 µg/kg, respectively, which exceed the U.S. EPA RSLs for Chemical Contaminants at Superfund Sites: Protection of Groundwater SSLs. Groundwater samples collected during the site assessment contained cis-

1,2-dichloroethene; PCE; TCE; and vinyl chloride at maximum concentrations of 1,200; 49,000; 2,300; and 220 µg/L, which exceed the U.S. EPA Superfund RALs.

Soil gas samples collected from the Site and surrounding neighborhood during the May 2012 event contained chloroform, propylbenzene, PCE, and TCE at maximum concentrations of 260; 4,500; 36,000; and 210 ppbv, respectively, which exceed the U.S. EPA's VISLs for vapor intrusion risk.

Based on analytical results, Site conditions observed during the site assessment, and other assessments conducted by state agencies, the Site meets the criteria for a removal action pursuant to 40 CFR 300.415(b)(2). Therefore, the Site poses an imminent and substantial threat to the public health or welfare of the United States or the environment.

FIGURES



FILE: C:\START Project Files\Tuchman Cleaners\GIS\mxd\SA Report\Figure 1-1 Site Location Map.mxd 3:45:08 PM 8/1/2012 kirklanr

Prepared for:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0001-1012-034
DCN: 1323-2A-AXEY

Prepared By:
WESTON SOLUTIONS, INC
4710-A Interstate Drive
Cincinnati, Ohio 45246

Figure 1-1
Site Location Map
Tuchman Cleaners Site
Indianapolis , Marion County, Indiana

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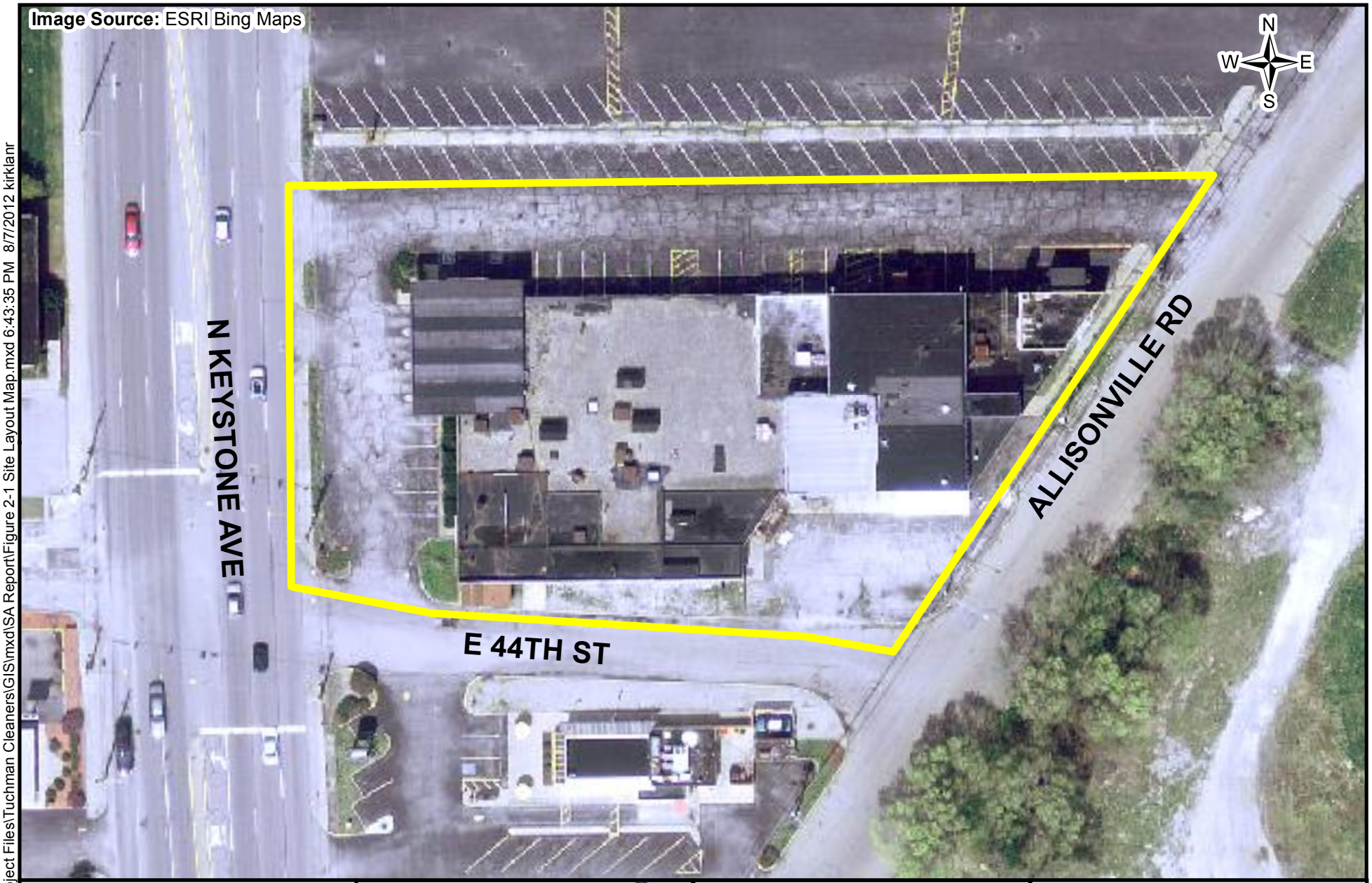

Legend

Site Boundary

0 70 Feet

Prepared for:
U.S. EPA Region V

Contract No: EP-S5-06-04
TDD: S05-0001-1012-034
DCN: 1323-2A-AXEY

Prepared by:
Weston Solutions, Inc.

4710-A Interstate Drive
Cincinnati, Ohio 45246

Figure 2-1
Site Layout Map 2011
Tuchman Cleaners Site
Indianapolis, Marion County, Indiana

FILE: C:\START Project Files\Tuchman Cleaners\GIS\mxd\SA Report\Figure 2-1 Site Layout Map.mxd 6:43:35 PM 8/7/2012 kirklanr

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Legend

Site Boundary

0 70 Feet

Prepared for:
U.S. EPA Region V

Contract No: EP-S5-06-04
TDD: S05-0001-1012-034
DCN: 1323-2A-AXEY

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Cincinnati, Ohio 45246

Figure 2-2
Site Layout Map 2012
Tuchman Cleaners Site
Indianapolis, Marion County, Indiana

FILE: C:\START Project Files\Tuchman Cleaners\GIS\mxd\SA Report\Figure 2-2 Site Layout Map.mxd 6:45:15 PM 8/7/2012 kirklanr

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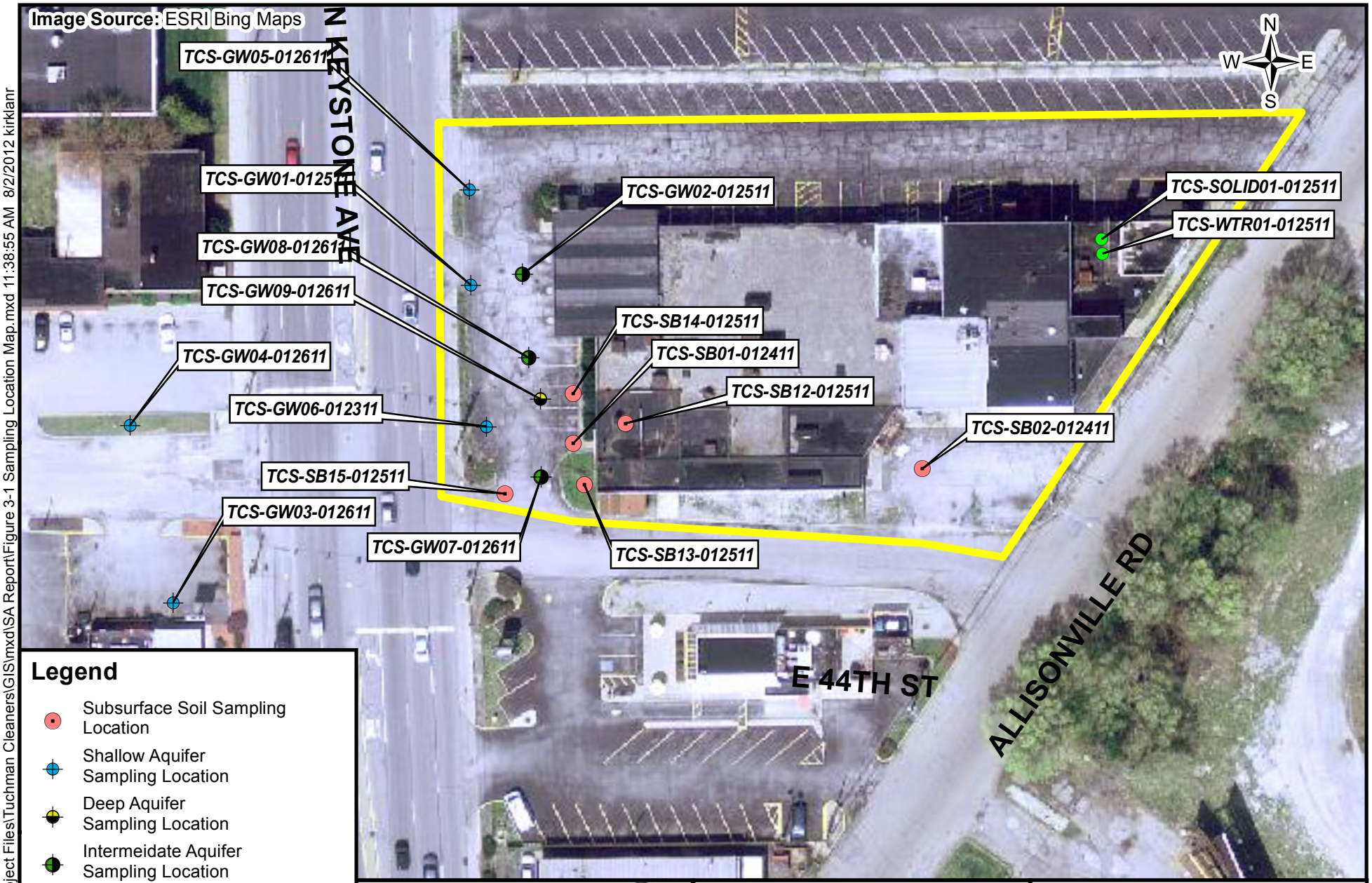

FILE: C:\START Project Files\Tuchman Cleaners\GIS\mxd\SA Report\Figure 3-1 Sampling Location Map.mxd 11:38:55 AM 8/2/2012 kirklanr

Prepared for:
U.S. EPA Region V

Contract No: EP-S5-06-04
TDD: S05-0001-1210-034
DCN: 1323-2A-AXEY

Prepared by:
Weston Solutions, Inc.

