DRAFT
SITE ASSESSMENT REPORT FOR THE IRONWOOD MANUFACTURED GAS PLANT SITE IRONWOOD, GOGEBIC COUNTY, MICHIGAN

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V Emergency Response Branch
801 Garfield Avenue, No. 229
Traverse City, MI 49686

Prepared by:

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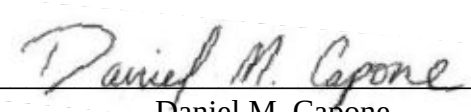
Approved by  Date 04/26/11
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LIST OF ABBREVIATIONS AND ACRONYMS

ATV	All-terrain vehicle
bgs	Below ground surface
COC	Chemical of concern
CWG	Carbureted water gas
cy^3	Cubic yard
ft	feet, foot
ft^2	Square feet, foot
ft^3	Cubic feet, foot
GSI	Groundwater Surface Water Interface
MDEQ	Michigan Department of Environmental Quality
MGP	Manufactured Gas Plant
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NYSDEC	New York State Department of Environmental Conservation
OSC	On-Scene Coordinator
ORP	Oxidation/Reduction Potential
PCB	Polychlorinated biphenyl
PID	Photoionization detector
QA/QC	quality assurance/quality control
SA	Site assessment
START	Superfund Technical Assessment and Response Team
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile organic compound
WESTON	Weston Solutions, Inc.

1. INTRODUCTION

Under Technical Direction Document No. S05-0001-1011-003, the United States Environmental Protection Agency (U.S. EPA) tasked the Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START) to perform a site assessment (SA) at the Ironwood Manufactured Gas Plant (MGP) Site in Ironwood, Gogebic County, Michigan (the Site). Specifically, the U.S. EPA requested that WESTON START conduct a comprehensive review of historical site files and previous investigation results; prepare the necessary planning documents, including a health and safety plan; assist with site reconnaissance and screening activities; and evaluate threats to human health and the environment posed by Site-related conditions. WESTON START, accompanied by the Michigan Department of Environmental Quality (MDEQ), performed reconnaissance and screening activities at the Site under the direction of U.S. EPA On-Scene Coordinator (OSC) Mr. Ralph Dollhopf.

This SA Report is organized into the following sections:

- **Introduction –** Provides a brief description of the objectives and scope of SA activities.
- **Site Background** – Details the Site description, physical features, historical background, and potential chemicals of concern (COC) based on the Site history.
- **SA Activities –** Discusses the field screening methods and sampling activities implemented during the MDEQ Site Inspection and the WESTON START Site reconnaissance.
- **Field Screening and Analytical Results –** Discusses the results of field screening and laboratory analysis of samples collected during the MDEQ Site Inspection and the WESTON START Site reconnaissance.
- **Threats to Human Health and the Environment –** Identifies Site-related conditions that warrant a removal action under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).
- **Conclusions –** Summarizes SA findings based on the SA results.
- **References –** Lists references used to prepare this report.

2. SITE BACKGROUND

This section discusses the Site description, historical background, and potential COCs.

2.1 SITE DESCRIPTION

The Site does not have a physical address but is located on the northwest corner of Hemlock Street and West Ayer Street in Ironwood, Gogebic County, Michigan (**Figure 2-1**). The Site coordinates are latitude 46.4517 North and longitude -90.1778 West, and lies in the southern portion of Section 21, Township 47 North, and Range 47 West. The Site's Gogebic County Property Tax Identification Numbers are 2752-21-477-010 (northern portion) and 2752-21-478-010 (southwestern portion).

The City of Ironwood presently owns the Site and historical records identify the City of Ironwood as the owner and operator of the former Ironwood Gas Works. The Site is accessible from Hemlock Street and is bounded to the west by the Montreal River; to the north by the former Chicago and Northwestern Railroad Right of Way; to the south by residential properties and Fahrner Excavating, which occupies a historical building associated with city operations; and to the east by residential properties.

The property encompasses approximately 2.1 acres and is vacant. The building on the adjacent property, owned by Fahrner Excavating, existed during plant operations, but was reportedly used as a storage and maintenance facility for electric trolley cars. Operations at Fahrner Excavating appear to have infringed onto the Site's property boundaries with debris, rock, and soil piles placed on the northern parcel of the Site and more household debris and equipment located west of the building. A concrete structure is located between the building and the Montreal River that potentially extends below grade. **Figure 2-2** shows the current features and the approximate locations of historical buildings at the Site.

The topography of the Site is relatively flat. Rock, rubble, and debris spread across the northern portion of the property. A steep-sloping grade is present along the north Site boundary rising up to the former railroad grade. Similarly, along the western boundary of the Site, the grade slopes gradually down to the Montreal River. The elevation of the Montreal River is approximately

10 feet (ft) lower than the ground surface in the northern portion of the Site. The Montreal River flows from north to south towards Lake Superior.

Groundwater flow in the Site area is generally to the west/northwest toward the Montreal River. The depth to groundwater beneath the Site ranges from several feet along the eastern Site boundary to more than 5 ft along the western portion of the Site.

2.2 SITE BACKGROUND

Site background information was obtained from the following sources (see **Section 7** for full citations):

- MDEQ files, including communications and documentation related to the Site (MDEQ, 2010a).
- Technical guidance including case studies and investigative rationale related to MGP sites developed by the New York State Department of Environmental Conservation (NYSDEC) (NYSDEC, 2010).
- Technical guidance including case studies and characterization/remediation rationale related to MGP sites developed by the U.S. EPA (U.S. EPA, 1999).
- Aerial photographs and Sanborn Fire Insurance Maps obtained by the MDEQ.

The Site is the location of a former coal gasification plant. Reportedly, the plant was constructed in 1911 and operated using a carbureted water gas (CWG) process:

> This process, CWG, was first introduced in the 1870s. A variety of water gas processes were developed, all of which involved a first step in which coke or coal was heated in a closed vessel or retort into which steam was injected. A chemical reaction took place which produced a flammable gas mixture of methane and carbon monoxide. Petroleum products were then sprayed into the hot gas mixture, creating another chemical reaction in which petroleum constituents were “cracked” to form methane, which increased the heating and lighting value of the gas. (NYSDEC, 2010)

A review of Sanborn maps indicate that the processes at the Site were consistent with the processes outlined in the excerpt above. Identifiable features on the map include a retort room, coke and coal storage as well as crude oil storage, and gas storage. In addition to coal gas production the Site also served as the center of the gas distribution system for the communities of Ironwood and Hurley, WI. The gas was piped to properties and used for heating and cooking.

The operations at the plant were reportedly 24 hours a day and by 1928 the plant had enough storage capacity for 160,000 cubic feet (ft^3) of manufactured gas. The production of manufactured gas resulted in the generation of waste products, some of which were recycled in the process, sold, or otherwise disposed of at the plant location:

> A dense, oily liquid known as coal tar would condense out of the gas at various stages during its production, purification and distribution. Although most of the tar was collected for sale or reuse, recovery was incomplete. Most plants had tar/water separators, which sometimes could not fully separate the two liquids. The resulting tar/water emulsion was often discharged to a nearby surface water body. Over the decades during which many of these MGPs operated, substantial amounts of tar also leaked from storage and processing facilities and contaminated surface soils, subsurface soils, and groundwater.
>
> Another byproduct, purifier waste, was made up of either lime or wood chips treated with iron oxides, and was used to remove cyanide and sulfur from the manufactured gas. Once it had become saturated with impurities, purifier waste was often discarded or used as a fill material. (NYSDEC, 2010)

The plant continued operations and distribution of manufactured gas until the late 1950s when natural gas pipelines and service became more readily available in the area. By 1956 the plant was for sale and based on accounts of the Wisconsin Public Service Commission, by 1961 had discontinued service to Hurley, including the removal of meters following abandonment. Although a record has not been discovered, it is logical to presume that the plant discontinued operations in the early to mid-1960s.

After operations at the plant were discontinued, the historical record for the Site is less definitive. Interviews conducted by the MDEQ with local residents indicate that the buildings at the Site were removed prior to the gasometers. Based on the historical accounts the surface structures at the Site were demolished and removed during the 1970s and the 1980s. Following removal of the surface structures, the Site was reportedly used by the City of Ironwood for the storage of inoperable equipment and debris, eventually transforming into the accumulation of debris and rubble that is present at the Site today.

2.3 POTENTIAL COCs

Based on the historical operations at the Site, a variety of COCs potentially are present in soil and groundwater. As a result of the MGP operations and assumed limited demolition at the Site,

it is believed and confirmed by the MDEQ sampling at the Site, that gross tar contamination is present in the subsurface at the Site. It is anticipated that gross tar and waste contamination will be present in the subsurface in the vicinity subsurface structures associated with the gasometers and buildings, subsurface gas and waste conduits, as well as possible bulk disposal areas. COCs typically associated with MGP sites include volatile organic compounds (VOCs), semivolatile compounds (SVOCs), and inorganic COCs. In addition, typical operations at MGP sites such as this suggest that oils and other petroleum hydrocarbons may have been used in the MGP processes:

> Although it is common to use the phrase "coal tar" to describe this material, it is important to note that this name is somewhat misleading. Most people think of tar as a sticky, viscous material, commonly used for road building or roofing repair. MGP tars, particularly those produced by the CWG process, were not like this. Many of the tars found at CWG MGP sites are quite fluid, with roughly the same viscosity as vegetable oil. Consequently, CWG tars are more likely to migrate through soils and appear at different locations from where they were originally leaked or disposed of. (NYSDEC, 2010)

Based on known Site operations and the observation of contaminants during bridge construction at West Norrie Street, the MDEQ developed a Site Inspection Work Plan in 2010. The work plan identified COCs that would be used to characterize conditions in the subsurface at the Site as well as in the surface water and sediment in the adjacent Montreal River. The potential COCs evaluated as part of the MDEQ's Site Inspection activities include the following:

- **Soil, Groundwater, Sediment, and Surface Water:**
  - VOCs
  - SVOCs
  - Polychlorinated biphenyls (PCBs)
  - Pesticides
  - Inorganic COCs

Soil, sediment, surface water, and groundwater were considered relevant sample media relating to the potential transport and migration of COCs from the Site. Although considered during development of the Site Inspection Work Plan, ambient air was not considered a relevant pathway and was not sampled. It is acknowledged that wastes typically associated with MGP sites often produce strong odors and it is possible that particulates in surface soils may be transported as airborne particulates.

3. SITE ASSESSMENT ACTIVITIES

The findings of the SA Report are a summary based on analytical data collected by the MDEQ in October 2010 and visual inspection of the Site and screening activities conducted by WESTON START personnel in November 2010. Previous visual inspections of the Site had determined that a significant potential for contamination of the soil and groundwater at the Site existed. The MDEQ's investigative activities were conducted to gather additional data related to the Site and to assess the presence of MGP waste at the Site.

The Site Inspection activities performed by the MDEQ were implemented with the intent of evaluating groundwater, surface-water, and soil-exposure pathways. In general, the Site Inspection included the following tasks:

- Collection of shallow and deep soil samples to determine source area waste characteristics, contaminant migration, and soil exposure hazards.
- Collection of groundwater samples from temporary monitoring wells to determine whether a contaminant plume is emanating from the Site.
- Collection of surface water and sediment samples to determine whether and where a contaminant plume may be discharging to the Montreal River.

The following sections provide a detailed summary of the MDEQ Site Inspection and sampling activities and the WESTON START site reconnaissance activities.

3.1 MDEQ SITE INSPECTION

Based on previous inspections of the Site by MDEQ personnel, an investigative approach was developed and a Site Inspection Work Plan was developed by the Superfund Section of the Remediation Division of the MDEQ pursuant to a cooperative agreement with the U.S. EPA. The Site Inspection was designed to determine the actual contaminant presence and contaminant concentrations in Site media. The Site Inspection Work Plan detailed the Site-specific data collection activities and associated quality assurance/quality control (QA/QC) measures to be followed during implementation of the investigative activities. The following sections provide a detailed account of the investigative strategies and exploratory methods used during each event.

3.1.1 Soil Sampling

As outlined in the Site Inspection Work Plan, the MDEQ collected both shallow and deep soil samples. The following subsections outline the sampling procedures and investigative strategies implemented during the Site Inspection.

3.1.1.1 Subsurface Soil Field Screening and Sampling

Previous visual inspections indicated that buried wastes were present at the Site. Soil investigative activities by the MDEQ were targeted in areas of past operations, but also in areas of suspected contamination such as potential unmarked disposal areas.

Fifteen soil borings were installed by the MDEQ at the Site utilizing direct-push boring techniques. Samples were collected from depths ranging from 0 to 12 ft below ground surface (bgs). The samples were collected utilizing a Geoprobe® macro-core sampler. Dedicated/disposable sample liners were used to reduce the possibility of cross contamination between sample locations. Following extraction of the soil cores from the ground, boring observations and descriptions were recorded in the field logbook.

The portion of each soil macro-core sample for VOC analysis was collected first by immediate and direct transfer of the sample aliquot to the laboratory-provided sample container using a disposable syringe sampler. The sample bottle was then preserved with methanol after screening the soil core with a photoionization detector (PID). Following collection of the VOC sample aliquot, the remaining soil sample was transferred to a disposable aluminum pan for homogenization. The soil was thoroughly mixed in the aluminum pan using a stainless steel spoon. Following mixing the remaining sample portions including SVOCs, pesticides, PCBs, and total metals were collected and placed in the laboratory-provided sample containers.

Fifteen subsurface soil samples (SB1 through SB15) were collected from the borings between October 19 and October 20, 2011. One duplicate soil sample was collected from boring SB2 for QA/QC purposes. The duplicate sample was labeled SB2D. The VOC sample aliquot was analyzed by the MDEQ Environmental Laboratory in Lansing, MI. Samples for total metals analysis were shipped to Sentinel, Inc., in Huntsville, AL, and the remaining sample fractions were sent to KAP Technologies in The Woodlands, Texas, to be analyzed for SVOCs, PCBs, and

pesticides. Laboratory analytical services were provided in accordance with U.S. EPA Superfund Contract Laboratory Program procedures. **Table 1** summarizes the analytical results of the soil samples collected during the Site Inspection, and **Figure 3-1** shows the soil sampling locations. Soil sampling descriptions prepared by the MDEQ are included in **Attachment A**. Analytical results are discussed in Subsection 4.1.1.

3.1.1.2 Surface Soil Field Screening and Sampling

Similar to the preceding subsection, surface soil investigative activities were targeted in areas of past operations, but also in areas of suspected contamination such as potential unmarked disposal areas.

Fifteen surface soil samples were collected utilizing a stainless steel hand trowel or stainless steel hand auger from depths of 0 to 12 inches bgs. Dedicated sampling equipment was used to the extent practicable to prevent cross-contamination between sample locations. Surface soil samples were transferred to an aluminum pan for homogenization. For each sample, following collection of a sufficient amount of soil, observations and descriptions of the sample were recorded in the field logbook.

The portion of each surface soil sample for VOC analysis was collected first by immediate and direct transfer of the sample aliquot to the laboratory-provided sample container using a disposable syringe sampler. The sample bottle was then preserved with methanol. Following collection of the VOC sample aliquot, the soil was thoroughly mixed in the aluminum pan using a stainless steel spoon. Following mixing the remaining sample portions including SVOCs, pesticides, PCBs, and total metals were collected and placed in the laboratory-provided sample containers.

Fifteen surface soil samples (SS1 through SS15) were collected from the Site between October 19 and October 20, 2011. One duplicate soil sample was collected from location SS2 for QA/QC purposes. The duplicate sample was labeled SS2D. The VOC sample aliquot was analyzed by the MDEQ's Environmental Laboratory, in Lansing, MI. Samples for total metals analysis were shipped to Sentinel, Inc., in Huntsville, AL, and the remaining sample fractions were sent to KAP Technologies in The Woodlands, Texas, to be analyzed for SVOCs, PCBs, and pesticides.

Table 1 summarizes the analytical results of the surface soil samples, and **Figure 3-1** shows the soil sampling locations. Soil sampling descriptions prepared by the MDEQ are included in **Attachment A**. Analytical results are discussed in Subsection 4.1.2.

3.1.2 Groundwater Sampling

As outlined in the Site Inspection Work Plan, the MDEQ installed temporary monitoring wells in select boring locations to evaluate groundwater conditions beneath the Site. The following subsections outline the rationale for placement of the temporary monitoring wells and the sampling strategies implemented during the Site Inspection to assess groundwater.

Eight temporary monitoring wells were installed at the Site including two temporary monitoring wells that were intended to be background monitoring wells, installed upgradient of the Site. The six remaining temporary monitoring wells were installed in areas where historical operations may have impacted the groundwater or from other areas downgradient of those operational areas. In addition, a groundwater surface water interface (GSI) study was also conducted by the MDEQ along the Montreal River to determine whether a contaminant plume is emanating from the Site and where it may be discharging along the river. Nineteen push point well locations were installed along the eastern bank of the Montreal River.

3.1.2.1 GSI Study – Field Screening and Sampling

As noted previously, the MDEQ advanced 19 MHE Push Point® samplers along the eastern river bank of the Montreal River. The MHE Push Point® samplers were inserted into the shallow aquifer along the river bank at approximately 20 to 25-ft intervals to provide a qualitative analysis of the nearshore conditions along the river. Following insertion into the shallow aquifer, groundwater was drawn through disposable tubing utilizing a peristaltic pump. The groundwater was allowed to equilibrate to atmospheric and aquifer pressures. After equilibration, the water level in the tubing was compared to the water level in the river. The measured head difference in the tubing was then used to infer whether groundwater was discharging to the Montreal River.

Following collection of groundwater discharge data, additional groundwater was drawn through the sampling assembly. Groundwater quality parameters were screened with field instruments. Groundwater quality parameters included specific conductivity, pH, temperature,

oxidation/reduction potential (ORP), total dissolved solids (TDS), dissolved oxygen, and dissolved iron. Field readings and physical descriptions of the groundwater conditions were recorded in the field logbook. Groundwater samples for laboratory analysis were not collected from the MHE Push Point® sampler locations. Field notes prepared by the MDEQ are tabulated in **Attachment B**.