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Cincinnati, Ohio 45246

Figure 3-1
Sampling Location Map
Tuchman Cleaners Site
Indianapolis, Marion County, Indiana

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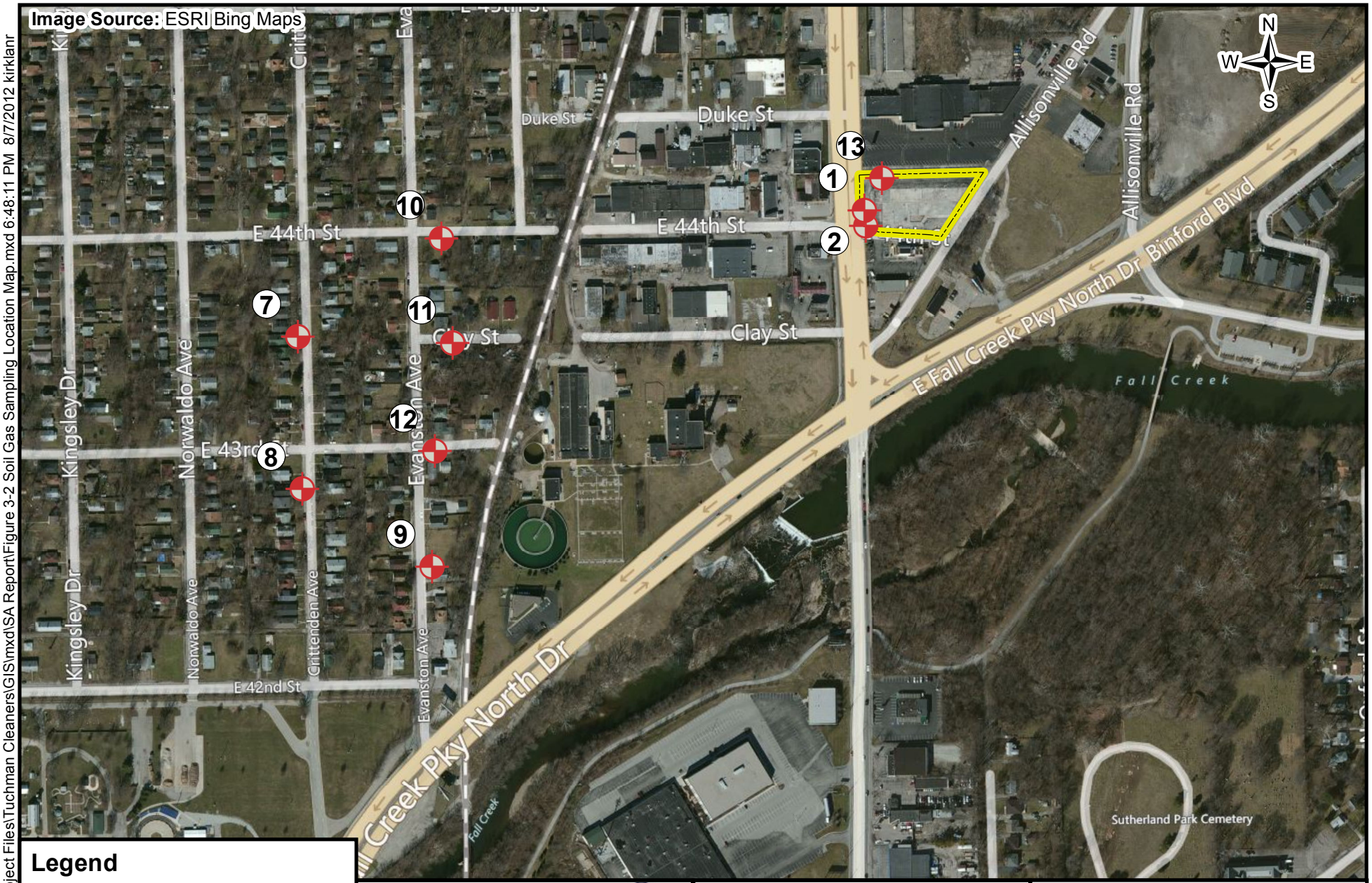

Legend

- Soil Gas Sampling Location
- Site Boundary

0 450 Feet

Prepared for:
U.S. EPA Region V

Contract No: EP-S5-06-04
TDD: S05-0001-1012-034
DCN: 1323-2A-AXEY

Prepared by:
Weston Solutions, Inc.

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Figure 3-2
Soil Gas Sampling Location Map
Tuchman Cleaners Site
Indianapolis, Marion County, Indiana

FILE: C:\START Project Files\Tuchman Cleaners\GIS\mxd\SA Report\Figure 3-2 Soil Gas Sampling Location Map.mxd 6:48:11 PM 8/7/2012 kirklanr

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TABLES

TABLE 3-1
SUBSURFACE SOIL SAMPLING SUMMARY TABLE
TUCHMAN CLEANERS SITE
INDIANAPOLIS, MARION COUNTY, INDIANAPOLIS

Field Sample ID	Sampling Date	Sample Type	Sampling Location	Sampling Depth (feet bgs)	Analytical Parameters
TCS-SB01-012411	1/24/2011	Grab, field sample	West parking lot	12-16	TCLP VOCs and total VOCs
TCS-SB02-012411	1/24/2011		Southeast parking lot	8-12	
TCS-SB12-012511	1/25/2011		Inside main building	12-16	
TCS-SB13-012511	1/25/2011		West parking lot	12-16	
TCS-SB14-012511	1/25/2011		West parking lot	12-16	
TCS-SB15-012511	1/25/2011		West parking lot	12-16	

Notes:
bgs = Below ground surface
ID = Identification
TCLP = Toxicity Characteristic Leaching Procedure
VOC = Volatile organic compound

TABLE 3-2
GROUNDWATER SAMPLING SUMARY TABLE
TUCHMAN CLEANERS SITE
INDIANAPOLIS, MARION COUNTY, INDIANAPOLIS

Field Sample ID	Sampling Date	Sample Type	Casing Diameter (inches)	Casing Construction	Well ID	Well Depth (feet bgs)	Static Water Depth (feet bgs)	Sampling Depth (feet bgs)	Analytical Parameter
TCS-GW01-012511	1/25/2011	Grab, field sample	2.00	PVC	11	22.27	12.00	19.00	Total VOCs
TCS-GW02-012511	1/25/2011				2I	40.82	21.47	37.00	
TCS-GW03-012611	1/26/2011				14	19.37	13.40	16.00	
TCS-GW04-012611	1/26/2011				13	20.18	14.17	17.00	
TCS-GW05-012611	1/26/2011				12	23.50	12.65	20.00	
TCS-GW06-012611	1/26/2011				9	22.12	12.25	19.00	
TCS-GW07-012611	1/26/2011				3I	41.60	21.80	38.00	
TCS-GW08-012611	1/26/2011				4I	42.30	21.80	39.00	
TCS-GW09-012711	1/27/2011				4D	70.55	31.41	65.00	

Notes:
bgs = Below ground surface
ID = Identification
PVC = Polyvinyl chloride
VOC = Volatile organic compound

TABLE 4-1
SUBSURFACE SOIL ANALYTICAL RESULTS SUMMARY TABLE
TUCHMAN CLEANERS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Analysis	Screening Criterion	Sample Designation					
		TCS-SB01-012411	TCS-SB02-012411	TCS-SB12-012511	TCS-SB13-012511	TCS-SB14-012511	TCS-SB15-012511
TCLP VOCs (mg/L)[1]							
PCE	0.7	0.085	0.26	0.076	0.11	0.31	0.056
Total VOCs (µg/kg)[2]							
Acetone	4,500	ND (620)	ND (25)	ND (620)	ND (25)	83	ND (620)
n-Butylbenzene	NA	3,100	ND (25)	3,900	ND (25)	250	ND (620)
sec-Butylbenzene	NA	6,500	ND (25)	11,000	39	640	980
tert-Butylbenzene	NA	ND (620)	ND (25)	1,200	ND (25)	ND (25)	ND (620)
2-Hexanone	11	ND (620)	ND (25)	ND (620)	ND (25)	ND (25)	**900**
Isopropylbenzene (Cumene)	1,100	980	ND (25)	980	ND (25)	ND (25)	ND (620)
p-Isopropyltoluene	NA	2,100	ND (25)	ND (620)	ND (25)	ND (25)	ND (620)
n-Propylbenzene	2,500	**4,200**	ND (25)	**3,400**	ND (25)	ND (25)	ND (620)
1,1,2,2-Tetrachloroethane	0.026	ND (620)	ND (25)	ND (620)	ND (25)	ND (25)	**11,000**
PCE	0.049	ND (620)	**4,000**	ND (620)	**35**	**680**	ND (620)
TCE	0.72	ND (620)	**29**	ND (620)	ND (25)	ND (25)	ND (620)
1,2,4-Trimethylbenzene	21	**20,000**	ND (25)	ND (620)	ND (25)	ND (25)	**1,800**
m,p-Xylene	1,200	ND (620)	ND (25)	ND (620)	ND (25)	ND (25)	ND (620)
Xylenes, total	200	ND (620)	ND (25)	ND (620)	ND (25)	ND (25)	ND (620)

Notes:
Bold shaded results exceed the screening criteria.
[1]Screening criteria based on 40 CFR, Part 261.24, Subpart C
[2]Screening citeria based on U.S. EPA RSLs: Protection of Groundwater SSLs (risk-based)
µg/kg = Microgram per kilogram
CFR = *Code of Federal Regulations*
mg/L = Milligram per liter
NA = Not available
ND ( ) = Not detected (laboratory detection limit)
PCE = Tetrachloroethene
RSL = Regional Screening Level
SSL = Soil Screening Level
TCE = Trichloroethene
TCLP = Toxicity Characteristic Leaching Procedure
U.S. EPA = United States Environmental Protection Agency
VOC = Volatile organic compound

TABLE 4-2
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
TUCHMAN CLEANERS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Analysis	RAL [1]	Sample Designation						
		TCS-GW01-012511	TCS-GW02-012511	TCS-GW03-012611	TCS-GW04-012611	TCS-GW05-012611	TCS-GW06-012611	TCS-GW07-012611
Total VOCs (µg/L)								
Chlorobenzene	700	ND (5)	16	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-Dichlorobenzene	3,000	ND (5)	18	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1-Dichloroethene	70	ND (5)	14	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
cis-1,2-Dichloroethene	400	110	300	130	**640**	ND (5)	**1,200**	ND (5)
trans-1,2-Dichloroethene	600	ND (5)	5.4	ND (5)	ND (5)	ND (5)	19	ND (5)
n-Propylbenzene	NA	ND (5)	6.5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
PCE	70	**2,100**	**49,000**	**780**	**1,100**	13	33	ND (5)
TCE	300	120	**1,200**	160	150	ND (5)	ND (5)	ND (5)
1,2,4-Trimethylbenzene	NA	ND (5)	9.7	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,3,5-Trimethylbenzene	NA	ND (5)	7.5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl chloride	2	ND (5)	**3.2**	**5.4**	**23**	ND (5)	**220**	ND (5)

Analysis	RAL [1]	Sample Designation	
		TCS-GW08-012611	TCS-GW09-012711
Total VOCs (µg/L)			
Chlorobenzene	700	ND (5)	ND (5)
1,2-Dichlorobenzene	3,000	ND (5)	ND (5)
1,1-Dichloroethene	70	ND (5)	ND (5)
cis-1,2-Dichloroethene	400	**1,000**	7.5
trans-1,2-Dichloroethene	600	20	ND (5)
n-Propylbenzene	NA	ND (5)	ND (5)
PCE	70	**6,100**	ND (5)
TCE	300	**2,300**	ND (5)
1,2,4-Trimethylbenzene	NA	ND (5)	ND (5)
1,3,5-Trimethylbenzene	NA	ND (5)	ND (5)
Vinyl chloride	2	**14**	ND (5)

Notes:

Bold shaded results exceed the RAL.

[1]RAL based on the U.S. EPA RAL for Contaminated Drinking Water Sites: Superfund RALs
µg/L = Microgram per liter
NA = Not available
ND ( ) = Not detected (laboratory detection limit)
PCE = Tetrachloroethene
RAL = Removal Action Level
TCE = Trichloroethene
U.S. EPA = United States Environmental Protection
VOC = Volatile organic compound

TABLE 4-3
BULK WASTE ANALYTICAL RESULTS SUMMARY TABLE
TUCHMAN CLEANERS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Analysis	Screening Criterion	Sample Designation	
		TCS-SOLID01-012511	TCS-WTR01-012511
TCLP VOCs (mg/L)[1]			
PCE	0.7	ND (0.050)	NA
TCE	0.5	ND (0.050)	NA
Vinyl chloride	0.2	ND (0.050)	NA
Total VOCs (µg/kg)			
PCE	NA	31	NA
m,p-Xylene	NA	34	NA
Xylenes, total	NA	48	NA
Total VOCs (µg/L)			
Acetone	NA	NA	150
2-Butanone	NA	NA	63
2-Chlorotoluene	NA	NA	65
cis-1,2-Dichloroethene	NA	NA	890
trans-1,2-Dichloroethene	NA	NA	14
PCE	NA	NA	16
Toluene	NA	NA	14
1,2,4-Trimethylbenzene	NA	NA	18
1,3,5-Trimethylbenzene	NA	NA	5.4
Vinyl chloride	NA	NA	290
m,p-Xylene	NA	NA	9.9
o-Xylene	NA	NA	5.9
Xylenes, total	NA	NA	16

Notes:
[1]Screeening criterion based on 40 CFR, Part 261.24, Subpart C
µg/kg = Microgram per kilogram
µg/L = Microgram per liter
CFR = *Code of Federal Regulations*
mg/L = Milligram per liter
NA = Not available or not analyzed for
ND ( ) = Not detected (laboratory detection limit)
PCE = Tetrachloroethene
TCE = Trichloroethene
TCLP = Toxicity Characteristic Leaching Procedure
VOC = Volatile organic compound

TABLE 4-4
SOIL GAS ANALYTICAL RESULTS SUMMARY
TUCHMAN CLEANERS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Chemical	VISL[1]	Sampling Date	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012
		Soil Gas Probe ID	G-01	G-02	G-07	G-08	G-09	G-10	G-11	G-12	G-13
		Sampling Depth (feet bgs)	12	10	14	14	14	15.5	14	14	12
		Field Sample ID	TCS-G01-051012	TCS-G02-051012	TCS-G07-051012	TCS-G08-051012	TCS-G09-051012	TCS-G10-051012	TCS-G11-051012	TCS-G12-051012	TCS-G12-051012
		Unit	Result								
1,1,1-Trichloroethane	9,537	ppbv	ND (110)	ND (9.6)	ND (0.79)	24	110	12	35	300	ND (12)
1,2,4-Trimethylbenzene	14.9	ppbv	ND (110)	ND (9.6)	ND (0.79)	0.89 J	ND (0.79)	2.1 J	ND (5.4)	ND (0.80)	ND (12)
1,3,5-Trimethylbenzene	NA	ppbv	ND (110)	ND (9.6)	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	ND (0.80)	ND (12)
2,2,4-Trimethylpentane	NA	ppbv	ND (110)	120	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	ND (0.80)	ND (12)
1,1-Dichloroethane	370.8	ppbv	ND (110)	ND (9.6)	ND (0.79)	1.2	ND (0.79)	ND (0.83)	ND (5.4)	5.0	ND (12)
1,1-Dichloroethene	530	ppbv	ND (110)	ND (9.6)	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	2.0	ND (12)
1,2-Dichlorobenzene	350	ppbv	ND (110)	32	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	ND (0.80)	ND (12)
cis-1,2-Dichloroethene	NA	ppbv	170	96	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	11	ND (12)
trans-1,2-Dichloroethene	159	ppbv	ND (110)	ND (9.6)	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	1.7	ND (12)
1,3-Butadiene	9.5	ppbv	ND (110)	ND (9.6)	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	ND (0.80)	ND (12)
2-Butanone	17,642	ppbv	ND (450)	ND (38)	ND (3.2)	4.9	ND (3.2)	ND (3.3)	ND (21)	ND (3.2)	ND (50)
2-Propanol	NA	ppbv	ND (450)	ND (38)	ND (3.2)	17	ND (3.2)	ND (3.3)	ND (21)	ND (3.2)	ND (50)
4-Ethyltoluene	NA	ppbv	ND (110)	ND (9.6)	ND (0.79)	0.79	ND (0.79)	ND (1.5)	ND (5.4)	ND (0.80)	ND (12)
Acetone	134,795	ppbv	ND (110)	ND (38)	ND (7.9)	12	ND (7.9)	10	ND (54)	ND (8.0)	130
Benzene	97	ppbv	ND (110)	11	.83	2.4	2.8	8.5	ND (5.4)	2.1	ND (12)
Carbon disulfide	2,346	ppbv	ND (450)	43	ND (3.2)	ND (3.1)	ND (3.2)	4.4	ND (21)	ND (3.2)	ND (50)
Carbon tetrachloride	65.2	ppbv	ND (110)	ND (9.6)	ND (3.2)	ND (0.78)	ND (0.79)	ND (0.83)	7.9	16	ND (12)
Chloroform	22.5	ppbv	ND (110)	ND (9.6)	ND (0.79)	1.3	4.0	ND (0.83)	5.4	**260**	ND (12)
Cyclohexane	63,000	ppbv	ND (110)	270	ND (0.79)	4.8	ND (0.79)	9.5	ND (5.4)	ND (0.80)	ND (12)
Ethanol	NA	ppbv	ND (450)	ND (38)	ND (3.2)	26	ND (3.2)	ND (3.3)	ND (21)	ND (3.2)	ND (50)
Ethylbenzene	223	ppbv	ND (110)	ND (9.6)	ND (0.79)	2.1	1.5	3.7	ND (5.4)	0.95	ND (12)
Freon 11	NA	ppbv	ND (110)	ND (9.6)	ND (0.79)	ND (0.78)	ND (0.79)	13	ND (5.4)	ND (0.80)	ND (12)
Freon 12	NA	ppbv	ND (110)	ND (9.6)	ND (0.79)	ND (0.78)	ND (0.79)	18	ND (5.4)	ND (0.80)	ND (12)
Freon 113	NA	ppbv	ND (110)	ND (9.6)	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	1.7	ND (12)
Heptane	NA	ppbv	ND (110)	ND (9.6)	ND (0.79)	4.2	7.8	15	ND (5.4)	ND (0.80)	ND (12)

TABLE 4-4
SOIL GAS ANALYTICAL RESULTS SUMMARY
TUCHMAN CLEANERS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Chemical	VISL[1]	Sampling Date	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012	5/10/2012
		Soil Gas Probe ID	G-01	G-02	G-07	G-08	G-09	G-10	G-11	G-12	G-13
		Sampling Depth (feet bgs)	12	10	14	14	14	15.5	14	14	12
		Field Sample ID	TCS-G01-051012	TCS-G02-051012	TCS-G07-051012	TCS-G08-051012	TCS-G09-051012	TCS-G10-051012	TCS-G11-051012	TCS-G12-051012	TCS-G12-051012
		Unit	Result								
Hexane	2,072	ppbv	ND (110)	28	ND (0.79)	5.9	11	23	ND (5.4)	ND (0.80)	ND (12)
m,p-Xylene	230	ppbv	ND (110)	ND (9.6)	ND (0.79)	3.9	2.3	6.2	ND (5.4)	1.6	ND (12)
o-Xylene	230	ppbv	ND (110)	ND (9.6)	ND (0.79)	1.3	0.80	2.3	ND (5.4)	ND (0.80)	ND (12)
Propylbenzene	2,036	ppbv	ND (110)	**4,500**	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	ND (0.80)	ND (12)
Tetrachloroethene	60.4	ppbv	**36,000**	**150**	1.8	2.0	0.82	3.1	**1,400**	55	ND (12)
Toluene	13,807	ppbv	ND (110)	30	1.9	15	6.0	18	ND (5.4)	4.3	ND (12)
Trichloroethene	3.9	ppbv	**110**	**13**	ND (0.79)	**8.2**	**54**	**4.2**	**57**	**210**	ND (12)
Vinyl chloride	62.6	ppbv	ND (110)	60	ND (0.79)	ND (0.78)	ND (0.79)	ND (0.83)	ND (5.4)	ND (0.80)	ND (12)

Notes:

Bold shaded results exceed the VISL.