3.1.2.2 Groundwater – Field Screening and Sampling

During soil boring advancement, temporary monitoring wells were constructed in select boring locations. A total of eight temporary monitoring wells were installed at the Site. The temporary monitoring wells were constructed using 1-inch-diameter polyvinyl chloride No. 10 slotted screens and riser pipe. One existing permanent monitoring well (MW-2) was present on the adjacent property, south of the Site. The previously installed permanent monitoring well, MW-2, was included in the groundwater sampling program for evaluating the Site. The following is a summary of the temporary monitoring well locations and their corresponding soil boring:

- TMW1: SB1
- TMW2: SB2
- TMW3: SB3
- TMW4: SB13
- TMW5: SB5
- TMW6: SB6
- TMW7: SB7
- TMW8: SB8

Following installation, the temporary monitoring wells were developed to remove any sediment that was introduced into the well as a result of the installation process. Each well was developed until the discharging groundwater was free of sediment and flowed clear. Upon stabilization, sampling personnel measured the depth to water in each well. A peristaltic pump and disposable tubing were then inserted into the well for purging and sampling. Groundwater was pumped from the well utilizing low-flow sampling techniques in accordance with *MDEQ Remediation Division Operational Memorandum No.2 – Sampling and Analysis Guidance*.

During purging groundwater quality parameters were measured using field instruments. Measured groundwater quality parameters included specific conductivity, pH, temperature, ORP,

and TDS. Groundwater was purged from each temporary monitoring well until groundwater quality parameters stabilized. Upon stabilization, groundwater samples were collected from each well.

Nine groundwater samples (TMW1 through TMW8 and MW-2) were collected from the Site. Samples for total metals analysis were shipped to Sentinel, Inc., in Huntsville, AL, and the remaining sample fractions were sent to KAP Technologies in The Woodlands, Texas, to be analyzed for VOCs, SVOCs, PCBs, and pesticides. **Table 2** summarizes the analytical results for the groundwater samples collected, and **Figure 3-2** shows the temporary monitoring well locations. Groundwater sampling descriptions and depth-to-water information prepared by the MDEQ are included in **Attachment B**. Analytical results are discussed in Subsection 4.2.2.

3.1.3 Surface Water and Sediment Sampling

Sediment in the Montreal River at and downstream of the Site reportedly has produced a hydrocarbon sheen and odor when disturbed. Further, visual evidence of waste along the river bank indicated a strong potential for contamination of the surface water and sediment pathways. As a result, five surface water and five sediment samples were collected from the Montreal River during the MDEQ Site Inspection. Samples were collected in backwater areas and similar depositional environments.

3.1.3.1 Surface Water Sampling

Surface water samples were collected first at each sampling location. Surface water samples were collected by immersing the sample container in the water body. The VOC sample aliquot was collected first and field preserved with hydrochloric acid. Following collection of the VOC sample aliquot, the remaining samples, including SVOCs, pesticides, PCBs, and total metals, were collected, preserved, and placed in the laboratory-provided sample containers.

Five surface water samples (SW1 through SW5) were collected from the Site. Samples for total metals analysis were shipped to Sentinel, Inc., in Huntsville, AL, and the remaining sample fractions were sent to KAP Technologies in The Woodlands, Texas, to be analyzed for VOCs, SVOCs, PCBs, and pesticides. **Table 3A** summarizes the analytical results of the surface water samples collected, and **Figure 3-3** shows the sample locations. Surface water sampling

descriptions prepared by the MDEQ are included in **Attachment C**. Analytical results are discussed in Subsection 4.3.1.

3.1.3.2 Sediment Sampling

Following collection of the surface water sample, a sediment sample was collected from the same sampling location utilizing a hand-held sediment sampler. The VOC portion of each sediment sample was collected first by immediate and direct transfer of the sample aliquot to the laboratory-provided sample container using a disposable syringe sampler. The sample bottle was then preserved with methanol. Following collection of the VOC sample aliquot, the sediment was thoroughly mixed in an aluminum pan using a stainless steel spoon. Following mixing the remaining sample portions including SVOCs, pesticides, PCBs, and total metals were collected and placed in the laboratory-provided sample containers.

Five sediment samples (SD1 through SD5) were collected from the Site. Samples for total metals analysis were shipped to Sentinel, Inc., in Huntsville, AL, and the remaining sample fractions were sent to KAP Technologies in The Woodlands, Texas, to be analyzed for VOCs, SVOCs, PCBs, and pesticides. **Table 3B** summarizes the analytical results of the sediment samples collected, and **Figure 3-3** shows the sample locations. Sediment sampling descriptions prepared by the MDEQ are included in **Attachment C**. Analytical results are discussed in Subsection 4.3.2.

3.2 WESTON START SITE RECONNAISSANCE

WESTON START and Ms. Joan Park of the MDEQ conducted reconnaissance at the Site on November 19, 2010. In general, the Site reconnaissance was conducted to obtain relevant information about the Site and potential human and environmental receptors, evaluate planning logistics, and evaluate Site conditions.

During the Site reconnaissance visit, the Site was covered with approximately 2 inches of snow, impeding visual inspection. A considerable amount of fill (approximately 4 ft to 5 ft high) was observed in stockpiles in the northern portion of the Site. Access for installation of the temporary monitoring wells during the MDEQ Site Inspection was made by moving previously stockpiled material and rubble.

MDEQ personnel led a walkover of the Site, identifying the locations of the recently installed temporary monitoring wells and sampling locations. WESTON START inserted a bailer into temporary monitoring well TMW-4 to ascertain the presence of free product. Free product was not recovered within the bailer, but the bailer was coated with tar and emitted a strong hydrocarbon odor. The bailer was inserted into the well several times with the same result. The inability to recover product utilizing the bailer was likely a function of the small-diameter bailer and the ball not seating properly to hold the product within the bailer.

Following the initial walkover, WESTON START probed along the eastern bank of the Montreal River to identify product or sheen within the bank sediment and/or sediment within the river. Using a metal conduit pipe, WESTON START disturbed bank sediment and river sediment at locations along the Site boundary in 25-ft increments. Little sheen was observed during the probing activities, likely a result of the cold temperatures and frozen ground. A moderate to heavy sheen was observed along the river edge downgradient of TMW6 after agitation. This area is also in the vicinity of a possible distribution pipe, metal and approximately 2-inches in diameter that can be observed below the water's surface in the river. Light sheen was observed upgradient along the southern edge of the Site adjacent to the river. During performance of the poling activities WESTON START identified a large-diameter pipe, approximately 8 inches, that was oriented parallel to the river on the eastern bank. The pipe was broken and removed beneath the former railroad grade (now an all-terrain vehicle [ATV] trail), but appeared to continue north along the river bank, north of the railroad trestle. A black oily liquid was observed inside the broken portion of the pipe; however, commingling with surface water from the river did not present a visible sheen.

Additional observations collected during the Site reconnaissance are summarized as follows:

- The Site is currently unsecured.
- The ATV trail is accessed on the eastern boundary of the Site.
- The Site is bordered by a private excavating company and residential properties.
- A review of Sanborn Insurance maps and historical photos suggest that a substantial amount of tar and process waste may be present at the property.

Attachment D provides photographic documentation of Site conditions during the Site reconnaissance activities.

4. FIELD SCREENING AND ANALYTICAL RESULTS

The following subsections discuss the MDEQ Site Inspection field screening and sampling results.

4.1 SOIL SAMPLE ANALYTICAL RESULTS

This section discusses the observations and analytical results obtained from the collection of soil samples at the Site.

4.1.1 Subsurface Soil Sample Analytical Results

As discussed in Subsection 3.1.1, a total of 15 soil borings were advanced at the Site to determine subsurface conditions. Observations and measurements recorded at each location are summarized in **Attachment A**. The following has been excerpted from the tabulated summary to present those locations with observed indicators of contaminants:

- **SB4:** Free product in the form of coal tar was observed throughout the 4- to 8-ft and 8- to 12-ft sample cores. Elevated PID measurements were recorded throughout the boring.
- **SB5:** Oily sheen and hydrocarbon odor observed throughout the 4- to 8-ft and 8- to 12-ft sample cores. Elevated PID measurements were recorded throughout the boring.
- **SB6:** Coal chunks were observed in the 4- to 8-ft sample core. Other notable contaminant indicators were not recorded. PID measurements throughout the sample core were insignificant.
- **SB7:** Oily sheen was observed in the 4- to 8-ft sample core. Fine gravel and debris indicative of fill was observed in the 8- to 12-ft sample core. Oily sheen and odor were noted in the 12- to 16-ft sample core.
- **SB8:** Oil-stained silty fine sand was observed in the 4- to 8-ft sample core.
- **SB12:** Oily staining was observed in the 4- to 8-ft sample core. Oily residue and strong hydrocarbon odors were observed in the 8- to 11-ft sample core. Elevated PID measurements were recorded over the 4- to 8-ft and 8- to 11-ft sample cores.
- **SB13:** Oily residue and strong hydrocarbon odors were observed in the 4- to 8-ft and 8- to 10-ft sample cores.

The following is a summary of the observations and laboratory analytical results that exceeded relevant MDEQ Part 201 Criteria:

- **SB1:** SVOC and inorganic contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria.
- **SB2:** Inorganic contaminants in the sample exceeded MDEQ GSI Criteria.
- **SB3:** Inorganic contaminants in the sample exceeded MDEQ GSI Criteria.
- **SB4:** VOC and SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria. Inorganic contaminants in the sample exceeded MDEQ GSI Criteria.
- **SB5:** Inorganic, VOC, and SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria.
- **SB6:** SVOC and inorganic contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SB7:** Inorganic and VOC contaminants exceeded MDEQ Part 201 GSI Criteria. SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria.
- **SB8:** Inorganic, VOC, and SVOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria. SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact Criteria.
- **SB9:** Inorganic and SVOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria. SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact Criteria.
- **SB10:** Inorganic and SVOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria and Direct Contact Criteria. VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SB11:** Inorganic contaminants in the sample exceeded MDEQ GSI Criteria.
- **SB12:** VOC and SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria. Inorganic contaminants in the sample exceeded MDEQ GSI Criteria.
- **SB13:** Inorganic contaminants in the sample exceeded MDEQ GSI Criteria.
- **SB14:** Inorganic contaminants in the sample exceeded MDEQ GSI Criteria.
- **SB15:** Inorganic and VOC contaminants in the sample exceeded MDEQ GSI Criteria.

Figure 4-1 and **Figure 4-2a** show the soil boring locations and the contaminant concentrations that exceed relevant MDEQ Part 201 Criteria. **Table 1** summarizes the analytical results for each

soil sample. Soil sampling descriptions and observations prepared by the MDEQ are included in **Attachment A**. Laboratory analytical reports are included in **Attachment E**.

4.1.2 Surface Soil Sample Analytical Results

Surface soil sampling was conducted at the Site to evaluate the distribution of contaminants in the near-surface soils. The following is a summary of the observations and laboratory analytical results that exceeded relevant MDEQ Part 201 Criteria:

- **SS1:** SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria. VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SS2:** SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria. VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SS4:** SVOC and inorganic contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria. VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SS5:** SVOC and inorganic contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SS6:** SVOC and inorganic contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria. VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SS7:** SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria.
- **SS8:** SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria. VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SS12:** Inorganic contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria. VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SS14:** Inorganic contaminants in the sample exceeded MDEQ Part 201 Direct Contact and GSI Criteria.

Figure 4-1 and **Figure 4-2b** show the surface soil sample locations and the contaminant concentrations that exceed relevant MDEQ Part 201 Criteria and **Table 1** summarizes the analytical results for each soil sample. Soil sampling descriptions and observations prepared by the MDEQ are included in **Attachment A**. Laboratory analytical reports are included in **Attachment E**.

4.2 GROUNDWATER SAMPLE ANALYTICAL RESULTS

This section discusses the observations and analytical results obtained from the collection of groundwater samples at the Site.

4.2.1 GSI Study Observations and Field Screening

As discussed in Subsection 3.1.2.1, a total of 19 MHE Push Point® samplers were inserted into the shallow aquifer along the river bank at approximately 20- to 25-ft intervals. Observations and measurements recorded at each location are summarized in **Attachment B**.

The following has been excerpted from the tabulated summary to present those locations with observed indicators of contaminants:

- **PW1:** Slight hydrocarbon odor and a positive head pressure were observed, suggesting that groundwater is discharging to the surface water body.
- **PW3:** Hydrocarbon odor and a positive head pressure were observed, suggesting that groundwater is discharging to the surface water body.
- **PW4:** Very slight hydrocarbon odor and a negative head pressure were observed.
- **PW8:** Hydrocarbon and hydrogen sulfide odor and a positive head pressure were observed, suggesting that groundwater is discharging to the surface water body.
- **PW9:** A strong hydrocarbon odor and a positive head pressure were observed, suggesting that groundwater is discharging to the surface water body.
- **PW10:** Hydrocarbon and hydrogen sulfide odor and a positive head pressure were observed, suggesting that groundwater is discharging to the surface water body. A sheen and free product discharge were observed on the water.
- **PW11:** A sheen was observed on the water and free product was discharged. A zero head differential was measured at this location.
- **PW14:** A strong hydrocarbon odor and a substantial positive head pressure were observed, suggesting that groundwater is discharging to the surface water body.
- **PW15:** A strong hydrocarbon odor and a positive head pressure were observed, suggesting that groundwater is discharging to the surface water body.
- **PW19:** A slight hydrocarbon odor, sheen, and a positive head pressure were observed, suggesting that groundwater is discharging to the surface water body.

The locations of the MHE Push Point® samplers are depicted on **Figure 4-3.**

4.2.2 Groundwater Analytical Results

Following the performance of the GSI Study, MDEQ personnel utilized the observations to assist in locating the placement of the temporary monitoring wells. As described in **Subsection 3.1.2**, low-flow groundwater sampling techniques were implemented to collect groundwater samples from the temporary monitoring wells. The following is a summary of the observations and laboratory analytical results that exceeded relevant MDEQ Part 201 Criteria:

- **MW-2:** The sample collected from the permanent monitoring well appeared clear and the sample was collected to be potentially representative of background conditions. Inorganic contaminants (lead) in the sample exceeded MDEQ Part 201 GSI Criteria.
- **TMW1:** The sample collected from the temporary monitoring well appeared clear and the sample was collected to be potentially representative of background conditions. Inorganic contaminants (arsenic and lead) in the sample exceeded MDEQ Part 201 GSI Criteria.
- **TMW2:** The sample collected from the temporary monitoring well appeared clear and the sample was collected to be potentially representative of background conditions. Inorganic contaminants (arsenic, copper, and lead) in the sample exceeded MDEQ Part 201 GSI Criteria.
- **TMW3:** The sample collected from the temporary monitoring well appeared clear. Inorganic contaminants (arsenic, cyanide, and lead) in the sample exceeded MDEQ Part 201 GSI Criteria.
- **TMW4:** The sample collected from the temporary monitoring well appeared clear, but a strong hydrocarbon odor and sheen were observed. VOC, SVOC, and inorganic contaminants in the sample exceeded MDEQ Part 201 Residential Drinking Water and GSI Criteria.
- **TMW5:** The sample collected from the temporary monitoring well appeared clear, but a strong hydrocarbon odor was observed. VOC, SVOC, and inorganic contaminants in the sample exceeded MDEQ Part 201 Residential Drinking Water and GSI Criteria.
- **TMW6:** The sample collected from the temporary monitoring well appeared clear, but a strong hydrocarbon odor was observed. VOC, SVOC, and inorganic contaminants in the sample exceeded MDEQ Part 201 Residential Drinking Water and GSI Criteria.
- **TMW7:** The sample collected from the temporary monitoring well appeared clear, but a strong hydrocarbon odor and sheen were observed. VOC, SVOC, and inorganic contaminants in the sample exceeded MDEQ Part 201 Residential Drinking Water and GSI Criteria.
- **TMW8:** The sample collected from the temporary monitoring well appeared clear, but a strong hydrocarbon odor and sheen were observed. VOC, SVOC, and inorganic

contaminants in the sample exceeded MDEQ Part 201 Residential Drinking Water and GSI Criteria.

Figure 4-4 and **Figure 4-5** shows the temporary monitoring well locations and the contaminant concentrations that exceed relevant MDEQ Part 201 Criteria and **Table 2** summarizes the analytical results for each groundwater sample. The laboratory analytical results indicate that VOC and SVOC contamination in groundwater is generally concentrated in the northern portion of the Site. Groundwater sampling descriptions and depth-to-water information prepared by the MDEQ are included in **Attachment B**. Laboratory analytical reports are included in **Attachment E**.

4.3 SURFACE WATER AND SEDIMENT ANALYTICAL RESULTS

This section discusses the observations and analytical results obtained from the collection of surface water and sediment samples at the Site.

4.3.1 Surface Water Sample Analytical Results

As discussed in Subsection 3.1.3, a total of five surface water samples were collected from the Montreal River. Surface water samples were collected at each sampling location prior to the collection of sediment samples. The following is a summary of the observations and laboratory analytical results that exceeded relevant MDEQ Criteria:

- **SW1:** The surface water sample at this location was intended to be an upgradient background sample.
- **SW2:** A strong petroleum odor and sheen were observed when the sediment was agitated during sediment sample collection. Prior to sediment agitation, the surface water was described as “slightly tannic” but no notable contaminant indicators were recorded.
- **SW3:** A strong petroleum odor and sheen were observed when the sediment was agitated during sediment sample collection. Prior to sediment agitation, the surface water was described as “slightly tannic” but no notable contaminant indicators were recorded.