[1] VISL from the U.S. EPA Office of Superfund Remediation and Technology Innovation's "Vapor Intrusion Screening Levels"

ID = Identification

J = Estimated value

NA = Not applicable

ND = Not detected above method reporting limit in parentheses

ppbv = Part per billion by volume

U.S. EPA = United States Environmental Protection Agency

VISL = Vapor Intrusion Screening Level

APPENDIX A
PHOTOGRAPHIC DOCUMENTATION

Site: Tuchman Cleaners Site
Photograph No.: 1 **Date**: 1/17/11
Direction: Southeast **Photographer**: Keith Hughes
Subject: Front of main facility building

Site: Tuchman Cleaners Site
Photograph No.: 2 **Date**: 1/24/11
Direction: Southwest **Photographer**: Keith Hughes
Subject: North Keystone Avenue

Site: Tuchman Cleaners Site
Photograph No.: 3 **Date**: 1/24/11
Direction: East **Photographer**: Keith Hughes
Subject: Inside of main facility building

Site: Tuchman Cleaners Site
Photograph No.: 4 **Date**: 1/24/11
Direction: West **Photographer**: Keith Hughes
Subject: Room from which subsurface soil sample TCS-SB12-012511 was collected

Site: Tuchman Cleaners Site
Photograph No.: 5 **Date**: 1/24/11
Direction: North **Photographer**: Keith Hughes
Subject: Geoprobe technician installing boring in west parking lot

Site: Tuchman Cleaners Site
Photograph No.: 6 **Date**: 1/24/11
Direction: Southwest **Photographer**: Keith Hughes
Subject: Geoprobe technician installing boring in west parking lot

Site: Tuchman Cleaners Site
Photograph No.: 7 **Date**: 1/24/11
Direction: East **Photographer**: Keith Hughes
Subject: Geoprobe technician installing boring in west parking lot

Site: Tuchman Cleaners Site
Photograph No.: 8 **Date**: 1/24/11
Direction: Down **Photographer**: Keith Hughes
Subject: Geoprobe technician filling borehole with bentonite

Site: Tuchman Cleaners Site
Photograph No.: 9 **Date**: 1/24/11
Direction: Down **Photographer**: Keith Hughes
Subject: Geoprobe operation by WESTON START

Site: Tuchman Cleaners Site
Photograph No.: 10 **Date**: 1/25/11
Direction: Down **Photographer**: Keith Hughes
Subject: WESTON START collecting soil sample using Terra Core™ soil sampler

Site: Tuchman Cleaners Site
Photograph No.: 11 **Date**: 1/25/11
Direction: Down **Photographer**: Keith Hughes
Subject: Sump in the northeast corner of main facility building

Site: Tuchman Cleaners Site
Photograph No.: 12 **Date**: 1/25/11
Direction: Down **Photographer**: Keith Hughes
Subject: Groundwater purging and collection

Site: Tuchman Cleaners Site
Photograph No.: 13 **Date**: 1/27/11
Direction: Down **Photographer**: Keith Hughes
Subject: WESTON START monitoring water quality of well purge water

Site: Tuchman Cleaners Site
Photograph No.: 14 **Date**: 5/10/12
Direction: East **Photographer**: Dave Robinson
Subject: Drillers preparing Geoprobe rig

Site: Tuchman Cleaners Site
Photograph No.: 15 **Date**: 5/10/12
Direction: Down **Photographer**: Dave Robinson
Subject: ppbRAE analyzing soil core

Site: Tuchman Cleaners Site
Photograph No.: 16 **Date**: 5/10/12
Direction: Down **Photographer**: Dave Robinson
Subject: Setting of soil gas probe in boring

Site: Tuchman Cleaners Site
Photograph No.: 17 **Date**: 05/10/12
Direction: Down **Photographer**: Dave Robinson
Subject: Top of soil gas probe

APPENDIX B
DATA VALIDATION REPORT AND VALIDATED ANALYTICAL RESULTS

TUCHMAN CLEANERS
INDIANAPOLIS, INDIANA
DATA VALIDATION REPORT

Date: May 30, 2012
Laboratory: Air Toxics Ltd. (Air Toxics), Folsom, California
Laboratory Project #: 1205247
Data Validation Performed By: Lisa Graczyk, Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START)
Weston Analytical Work Order #/TDD #: 20405.016.001.1324.00/S05-0001-1012-035

This data validation report has been prepared by WESTON START under the START III Region V contract. This report documents the data validation for 9 air sample collected for the Tuchman Cleaners Site that were analyzed for Volatile Organic Compounds (VOC) by U.S. Environmental Protection Agency (U.S. EPA) Method TO-15.

A level II data package was requested from Air Toxics. The data validation was conducted in general accordance with the U.S. EPA "Contract Laboratory Program National Functional Guidance for Superfund Organic Methods Data Review" dated June 2008. The Attachment contains the results summary sheets with the hand-written qualifiers applied during data validation.

VOCs BY U.S. EPA METHOD TO-15

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
TCS-G10-051012	1205247-01A	Air	5/10/2012	5/16/2012
TCS-G11-051012	1205247-02A	Air	5/10/2012	5/16/2012
TCS-G12-051012	1205247-03A	Air	5/10/2012	5/16/2012
TCS-G09-051012	1205247-04A	Air	5/10/2012	5/16/2012
TCS-G08-051012	1205247-05A	Air	5/10/2012	5/16/2012
TCS-G07-051012	1205247-06A	Air	5/10/2012	5/16/2012
TCS-G02-051012	1205247-07A	Air	5/10/2012	5/15/2012
TCS-G01-051012	1205247-08A	Air	5/10/2012	5/18/2012
TCS-G13-051012	1205247-09A	Air	5/10/2012	5/18/2012

2. Holding Times

The sample was analyzed within the required holding time limit of 30 days from sample collection.

3. Blanks

Method blanks were analyzed with the VOC analyses and were free of target compound contamination above the reporting limit.

4. Surrogate Results

The surrogate recovery results were within the laboratory-established quality control (QC) limits.

5. Continuing Calibration Results

The continuing calibration verification (CCV) results were within the QC limits for percent recovery except for as follows.

For the CCV associated with sampling date 5/5/2012 and 5/16/2012, the following compound was detected high: 1,2,4-trimethylbenzene. Detected 1,2,4-trimethylbenzene results in associated samples were flagged "J" as estimated by Air Toxics for this discrepancy. These flags are accepted.

6. Laboratory Control Sample (LCS) Results

The LCS and LCS duplicate (LCSD) recoveries were within laboratory QC limits except for as follows.

In the LCS associated with analysis date 5/15/2012, the following compounds were detected low: Freon 11; 2-propanol; and 1,4-dioxane. The quantitation limits for these three compounds for the sample analyzed on 5/15/2012 were flagged "UJ" as estimated. In addition the relative percent difference (RPD) of the LCS/LCSD exceeded acceptance limits for ethanol, 2-propanol and 1,4-dioxane. No additional qualifiers are required.

In the LCS associated with analysis date 5/16/2012, the following compounds were detected high: 2-propanol; chloromethane; vinyl chloride; and 1,3-butadiene. Detected results for these compounds in samples analyzed on 5/16/2012 (2-propanol in sample TCS-G08-051012) were flagged "J" as estimated.

In the LCS associated with analysis date 5/18/2012, the following compound was detected high: carbon disulfide. Because carbon disulfide was not detected in samples analyzed on 5/18/2012, no qualifications were required.

7. Overall Assessment

Air Toxics flagged some results with a "J" to indicate that the result is considered estimated.

The VOC data are acceptable for use based on the information received.

ATTACHMENT

AIR TOXICS LTD.
RESULTS SUMMARY

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Client Sample ID: TCS-G10-051012

Lab ID#: 1205247-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051528**	**Date of Collection:**	**5/10/12 10:46:00 AM**
Dil. Factor:	**1.66**	**Date of Analysis:**	**5/16/12 07:14 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.83	18	4.1	91
Freon 114	0.83	Not Detected	5.8	Not Detected
Chloromethane	8.3	Not Detected	17	Not Detected
Vinyl Chloride	0.83	Not Detected	2.1	Not Detected
1,3-Butadiene	0.83	Not Detected	1.8	Not Detected
Bromomethane	8.3	Not Detected	32	Not Detected
Chloroethane	3.3	Not Detected	8.8	Not Detected
Freon 11	0.83	13	4.7	76
Ethanol	3.3	Not Detected	6.2	Not Detected
Freon 113	0.83	Not Detected	6.4	Not Detected
1,1-Dichloroethene	0.83	Not Detected	3.3	Not Detected
Acetone	8.3	10	20	24
2-Propanol	3.3	Not Detected	8.2	Not Detected
Carbon Disulfide	3.3	4.4	10	14
3-Chloropropene	3.3	Not Detected	10	Not Detected
Methylene Chloride	8.3	Not Detected	29	Not Detected
Methyl tert-butyl ether	0.83	Not Detected	3.0	Not Detected
trans-1,2-Dichloroethene	0.83	Not Detected	3.3	Not Detected
Hexane	0.83	23	2.9	82
1,1-Dichloroethane	0.83	Not Detected	3.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.3	Not Detected	9.8	Not Detected
cis-1,2-Dichloroethene	0.83	Not Detected	3.3	Not Detected
Tetrahydrofuran	0.83	Not Detected	2.4	Not Detected
Chloroform	0.83	Not Detected	4.0	Not Detected
1,1,1-Trichloroethane	0.83	12	4.5	67
Cyclohexane	0.83	9.5	2.8	33
Carbon Tetrachloride	0.83	Not Detected	5.2	Not Detected
2,2,4-Trimethylpentane	0.83	Not Detected	3.9	Not Detected
Benzene	0.83	8.5	2.6	27
1,2-Dichloroethane	0.83	Not Detected	3.4	Not Detected
Heptane	0.83	15	3.4	60
Trichloroethene	0.83	4.2	4.5	23
1,2-Dichloropropane	0.83	Not Detected	3.8	Not Detected
1,4-Dioxane	3.3	Not Detected	12	Not Detected
Bromodichloromethane	0.83	Not Detected	5.6	Not Detected
cis-1,3-Dichloropropene	0.83	Not Detected	3.8	Not Detected
4-Methyl-2-pentanone	0.83	Not Detected	3.4	Not Detected
Toluene	0.83	18	3.1	68
trans-1,3-Dichloropropene	0.83	Not Detected	3.8	Not Detected
1,1,2-Trichloroethane	0.83	Not Detected	4.5	Not Detected
Tetrachloroethene	0.83	3.1	5.6	21
2-Hexanone	3.3	Not Detected	14	Not Detected

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Client Sample ID: TCS-G10-051012

Lab ID#: 1205247-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051528**	**Date of Collection:**	**5/10/12 10:46:00 AM**
Dil. Factor:	**1.66**	**Date of Analysis:**	**5/16/12 07:14 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.83	Not Detected	7.1	Not Detected
1,2-Dibromoethane (EDB)	0.83	Not Detected	6.4	Not Detected
Chlorobenzene	0.83	Not Detected	3.8	Not Detected
Ethyl Benzene	0.83	3.7	3.6	16
m,p-Xylene	0.83	6.2	3.6	27
o-Xylene	0.83	2.3	3.6	9.8
Styrene	0.83	Not Detected	3.5	Not Detected
Bromoform	0.83	Not Detected	8.6	Not Detected
Cumene	0.83	Not Detected	4.1	Not Detected
1,1,2,2-Tetrachloroethane	0.83	Not Detected	5.7	Not Detected
Propylbenzene	0.83	Not Detected	4.1	Not Detected
4-Ethyltoluene	0.83	1.5	4.1	7.5
1,3,5-Trimethylbenzene	0.83	Not Detected	4.1	Not Detected
1,2,4-Trimethylbenzene	0.83	2.1 J	4.1	10 J
1,3-Dichlorobenzene	0.83	Not Detected	5.0	Not Detected
1,4-Dichlorobenzene	0.83	Not Detected	5.0	Not Detected
alpha-Chlorotoluene	0.83	Not Detected	4.3	Not Detected
1,2-Dichlorobenzene	0.83	Not Detected	5.0	Not Detected
1,2,4-Trichlorobenzene	3.3	Not Detected	25	Not Detected
Hexachlorobutadiene	3.3	Not Detected	35	Not Detected

J = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	112	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: TCS-G11-051012

Lab ID#: 1205247-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051613**	**Date of Collection:**	**5/10/12 11:01:00 AM**
Dil. Factor:	**10.7**	**Date of Analysis:**	**5/16/12 04:12 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.4	Not Detected	26	Not Detected
Freon 114	5.4	Not Detected	37	Not Detected
Chloromethane	54	Not Detected	110	Not Detected
Vinyl Chloride	5.4	Not Detected	14	Not Detected
1,3-Butadiene	5.4	Not Detected	12	Not Detected
Bromomethane	54	Not Detected	210	Not Detected
Chloroethane	21	Not Detected	56	Not Detected
Freon 11	5.4	Not Detected	30	Not Detected
Ethanol	21	Not Detected	40	Not Detected
Freon 113	5.4	Not Detected	41	Not Detected
1,1-Dichloroethene	5.4	Not Detected	21	Not Detected
Acetone	54	Not Detected	130	Not Detected
2-Propanol	21	Not Detected	52	Not Detected
Carbon Disulfide	21	Not Detected	67	Not Detected
3-Chloropropene	21	Not Detected	67	Not Detected
Methylene Chloride	54	Not Detected	180	Not Detected
Methyl tert-butyl ether	5.4	Not Detected	19	Not Detected
trans-1,2-Dichloroethene	5.4	Not Detected	21	Not Detected
Hexane	5.4	Not Detected	19	Not Detected
1,1-Dichloroethane	5.4	Not Detected	22	Not Detected
2-Butanone (Methyl Ethyl Ketone)	21	Not Detected	63	Not Detected
cis-1,2-Dichloroethene	5.4	Not Detected	21	Not Detected
Tetrahydrofuran	5.4	Not Detected	16	Not Detected
Chloroform	5.4	5.4	26	26
1,1,1-Trichloroethane	5.4	35	29	190
Cyclohexane	5.4	Not Detected	18	Not Detected
Carbon Tetrachloride	5.4	7.9	34	50
2,2,4-Trimethylpentane	5.4	Not Detected	25	Not Detected
Benzene	5.4	Not Detected	17	Not Detected
1,2-Dichloroethane	5.4	Not Detected	22	Not Detected
Heptane	5.4	Not Detected	22	Not Detected
Trichloroethene	5.4	57	29	310
1,2-Dichloropropane	5.4	Not Detected	25	Not Detected
1,4-Dioxane	21	Not Detected	77	Not Detected
Bromodichloromethane	5.4	Not Detected	36	Not Detected
cis-1,3-Dichloropropene	5.4	Not Detected	24	Not Detected
4-Methyl-2-pentanone	5.4	Not Detected	22	Not Detected
Toluene	5.4	Not Detected	20	Not Detected
trans-1,3-Dichloropropene	5.4	Not Detected	24	Not Detected
1,1,2-Trichloroethane	5.4	Not Detected	29	Not Detected
Tetrachloroethene	5.4	1400	36	9200
2-Hexanone	21	Not Detected	88	Not Detected

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Client Sample ID: TCS-G11-051012

Lab ID#: 1205247-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051613**	**Date of Collection:**	**5/10/12 11:01:00 AM**
Dil. Factor:	**10.7**	**Date of Analysis:**	**5/16/12 04:12 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	5.4	Not Detected	46	Not Detected
1,2-Dibromoethane (EDB)	5.4	Not Detected	41	Not Detected
Chlorobenzene	5.4	Not Detected	25	Not Detected
Ethyl Benzene	5.4	Not Detected	23	Not Detected
m,p-Xylene	5.4	Not Detected	23	Not Detected
o-Xylene	5.4	Not Detected	23	Not Detected
Styrene	5.4	Not Detected	23	Not Detected
Bromoform	5.4	Not Detected	55	Not Detected
Cumene	5.4	Not Detected	26	Not Detected
1,1,2,2-Tetrachloroethane	5.4	Not Detected	37	Not Detected
Propylbenzene	5.4	Not Detected	26	Not Detected
4-Ethyltoluene	5.4	Not Detected	26	Not Detected
1,3,5-Trimethylbenzene	5.4	Not Detected	26	Not Detected
1,2,4-Trimethylbenzene	5.4	Not Detected	26	Not Detected
1,3-Dichlorobenzene	5.4	Not Detected	32	Not Detected
1,4-Dichlorobenzene	5.4	Not Detected	32	Not Detected
alpha-Chlorotoluene	5.4	Not Detected	28	Not Detected
1,2-Dichlorobenzene	5.4	Not Detected	32	Not Detected
1,2,4-Trichlorobenzene	21	Not Detected	160	Not Detected
Hexachlorobutadiene	21	Not Detected	230	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: TCS-G12-051012

Lab ID#: 1205247-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051529**	**Date of Collection:**	**5/10/12 11:24:00 AM**
Dil. Factor:	**1.60**	**Date of Analysis:**	**5/16/12 07:31 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.80	Not Detected	4.0	Not Detected
Freon 114	0.80	Not Detected	5.6	Not Detected
Chloromethane	8.0	Not Detected	16	Not Detected
Vinyl Chloride	0.80	Not Detected	2.0	Not Detected
1,3-Butadiene	0.80	Not Detected	1.8	Not Detected
Bromomethane	8.0	Not Detected	31	Not Detected
Chloroethane	3.2	Not Detected	8.4	Not Detected
Freon 11	0.80	Not Detected	4.5	Not Detected
Ethanol	3.2	Not Detected	6.0	Not Detected
Freon 113	0.80	1.7	6.1	13
1,1-Dichloroethene	0.80	2.0	3.2	7.8
Acetone	8.0	Not Detected	19	Not Detected
2-Propanol	3.2	Not Detected	7.9	Not Detected
Carbon Disulfide	3.2	Not Detected	10	Not Detected
3-Chloropropene	3.2	Not Detected	10	Not Detected
Methylene Chloride	8.0	Not Detected	28	Not Detected
Methyl tert-butyl ether	0.80	Not Detected	2.9	Not Detected
trans-1,2-Dichloroethene	0.80	1.7	3.2	6.8
Hexane	0.80	Not Detected	2.8	Not Detected
1,1-Dichloroethane	0.80	5.0	3.2	20
2-Butanone (Methyl Ethyl Ketone)	3.2	Not Detected	9.4	Not Detected
cis-1,2-Dichloroethene	0.80	11	3.2	44
Tetrahydrofuran	0.80	Not Detected	2.4	Not Detected
Chloroform	0.80	260	3.9	1300
1,1,1-Trichloroethane	0.80	300	4.4	1600
Cyclohexane	0.80	Not Detected	2.8	Not Detected
Carbon Tetrachloride	0.80	16	5.0	98
2,2,4-Trimethylpentane	0.80	Not Detected	3.7	Not Detected
Benzene	0.80	2.1	2.6	6.7
1,2-Dichloroethane	0.80	Not Detected	3.2	Not Detected
Heptane	0.80	Not Detected	3.3	Not Detected
Trichloroethene	0.80	210	4.3	1100
1,2-Dichloropropane	0.80	Not Detected	3.7	Not Detected
1,4-Dioxane	3.2	Not Detected	12	Not Detected
Bromodichloromethane	0.80	Not Detected	5.4	Not Detected
cis-1,3-Dichloropropene	0.80	Not Detected	3.6	Not Detected
4-Methyl-2-pentanone	0.80	Not Detected	3.3	Not Detected
Toluene	0.80	4.3	3.0	16
trans-1,3-Dichloropropene	0.80	Not Detected	3.6	Not Detected
1,1,2-Trichloroethane	0.80	Not Detected	4.4	Not Detected
Tetrachloroethene	0.80	55	5.4	370
2-Hexanone	3.2	Not Detected	13	Not Detected