Surface water samples were compared to Rule 57 Water Quality Values as calculated by the MDEQ for surface water bodies. The surface water analytical results from the Montreal River were compared to criteria for a surface water body used as a drinking water source. All surface water samples collected during the MDEQ Site Inspection had no exceedances of the Human

Cancer Value for Surface Water Used as a Drinking Water Source criteria or Human Non-Cancer Value for Surface Water Used as a Drinking Water Source criteria.

Table 3A summarizes the analytical results for each surface water sample. Surface water sampling descriptions and information prepared by the MDEQ are included in **Attachment C**. Laboratory analytical reports are included in **Attachment E**.

4.3.2 Sediment Sample Analytical Results

Five sediment samples were collocated with the surface water sampling locations. The samples were collected from the Montreal River to evaluate concentrations of contaminants downgradient of the Site.

The following is a summary of the observations and laboratory analytical results that exceeded relevant MDEQ Part 201 Criteria:

- **SD1:** No petroleum odor, sheen, or visible contaminants were observed during sample collection. Inorganic contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SD2:** A strong petroleum odor and sheen were observed when the sediment was agitated during sample collection. Inorganic, SVOC, and VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SD3:** A strong petroleum odor and sheen were observed when the sediment was agitated during sample collection. SVOC contaminants in the sample exceeded MDEQ Part 201 Direct Contact Criteria. Inorganic, SVOC, and VOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SD4:** No petroleum odor, sheen, or visible contaminants were observed during sample collection. Inorganic contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.
- **SD5:** No petroleum odor, sheen, or visible contaminants were observed during sample collection. Inorganic and SVOC contaminants in the sample exceeded MDEQ Part 201 GSI Criteria.

Figure 4-6 and **Figure 4-7** show the sediment sample locations and the contaminant concentrations that exceed relevant MDEQ Part 201 Criteria and **Table 3B** summarizes the analytical results for each sediment sample. Sediment sampling descriptions and information prepared by the MDEQ are included in **Attachment C**. Laboratory analytical reports are included in **Attachment E**.

4.4 PRELIMINARY CONCEPTUAL SITE MODEL

As summarized in the preceding sections, the analytical results and visual observations documented during the Site Inspection and Site reconnaissance activities indicate that contaminants at the Site are migrating and adversely impacting off-site receptors.

Inorganic, VOC, and SVOC contaminants have been identified in surface and vadose zone soils, groundwater, surface water, and sediment and have the potential to affect terrestrial ecological receptors, aquatic ecological receptors, as well as recreational users or consumers of the natural resources of the Montreal River. To date, the air pathway has not been evaluated; however, particulate migration and inhalation criteria should be considered in future assessments.

The historical and current property owner is the City of Ironwood. Off-site migration of contaminants from the Site has been documented in Michigan and Wisconsin, approximately 700 ft downgradient of the Site. Historical literature indicates that former operations at the Site involved the transportation of gas via a subsurface piping system to both the communities of Hurley, WI and Ironwood, MI. The lateral extent of the gas distribution system during plant operations is unknown. Further, the extent of the piping system that currently remains in the subsurface of the communities is also unknown. To date the extent of off-site contamination is not defined in soil and groundwater, nor is it understood whether source contaminants are migrating along preferential pathways such as the historical piping distribution system.

The unknown factors outlined above, in conjunction with the limited historical information related to the former gas plant operations are critical factors in defining the limits of the source area and off-site impacts. Limited details of plant operations, including waste disposal practices as well as the undocumented demolition of the gas plant structures and exacerbation of contaminants at the Site by the current and neighboring property owners, also contribute to the overall understanding of the mobility and distribution of the COCs. The lateral distribution of contaminants in relation to the source area is depicted in **Figure 4-1** through **Figure 4-2b** and **Figure 4-4** through **Figure 4-7**. Cross-sectional transects are shown on **Figure 4-8**. The current understanding of conditions at the Site from a vertical perspective, are shown in the cross-sectional representations of the subsurface depicted on **Figure 4-9** and **Figure 4-10**. The

Conceptual Site Model figures illustrate that the source area contaminated soils have impacted the groundwater beneath the Site, The contaminated groundwater is discharging into the Montreal River as evidenced by the results of the GSI Study observations and screening and the results of sediment samples collected from the Montreal River.

5. THREATS TO HUMAN HEALTH AND THE ENVIRONMENT

Factors to be considered in determining the appropriateness of a potential removal action at a Site are defined in the NCP at 40 *Code of Federal Regulations* 300.415(b)(2). A summary of the factors applicable to the Site is presented below:

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

  The State of Michigan performed multiple inspections at the property and documented the presence of tar and waste materials on the ground surface and in the shallow subsurface. Further soil samples collected from surface and subsurface soils contain contaminant concentrations that exceed residential direct contact criteria for SVOCs typically associated with MGP wastes. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene exceeded Residential Direct Contact criteria in multiple soil samples collected at the property.

  Inorganic COCs (including lead, arsenic, and cyanide) at the Site pose immediate threats to human health and the environment based on factors that should be considered when evaluating potential future actions at the Site. Human and biological receptors are present at the Site based on the observation of footpaths, ATV tracks, and animals in the vicinity of the Site. Further, potential receptors outside of the Site could be exposed to Site-related contaminants through the erosion of surface soil by both weather and animal and human traffic in the area. These mechanisms could transport soil from the Site and increase the potential for exposure outside the Site.

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

  The properties surrounding the Site are generally believed to be serviced by municipal water supply. Municipal water wells are located several miles from the Site and are currently not believed to be threatened by contaminant migration from the Site.

  The Montreal River borders the Site to the west and is presumed to be connected to groundwater. Analytical results from water and sediment samples collected from the river

indicate that COCs are present. Sheen and coal tar have been observed emanating from the river bank and the sediment adjacent to the property.

Surface soil at the Site is contaminated with inorganic, VOC, and SVOC COCs. Runoff from the Site is unmanaged. During rain events and spring snowmelt, contaminated soil and debris from the Site may be transported to both the Montreal River and surrounding properties. Further, an exposed open pipe along the west boundary of the property was observed to contain tar and sheen. This pipe presents another possible contaminant migration pathway that could impact surface waters of the state and sensitive ecosystems.

- **Hazardous substances or pollutants or contaminants in drums, totes, containers, or other bulk storage containers that may pose a threat of release**

  Bulk storage containers were not observed at the property. Historical operations at the property, however, utilized containers that were stored both above and below grade. It is unclear at this time whether subsurface containers remain at the property. Investigation activities resulted in refusal in the vicinity of the former gasometers. This suggests that the floor and foundations, where condensed tar collected, are possibly still present in the subsurface and are acting as sources for contaminant migration.

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

  Inorganic, VOC, and SVOC COCs in surface soils at the Site pose immediate threats to human health and the environment. The investigative activities conducted by the State of Michigan suggest that tar- and metals-contaminated soil are in direct contact with the waters of the Montreal River. As mentioned previously, human and biological receptors are present at the Site. Further, potential receptors outside of the Site could be exposed to Site-related contaminants through the erosion of surface soil by both weather and animal and human traffic in the area. These mechanisms could transport soil from the Site and increase the potential for exposure beyond the property boundaries.

- **Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released**

  Gogebic County has an average annual snowfall of approximately 156 inches. Seasonal snowmelt results in the erosion and transport of surface soil. The average annual rainfall for the county is 35 inches. The proximity of the property to the Montreal River increases the potential for hazardous substances to be released to the waters of the state. Weather conditions, especially the erosive forces of wind and water, will contribute to the potential migration of contaminated surface soil at the Site.

- **Threat of fire or explosion**

  Visual inspection indicates that the property is not serviced by electricity or natural gas. The threat of fire or explosion is low. The building on the adjacent property is still in use and the potential for a fire at the building is more likely. A fire could produce toxic gases, irritants, and contaminated fire-water runoff, and result in the migration of contaminants from the property.

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

  The MDEQ requested U.S. EPA assistance in evaluating the Site for potential removal action, which documents the need for federal involvement to address imminent endangerment posed by the Site.

- **Other situations or factors that may pose threats to public health or welfare of the United States or the environment**

  Physical hazards were observed at the Site. During the Site visit, stockpiled mounds of soil and debris were observed, which reportedly had been placed there by the property owner and the adjacent property owner. The mounds of soil and debris are subject to the erosive forces of weather and controls are not in place to prevent runoff to the river or the adjacent roadway that borders the property. Contaminants in soils at the site could potentially be migrating due to human activities and earthmoving at the property.

6. CONCLUSIONS

The findings of the SA Report are summarized based on the Site Inspection and analytical data collected by the MDEQ in October 2010 and visual inspection of the Site conducted by WESTON START personnel in November 2010. Previous visual inspections of the Site had determined that a significant potential for contamination of the soil and groundwater at the Site existed. Historical and other Site-related documents were also reviewed.

Subsurface and surface soil sampling determined that contaminants, including VOCs, SVOCs, and metals, are present in the soils at concentrations that exceed Part 201 Cleanup Criteria. Moreover, the observation of process waste and free product in the subsurface soils confirms that gross contamination is present and leaching contaminants into the groundwater and nearby surface-water pathways. Site Inspection analytical results indicate that surface and subsurface soil primarily located in the historical operating area of the Site contain VOC, SVOC, and inorganic contaminant concentrations exceeding the MDEQ Part 201 Residential Direct Contact Criteria.

The surface-water pathway is not only impacted by the erosion of surface soils at the Site, but is also impacted in groundwater discharge into the Montreal River. The GSI study completed by the MDEQ as part of the Site Inspection confirms that groundwater at the Site is discharging to the Montreal River. Samples collected from the groundwater contain contaminants, including VOCs, SVOCs, and metals consistent with the wastes observed at the Site. Further, the concentrations of contaminants in groundwater exceed Part 201 Cleanup Criteria and are negatively impacting the Montreal River.

Surface water and sediment samples collected from the Montreal River show that contaminants from the Site are migrating downriver. In addition, gross contamination, including process waste, has been observed along the river downgradient of the Site. Hazardous discharges from the Site's subsurface will continue to impact the Montreal River as long as the source material remains at the Site.

Figure 6-1 shows the findings of the screening and sampling results for environmental media at the Site. The findings suggest that the majority of the source materials, including tar and process waste, are confined to the northern portion of the Site bordered on the west by the bank of the Montreal River. Unknown factors including limited operational information and undocumented changes at the Site following the shut-down of the gas plant are critical factors in defining the limits of the source area and off-site impacts. As summarized in the Preliminary Conceptual Site Models for the Site (**Figures 4-9** and **4-10**), these factors limit the understanding of contaminant migration as well as the overall distribution of the process wastes and their associated COCs. It is apparent however based on the results of the Site Inspection, that COCs in the source area soils have impacted the groundwater beneath the Site, and that the contaminated groundwater is discharging into the Montreal River.

Despite these unknown factors, contaminants at the Site pose immediate threats to human health and the environment based on factors that should be considered when evaluating potential future actions at the Site. Human and biological receptors are present at the Site based on the observation of foot traffic, ATV traffic, and animals in the vicinity of the Site during the Site visit. Further, potential receptors outside of the Site could be exposed to Site-related contaminants through the erosion of surface soil by both weather and animal and human traffic in the area. These mechanisms could transport soil from the Site and increase the potential for exposure outside the Site.

Follow-up activities for the Site should include securing the Site to prevent trespassers from entering the Site and to significantly reduce or eliminate the threat of exposure, release to the environment, and off-site migration of hazardous substances.

Based on the soil screening results and laboratory analytical data, WESTON START has developed a preliminary volume estimate that would include the removal of approximately 10 ft of contaminated soil and debris from the ground surface at the Site. Soil contaminated with contaminants at concentrations that exceed the Part 201 Residential Direct Contact and GSI cover an area of approximately 87,120 square feet (ft^2). A removal action to a depth of 10 ft in this area would result in the excavation of approximately 35,000 yd^3 of contaminated soil and

debris, or approximately 52,500 tons. In addition, preliminary estimates related to groundwater beneath the Site indicate that more than 750,000 gallons of groundwater are present in the saturated zone beneath the Site. These estimates are approximate and do not include surface vegetation, tree stumps, and former building components (floors and foundations) that may require removal for excavation purposes.

As a result, additional investigation at the Site would be required to refine the estimates summarized above. A qualitative assessment that included test trenching and limited pump testing would allow for the refinement of any proposed excavation limits as well as water management practices that would be implemented during a removal action.

7. REFERENCES

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TABLES

Table 1
MDEQ Soil Sample Analytical Results (SB1 - SB7) – October 2010
Ironwood MGP Site
Ironwood, Gogebic County, Michigan

Location ID		SB1	SB2	SB2	SB3	SB4	SB5	SB6	SB7	1	2	3
Field Sample ID		SB1	SB2	SB2D	SB3	SB4	SB5	SB6	SB7	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Direct Contact Criteria
Sample Date		10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/20/2010	10/19/2010	10/20/2010	10/20/2010			
Chemical Name	**Unit**											
Inorganics												
Aluminum	mg/kg	**11,400 J [1]**	**8,950 J [1]**	**8,660 J [1]**	**11,300 J [1]**	**8,400 J [1]**	**8,940 [1]**	**10,000 [1]**	**8,170 J [1]**	1	NA	50,000 (DD)
Antimony	mg/kg	0.74 J	1.1 J	0.8 J	0.39 J	0.68 J	0.91 J	0.53 J	0.34 J	4.3	94 (X)	180
Arsenic	mg/kg	**8.3 J [1,2,3]**	2.2 J	2.4 J	**5.9 J [1,2]**	**5 J [1,2]**	**8.4 [1,2,3]**	1.4 J+	2.2	4.6	4.6	7.6
Barium	mg/kg	77.1 J	49.2 J	45.5 J	80.3 J	37.2 J	61.7	23.4	31.7	1,300	150 (G)	37,000
Beryllium	mg/kg	0.076 J-	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	51	1.3 (G)	410
Cadmium	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	6	1.7 (G, X)	550
Calcium	mg/kg	5,890 J	4,110 J	3,960 J	3,120 J	3,840 J	3,790	7,810	4,820	Not Listed	Not Listed	Not Listed
Chromium	mg/kg	24.2 J	23 J	21.8 J	23.4 J	25.2 J	28.1	24.5	21.1	1,600,000 (D)	1,300,000	790,000
Cobalt	mg/kg	**15 J [1,2]**	**10.9 J [1,2]**	**10.6 J [1,2]**	**9 J [1,2]**	**9.9 J [1,2]**	**9.6 J [1,2]**	**11.5 J [1,2]**	**9.6 J [1,2]**	0.80	2	2,600
Copper	mg/kg	**49.3 [2]**	22	18.7	22.2	29.4	**46.5 J [2]**	**33 J [2]**	28.5 J	5,800	31 (G)	20,000
Cyanide	mg/kg	**2.2 [2]**	0.5 U	**0.84 [2]**	**1.7 [2]**	**7.3 [1,2]**	**31.5 [1,2,3]**	0.5 U	0.5 U	4	0.10	12
Iron	mg/kg	**35,200 [1]**	**21,900 [1]**	**20,500 [1]**	**20,700 [1]**	**18,100 [1]**	**48,000 [1]**	**17,700 [1]**	**20,400 [1]**	6	NA	160,000
Lead	mg/kg	26.7 J	78 J	30.2 J	76.3 J	31.1 J	238 J	2 J	5.3 J	700	920 (G,X)	400
Magnesium	mg/kg	5,340 J	3,290 J	3,080 J	2,960 J	5,120 J	3,760	5,830	4220	8,000	NA	1,000,000 (D)
Manganese	mg/kg	**353 J [1,2]**	**353 J [1,2]**	**4,13 J [1,2]**	**261 J [1,2]**	**257 J [1,2]**	**255 [1,2]**	**237 [1,2]**	**183 [1]**	1	2.2 (G,X)	25,000
Mercury	mg/kg	0.034 J	0.013 J-	0.012 J-	0.2 J	0.07	0.052 J	0.0091 J-	0.017 J-	1,700	50 (M); 1.2	160,000
Nickel	mg/kg	27.9 J	16.2 J	14.8 J	17 J	21.1 J	21.7	26.5	19.1	100	32 (G)	40,000
Potassium	mg/kg	594	461 J	511 J	532 J	478 J	500 UJ	626 J	610 J	Not Listed	Not Listed	Not Listed
Selenium	mg/kg	**1.8 J [2]**	**0.96 J [2]**	**1 J [2]**	**1.2 J [2]**	**1.8 J [2]**	**1.5 J [2]**	**0.6 J [2]**	**0.57 J [2]**	4	0.40	2,600
Silver	mg/kg	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.5	0.10 (M) 27	2,500
Sodium	mg/kg	432 J	287 J	269 J	277 J	317 J	374 J	423 J	347 J	2,500	NA	1,000,000 (D)
Thallium	mg/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.3	4.2 (X)	35
Vanadium	mg/kg	**72.1 J [1]**	60.5 J	61.2 J	48.3 J	49.6 J	59.5	63.4	53.4	72	190	750 (DD)
Zinc	mg/kg	60	35	37.4	80.3	50.1	59.8	31.6	32.3	2,400	69 (G)	170,000
SVOCs												
1,1'-Biphenyl	µg/kg	170 U	170 U	170 U	170 U	11,000 J	8,100 J	170 U	2,400 J	Not Listed	Not Listed	Not Listed
2,4-Dimethylphenol	µg/kg	170 U	170 U	170 U	170 U	2,500 J	170 R	170 U	170 U	7,400	7,600	1.10E+07
2-Methylnaphthalene	µg/kg	170 U	170 U	170 U	170 U	**300,000 J [1,2]**	**180,000 J [1,2]**	170 U	**49,000 J [2]**	57,000	4,200	8.10E+06
2-Methylphenol	µg/kg	170 U	170 U	170 U	170 U	3,900 J	1,200 J	170 U	170 U	Not Listed	Not Listed	Not Listed
4-Methylphenol	µg/kg	170 U	170 U	170 U	170 U	6,200 J	3,000 J	170 U	170 U	Not Listed	Not Listed	Not Listed
Acenaphthene	µg/kg	170 U	170 U	170 U	170 U	**9,100 J [2]**	**9,000 J [2]**	170 U	170 U	300,000	8,700	4.10E+07
Acenaphthylene	µg/kg	2400	170 U	170 U	170 U	**27,000 J [1]**	**41,000 J [1]**	170 U	**8,500 [1]**	5,900	ID	1.60E+06
Anthracene	µg/kg	170 U	170 U	170 U	170 U	23,000 J	20,000 J	170 U	3,800 J	41,000	ID	2.30E+08
Benzo(a)anthracene	µg/kg	5,800	170 U	170 U	170 U	17,000 J	**110,000 J [3]**	170 U	2,600 J	NLL	NLL	20,000
Benzo(a)pyrene	µg/kg	**6,000 [3]**	160 J	100 J	150 J	**48,000 J [3]**	**28,000 J [3]**	170 U	**3,300 J [3]**	NLL	NLL	2,000
Benzo(b)fluoranthene	µg/kg	4,300	110 J	170 U	170 U	14,000 J	8,400 J	170 U	170 U	NLL	NLL	20,000
Benzo(g,h,i)perylene	µg/kg	5,100	120 J	170 U	170 U	14,000 J	8,000 J	170 U	170 U	NLL	NLL	2.50E+06
Benzo(k)fluoranthene	µg/kg	5,300	140 J	170 U	140 J	15,000 J	7,500 J	170 U	2,100 J	NLL	NLL	2.00E+05
Bis(2-ethylhexyl)phthalate	µg/kg	170 U	170 U	170 U	170 U	170 UJ	170 UJ	170 U	170 U	NLL	NLL	2.80E+06
Carbazole	µg/kg	170 U	170 U	170 U	170 U	170 U	**2,300 [2]**	170 U	170 U	9,400	1,100	5.30E+05
Chrysene	µg/kg	6,000	100 J	170 U	170 U	20,000 J	64,000 J	170 U	2,300 J	NLL	NLL	2.00E+06
Dibenzo(a,h)anthracene	µg/kg	1300 J	170 U	170 U	170 U	**8,900 J [3]**	**3,500 J [3]**	170 U	170 U	NLL	NLL	2,000
Dibenzofuran	µg/kg	170 U	170 U	170 U	170 U	**12,000 J [2]**	**6,000 J [2]**	170 U	170 U	ID	1,700	ID
Fluoranthene	µg/kg	4,600	170 U	170 U	170 U	**47,000 J [2]**	**41,000 J [2]**	170 U	2,600 J	7.30E+05	5,500	4.60E+07
Fluorene	µg/kg	170 U	170 U	170 U	170 U	**43,000 J [2]**	**30,000 J [2]**	170 U	4,300	3.90E+05	5,300	2.70E+07
Indeno(1,2,3-cd)pyrene	µg/kg	3,900	170 U	170 U	170 U	15,000 J	6,400 J	170 U	170 U	NLL	NLL	20,000
Naphthalene	µg/kg	170 U	170 U	170 U	190 J	**250,000 J [1,2]**	**220,000 J [1,2]**	120 J	**64,000 [1,2]**	35,000	730	1.60E+07
Phenanthrene	µg/kg	1,400 J	170 U	170 U	170 U	**56,000 J [2]**	**35,000 J [2]**	170 U	**12,000 [2]**	56,000	2,100	1.60E+06
Phenol	µg/kg	170 U	170 U	170 U	170 U	1,700 J	170 R	170 U	170 U	88,000	9,000	12,000,000 (DD)
Pyrene	µg/kg	13,000 J	170 U	100 J	170 U	12,000 J	42,000 J	170 U	7,700 J	4.80E+05	ID	2.90E+07