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Client Sample ID: TCS-G12-051012

Lab ID#: 1205247-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051529**	**Date of Collection:**	**5/10/12 11:24:00 AM**
Dil. Factor:	**1.60**	**Date of Analysis:**	**5/16/12 07:31 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.80	Not Detected	6.8	Not Detected
1,2-Dibromoethane (EDB)	0.80	Not Detected	6.1	Not Detected
Chlorobenzene	0.80	Not Detected	3.7	Not Detected
Ethyl Benzene	0.80	0.95	3.5	4.1
m,p-Xylene	0.80	1.6	3.5	7.0
o-Xylene	0.80	Not Detected	3.5	Not Detected
Styrene	0.80	Not Detected	3.4	Not Detected
Bromoform	0.80	Not Detected	8.3	Not Detected
Cumene	0.80	Not Detected	3.9	Not Detected
1,1,2,2-Tetrachloroethane	0.80	Not Detected	5.5	Not Detected
Propylbenzene	0.80	Not Detected	3.9	Not Detected
4-Ethyltoluene	0.80	Not Detected	3.9	Not Detected
1,3,5-Trimethylbenzene	0.80	Not Detected	3.9	Not Detected
1,2,4-Trimethylbenzene	0.80	Not Detected	3.9	Not Detected
1,3-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
1,4-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
alpha-Chlorotoluene	0.80	Not Detected	4.1	Not Detected
1,2-Dichlorobenzene	0.80	Not Detected	4.8	Not Detected
1,2,4-Trichlorobenzene	3.2	Not Detected	24	Not Detected
Hexachlorobutadiene	3.2	Not Detected	34	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: TCS-G09-051012

Lab ID#: 1205247-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051530**	**Date of Collection:**	**5/10/12 11:38:00 AM**
Dil. Factor:	**1.58**	**Date of Analysis:**	**5/16/12 07:50 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.79	Not Detected	3.9	Not Detected
Freon 114	0.79	Not Detected	5.5	Not Detected
Chloromethane	7.9	Not Detected	16	Not Detected
Vinyl Chloride	0.79	Not Detected	2.0	Not Detected
1,3-Butadiene	0.79	Not Detected	1.7	Not Detected
Bromomethane	7.9	Not Detected	31	Not Detected
Chloroethane	3.2	Not Detected	8.3	Not Detected
Freon 11	0.79	Not Detected	4.4	Not Detected
Ethanol	3.2	Not Detected	6.0	Not Detected
Freon 113	0.79	Not Detected	6.0	Not Detected
1,1-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Acetone	7.9	Not Detected	19	Not Detected
2-Propanol	3.2	Not Detected	7.8	Not Detected
Carbon Disulfide	3.2	Not Detected	9.8	Not Detected
3-Chloropropene	3.2	Not Detected	9.9	Not Detected
Methylene Chloride	7.9	Not Detected	27	Not Detected
Methyl tert-butyl ether	0.79	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Hexane	0.79	11	2.8	40
1,1-Dichloroethane	0.79	Not Detected	3.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.2	Not Detected	9.3	Not Detected
cis-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Tetrahydrofuran	0.79	Not Detected	2.3	Not Detected
Chloroform	0.79	4.0	3.8	20
1,1,1-Trichloroethane	0.79	110	4.3	590
Cyclohexane	0.79	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.79	Not Detected	5.0	Not Detected
2,2,4-Trimethylpentane	0.79	Not Detected	3.7	Not Detected
Benzene	0.79	2.8	2.5	8.9
1,2-Dichloroethane	0.79	Not Detected	3.2	Not Detected
Heptane	0.79	7.8	3.2	32
Trichloroethene	0.79	54	4.2	290
1,2-Dichloropropane	0.79	Not Detected	3.6	Not Detected
1,4-Dioxane	3.2	Not Detected	11	Not Detected
Bromodichloromethane	0.79	Not Detected	5.3	Not Detected
cis-1,3-Dichloropropene	0.79	Not Detected	3.6	Not Detected
4-Methyl-2-pentanone	0.79	Not Detected	3.2	Not Detected
Toluene	0.79	6.0	3.0	23
trans-1,3-Dichloropropene	0.79	Not Detected	3.6	Not Detected
1,1,2-Trichloroethane	0.79	Not Detected	4.3	Not Detected
Tetrachloroethene	0.79	0.82	5.4	5.5
2-Hexanone	3.2	Not Detected	13	Not Detected

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Client Sample ID: TCS-G09-051012

Lab ID#: 1205247-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051530**	**Date of Collection:**	**5/10/12 11:38:00 AM**
Dil. Factor:	**1.58**	**Date of Analysis:**	**5/16/12 07:50 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.79	Not Detected	6.7	Not Detected
1,2-Dibromoethane (EDB)	0.79	Not Detected	6.1	Not Detected
Chlorobenzene	0.79	Not Detected	3.6	Not Detected
Ethyl Benzene	0.79	1.5	3.4	6.6
m,p-Xylene	0.79	2.3	3.4	10
o-Xylene	0.79	0.80	3.4	3.5
Styrene	0.79	Not Detected	3.4	Not Detected
Bromoform	0.79	Not Detected	8.2	Not Detected
Cumene	0.79	Not Detected	3.9	Not Detected
1,1,2,2-Tetrachloroethane	0.79	Not Detected	5.4	Not Detected
Propylbenzene	0.79	Not Detected	3.9	Not Detected
4-Ethyltoluene	0.79	Not Detected	3.9	Not Detected
1,3,5-Trimethylbenzene	0.79	Not Detected	3.9	Not Detected
1,2,4-Trimethylbenzene	0.79	Not Detected	3.9	Not Detected
1,3-Dichlorobenzene	0.79	Not Detected	4.8	Not Detected
1,4-Dichlorobenzene	0.79	Not Detected	4.8	Not Detected
alpha-Chlorotoluene	0.79	Not Detected	4.1	Not Detected
1,2-Dichlorobenzene	0.79	Not Detected	4.7	Not Detected
1,2,4-Trichlorobenzene	3.2	Not Detected	23	Not Detected
Hexachlorobutadiene	3.2	Not Detected	34	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: TCS-G08-051012

Lab ID#: 1205247-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051531**	**Date of Collection:**	**5/10/12 1:52:00 PM**
Dil. Factor:	**1.55**	**Date of Analysis:**	**5/16/12 08:11 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.78	Not Detected	3.8	Not Detected
Freon 114	0.78	Not Detected	5.4	Not Detected
Chloromethane	7.8	Not Detected	16	Not Detected
Vinyl Chloride	0.78	Not Detected	2.0	Not Detected
1,3-Butadiene	0.78	Not Detected	1.7	Not Detected
Bromomethane	7.8	Not Detected	30	Not Detected
Chloroethane	3.1	Not Detected	8.2	Not Detected
Freon 11	0.78	Not Detected	4.4	Not Detected
Ethanol	3.1	26	5.8	49
Freon 113	0.78	Not Detected	5.9	Not Detected
1,1-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Acetone	7.8	12	18	28
2-Propanol	3.1	17 J	7.6	41 J
Carbon Disulfide	3.1	Not Detected	9.6	Not Detected
3-Chloropropene	3.1	Not Detected	9.7	Not Detected
Methylene Chloride	7.8	Not Detected	27	Not Detected
Methyl tert-butyl ether	0.78	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Hexane	0.78	5.9	2.7	21
1,1-Dichloroethane	0.78	1.2	3.1	5.0
2-Butanone (Methyl Ethyl Ketone)	3.1	4.9	9.1	14
cis-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Tetrahydrofuran	0.78	Not Detected	2.3	Not Detected
Chloroform	0.78	1.3	3.8	6.2
1,1,1-Trichloroethane	0.78	24	4.2	130
Cyclohexane	0.78	4.8	2.7	16
Carbon Tetrachloride	0.78	Not Detected	4.9	Not Detected
2,2,4-Trimethylpentane	0.78	Not Detected	3.6	Not Detected
Benzene	0.78	2.4	2.5	7.7
1,2-Dichloroethane	0.78	Not Detected	3.1	Not Detected
Heptane	0.78	4.2	3.2	17
Trichloroethene	0.78	8.2	4.2	44
1,2-Dichloropropane	0.78	Not Detected	3.6	Not Detected
1,4-Dioxane	3.1	Not Detected	11	Not Detected
Bromodichloromethane	0.78	Not Detected	5.2	Not Detected
cis-1,3-Dichloropropene	0.78	Not Detected	3.5	Not Detected
4-Methyl-2-pentanone	0.78	Not Detected	3.2	Not Detected
Toluene	0.78	15	2.9	55
trans-1,3-Dichloropropene	0.78	Not Detected	3.5	Not Detected
1,1,2-Trichloroethane	0.78	Not Detected	4.2	Not Detected
Tetrachloroethene	0.78	2.0	5.2	14
2-Hexanone	3.1	Not Detected	13	Not Detected

5/30/12

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Client Sample ID: TCS-G08-051012

Lab ID#: 1205247-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051531**	**Date of Collection: 5/10/12 1:52:00 PM**	
Dil. Factor:	**1.55**	**Date of Analysis: 5/16/12 08:11 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.78	Not Detected	6.6	Not Detected
1,2-Dibromoethane (EDB)	0.78	Not Detected	6.0	Not Detected
Chlorobenzene	0.78	Not Detected	3.6	Not Detected
Ethyl Benzene	0.78	2.1	3.4	9.0
m,p-Xylene	0.78	3.9	3.4	17
o-Xylene	0.78	1.3	3.4	5.8
Styrene	0.78	Not Detected	3.3	Not Detected
Bromoform	0.78	Not Detected	8.0	Not Detected
Cumene	0.78	Not Detected	3.8	Not Detected
1,1,2,2-Tetrachloroethane	0.78	Not Detected	5.3	Not Detected
Propylbenzene	0.78	Not Detected	3.8	Not Detected
4-Ethyltoluene	0.78	0.79	3.8	3.9
1,3,5-Trimethylbenzene	0.78	Not Detected	3.8	Not Detected
1,2,4-Trimethylbenzene	0.78	0.89 J	3.8	4.4 J
1,3-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
1,4-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
alpha-Chlorotoluene	0.78	Not Detected	4.0	Not Detected
1,2-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
1,2,4-Trichlorobenzene	3.1	Not Detected	23	Not Detected
Hexachlorobutadiene	3.1	Not Detected	33	Not Detected

J = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: TCS-G07-051012

Lab ID#: 1205247-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051532**	**Date of Collection:**	**5/10/12 2:24:00 PM**
Dil. Factor:	**1.58**	**Date of Analysis:**	**5/16/12 08:28 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.79	Not Detected	3.9	Not Detected
Freon 114	0.79	Not Detected	5.5	Not Detected
Chloromethane	7.9	Not Detected	16	Not Detected
Vinyl Chloride	0.79	Not Detected	2.0	Not Detected
1,3-Butadiene	0.79	Not Detected	1.7	Not Detected
Bromomethane	7.9	Not Detected	31	Not Detected
Chloroethane	3.2	Not Detected	8.3	Not Detected
Freon 11	0.79	Not Detected	4.4	Not Detected
Ethanol	3.2	Not Detected	6.0	Not Detected
Freon 113	0.79	Not Detected	6.0	Not Detected
1,1-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Acetone	7.9	Not Detected	19	Not Detected
2-Propanol	3.2	Not Detected	7.8	Not Detected
Carbon Disulfide	3.2	Not Detected	9.8	Not Detected
3-Chloropropene	3.2	Not Detected	9.9	Not Detected
Methylene Chloride	7.9	Not Detected	27	Not Detected
Methyl tert-butyl ether	0.79	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Hexane	0.79	Not Detected	2.8	Not Detected
1,1-Dichloroethane	0.79	Not Detected	3.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.2	Not Detected	9.3	Not Detected
cis-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Tetrahydrofuran	0.79	Not Detected	2.3	Not Detected
Chloroform	0.79	Not Detected	3.8	Not Detected
1,1,1-Trichloroethane	0.79	Not Detected	4.3	Not Detected
Cyclohexane	0.79	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.79	Not Detected	5.0	Not Detected
2,2,4-Trimethylpentane	0.79	Not Detected	3.7	Not Detected
Benzene	0.79	0.83	2.5	2.6
1,2-Dichloroethane	0.79	Not Detected	3.2	Not Detected
Heptane	0.79	Not Detected	3.2	Not Detected
Trichloroethene	0.79	Not Detected	4.2	Not Detected
1,2-Dichloropropane	0.79	Not Detected	3.6	Not Detected
1,4-Dioxane	3.2	Not Detected	11	Not Detected
Bromodichloromethane	0.79	Not Detected	5.3	Not Detected
cis-1,3-Dichloropropene	0.79	Not Detected	3.6	Not Detected
4-Methyl-2-pentanone	0.79	Not Detected	3.2	Not Detected
Toluene	0.79	1.9	3.0	7.2
trans-1,3-Dichloropropene	0.79	Not Detected	3.6	Not Detected
1,1,2-Trichloroethane	0.79	Not Detected	4.3	Not Detected
Tetrachloroethene	0.79	1.8	5.4	12
2-Hexanone	3.2	Not Detected	13	Not Detected

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Client Sample ID: TCS-G07-051012

Lab ID#: 1205247-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051532**	**Date of Collection:**	**5/10/12 2:24:00 PM**
Dil. Factor:	**1.58**	**Date of Analysis:**	**5/16/12 08:28 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.79	Not Detected	6.7	Not Detected
1,2-Dibromoethane (EDB)	0.79	Not Detected	6.1	Not Detected
Chlorobenzene	0.79	Not Detected	3.6	Not Detected
Ethyl Benzene	0.79	Not Detected	3.4	Not Detected
m,p-Xylene	0.79	Not Detected	3.4	Not Detected
o-Xylene	0.79	Not Detected	3.4	Not Detected
Styrene	0.79	Not Detected	3.4	Not Detected
Bromoform	0.79	Not Detected	8.2	Not Detected
Cumene	0.79	Not Detected	3.9	Not Detected
1,1,2,2-Tetrachloroethane	0.79	Not Detected	5.4	Not Detected
Propylbenzene	0.79	Not Detected	3.9	Not Detected
4-Ethyltoluene	0.79	Not Detected	3.9	Not Detected
1,3,5-Trimethylbenzene	0.79	Not Detected	3.9	Not Detected
1,2,4-Trimethylbenzene	0.79	Not Detected	3.9	Not Detected
1,3-Dichlorobenzene	0.79	Not Detected	4.8	Not Detected
1,4-Dichlorobenzene	0.79	Not Detected	4.8	Not Detected
alpha-Chlorotoluene	0.79	Not Detected	4.1	Not Detected
1,2-Dichlorobenzene	0.79	Not Detected	4.7	Not Detected
1,2,4-Trichlorobenzene	3.2	Not Detected	23	Not Detected
Hexachlorobutadiene	3.2	Not Detected	34	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: TCS-G02-051012

Lab ID#: 1205247-07A

EPA METHOD TO-15 GC/MS

File Name:	**14051527**	**Date of Collection:**	**5/10/12 3:14:00 PM**
Dil. Factor:	**1.91**	**Date of Analysis:**	**5/15/12 09:02 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	9.6	Not Detected	47	Not Detected
Freon 114	9.6	Not Detected	67	Not Detected
Chloromethane	38	Not Detected	79	Not Detected
Vinyl Chloride	9.6	60	24	150
1,3-Butadiene	9.6	Not Detected	21	Not Detected
Bromomethane	9.6	Not Detected	37	Not Detected
Chloroethane	38	Not Detected	100	Not Detected
Freon 11	9.6 UJ	Not Detected	54 UJ	Not Detected
Ethanol	38	Not Detected	72	Not Detected
Freon 113	9.6	Not Detected	73	Not Detected
1,1-Dichloroethene	9.6	Not Detected	38	Not Detected
Acetone	38	Not Detected	91	Not Detected
2-Propanol	38 UJ	Not Detected	94 UJ	Not Detected
Carbon Disulfide	9.6	43	30	130
3-Chloropropene	38	Not Detected	120	Not Detected
Methylene Chloride	9.6	Not Detected	33	Not Detected
Methyl tert-butyl ether	9.6	Not Detected	34	Not Detected
trans-1,2-Dichloroethene	9.6	Not Detected	38	Not Detected
Hexane	9.6	28	34	100
1,1-Dichloroethane	9.6	Not Detected	39	Not Detected
2-Butanone (Methyl Ethyl Ketone)	38	Not Detected	110	Not Detected
cis-1,2-Dichloroethene	9.6	96	38	380
Tetrahydrofuran	9.6	Not Detected	28	Not Detected
Chloroform	9.6	Not Detected	47	Not Detected
1,1,1-Trichloroethane	9.6	Not Detected	52	Not Detected
Cyclohexane	9.6	270	33	930
Carbon Tetrachloride	9.6	Not Detected	60	Not Detected
2,2,4-Trimethylpentane	9.6	120	45	570
Benzene	9.6	11	30	36
1,2-Dichloroethane	9.6	Not Detected	39	Not Detected
Heptane	9.6	Not Detected	39	Not Detected
Trichloroethene	9.6	13	51	71
1,2-Dichloropropane	9.6	Not Detected	44	Not Detected
1,4-Dioxane	38 UJ	Not Detected UJ	140	Not Detected
Bromodichloromethane	9.6	Not Detected	64	Not Detected
cis-1,3-Dichloropropene	9.6	Not Detected	43	Not Detected
4-Methyl-2-pentanone	9.6	Not Detected	39	Not Detected
Toluene	9.6	30	36	110
trans-1,3-Dichloropropene	9.6	Not Detected	43	Not Detected
1,1,2-Trichloroethane	9.6	Not Detected	52	Not Detected
Tetrachloroethene	9.6	150	65	1000
2-Hexanone	38	Not Detected	160	Not Detected

1D 5/30/12

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Client Sample ID: TCS-G02-051012