Location ID		SB1	SB2	SB2	SB3	SB4	SB5	SB6	SB7	1	2	3
Field Sample ID		SB1	SB2	SB2D	SB3	SB4	SB5	SB6	SB7	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Direct Contact Criteria
Sample Date		10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/20/2010	10/19/2010	10/20/2010	10/20/2010			
Chemical Name	**Unit**											
VOCs												
1,2,3-Trimethylbenzene	µg/kg	0 U	0 U	0 U	0 U	69,000	74,000	0 U	8,200	Not Listed	Not Listed	Not Listed
1,2,4-Trimethylbenzene	µg/kg	100	0 U	0 U	0 U	**210,000 [1,2,3]**	**230,000 [1,2,3]**	160	**23,000 [1,2]**	2,100	570	1.10E+05 (C)
1,3,5-Trimethylbenzene	µg/kg	0 U	0 U	0 U	0 U	**71,000 [1,2]**	**82,000 [1,2]**	0 U	**7,100 [1,2]**	1,800	1,100	94,000 (C)
2-Methylnaphthalene	µg/kg	0 U	0 U	0 U	0 U	**3,500,000 [1,2]**	**2,500,000 [1,2]**	380	**160,000 [1,2]**	57,000	4,200	8.10E+06
Benzene	µg/kg	88	0 U	0 U	0 U	**110,000 [1,2]**	**370,000 [1,2,3]**	**140 [1]**	0 U	100	4,000 (X)	1.80E+05
Ethylbenzene	µg/kg	0 U	0 U	0 U	0 U	**54,000 [1,2]**	**110,000 [1,2]**	**480 [2]**	**13,000 [1,2]**	1,500	360	1.40E+05 (C)
Isopropylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	91,000	3,200	3.90E+05 (C)
Naphthalene	µg/kg	600	0 U	0 U	0 U	**7,400,000 [1,2]**	**6,800,000 [1,2]**	**2,600 [2]**	**270,000 [1,2]**	35,000	730	1.60E+07
n-Propylbenzene	µg/kg	0 U	0 U	0 U	0 U	**11,000 [1]**	**16,000 [1]**	0 U	0 U	1,600	ID	2.50E+06
Total Xylenes	µg/kg	280	0 U	0 U	0 U	**590,000 [1,2,3]**	**830,000 [1,2,3]**	600	**58,000 [1,2]**	5,600	820	150,000 (C)
p-Isopropyl toluene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	Not Listed	Not Listed	Not Listed
sec-Butylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	1,600	ID	2.50E+06
Styrene	µg/kg	0 U	0 U	0 U	0 U	**600,000 [1,2,3]**	**820,000 [1,2,3]**	0 U	**20,000 [1,2]**	2,700	2,100	4.00E+05
Toluene	µg/kg	260	94	90	100	**410,000 [1,2,3]**	**840,000 [1,2,3]**	170	**14,000 [2]**	16,000	5,400	2.50E+05

Notes:
µg/kg = Microgram per kilogram
71,000 [1,2] = Analytical results in bold represent a criteria exceedance referenced by [1,2,3]
(C) Value presented is a screening level based on the chemical-specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat. Concentrations greater than Csat are acceptable cleanup criteria for this pathway where a site-specific demonstration indicates that free-phase material containing a hazardous substance is not present.
(D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(DD) Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact
(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water.

ID = Insufficient data to develop criterion.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J- = The result is an estimated quantity, but the result may be biased low.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
mg/kg = milligrams per kilogram
NLL = Hazardous substance is not likely to leach under most soil conditions.
(T) Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, Subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards.
UJ = The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value.

Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Table 1
MDEQ Soil Sample Analytical Results (SB8 - SB15) – October 2010
Ironwood MGP Site
Ironwood, Gogebic County, Michigan

Location ID		SB8	SB9	SB10	SB11	SB12	SB13	SB14	SB15	1	2	3
Field Sample ID		SB8	SB9	SB10	SB11	SB12	SB13	SB14	SB15			
Sample Date		10/19/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010			
Chemical Name	**Unit**									**Drinking Water Protection Criteria**	**Groundwater Surface Water Interface Protection Criteria**	**Direct Contact Criteria**
Inorganics												
Aluminum	mg/kg	**7,650 [1]**	**11,500 [1]**	**14,000 [1]**	**3,430 [1]**	**12,000 [1]**	**14,200 [1]**	**10,800 [1]**	**11,100 [1]**	1	NA	50,000 (DD)
Antimony	mg/kg	1.2 J	0.54 J	1.1 J	6 UJ	0.92 J	0.49 J	0.37 J	6 UJ	4.3	94 (X)	180
Arsenic	mg/kg	**5.3 [1,2]**	3.7	**13.6 [1,2,3]**	3.2	**5.8 [1,2]**	4	2	2.4	4.6	4.6	7.6
Barium	mg/kg	42.4	40.4	97.1	24.8	73.9	55.9	38.7	47.3	1,300	150 (G)	37,000
Beryllium	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	51	1.3 (G)	410
Cadmium	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	6	1.7 (G, X)	550
Calcium	mg/kg	6,760	6,150	25,900	1,670	4,330	5,480	5,110	6,390	Not Listed	Not Listed	Not Listed
Chromium	mg/kg	24	19.9	24.9	8.8	30.6	27.2	17.4	28	1,600,000 (D)	1,300,000	790,000
Cobalt	mg/kg	**8.4 J [1,2]**	**15.9 J [1,2]**	**14.3 J [1,2]**	**3 J- [1,2]**	**10.5 J [1,2]**	**15.2 J [1,2]**	**11.8 J [1,2]**	**12.9 J [1,2]**	0.80	2	2,600
Copper	mg/kg	48.1 J	54.1 J	72.7 J	20.2 J	57.9 J	57.6 J	43.3 J	31.2 J	5,800	31 (G)	20,000
Cyanide	mg/kg	**10.9 [1,2]**	0.5 U	**6.1 [1,2]**	**4.7 [1,2]**	**2.9 [2]**	0.5 U	0.5 U	0.5 U	4	0.10	12
Iron	mg/kg	**27,000 [1]**	**30,400 [1]**	**50,300 [1]**	**14,200 [1]**	**22,300 [1]**	**28,700 [1]**	**22,000 [1]**	**19,000 [1]**	6	NA	160,000
Lead	mg/kg	51.3 J	18.4 J	63.6 J	49.2 J	25.9 J	36.2 J	6.2 J	11 J	700	920 (G,X)	400
Magnesium	mg/kg	3,970	**9,990 [1]**	4,760	1,120	4,140	7,900	5,510	5,930	8,000	NA	1,000,000 (D)
Manganese	mg/kg	**284 [1]**	**414 [1]**	**636 [1]**	**154 [1]**	**223 [1]**	**591 [1]**	**302 [1]**	**354 [1]**	1	2.2 (G,X)	25,000
Mercury	mg/kg	0.024 J	0.041 J	0.11 J	0.066 J	0.057 J	0.063 J	0.013 J-	0.027 J	1,700	50 (M); 1.2	160,000
Nickel	mg/kg	20.2	30.9	30.7	8.9	26.3	27	23.3	24.5	100	32 (G)	40,000
Potassium	mg/kg	500 UJ	500 UJ	915 J	500 UJ	594 J	626 J	500 UJ	753 J	Not Listed	Not Listed	Not Listed
Selenium	mg/kg	**1.1 J [2]**	**1 J [2]**	**2.1 J [2]**	3.5 U	**1.2 J [2]**	**1.2 J [2]**	**0.62 J [2]**	**0.59 J [2]**	4	0.40	2,600
Silver	mg/kg	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.5	0.10 (M) 27	2,500
Sodium	mg/kg	490 J	338 J	812 J	226 J	449 J	323 J	394 J	601 J	2,500	NA	1,000,000 (D)
Thallium	mg/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.3	4.2 (X)	35
Vanadium	mg/kg	47.5	**73.3 [1]**	**74.2 [1]**	19.7	65.3	**74.5 [1]**	50.6	67.1	72	190	750 (DD)
Zinc	mg/kg	70.7	42	98.6	22.4	52.3	87.7	35.6	37.5	2,400	69 (G)	170,000
SVOCs												
1,1'-Biphenyl	µg/kg	170 U	170 U	170 U	170 U	8,200 J	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
2,4-Dimethylphenol	µg/kg	170 U	170 U	170 UJ	170 U	170 U	170 U	170 U	170 U	7,400	7,600	1.10E+07
2-Methylphenol	µg/kg	170 U	170 U	170 UJ	170 U	170 U	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
4-Methylphenol	µg/kg	170 U	170 U	170 UJ	170 U	170 U	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
Acenaphthene	µg/kg	170 U	170 U	3,400 J	170 U	170 U	170 U	170 U	170 U	300,000	8,700	4.10E+07
Acenaphthylene	µg/kg	1700 J	2,600	**54,000 J [1]**	1,100	**27,000 [1]**	320	140 J	270	5,900	ID	1.60E+06
Anthracene	µg/kg	170 U	2,100	8,300 J	460	15,000	230 J	170 U	98 J	41,000	ID	2.30E+08
Benzo(a)anthracene	µg/kg	6,500	9,600	7600 J	2,800	16,000	1,300	230	540	NLL	NLL	20,000
Benzo(a)pyrene	µg/kg	**4,000 [3]**	**11,000 [3]**	**20,000 J [3]**	1,800	**12,000 [3]**	740	330	590	NLL	NLL	2,000
Benzo(b)fluoranthene	µg/kg	3,200	6,900	15,000 J	1,300	7,000 J	440	230	400	NLL	NLL	20,000
Benzo(g,h,i)perylene	µg/kg	5,700	9,000	1,5000 J	1,400	8,500 J	420	340	340	NLL	NLL	2.50E+06
Benzo(k)fluoranthene	µg/kg	4,900	9,900	10,000 J	2,200	9,400 J	720	200 J	540	NLL	NLL	2.00E+05
Bis(2-ethylhexyl)phthalate	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	NLL	NLL	2.80E+06
Carbazole	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	9,400	1,100	5.30E+05
Chrysene	µg/kg	7,300	9,400	7,000 J	3,300	15,000	1,400	260	620	NLL	NLL	2.00E+06
Dibenzo(a,h)anthracene	µg/kg	1,500 J	**2,400 [3]**	**7,900 J [3]**	470	170 U	130 J	170 U	120 J	NLL	NLL	2,000
Dibenzofuran	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	ID	1,700	ID
Fluoranthene	µg/kg	**5,900 [2]**	**10,000 [2]**	**19,000 J [2]**	3,000	**24,000 [2]**	1,600	190 J	420	7.30E+05	5,500	4.60E+07
Fluorene	µg/kg	170 U	170 U	**7,100 J [2]**	350	**15,000 [2]**	130 J	170 U	170 U	3.90E+05	5,300	2.70E+07
Indeno(1,2,3-cd)pyrene	µg/kg	4,400	6,800	13,000 J	1,100	6,500 J	330	210	270	NLL	NLL	20,000
Naphthalene	µg/kg	170 U	**1,200 J [2]**	**1,400 J [2]**	490	**80,000 [1,2]**	170 U	170 U	170 U	35,000	730	1.60E+07
Phenanthrene	µg/kg	1,700 J	**2,400 [2]**	**3,200 J [2]**	1,400	**57,000 [1,2]**	590 J	120 J	130 J	56,000	2,100	1.60E+06
Phenol	µg/kg	170 U	170 U	170 UJ	170 U	170 U	170 U	170 U	170 U	88,000	9,000	12,000,000 (DD)
Pyrene	µg/kg	22,000	27,000 J	5,700 J	3,000	51,000	990	440 J	450	4.80E+05	ID	2.90E+07

Location ID		SB8	SB9	SB10	SB11	SB12	SB13	SB14	SB15	1	2	3
Field Sample ID		SB8	SB9	SB10	SB11	SB12	SB13	SB14	SB15			
Sample Date		10/19/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010			
Chemical Name	**Unit**									**Drinking Water Protection Criteria**	**Groundwater Surface Water Interface Protection Criteria**	**Direct Contact Criteria**
VOCs												
1,2,3-Trimethylbenzene	µg/kg	11000	0 U	0 U	0 U	21000	120	0 U	430	Not Listed	Not Listed	Not Listed
1,2,4-Trimethylbenzene	µg/kg	**16,000 [1,2]**	0 U	120	0 U	**64,000 [1,2]**	460	0 U	140	2,100	570	1.10E+05 (C)
1,3,5-Trimethylbenzene	µg/kg	**4,500 [1,2]**	0 U	0 U	0 U	**18,000 [1,2]**	230	0 U	85	1,800	1,100	94,000 (C)
2-Methylnaphthalene	µg/kg	**220,000 [1,2]**	0 U	420	0 U	**470,000 [1,2]**	0 U	0 U	0 U	57,000	4,200	8.10E+06
Benzene	µg/kg	0 U	0 U	91	0 U	0 U	0 U	0 U	**140 [1]**	100	4,000 (X)	1.80E+05
Ethylbenzene	µg/kg	**17,000 [1,2]**	0 U	0 U	0 U	**16,000 [1,2]**	99	0 U	88	1,500	360	1.40E+05 (C)
Isopropylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	100	0 U	360	91,000	3,200	3.90E+05 (C)
Naphthalene	µg/kg	**700,000 [1,2]**	450	**950 [2]**	0 U	**740,000 [1,2]**	0 U	0 U	**960 [2]**	35,000	730	1.60E+07
n-Propylbenzene	µg/kg	0 U	0 U	0 U	0 U	**5,000 [1]**	200	0 U	0 U	1,600	ID	2.50E+06
Total Xylenes	µg/kg	**7,000 [1,2]**	0 U	304	0 U	**158,000 [1,2,3]**	0 U	0 U	290	5,600	820	150,000 (C)
p-Isopropyl toluene	µg/kg	0 U	0 U	0 U	0 U	0 U	150	0 U	0 U	Not Listed	Not Listed	Not Listed
sec-Butylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	140	0 U	0 U	1,600	ID	2.50E+06
Styrene	µg/kg	0 U	0 U	0 U	0 U	**48,000 [1,2]**	0 U	0 U	0 U	2,700	2,100	4.00E+05
Toluene	µg/kg	4500	150	210	0 U	**26,000 [1,2]**	110	0 U	0 U	16,000	5,400	2.50E+05

Notes:

µg/kg = Microgram per kilogram

71,000 [1,2] = Analytical results in bold represent a criteria exceedance referenced by [1,2,3]

(C) Value presented is a screening level based on the chemical-specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat. Concentrations greater than Csat are acceptable cleanup criteria for this pathway where a site-specific demonstration indicates that free-phase material containing a hazardous substance is not present.