Lab ID#: 1205247-07A

EPA METHOD TO-15 GC/MS

File Name:	**14051527**	**Date of Collection:**	**5/10/12 3:14:00 PM**
Dil. Factor:	**1.91**	**Date of Analysis:**	**5/15/12 09:02 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	9.6	Not Detected	81	Not Detected
1,2-Dibromoethane (EDB)	9.6	Not Detected	73	Not Detected
Chlorobenzene	9.6	Not Detected	44	Not Detected
Ethyl Benzene	9.6	Not Detected	41	Not Detected
m,p-Xylene	9.6	Not Detected	41	Not Detected
o-Xylene	9.6	Not Detected	41	Not Detected
Styrene	9.6	Not Detected	41	Not Detected
Bromoform	9.6	Not Detected	99	Not Detected
Cumene	9.6	Not Detected	47	Not Detected
1,1,2,2-Tetrachloroethane	9.6	Not Detected	66	Not Detected
Propylbenzene	9.6	4500	47	22000
4-Ethyltoluene	9.6	Not Detected	47	Not Detected
1,3,5-Trimethylbenzene	9.6	Not Detected	47	Not Detected
1,2,4-Trimethylbenzene	9.6	Not Detected	47	Not Detected
1,3-Dichlorobenzene	9.6	Not Detected	57	Not Detected
1,4-Dichlorobenzene	9.6	Not Detected	57	Not Detected
alpha-Chlorotoluene	38	Not Detected	200	Not Detected
1,2-Dichlorobenzene	9.6	32	57	190
1,2,4-Trichlorobenzene	38	Not Detected	280	Not Detected
Hexachlorobutadiene	38	Not Detected	410	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	109	70-130
4-Bromofluorobenzene	78	70-130

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Client Sample ID: TCS-G01-051012

Lab ID#: 1205247-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051729**	**Date of Collection:**	**5/10/12 3:31:00 PM**
Dil. Factor:	**223**	**Date of Analysis:**	**5/18/12 09:30 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	110	Not Detected	550	Not Detected
Freon 114	110	Not Detected	780	Not Detected
Chloromethane	1100	Not Detected	2300	Not Detected
Vinyl Chloride	110	Not Detected	280	Not Detected
1,3-Butadiene	110	Not Detected	250	Not Detected
Bromomethane	1100	Not Detected	4300	Not Detected
Chloroethane	450	Not Detected	1200	Not Detected
Freon 11	110	Not Detected	630	Not Detected
Ethanol	450	Not Detected	840	Not Detected
Freon 113	110	Not Detected	850	Not Detected
1,1-Dichloroethene	110	Not Detected	440	Not Detected
Acetone	1100	Not Detected	2600	Not Detected
2-Propanol	450	Not Detected	1100	Not Detected
Carbon Disulfide	450	Not Detected	1400	Not Detected
3-Chloropropene	450	Not Detected	1400	Not Detected
Methylene Chloride	1100	Not Detected	3900	Not Detected
Methyl tert-butyl ether	110	Not Detected	400	Not Detected
trans-1,2-Dichloroethene	110	Not Detected	440	Not Detected
Hexane	110	Not Detected	390	Not Detected
1,1-Dichloroethane	110	Not Detected	450	Not Detected
2-Butanone (Methyl Ethyl Ketone)	450	Not Detected	1300	Not Detected
cis-1,2-Dichloroethene	110	170	440	680
Tetrahydrofuran	110	Not Detected	330	Not Detected
Chloroform	110	Not Detected	540	Not Detected
1,1,1-Trichloroethane	110	Not Detected	610	Not Detected
Cyclohexane	110	Not Detected	380	Not Detected
Carbon Tetrachloride	110	Not Detected	700	Not Detected
2,2,4-Trimethylpentane	110	Not Detected	520	Not Detected
Benzene	110	Not Detected	360	Not Detected
1,2-Dichloroethane	110	Not Detected	450	Not Detected
Heptane	110	Not Detected	460	Not Detected
Trichloroethene	110	110	600	600
1,2-Dichloropropane	110	Not Detected	520	Not Detected
1,4-Dioxane	450	Not Detected	1600	Not Detected
Bromodichloromethane	110	Not Detected	750	Not Detected
cis-1,3-Dichloropropene	110	Not Detected	510	Not Detected
4-Methyl-2-pentanone	110	Not Detected	460	Not Detected
Toluene	110	Not Detected	420	Not Detected
trans-1,3-Dichloropropene	110	Not Detected	510	Not Detected
1,1,2-Trichloroethane	110	Not Detected	610	Not Detected
Tetrachloroethene	110	36000	760	240000
2-Hexanone	450	Not Detected	1800	Not Detected

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Client Sample ID: TCS-G01-051012

Lab ID#: 1205247-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051729**	**Date of Collection:**	**5/10/12 3:31:00 PM**
Dil. Factor:	**223**	**Date of Analysis:**	**5/18/12 09:30 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	110	Not Detected	950	Not Detected
1,2-Dibromoethane (EDB)	110	Not Detected	860	Not Detected
Chlorobenzene	110	Not Detected	510	Not Detected
Ethyl Benzene	110	Not Detected	480	Not Detected
m,p-Xylene	110	Not Detected	480	Not Detected
o-Xylene	110	Not Detected	480	Not Detected
Styrene	110	Not Detected	470	Not Detected
Bromoform	110	Not Detected	1200	Not Detected
Cumene	110	Not Detected	550	Not Detected
1,1,2,2-Tetrachloroethane	110	Not Detected	760	Not Detected
Propylbenzene	110	Not Detected	550	Not Detected
4-Ethyltoluene	110	Not Detected	550	Not Detected
1,3,5-Trimethylbenzene	110	Not Detected	550	Not Detected
1,2,4-Trimethylbenzene	110	Not Detected	550	Not Detected
1,3-Dichlorobenzene	110	Not Detected	670	Not Detected
1,4-Dichlorobenzene	110	Not Detected	670	Not Detected
alpha-Chlorotoluene	110	Not Detected	580	Not Detected
1,2-Dichlorobenzene	110	Not Detected	670	Not Detected
1,2,4-Trichlorobenzene	450	Not Detected	3300	Not Detected
Hexachlorobutadiene	450	Not Detected	4800	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	96	70-130

eurofins | Air Toxics

Client Sample ID: TCS-G13-051012

Lab ID#: 1205247-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051728**	**Date of Collection:**	**5/10/12 3:40:00 PM**
Dil. Factor:	**25.1**	**Date of Analysis:**	**5/18/12 09:13 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	12	Not Detected	62	Not Detected
Freon 114	12	Not Detected	88	Not Detected
Chloromethane	120	Not Detected	260	Not Detected
Vinyl Chloride	12	Not Detected	32	Not Detected
1,3-Butadiene	12	Not Detected	28	Not Detected
Bromomethane	120	Not Detected	490	Not Detected
Chloroethane	50	Not Detected	130	Not Detected
Freon 11	12	Not Detected	70	Not Detected
Ethanol	50	Not Detected	94	Not Detected
Freon 113	12	Not Detected	96	Not Detected
1,1-Dichloroethene	12	Not Detected	50	Not Detected
Acetone	120	130	300	310
2-Propanol	50	Not Detected	120	Not Detected
Carbon Disulfide	50	Not Detected	160	Not Detected
3-Chloropropene	50	Not Detected	160	Not Detected
Methylene Chloride	120	Not Detected	440	Not Detected
Methyl tert-butyl ether	12	Not Detected	45	Not Detected
trans-1,2-Dichloroethene	12	Not Detected	50	Not Detected
Hexane	12	Not Detected	44	Not Detected
1,1-Dichloroethane	12	Not Detected	51	Not Detected
2-Butanone (Methyl Ethyl Ketone)	50	Not Detected	150	Not Detected
cis-1,2-Dichloroethene	12	Not Detected	50	Not Detected
Tetrahydrofuran	12	Not Detected	37	Not Detected
Chloroform	12	Not Detected	61	Not Detected
1,1,1-Trichloroethane	12	Not Detected	68	Not Detected
Cyclohexane	12	Not Detected	43	Not Detected
Carbon Tetrachloride	12	Not Detected	79	Not Detected
2,2,4-Trimethylpentane	12	Not Detected	59	Not Detected
Benzene	12	Not Detected	40	Not Detected
1,2-Dichloroethane	12	Not Detected	51	Not Detected
Heptane	12	Not Detected	51	Not Detected
Trichloroethene	12	Not Detected	67	Not Detected
1,2-Dichloropropane	12	Not Detected	58	Not Detected
1,4-Dioxane	50	Not Detected	180	Not Detected
Bromodichloromethane	12	Not Detected	84	Not Detected
cis-1,3-Dichloropropene	12	Not Detected	57	Not Detected
4-Methyl-2-pentanone	12	Not Detected	51	Not Detected
Toluene	12	Not Detected	47	Not Detected
trans-1,3-Dichloropropene	12	Not Detected	57	Not Detected
1,1,2-Trichloroethane	12	Not Detected	68	Not Detected
Tetrachloroethene	12	Not Detected	85	Not Detected
2-Hexanone	50	Not Detected	200	Not Detected

eurofins | Air Toxics

Client Sample ID: TCS-G13-051012

Lab ID#: 1205247-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051728**	**Date of Collection:**	**5/10/12 3:40:00 PM**
Dil. Factor:	**25.1**	**Date of Analysis:**	**5/18/12 09:13 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	12	Not Detected	110	Not Detected
1,2-Dibromoethane (EDB)	12	Not Detected	96	Not Detected
Chlorobenzene	12	Not Detected	58	Not Detected
Ethyl Benzene	12	Not Detected	54	Not Detected
m,p-Xylene	12	Not Detected	54	Not Detected
o-Xylene	12	Not Detected	54	Not Detected
Styrene	12	Not Detected	53	Not Detected
Bromoform	12	Not Detected	130	Not Detected
Cumene	12	Not Detected	62	Not Detected
1,1,2,2-Tetrachloroethane	12	Not Detected	86	Not Detected
Propylbenzene	12	Not Detected	62	Not Detected
4-Ethyltoluene	12	Not Detected	62	Not Detected
1,3,5-Trimethylbenzene	12	Not Detected	62	Not Detected
1,2,4-Trimethylbenzene	12	Not Detected	62	Not Detected
1,3-Dichlorobenzene	12	Not Detected	75	Not Detected
1,4-Dichlorobenzene	12	Not Detected	75	Not Detected
alpha-Chlorotoluene	12	Not Detected	65	Not Detected
1,2-Dichlorobenzene	12	Not Detected	75	Not Detected
1,2,4-Trichlorobenzene	50	Not Detected	370	Not Detected
Hexachlorobutadiene	50	Not Detected	540	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	103	70-130

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