(D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

(DD) Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water.

ID = Insufficient data to develop criterion.

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

J- = The result is an estimated quantity, but the result may be biased low.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

mg/kg = milligrams per kilogram

NLL = Hazardous substance is not likely to leach under most soil conditions.

(T) Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, Subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards.

UJ = The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value.

Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Table 1
MDEQ Soil Sample Analytical Results (SS1 - SS7) – October 2010
Ironwood MGP Site
Ironwood, Gogebic County, Michigan

Location ID		SS1	SS2	SS2	SS3	SS4	SS5	SS6	SS7	1	2	3
Field Sample ID		SS1	SS2	SS2D	SS3	SS4	SS5	SS6	SS7	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection	Direct Contact Criteria
Sample Date		10/19/2010	10/19/2010	10/19/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/19/2010			
Chemical Name	Unit											
Inorganics												
Aluminum	mg/kg	**8,340 J [1]**	**10,600 J [1]**	**10,400 J [1]**	**7,990 J [1]**	**9,490 J [1]**	**2,920 J [1]**	**4,090 J [1]**	**8,720 J [1]**	1	NA	50,000 (DD)
Antimony	mg/kg	0.71 J	0.36 J	0.55 J	0.59 J	0.96 J	3.2 J	1.5 J	0.42 J	4.3	94 (X)	180
Arsenic	mg/kg	**6.1 [1,2]**	4.4	**5.5 [1,2]**	3.4	**23.5 [1,2,3]**	**22.3 [1,2,3]**	**8 [1,2,3]**	2.8	4.6	4.6	7.6
Barium	mg/kg	55.4 J	60.1 J	62.6 J	39.3 J	60.9 J	55.8 J	230 J	31.2 J	1,300	150 (G)	37,000
Beryllium	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	51	1.3 (G)	410
Cadmium	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	6	1.7 (G, X)	550
Calcium	mg/kg	4540 J	5670 J	5190 J	3470 J	4410 J	3570 J	3200 J	4630 J	Not Listed	Not Listed	Not Listed
Chromium	mg/kg	19.9 J	16.8 J	20 J	15.9 J	24.3 J	20.9 J	24 J	15.7 J	1,600,000 (D)	1,300,000	790,000
Cobalt	mg/kg	**10 J [1,2]**	**11 J [1,2]**	**10.5 J [1,2]**	**9.2 J [1,2]**	**10.4 J [1,2]**	**5.5 J [1,2]**	**5.3 J [1,2]**	**11.9 J [1,2]**	0.80	2	2,600
Copper	mg/kg	42.1 J	37.1 J	36.1 J	29.2 J	45.7 J	48.7 J	54.2 J	32.3 J	5,800	31 (G)	20,000
Cyanide	mg/kg	**2.6 [2]**	**1.5 [2]**	**1.8 [2]**	0.5 U	**4.7 [1,2]**	**24.2 [1,2,3]**	**21.9 [1,2,3]**	**1.5 [2]**	4	0.10	12
Iron	mg/kg	**27,500 J [1]**	**22,400 J [1]**	**29,300 J [1]**	**20,000 J [1]**	**29,600 J [1]**	**62,500 J [1]**	**34,300 J [1]**	**16,500 J [1]**	6	NA	160,000
Lead	mg/kg	126 J	39.8 J	42.1 J	18.4 J	77.7 J	82.2 J	71.4 J	22.5 J	700	920 (G,X)	400
Magnesium	mg/kg	3,760 J	4,670 J	4,150 J	3,790 J	4,380 J	1,340 J	2,160 J	5,940 J	8,000	NA	1,000,000 (D)
Manganese	mg/kg	**273 J [1]**	**297 J [1]**	**311 J [1]**	**299 J [1]**	**332 J [1]**	**355 J [1]**	**209 J [1]**	**283 J [1]**	1	2.2 (G,X)	25,000
Mercury	mg/kg	0.095 J	0.088 J	0.082 J	0.021 J-	0.058 J-	0.082 J	0.069 J	0.02 J-	1,700	50 (M); 1.2	160,000
Nickel	mg/kg	21.1 J	21.2 J	20.6 J	16.8 J	21.4 J	20.2 J	19.3 J	21.3 J	100	32 (G)	40,000
Potassium	mg/kg	500 U	632	667	500 U	723	500 U	917	500 U	Not Listed	Not Listed	Not Listed
Selenium	mg/kg	**1.7 J [2]**	**1.3 J [2]**	**1.4 J [2]**	**1.2 J [2]**	**2 J [2]**	**2.9 J [2]**	**1.9 J [2]**	**0.73 J [2]**	4	0.40	2,600
Silver	mg/kg	1 U	1 U	1 U	1 U	1 U	**0.51 J [2]**	1 U	1 U	4.5	0.10 (M) 27	2,500
Sodium	mg/kg	358 J	346 J	272 J	250 J	303 J	235 J	278 J	255 J	2,500	NA	1,000,000 (D)
Thallium	mg/kg	2.5 U	2.5 U	**2.9 J [1]**	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.3	4.2 (X)	35
Vanadium	mg/kg	48.4 J	45.7 J	47.4 J	36.3 J	50.3 J	28.7 J	35.8 J	37.1 J	72	190	750 (DD)
Zinc	mg/kg	68 J	72 J	76.1 J	41.6 J	70 J	75.5 J	124 J	42.8 J	2,400	69 (G)	170,000
SVOCs												
1,1'-Biphenyl	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 UJ	Not Listed	Not Listed	Not Listed
2,4-Dimethylphenol	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	7,400	7,600	1.10E+07
2-Methylphenol	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
4-Methylphenol	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
Acenaphthene	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	300,000	8,700	4.10E+07
Acenaphthylene	µg/kg	3,000	2,400	2,700	170 J	1,700	2,200	2,300	1,000	5,900	ID	1.60E+06
Anthracene	µg/kg	1,700 J	170 U	490 J	170 U	170 U	170 U	170 U	240	41,000	ID	2.30E+08
Benzo(a)anthracene	µg/kg	7,000	5,600	5,300	490	2,600	2,200	2,500	1,600 J	NLL	NLL	20,000
Benzo(a)pyrene	µg/kg	**7,100 [3]**	**5,200 [3]**	**4,900 [3]**	630	**3,300 [3]**	**2,800 [3]**	**2,800 [3]**	**2,200 J [3]**	NLL	NLL	2,000
Benzo(b)fluoranthene	µg/kg	4,600	3,800	5,100	360	2,000 J	2,600	5,200	1,500 J	NLL	NLL	20,000
Benzo(g,h,i)perylene	µg/kg	5,700	5100	4,800	660	2,500	3,200	4,900	1,900 J	NLL	NLL	2.50E+06
Benzo(k)fluoranthene	µg/kg	6,400	5,400	5,000	490 J	2,400	2,400	4,200	1,600 J	NLL	NLL	2.00E+05
Bis(2-ethylhexyl)phthalate	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 UJ	NLL	NLL	2.80E+06
Carbazole	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 UJ	9,400	1,100	5.30E+05
Chrysene	µg/kg	7,000	6,200	5,800	480	2,800	2,800	3,800	1,800 J	NLL	NLL	2.00E+06
Dibenzo(a,h)anthracene	µg/kg	1,400 J	1,300 J	1,200	150 J	610 J	800 J	1500	530 J	NLL	NLL	2,000
Dibenzofuran	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 UJ	ID	1,700	ID
Fluoranthene	µg/kg	**12,000 [2]**	**8,600 [2]**	**8,000 [2]**	570	3,400	3,000	2,100	1,600 J	7.30E+05	5,500	4.60E+07
Fluorene	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 UJ	3.90E+05	5,300	2.70E+07
Indeno(1,2,3-cd)pyrene	µg/kg	4,500	3,800	3,500	470	1,900	2,500	4,100	1,400 J	NLL	NLL	20,000
Naphthalene	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	97 J	35,000	730	1.60E+07
Phenanthrene	µg/kg	**3,900 [2]**	1,500 J	1,400	110 J	660 J	1,300	170 U	510	56,000	2,100	1.60E+06
Phenol	µg/kg	170 UJ	170 UJ	170 UJ	170 U	170 UJ	170 UJ	170 UJ	170 UJ	88,000	9,000	12,000,000 (DD)
Pyrene	µg/kg	17,000	14,000	13,000	890 J	5,000	4,700	4,700	2,800 J	4.80E+05	ID	2.90E+07

Location ID		SS1	SS2	SS2	SS3	SS4	SS5	SS6	SS7	1	2	3
Field Sample ID		SS1	SS2	SS2D	SS3	SS4	SS5	SS6	SS7	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection	Direct Contact Criteria
Sample Date		10/19/2010	10/19/2010	10/19/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/19/2010			
Chemical Name	**Unit**											
VOCs												
1,2,3-Trimethylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	100	0 U	0 U	Not Listed	Not Listed	Not Listed
1,2,4-Trimethylbenzene	µg/kg	97	0 U	0 U	130	160	260	0 U	0 U	2,100	570	1.10E+05 (C)
1,3,5-Trimethylbenzene	µg/kg	0 U	0 U	0 U	130	0 U	0 U	0 U	0 U	1,800	1,100	94,000 (C)
2-Methylnaphthalene	µg/kg	530	0 U	0 U	0 U	730	780	0 U	0 U	57,000	4,200	8.10E+06
Benzene	µg/kg	70	90	0 U	95	**130 [1]**	**460 [1]**	0 U	0 U	100	4,000 (X)	1.80E+05
Ethylbenzene	µg/kg	66	77	0 U	62	100	220	0 U	0 U	1,500	360	1.40E+05 (C)
Isopropylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	91	0 U	0 U	91,000	3,200	3.90E+05 (C)
Naphthalene	µg/kg	**1,200 [2]**	**1,200 [2]**	550	430	**1,000 [2]**	**1,000 [2]**	**800 [2]**	0 U	35,000	730	1.60E+07
n-Propylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	110	0 U	0 U	1,600	ID	2.50E+06
Total Xylenes	µg/kg	300	0 U	0 U	430	560	**1,100 [2]**	0 U	0 U	5,600	820	150,000 (C)
p-Isopropyl toluene	µg/kg	0 U	0 U	100	0 U	0 U	0 U	0 U	0 U	Not Listed	Not Listed	Not Listed
sec-Butylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	1,600	ID	2.50E+06
Styrene	µg/kg	97	0 U	0 U	0 U	0 U	0 U	0 U	0 U	2,700	2,100	4.00E+05
Toluene	µg/kg	220	200	75	260	450	1,100	120	0 U	16,000	5400	2.50E+05

Notes:

µg/kg = Microgram per kilogram

71,000 [1,2] = Analytical results in bold represent a criteria exceedance referenced by [1,2,3]

(C) Value presented is a screening level based on the chemical-specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat. Concentrations greater than Csat are acceptable cleanup criteria for this pathway where a site-specific demonstration indicates that free-phase material containing a hazardous substance is not present.

(D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

(DD) Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value

ID = Insufficient data to develop criterion.

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

J- = The result is an estimated quantity, but the result may be biased low.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

mg/kg = milligrams per kilogram

NLL = Hazardous substance is not likely to leach under most soil conditions.

(T) Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, Subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards.

UJ = The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value

Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Table 1
MDEQ Soil Sample Analytical Results (SS8 - SS16) – October 2010
Ironwood MGP Site
Ironwood, Gogebic County, Michigan

Location ID		SS8	SS9	SS10	SS11	SS12	SS12	SS13	SS14	SS15	1	2	3
Field Sample ID		SS8	SS9	SS10	SS11	SS12	SS12D	SS13	SS14	SS15	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Direct Contact Criteria
Sample Date		10/19/2010	10/19/2010	10/20/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010			
Chemical Name	Unit												
Inorganics													
Aluminum	mg/kg	**10,500 J [1]**	**9,920 J [1]**	**7,720 J [1]**	**13,900 J [1]**	**4,310 J [1]**	**2,200 J**	**9,650 J [1]**	**8,970 J [1]**	**9,380 J [1]**	1	NA	50,000 (DD)
Antimony	mg/kg	0.53 J	6 UJ	0.89 J	6 UJ	**10.7 J [1]**	**8.2 J [1]**	0.66 J	1.2 J	1.2 J	4.3	94 (X)	180
Arsenic	mg/kg	4.1	1.7	2.9	3	**36.3 [1,2,3]**	**24.1 [1,2,3]**	**6.8 [1,2]**	**5.3 [1,2]**	3.4	4.6	4.6	7.6
Barium	mg/kg	257 J	32.6 J	40.2 J	48.1 J	102 J	88.5 J	388 J	545 J	110 J	1,300	150 (G)	37,000
Beryllium	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.08 J-	0.5 U	0.5 U	51	1.3 (G)	410
Cadmium	mg/kg	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.1	1.8	0.5 U	6	1.7 (G, X)	550
Calcium	mg/kg	3,850 J	6,430 J	4,940 J	7,250 J	3,200 J	1,640 J	12,900 J	25,200 J	4,240 J	Not Listed	Not Listed	Not Listed
Chromium	mg/kg	70.5 J	19.7 J	22.3 J	22.6 J	46 J	31.5 J	27.4 J	31.9 J	17.6 J	1,600,000 (D)	1,300,000	790,000
Cobalt	mg/kg	**15.9 J [1,2]**	**11.5 J [1,2]**	**8.3 J [1,2]**	**16.9 J [1,2]**	**6.1 J [1,2]**	**2.5 J [1,2]**	**8 J [1,2]**	**8.2 J [1,2]**	**8.8 J [1,2]**	0.80	2	2,600
Copper	mg/kg	59.2 J	22.5 J	28.2 J	48.8 J	155 J	104 J	55 J	72.3 J	30.9 J	5,800	31 (G)	20,000
Cyanide	mg/kg	**3.7 [2]**	0.5 U	0.5 U	0.5 U	**359 [1,2,3]**	**269 [1,2,3]**	**0.89 [2]**	**1.1 [2]**	0.5 U	4	0.10	12
Iron	mg/kg	**40,000 J [1]**	**20,500 J [1]**	**27,700 J [1]**	**25,000 J [1]**	**59,500 J [1]**	**32,600 J [1]**	**21,600 J [1]**	**26,000 J [1]**	**17,900 J [1]**	6	NA	160,000
Lead	mg/kg	271 J	11.5 J	37.4 J	8.2 J	176 J	151 J	346 J	**577 J [3]**	158 J	700	920 (G,X)	400
Magnesium	mg/kg	5,830 J	5,500 J	3,320 J	**8,520 J [1]**	2,330 J	1,050 J	2,690 J	4,270 J	3,620 J	8,000	NA	1,000,000 (D)
Manganese	mg/kg	**564 J [1]**	**342 J [1]**	**255 J [1]**	**442 J [1]**	**321 J [1]**	**174 J [1]**	**1,710 J [1]**	**3,070 J [1]**	**364 J [1]**	1	2.2 (G,X)	25,000
Mercury	mg/kg	0.037 J-	0.057 J-	0.19	0.0049 J-	0.41	0.4 J	0.73	0.64	0.12 J	1,700	50 (M); 1.2	160,000
Nickel	mg/kg	33.2 J	19.1 J	18.1 J	30.8 J	42.9 J	22.6 J	14.5 J	17.2 J	16.5 J	100	32 (G)	40,000
Potassium	mg/kg	500 U	500 U	500 U	855	500 U	500 U	500 U	804	500 U	Not Listed	Not Listed	Not Listed
Selenium	mg/kg	**1.7 J [2]**	**1.2 J [2]**	**1.4 J [2]**	**1.4 J [2]**	**4.1 J [1,2]**	**2.9 J [2]**	**2.5 J [2]**	**2.7 J [2]**	**1.3 J [2]**	4	0.40	2,600
Silver	mg/kg	**0.52 J [2]**	1 U	1 U	1 U	**1.4 J [2]**	1 U	1 U	1 U	1 U	4.5	0.10 (M) 27	2,500
Sodium	mg/kg	371 J	260 J	383 J	442 J	562 J	460 J	268 J	332 J	254 J	2,500	NA	1,000,000 (D)
Thallium	mg/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.3	4.2 (X)	35
Vanadium	mg/kg	47.6 J	52.9 J	48.5 J	65.8 J	23.3 J	14.2 J	44.2 J	34.5 J	39.3 J	72	190	750 (DD)
Zinc	mg/kg	220 J	47.1 J	43.8 J	50.6 J	73 J	47.6 J	377 J	693 J	154 J	2,400	69 (G)	170,000
SVOCs													
1,1'-Biphenyl	µg/kg	170 U	170 U	170 U	170 U	170 UJ	170 UJ	170 U	170 UJ	170 U	Not Listed	Not Listed	Not Listed
2-Methylnaphthalene	µg/kg	170 U	170 U	170 U	170 U	280 J	320 J	170 U	170 U	170 U	57,000	4,200	8.10E+06
2-Methylphenol	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
4-Methylphenol	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
Acenaphthene	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	300,000	8,700	4.10E+07
Acenaphthylene	µg/kg	170 U	120 J	170 U	170 U	4,100	4,900	170 U	240 J	170 U	5,900	ID	1.60E+06
Anthracene	µg/kg	3,300	170 U	170 U	170 U	660	890	170 U	330	170 U	41,000	ID	2.30E+08
Benzo(a)anthracene	µg/kg	4,800	350	170 U	170 U	1,400 J	2,000	180 J	1,400 J	170 J	NLL	NLL	20,000
Benzo(a)pyrene	µg/kg	**3,900 [3]**	330	170 U	170 U	1,600 J	2,000	220 J	1,400 J	160 J	NLL	NLL	2,000
Benzo(b)fluoranthene	µg/kg	2,900	220	170 U	170 U	4,300 J	5,300 J	190 J	1,100 J	120 J	NLL	NLL	20,000
Benzo(g,h,i)perylene	µg/kg	2,100	270	140 J	170 U	2,400 J	3,100	230	960 J	110 J	NLL	NLL	2.50E+06
Benzo(k)fluoranthene	µg/kg	3,600	250 J	170 U	170 U	2,500 J	3,400	200 J	1,000 J	140 J	NLL	NLL	2.00E+05
Bis(2-ethylhexyl)phthalate	µg/kg	170 U	170 U	120 J	170 U	170 UJ	170 UJ	170 U	300 J	170 U	NLL	NLL	2.80E+06
Carbazole	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	140 J	170 U	9,400	1,100	5.30E+05
Chrysene	µg/kg	4,400	420	170 U	170 U	2,300 J	3,300	200 J	1,400 J	180 J	NLL	NLL	2.00E+06
Dibenzo(a,h)anthracene	µg/kg	850 J	79 J	170 U	170 U	830 J	1100	170 U	320 J	170 U	NLL	NLL	2,000
Dibenzofuran	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	ID	1,700	ID
Fluoranthene	µg/kg	**12,000 [2]**	420	140 J	170 U	1,500 J	1,800	320 J	3,300 J	380 J	7.30E+05	5,500	4.60E+07
Fluorene	µg/kg	950 J	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	3.90E+05	5,300	2.70E+07
Indeno(1,2,3-cd)pyrene	µg/kg	2,100	200	170 U	170 U	2,100 J	2,900	190 J	870 J	100 J	NLL	NLL	20,000
Naphthalene	µg/kg	170 U	170 U	170 U	170 U	300 J	440	170 U	170 U	170 U	35,000	730	1.60E+07
Phenanthrene	µg/kg	**9,100 [2]**	130 J	170 U	170 U	600	690	150 J	1400	130 J	56,000	2,100	1.60E+06
Phenol	µg/kg	170 UJ	170 U	170 U	170 UJ	170 U	170 U	170 U	170 U	170 UJ	88,000	9,000	12,000,000 (DD)
Pyrene	µg/kg	9,200	510	130 J	170 U	2,500 J	3,200	290 J	2,800 J	330 J	4.80E+05	ID	2.90E+07

Location ID		SS8	SS9	SS10	SS11	SS12	SS12	SS13	SS14	SS15	1	2	3
Field Sample ID		SS8	SS9	SS10	SS11	SS12	SS12D	SS13	SS14	SS15	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Direct Contact Criteria
Sample Date		10/19/2010	10/19/2010	10/20/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010			
Chemical Name	**Unit**												
VOCs													
1,2,3-Trimethylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	74	Not Listed	Not Listed	Not Listed
1,2,4-Trimethylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	190	2,100	570	1.10E+05 (C)
1,3,5-Trimethylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	1,800	1,100	94,000 (C)
2-Methylnaphthalene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	57,000	4,200	8.10E+06
Benzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	100	4,000 (X)	1.80E+05
Ethylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	1,500	360	1.40E+05 (C)
Isopropylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	91,000	3,200	3.90E+05 (C)
Naphthalene	µg/kg	**800 [2]**	0 U	0 U	0 U	700	**1,300 [2]**	0 U	0 U	0 U	35,000	730	1.60E+07
n-Propylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	1,600	ID	2.50E+06
Total Xylenes	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	340	5,600	820	150,000 (C)
p-Isopropyl toluene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	Not Listed	Not Listed	Not Listed
sec-Butylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	1,600	ID	2.50E+06
Styrene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	2,700	2,100	4.00E+05
Toluene	µg/kg	0 U	0 U	0 U	0 U	120	140	0 U	0 U	140	16,000	5400	2.50E+05

Notes:
µg/kg = Microgram per kilogram
71,000 [1,2] = Analytical results in bold represent a criteria exceedance referenced by [1,2,3]
(C) Value presented is a screening level based on the chemical-specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat. Concentrations greater than Csat are acceptable cleanup criteria for this pathway where a site-specific demonstration indicates that free-phase material containing a hazardous substance is not present.
(D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(DD) Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure.
(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water.
ID = Insufficient data to develop criterion.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J- = The result is an estimated quantity, but the result may be biased low.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
mg/kg = milligrams per kilogram
NLL = Hazardous substance is not likely to leach under most soil conditions.
(T) Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, Subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards.
UJ = The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value.
Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Table 2
MDEQ Groundwater Sample Analytical Results – October 2010
Ironwood MGP Site
Ironwood, Gogebic County, Michigan

Location ID		MW2	TMW1	TMW2	TMW3	TMW4	TMW5	TMW6	TMW7	TMW8	1	2	3
Field Sample ID		MW2	TMW1	TMW2	TMW3	TMW4	TMW5	TMW6	TMW7	TMW8	Residential Drinking Water Criteria	Groundwater Surface Water Interface	Groundwater Contact Criteria
Sample Date		10/21/2010	10/19/2010	10/19/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010			
Chemical Name	**Unit**												
Inorganics													
Aluminum	µg/L	**127 J- [1]**	200 U	**932 [1]**	**786 [1]**	**272 J+ [1]**	**748 [1]**	**281 J+ [1]**	**286 J+ [1]**	**1,060 [1]**	50 (V)	NA	64,000,000
Antimony	µg/L	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	6 (A)	130 (X)	68,000
Arsenic	µg/L	10 U	**12.4 J+ [1,2]**	**13.9 J+ [1,2]**	**15.3 J+ [1,2]**	**14.5 J+ [1,2]**	**13.7 J+ [1,2]**	10 U	10 U	10 U	10 (A)	10	4,300
Barium	µg/L	70.3 J	36 J	60 J	50.4 J	103 J	185 J	216	75.1 J	136 J	2,000 (A)	230 (G)	14,000,000
Beryllium	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4 (A)	0.50 (G)	290,000
Cadmium	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	0.42 J	0.36 J	5 U	5 (A)	1.4 (G,X)	190,000
Calcium	µg/L	45,500	58,200	67,100	9,960	71,200	69,700	127,000	136,000	143,000	Not Listed	Not Listed	Not Listed
Chromium	µg/L	10 U	10 U	10 U	0.83 J-	10 U	0.96 J-	10 U	10 U	10 U	100 (A)	45 (G,X)	290,000,000
Cobalt	µg/L	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	40	100	2,400,000
Copper	µg/L	25 U	3.3 J-	**7.4 J- [1,2]**	3.3 J-	25 U	3.9 J-	25 U	25 U	2.5 J-	1,000 (E)	5.3 (G)	7,400,000
Cyanide	µg/L	10 U	10 U	10 U	**26.4 [2]**	**169 [2]**	**2,080 [1,2]**	**2,140 [1,2]**	**2,780 [1,2]**	**400 [1,2]**	200	5.2	57,000
Iron	µg/L	**595 J [1]**	100 UJ	**4,000 J [1]**	**2,930 J [1]**	**8,370 J [1]**	**74,400 J [1]**	**50,900 J [1]**	**69,900 J [1]**	**72,900 J [1]**	300 (E)	NA	58,000,000
Lead	µg/L	**6.3 J [1,2]**	**10 [1,2]**	**11.6 [1,2]**	**14.5 [1,2]**	**14.4 [1,2]**	**18.1 [1,2]**	**19 [1,2]**	**16 [1,2]**	**17 [1,2]**	4 (L)	5.2 (G,X)	ID
Magnesium	µg/L	13,200	10,900	16,200	2,820 J	17,100	9,040	22,000	21,200	18,700	400,000	NA	100,000,0000 (D)
Manganese	µg/L	**434 J [1]**	**250 J [1]**	**754 J [1]**	**847 J [1]**	**1,810 J [1,2]**	**2,410 J [1,2]**	**6,030 J [1,2]**	**4,240 J [1,2]**	**14,000 J [1,2]**	50 (E)	1,100 (G,X)	9,100,000
Mercury	µg/L	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	2 (A)	0.0013	56 (S)
Nickel	µg/L	40 U	3 J	3.7 J	2.3 J	0.82 J	4.2 J	2.6 J	2.6 J	3.3 J	100 (A)	31 (G)	74,000,000
Potassium	µg/L	3,170 J	4,970 J	2,240 J	7,180	5,390	8,810	4,070 J	5,720	4,630 J	Not Listed	Not Listed	Not Listed
Selenium	µg/L	35 U	35 U	35 U	35 U	35 U	35 U	2.9 J	2.4 J	35 U	50 (A)	5	970,000
Silver	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**5.1 J [2]**	34	0.2	1,500,000
Sodium	µg/L	37,500 J	17,900 J	19,000 J	**3,260,000 J [1]**	22,800 J	22,500 J	11,200 J+	20,900 J	5,790 J+	120,000	NA	100,0000,000 (D)
Thallium	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	2 (A)	3.7 (X)	13,000
Vanadium	µg/L	50 U	2.1 J	4.2 J	**5.5 J [1]**	2.6 J	**11.4 J [1]**	**6.2 J [1]**	4.1 J	**12.9 J [1,2]**	4.5	12	970,000
Zinc	µg/L	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	2,400	70 (G)	110,000,000
SVOCs													
2,4-Dimethylphenol	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	370	380	520,000
2-Methylnaphthalene	µg/L	5 U	5 U	5 U	5 U	**610 [1,2]**	**600 [1,2]**	**120 J [2]**	**220 J [2]**	5 U	260	19	25,000 (S)
2-Methylphenol	µg/L	5 U	5 U	5 U	5 U	5 U	**220 J [2]**	5 U	5 U	5 U	370	30 (M); 25	810,000
4-Methylphenol	µg/L	5 U	5 U	5 U	5 U	5 U	**330 J [2]**	5 U	5 U	5 U	370	30 (M); 25	810,000
Acenaphthene	µg/L	5 U	5 U	5 U	5 UJ	**140 J [2]**	5 U	5 U	5 U	**50 [2]**	1,300	38	4,200 (S)
Acenaphthylene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	52	ID	3,900 (S)
Anthracene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	43 (S)	ID	43 (S)
Benzo(a)anthracene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.1	ID	9.4 (S,AA)
Benzo(a)pyrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 (A)	ID	1.0 (M,AA); 0.64
Benzo(b)fluoranthene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.5 (S,AA)	ID	1.5 (S,AA)
Benzo(g,h,i)perylene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.0 (M); 0.26 (S)	ID	1.0 (M); 0.26 (S)
Benzo(k)fluoranthene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.0 (M); 0.8 (S)	NA	1.0 (M); 0.8 (S)
Bis(2-ethylhexyl)phthalate	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 (A)	25	320 (AA)
Carbazole	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	85	10 (M); 4.0	7,400
Chrysene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.6 (S)	ID	1.6 (S,AA)
Dibenzo(a,h)anthracene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.0 (M); 0.21	ID	2.0 (M,AA); 0.31
Dibenzofuran	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	ID	4	ID

Location ID		MW2	TMW1	TMW2	TMW3	TMW4	TMW5	TMW6	TMW7	TMW8	1	2	3
Field Sample ID		MW2	TMW1	TMW2	TMW3	TMW4	TMW5	TMW6	TMW7	TMW8	Residential Drinking Water Criteria	Groundwater Surface Water Interface	Groundwater Contact Criteria
Sample Date		10/21/2010	10/19/2010	10/19/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010			
Chemical Name	**Unit**												
Fluoranthene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	210 (S)	1.6	210 (S)
Fluorene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	880	12	2,000 (S)
Indeno(1,2,3-cd)pyrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.0 (M); 0.022 (S)	ID	2.0 (M,AA); 0.022 (S)
Naphthalene	µg/L	5 U	5 U	5 U	5 U	**3,200 [1,2]**	**9,000 J [1,2]**	**3,300 [1,2]**	**2,200 [1,2]**	**190 [2]**	520	11	31,000 (S)
Phenanthrene	µg/L	5 U	5 U	5 U	5 U	**180 J [1,2]**	5 U	5 U	5 U	5 U	52	2.0 (M); 1.4	1,000 (S)
Phenol	µg/L	5 U	5 U	5 U	5 U	5 U	260 J	5 U	5 U	5 U	4,400	450	29,000,000
Pyrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	140 (S)	ID	140 (S)
VOCs													
Benzene	µg/L	5 U	5 U	5 U	5 U	**1,100 [1,2]**	**3,200 [1,2]**	**250 [1,2]**	**180 [1]**	**25 [1]**	5.0 (A)	200 (X)	11,000
Ethylbenzene	µg/L	5 U	5 U	5 U	5 U	**1,500 [1,2]**	**1,100 [1,2]**	**1,300 [1,2]**	**590 [1,2]**	**46 [2]**	74 (E)	18	170,000 (S)
Isopropylbenzene	µg/L	5 U	5 U	5 U	5 U	**57 J [2]**	200 U	100 U	18	5 U	800	28	56,000 (S)
Total Xylenes	µg/L	5 U	5 U	5 U	5 U	**1270 [1,2]**	**1,000 [1,2]**	**1,720 [1,2]**	**710 [1,2]**	25.2	280 (E)	41	190,000 (S)
Styrene	µg/L	5 U	5 U	5 U	5 U	100 U	**120 J [1,2]**	100 U	**150 [1,2]**	5 U	100 (A)	80 (X)	9,700
Toluene	µg/L	5 U	5 U	5 U	5 U	**420 [2]**	**1,000 [1,2]**	220	180	3.6 J	790 (E)	270	530,000 (S)

Notes:

µg/L = milligrams per Liter

71,000 [1,2] = Analytical results in bold represent a criteria exceedance referenced by [1,2,3]

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

J+ = The result is an estimated quantity, but the result may be biased high.

J- = The result is an estimated quantity, but the result may be biased low.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

(A) Criterion is the State of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.

(D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

(E) Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). A notice of aesthetic impact may be employed as an institutional control mechanism if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value.

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water.

ID = Insufficient data to develop criterion.

(M) Calculated criterion is below the analytical target detection limit; therefore, the criterion defaults to the target detection limit.

NA = Criterion not available

(S) Criterion defaults to the hazardous substance-specific water solubility limit.

(V) Criterion is the aesthetic drinking water value as required by Section 20120(a)(5) of the NREPA. Concentrations up to 200 ug/L may be acceptable, and still allow for drinking water use, as part of a site-specific cleanup under Section 20120a(2) of the NREPA.

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value.

(AA) Comparison to these criteria may take into account an evaluation of whether the hazardous substances are adsorbed to particulates rather than dissolved in water and whether filtered groundwater samples were used to evaluate groundwater.

Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the NREPA, 1994 Public Act 451, as amended. This table reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Table 3A
MDEQ Surface Water Sample Analytical Results – October 2010
Ironwood MGP Site
Ironwood, Gogebic County, Michigan

Location ID		SW1	SW2	SW2	SW3	SW4	SW5	1	2
Field Sample ID		SW1	SW2	SW2D	SW3	SW4	SW5	Human Cancer Value for Surface Water Used as a Drinking Water Source	Human Non-Cancer Value for Surface Water Used as a Drinking Water Source
Sample Date		10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010		
Chemical Name	**Unit**								
Inorganics									
Cyanide	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	NA	600
Aluminum	µg/L	159 J	233	200	159 J	202	203	NA	NA
Antimony	µg/L	60 U	60 U	60 U	60 U	60 U	60 U	NA	1.7
Arsenic	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10	10
Barium	µg/L	10.4 J	11.5 J	11.5 J	10.8 J	12.9 J	10.3 J	NA	1,900
Beryllium	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	160
Cadmium	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	2.5
Calcium	µg/L	11,200	12,100	11,400	9,960	11,800	10,800	NA	NA
Chromium	µg/L	10 U	0.67 J-	10 U	0.59 J-	0.6 J-	0.53 J-	NA	120
Cobalt	µg/L	50 U	50 U	50 U	50 U	50 U	50 U	NA	NA
Copper	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	NA	470
Iron	µg/L	671 J	710 J	652 J	723 J	691 J	621 J	NA	NA
Lead	µg/L	4.1 J	4.1 J	4.5 J	3 J	4 J	3.4 J	NA	14
Magnesium	µg/L	2,780 J	2,930 J	2,670 J	2,350 J	2,820 J	2,560 J	NA	NA
Manganese	µg/L	29.3 J	31.6 J	41.1 J	52.3 J	38.7 J	27.3 J	NA	1,300
Mercury	µg/L	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	NA	0.0018
Nickel	µg/L	40 U	40 U	40 U	40 U	40 U	40 U	NA	2,600
Potassium	µg/L	533 J	483 J	580 J	458 J	832 J	555 J	NA	NA
Selenium	µg/L	35 U	35 U	35 U	35 U	35 U	35 U	NA	120
Silver	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	NA	130
Sodium	µg/L	5,000 UJ	5,000 UJ	5,000 UJ	5,000 UJ	5,000 UJ	5,000 UJ	NA	NA
Thallium	µg/L	25 U	25 U	25 U	25 U	25 U	25 U	NA	1.2
Vanadium	µg/L	50 U	50 U	50 U	50 U	50 U	50 U	NA	53
Zinc	µg/L	60 U	60 U	60 U	60 U	60 U	60 U	NA	3,300
SVOCs									
1,1'-Biphenyl	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	460
2,4-Dimethylphenol	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	450
2-Methylnaphthalene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	600
2-Methylphenol	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	1,400
Acenaphthene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	580
Acenaphthylene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA
Acetophenone	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA
Anthracene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	1,900
Benzo(a)anthracene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NLS	NLS
Benzo(a)pyrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NLS	NLS
Benzo(b)fluoranthene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA

Location ID		SW1	SW2	SW2	SW3	SW4	SW5	1	2
Field Sample ID		SW1	SW2	SW2D	SW3	SW4	SW5	Human Cancer Value for Surface Water Used as a Drinking Water Source	Human Non-Cancer Value for Surface Water Used as a Drinking Water Source
Sample Date		10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010		
Chemical Name	**Unit**								
Benzo(g,h,i)perylene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA
Benzo(k)fluoranthene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA
Bis(2-ethylhexyl)phthalate	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	25	120
Carbazole	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	19	NA
Chrysene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	ID	ID
Dibenzo(a,h)anthracene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NLS	NLS
Dibenzofuran	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA
Fluoranthene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	18
Fluorene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	140
Indeno(1,2,3-cd)pyrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NLS	NLS
Naphthalene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	1,100
Phenanthrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA
Phenol	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	1,100
Pyrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	15
VOCs									
Benzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	12	19
Ethylbenzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	25	2,100
Isopropylbenzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	1,700
m,p-Xylene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA
o-Xylene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA
Styrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	20	4,200
Tetrachloroethene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	11	320
Toluene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	NA	5,600

Notes:

µg/L = Microgram per liter

ID = Insufficient data to derive value

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

NA = Not applicable

NLS = No literature search has been conducted

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

All chemical specific values are in µg/L and expressed as total unless otherwise indicated.

Criteria derived from the Rule 57 Water Quality Values as calculated by the Michigan Department of Environmental Quality (Updated 10/8/2010)

Table 3B
MDEQ Sediment Sample Analytical Results – October 2010
Ironwood MGP Site
Ironwood, Gogebic County, Michigan

Location ID		SD1	SD2	SD2	SD3	SD4	SD5	1	2	3
Field Sample ID		SD1	SD2	SD2D	SD3	SD4	SD5	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Direct Contact Criteria
Sample Date		10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010			
Chemical Name	**Unit**									
Inorganics										
Aluminum	mg/kg	**8,450 J [1]**	**4,060 J [1]**	**4,890 J [1]**	**10,600 J [1]**	**14,100 J [1]**	**9,290 J [1]**	1	NA	50,000 (DD)
Antimony	mg/kg	**27 J [1]**	6 UJ	6 UJ	0.66 J	0.8 J	0.55 J	4.3	94 (X)	180
Arsenic	mg/kg	1 U	1.3 J+	1.6 J+	3.6 J	1.3 J+	1.5 J+	4.6	4.6	7.6
Barium	mg/kg	31.1 J	20 UJ	20 UJ	33.4 J	36.8 J	36.1 J	1,300	150 (G)	37,000
Beryllium	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	51	1.3 (G)	410
Cadmium	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	6	1.7 (G, X)	550
Calcium	mg/kg	5,540 J	2,740 J	3,260 J	5,310 J	8,930 J	4,510 J	Not Listed	Not Listed	Not Listed
Chromium	mg/kg	26 J	9.8 J	13.6 J	44.6 J	35.1 J	21.7 J	1,600,000 (D)	1,300,000	790,000
Cobalt	mg/kg	**12.9 J [1,2]**	**5.3 J [1,2]**	**6.4 J [1,2]**	**12.7 J [1,2]**	**20.8 J [1,2]**	**11.6 J [1,2]**	0.80	2	2,600
Copper	mg/kg	20.5	11.2	109	27.8	32.1	23.7	5,800	31 (G)	20,000
Cyanide	mg/kg	0.5 U	0.5 U	0.5 U	**1.6 [2]**	0.5 U	0.5 U	4	0.10	12
Iron	mg/kg	**22,000 [1]**	**12,500 [1]**	**16,300 [1]**	**28,700 [1]**	**36,100 [1]**	**22,500 [1]**	6	NA	160,000
Lead	mg/kg	33.1 J	11.9 J	23.5 J	26 J	18.2 J	13.5 J	700	920 (G,X)	400
Magnesium	mg/kg	5,180 J	2,090 J	2,720 J	6,770 J	**10,900 J [1]**	5,070 J	8,000	NA	1,000,000 (D)
Manganese	mg/kg	**364 J [1]**	**141 J [1]**	**168 J [1]**	**311 J [1]**	**484 J [1]**	**226 J [1]**	1	2.2 (G,X)	25,000
Mercury	mg/kg	0.054 J	0.059 J	0.079 J	0.044 J	0.017 J-	0.17	1,700	50 (M); 1.2	160,000
Nickel	mg/kg	22.2 J	9 J	12 J	36.2 J	35.9 J	19.3 J	100	32 (G)	40,000
Potassium	mg/kg	259 J	224 J	235 J	335 J	403 J	456 J	Not Listed	Not Listed	Not Listed
Selenium	mg/kg	**1.1 J [2]**	**0.64 J [2]**	**0.81 J [2]**	**1.6 J [2]**	**1.6 J [2]**	**0.57 J [2]**	4	0.40	[2]
Silver	mg/kg	1 U	1 U	1 U	1 U	1 U	1 U	4.5	0.10 (M) 27	2,500
Sodium	mg/kg	331 J	228 J	221 J	316 J	428 J	327 J	2,500	NA	1,000,000 (D)
Thallium	mg/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.3	4.2 (X)	35
Vanadium	mg/kg	57.6 J	30 J	38.2 J	62.5 J	**85.9 J [1]**	62.9 J	72	190	750 (DD)
Zinc	mg/kg	64	34.3	44.9	194	87.7	64.5	2,400	69 (G)	170,000
SVOCs										
1,1'-Biphenyl	µg/kg	170 U	170 UJ	170 J	45,000	170 U	170 U	Not Listed	Not Listed	Not Listed
2,4-Dimethylphenol	µg/kg	170 U	170 UJ	170 U	170 U	170 U	170 U	7,400	7,600	1.10E+07
2-Methylnaphthalene	µg/kg	170 U	2,700 J	2,300	**360,000 [1,2]**	170 UJ	170 U	57,000	4,200	8.10E+06
2-Methylphenol	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
4-Methylphenol	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	Not Listed	Not Listed	Not Listed
Acenaphthene	µg/kg	170 U	1700 J	2,000	**260,000 J [2]**	170 U	170 U	300,000	8,700	4.10E+07
Acenaphthylene	µg/kg	170 U	170 UJ	210	**41,000 [1]**	170 U	170 U	5,900	ID	1.60E+06
Acetophenone	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	30,000	ID	1.10E+06
Anthracene	µg/kg	170 U	840 J	720	**450,000 [1]**	170 U	910 J	41,000	ID	2.30E+08
Benzo(a)anthracene	µg/kg	230 J	470 J	370	**69,000 [3]**	150 J	3,900	NLL	NLL	20,000
Benzo(a)pyrene	µg/kg	240	580 J	430	**69,000 [3]**	150 J	**5,800 [3]**	NLL	NLL	2,000
Benzo(b)fluoranthene	µg/kg	200 J	170 U	270	**30,000 J [3]**	170 U	2,700	NLL	NLL	20,000
Benzo(g,h,i)perylene	µg/kg	150 J	610 J	220	38,000 J	170 U	3,800	NLL	NLL	2.50E+06
Benzo(k)fluoranthene	µg/kg	180 J	170 U	250	44,000	170 U	3,400	NLL	NLL	2.00E+05

Location ID		SD1	SD2	SD2	SD3	SD4	SD5	1	2	3
Field Sample ID		SD1	SD2	SD2D	SD3	SD4	SD5	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Direct Contact Criteria
Sample Date		10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010			
Chemical Name	**Unit**									
Bis(2-ethylhexyl)phthalate	µg/kg	170 U	170 U	170 U	170 U	170 U	170 U	NLL	NLL	2.80E+06
Carbazole	µg/kg	170 U	170 UJ	170 U	170 U	170 U	170 U	9,400	1,100	5.30E+05
Chrysene	µg/kg	230 J	530 J	350	62,000	150 J	3,600	NLL	NLL	2.00E+06
Dibenzo(a,h)anthracene	µg/kg	170 U	170 U	170 U	170 U	170 U	850 J	NLL	NLL	2,000
Dibenzofuran	µg/kg	170 U	170 UJ	86 J	170 U	170 U	170 U	ID	1,700	ID
Fluoranthene	µg/kg	440 J	840 J	820	**140,000 [2]**	290	4,000	7.30E+05	5,500	4.60E+07
Fluorene	µg/kg	170 U	640 J	840	**140,000 [2]**	170 U	170 U	3.90E+05	5,300	2.70E+07
Indeno(1,2,3-cd)pyrene	µg/kg	140 J	170 U	170 J	**28,000 J [3]**	170 U	2,900	NLL	NLL	20,000
Naphthalene	µg/kg	170 U	**6,100 [2]**	**2,500 [2]**	**390,000 [1,2]**	170 U	170 U	35,000	730	1.60E+07
Phenanthrene	µg/kg	160 J	2,100 J	**2,500 [2]**	**60,0000 [1,2]**	160 J	170 U	56,000	2,100	1.60E+06
Phenol	µg/kg	170 U	170 U	170 UJ	170 UJ	170 U	170 U	88,000	9,000	12,000,000 (DD)
Pyrene	µg/kg	360 J	830 J	1,100	300,000 J	260	8,000	4.80E+05	ID	2.90E+07
VOCs										
1,2,3-Trimethylbenzene	µg/kg	0 U	1,000	4,500	16,000	0 U	0 U	Not Listed	Not Listed	Not Listed
1,2,4-Trimethylbenzene	µg/kg	0 U	**3,000 [1,2]**	**13,000 [1,2]**	**40,000 [1,2]**	0 U	0 U	2,100	570	1.10E+05 (C)
1,3,5-Trimethylbenzene	µg/kg	0 U	880	**3,500 [1,2]**	**16,000 [1,2]**	0 U	0 U	1,800	1,100	94,000 (C)
2-Methylnaphthalene	µg/kg	0 U	**18,000 [2]**	**72,000 [1,2]**	**840,000 [1,2]**	0 U	0 U	57,000	4,200	8.10E+06
Benzene	µg/kg	0 U	**520 [1]**	**1,800 [1]**	0 U	0 U	0 U	100	4,000 (X)	1.80E+05
Ethylbenzene	µg/kg	0 U	**5,200 [1,2]**	**15,000 [1,2]**	0 U	0 U	0 U	1,500	360	1.40E+05 (C)
Isopropylbenzene	µg/kg	0 U	540	2,400	0 U	0 U	0 U	91,000	3,200	3.90E+05 (C)
Naphthalene	µg/kg	0 U	**51,000 [1,2]**	**240,000 [1,2]**	**1,100,000 [1,2]**	0 U	0 U	35,000	730	1.60E+07
n-Propylbenzene	µg/kg	0 U	230	1,000	0 U	0 U	0 U	1,600	ID	2.50E+06
Total Xylenes	µg/kg	0 U	5,700	23,500	0 U	0 U	0 U	5,600	820	150,000 (C)
p-Isopropyl toluene	µg/kg	0 U	190	810	0 U	0 U	0 U	Not Listed	Not Listed	Not Listed
sec-Butylbenzene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	1,600	ID	2.50E+06
Styrene	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	2,700	2,100	4.00E+05
Toluene	µg/kg	0 U	66	160	0 U	0 U	0 U	16,000	5,400	2.50E+05

Notes:

µg/kg = Microgram per kilogram

mg/kg = Milligrams per kilogram

71,000 [1,2] = Analytical results in bold represent a criteria exceedance referenced by [1,2,3]

(C) Value presented is a screening level based on the chemical-specific generic soil saturation concentration (Csat) since the calculated risk-based criterion is greater than Csat. Concentrations greater than Csat are acceptable cleanup criteria for this pathway where a site-specific demonstration indicates that free-phase material containing a hazardous substance is not present.

(D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

(DD) Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water.

ID = Insufficient data to develop criterion.

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

J+ = The result is an estimated quantity, but the result may be biased high.

J- = The result is an estimated quantity, but the result may be biased low.

mg/kg = milligrams per kilogram

NA = Criterion not available

NLL = Hazardous substance is not likely to leach under most soil conditions.

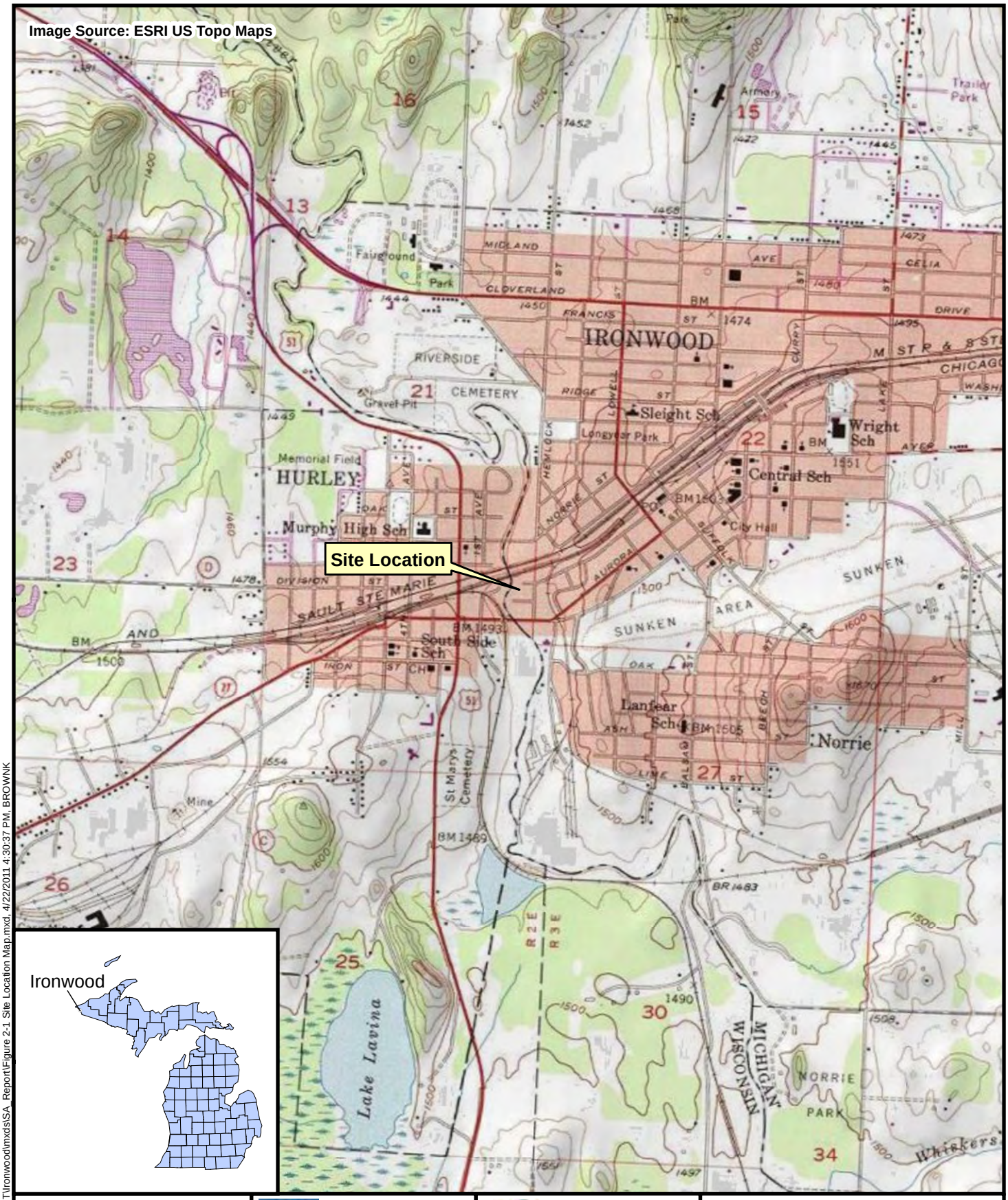
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value.

Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended. This table reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

FIGURES



Prepared for:
U.S. EPA REGION V

Contract No.: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
WESTON SOLUTIONS, INC

600 East Lakeshore Drive,
Suite 200
Houghton, MI 49931

Figure 2-1
Site Location Map
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

Path: D:\GIS_Projects\START\Ironwood\mxds\SA_Report\Figure 2-1 Site Location Map.mxd, 4/22/2011 4:30:37 PM, BROWNK

Path: D:\GIS_Projects\START\Ironwood\mxds\SA_Report\Figure 2-2 Site Layout and Historical Features Map.mxd, 4/25/2011 3:29:10 PM, BROWNK

Legend

N

0 150 Feet

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600 East Lakeshore Drive,
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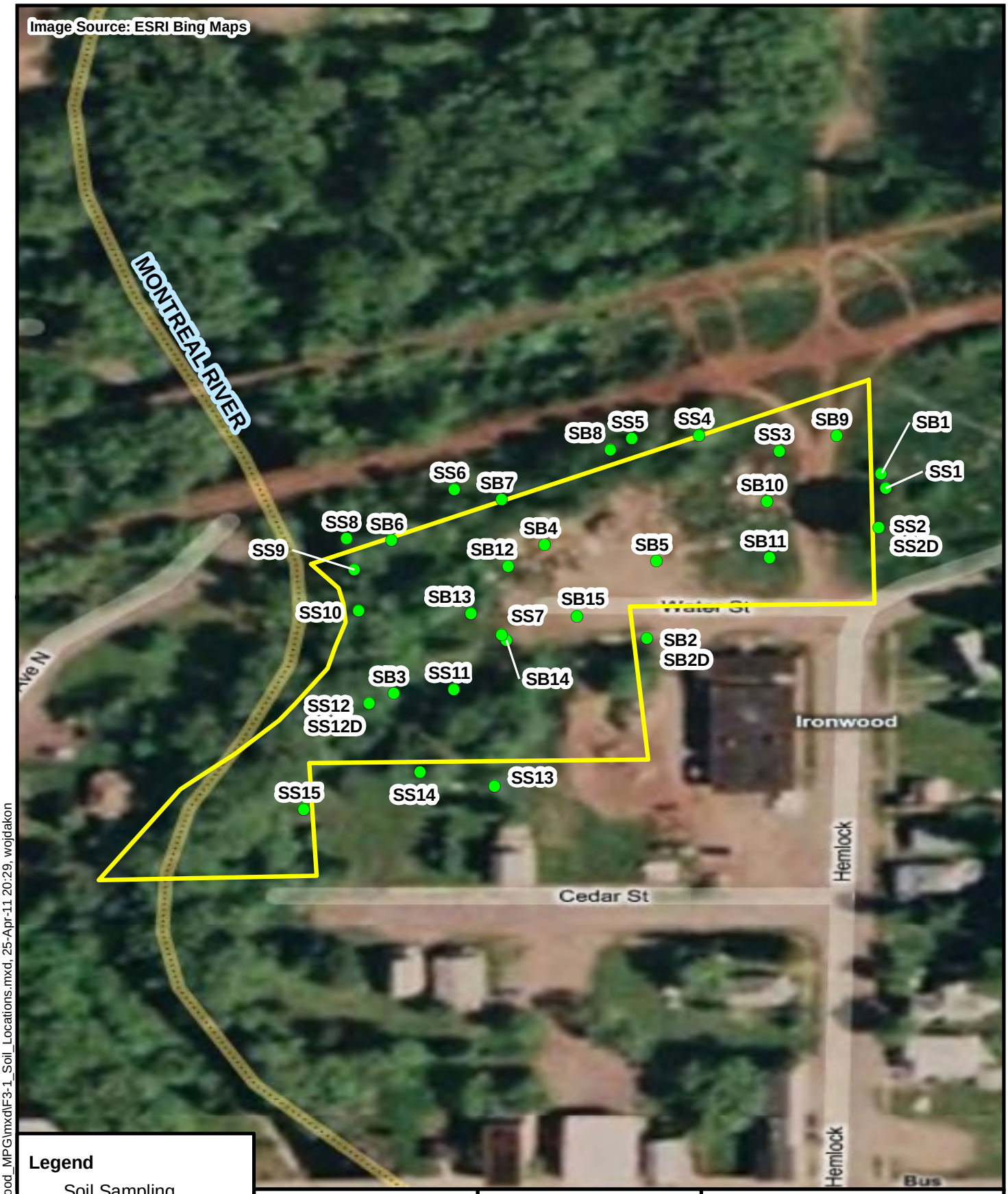
Houghton, MI 49931

Figure 2-2
Site Layout and Historical Features Map
Ironwood MGP SA
Ironwood, Gogebic County, Michigan



Legend

- Soil Sampling Locations
- Site Boundary

0 125 Feet

N

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Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
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Suite 200
Houghton, Michigan 49931

Figure 3-1
MDEQ Soil Sampling Locations
October 2010
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

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TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

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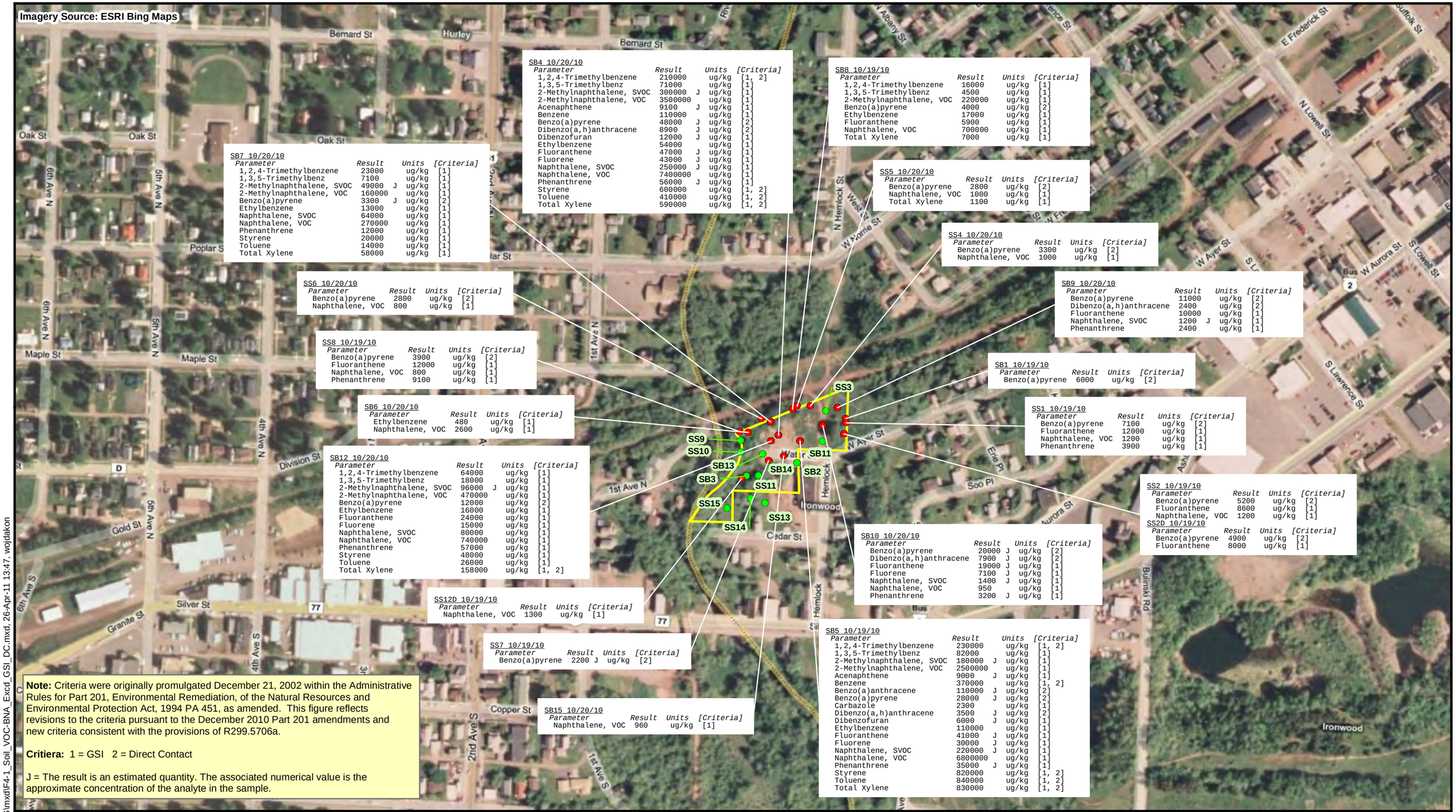
Figure 3-2
MDEQ Groundwater Sampling Locations October 2010
Ironwood MGP SA
Ironwood, Gogebic County, Michigan


Image Source: ESRI Bing Maps
SW5/SD5
W Arch St
N Lawrence St
W Gogebic St
W Pewabic St
N Hemlock St
Florian St
Riverside Dr
Evans St
N Albany St
Hurley
Bernard St
1st Ave N
Oak St
MONTREAL RIVER
51
2nd Ave N
West St
W Norris St
Poplar St
SW4/SD4
Maple St
SW3/SD3
SW2/SW2D
SD2/SD2D
W Ayer St
Ironwood
Cedar St
Soo Pl
Erie Pl
Hurley
Bus
2
Silver St
77
SW1/SD1
Legend
Surface Water and Sediment Sampling Locations
Site Boundary
0
400
Feet
N
Prepared for:
U.S. EPA REGION V
Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP
Prepared By:
WESTON SOLUTIONS, INC
600 East Lakeshore Drive
Suite 200
Houghton, Michigan 49931
Figure 3-3
MDEQ Surface Water and Sediment Sampling Locations - October 2010
Ironwood MGP SA
Ironwood, Gogebic County, Michigan
File: D:\Ironwood_MPG\mxd\F3-3_SDSW_Locations.mxd, 25-Apr-11 20:30, wojdakon


Imagery Source: ESRI Bing Maps
SB4 10/20/10
Parameter Result Units [Criteria]
1,2,4-Trimethylbenzene 210000 ug/kg [1, 2]
1,3,5-Trimethylbenz 71000 ug/kg [1]
2-Methylnaphthalene, SVOC 300000 J ug/kg [1]
2-Methylnaphthalene, VOC 3500000 ug/kg [1]
Acenaphthene 9100 J ug/kg [1]
Benzene 110000 ug/kg [1]
Benzo(a)pyrene 48000 J ug/kg [2]
Dibenzo(a,h)anthracene 8900 J ug/kg [2]
Dibenzofuran 12000 J ug/kg [1]
Ethylbenzene 54000 ug/kg [1]
Fluoranthene 47000 J ug/kg [1]
Fluorene 43000 J ug/kg [1]
Naphthalene, SVOC 250000 J ug/kg [1]
Naphthalene, VOC 7400000 ug/kg [1]
Phenanthrene 56000 J ug/kg [1]
Styrene 600000 ug/kg [1, 2]
Toluene 410000 ug/kg [1, 2]
Total Xylene 590000 ug/kg [1, 2]
SB7 10/20/10
Parameter Result Units [Criteria]
1,2,4-Trimethylbenzene 23000 ug/kg [1]
1,3,5-Trimethylbenz 7100 ug/kg [1]
2-Methylnaphthalene, SVOC 49000 J ug/kg [1]
2-Methylnaphthalene, VOC 160000 ug/kg [1]
Benzo(a)pyrene 3300 J ug/kg [2]
Ethylbenzene 13000 ug/kg [1]
Naphthalene, SVOC 64000 ug/kg [1]
Naphthalene, VOC 270000 ug/kg [1]
Phenanthrene 12000 ug/kg [1]
Styrene 20000 ug/kg [1]
Toluene 14000 ug/kg [1]
Total Xylene 58000 ug/kg [1]
SB8 10/19/10
Parameter Result Units [Criteria]
1,2,4-Trimethylbenzene 16000 ug/kg [1]
1,3,5-Trimethylbenz 4500 ug/kg [1]
2-Methylnaphthalene, VOC 220000 ug/kg [1]
Benzo(a)pyrene 4000 ug/kg [2]
Ethylbenzene 17000 ug/kg [1]
Fluoranthene 5900 ug/kg [1]
Naphthalene, VOC 700000 ug/kg [1]
Total Xylene 7000 ug/kg [1]
SS5 10/20/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 2800 ug/kg [2]
Naphthalene, VOC 1000 ug/kg [1]
Total Xylene 1100 ug/kg [1]
SS4 10/20/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 3300 ug/kg [2]
Naphthalene, VOC 1000 ug/kg [1]
SS6 10/20/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 2800 ug/kg [2]
Naphthalene, VOC 800 ug/kg [1]
SB9 10/20/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 11000 ug/kg [2]
Dibenzo(a,h)anthracene 2400 ug/kg [2]
Fluoranthene 10000 ug/kg [1]
Naphthalene, SVOC 1200 J ug/kg [1]
Phenanthrene 2400 ug/kg [1]
SS8 10/19/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 3900 ug/kg [2]
Fluoranthene 12000 ug/kg [1]
Naphthalene, VOC 800 ug/kg [1]
Phenanthrene 9100 ug/kg [1]
SB1 10/19/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 6000 ug/kg [2]
SB6 10/20/10
Parameter Result Units [Criteria]
Ethylbenzene 480 ug/kg [1]
Naphthalene, VOC 2600 ug/kg [1]
SS1 10/19/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 7100 ug/kg [2]
Fluoranthene 12000 ug/kg [1]
Naphthalene, VOC 1200 ug/kg [1]
Phenanthrene 3900 ug/kg [1]
SB12 10/20/10
Parameter Result Units [Criteria]
1,2,4-Trimethylbenzene 64000 ug/kg [1]
1,3,5-Trimethylbenz 18000 ug/kg [1]
2-Methylnaphthalene, SVOC 96000 J ug/kg [1]
2-Methylnaphthalene, VOC 470000 ug/kg [1]
Benzo(a)pyrene 12000 ug/kg [2]
Ethylbenzene 16000 ug/kg [1]
Fluoranthene 24000 ug/kg [1]
Fluorene 15000 ug/kg [1]
Naphthalene, SVOC 80000 ug/kg [1]
Naphthalene, VOC 740000 ug/kg [1]
Phenanthrene 57000 ug/kg [1]
Styrene 48000 ug/kg [1]
Toluene 26000 ug/kg [1]
Total Xylene 158000 ug/kg [1, 2]
SS2 10/19/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 5200 ug/kg [2]
Fluoranthene 8600 ug/kg [1]
Naphthalene, VOC 1200 ug/kg [1]
SS2D 10/19/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 4900 ug/kg [2]
Fluoranthene 8000 ug/kg [1]
SB10 10/20/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 20000 J ug/kg [2]
Dibenzo(a,h)anthracene 7900 J ug/kg [2]
Fluoranthene 19000 J ug/kg [1]
Fluorene 7100 J ug/kg [1]
Naphthalene, SVOC 1400 J ug/kg [1]
Naphthalene, VOC 950 ug/kg [1]
Phenanthrene 3200 J ug/kg [1]
SS12D 10/19/10
Parameter Result Units [Criteria]
Naphthalene, VOC 1300 ug/kg [1]
SS7 10/19/10
Parameter Result Units [Criteria]
Benzo(a)pyrene 2200 J ug/kg [2]
SB15 10/20/10
Parameter Result Units [Criteria]
Naphthalene, VOC 960 ug/kg [1]
SB5 10/19/10
Parameter Result Units [Criteria]
1,2,4-Trimethylbenzene 230000 ug/kg [1, 2]
1,3,5-Trimethylbenz 82000 ug/kg [1]
2-Methylnaphthalene, SVOC 180000 J ug/kg [1]
2-Methylnaphthalene, VOC 2500000 ug/kg [1]
Acenaphthene 9000 J ug/kg [1]
Benzene 370000 ug/kg [1, 2]
Benzo(a)anthracene 110000 J ug/kg [2]
Benzo(a)pyrene 28000 J ug/kg [2]
Carbazole 2300 ug/kg [1]
Dibenzo(a,h)anthracene 3500 J ug/kg [2]
Dibenzofuran 6000 J ug/kg [1]
Ethylbenzene 110000 ug/kg [1]
Fluoranthene 41000 J ug/kg [1]
Fluorene 30000 J ug/kg [1]
Naphthalene, SVOC 220000 J ug/kg [1]
Naphthalene, VOC 6800000 ug/kg [1]
Phenanthrene 35000 J ug/kg [1]
Styrene 820000 ug/kg [1, 2]
Toluene 840000 ug/kg [1, 2]
Total Xylene 830000 ug/kg [1, 2]
SS3
SS9
SS10
SB13
SB3
SB14
SB2
SB11
SS11
SS15
SS13
SS14
Bernard St
Hurley
Oak St
6th Ave N
5th Ave N
Poplar St
Maple St
4th Ave N
Division St
D
Gold St
1st Ave N
Silver St
Granite St
6th Ave S
4th Ave S
3rd Ave S
2nd Ave S
1st Ave S
Copper St
Cedar St
Ironwood
Hemlock St
N Albany St
W Albany St
E Frederick St
Suffolk St
N Lowell St
W Lorrie St
W Ayer St
N Ayer St
S Lowell St
W Aurora St
S Lawrence St
Erie Pl
Soo Pl
Ash St
Butinski Rd
Bus 2
77
Note: Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This figure reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.
Critiera: 1 = GSI 2 = Direct Contact
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
Legend
Locations with no exceedances
Locations with at least one exceedance
Site Boundary
ug/kg = microgram per kilogram
0
300
Feet
N
Prepared For:
US EPA Region V
Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP
Prepared By:
WESTON SOLUTIONS, INC.
600 East Lakeshore Dr, Suite 200
Houghton, Michigan 49931
Figure 4-1
VOC/SVOC Soil Analytical Results
Exceeding GSI and Direct Contact Criteria
Ironwood MGP SA
Ironwood, Gogebic County, Michigan
File: D:\Ironwood_MPG\mxd\F4-1_Soil_VOC-BNA_Excd_GSI_DC.mxd, 26-Apr-11 13:47, wojdakon

Imagery Source: ESRI Bing Maps

SB4 10/20/10

Parameter	Result		Units	[Criteria]
Arsenic	5	J	mg/kg	[1]
Cobalt	9.9	J	mg/kg	[1]
Cyanide	7.3		mg/kg	[1]
Selenium	1.8	J	mg/kg	[1]

SB8 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	5.3		mg/kg	[1]
Cobalt	8.4	J	mg/kg	[1]
Cyanide	10.9		mg/kg	[1]
Selenium	1.1	J	mg/kg	[1]

SB7 10/20/10

Parameter	Result		Units	[Criteria]
Cobalt	9.6	J	mg/kg	[1]
Selenium	0.57	J	mg/kg	[1]

SB9 10/20/10

Parameter	Result		Units	[Criteria]
Cobalt	15.9	J	mg/kg	[1]
Selenium	1	J	mg/kg	[1]

SB12 10/20/10

Parameter	Result		Units	[Criteria]
Arsenic	5.8		mg/kg	[1]
Cobalt	10.5	J	mg/kg	[1]
Cyanide	2.9		mg/kg	[1]
Selenium	1.2	J	mg/kg	[1]

SB1 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	8.3	J	mg/kg	[1, 2]
Cobalt	15	J	mg/kg	[1]
Cyanide	2.2		mg/kg	[1]
Selenium	1.8	J	mg/kg	[1]

SB6 10/20/10

Parameter	Result		Units	[Criteria]
Cobalt	11.5	J	mg/kg	[1]
Selenium	0.6	J	mg/kg	[1]

SB10 10/20/10

Parameter	Result		Units	[Criteria]
Arsenic	13.6		mg/kg	[1, 2]
Cobalt	14.3	J	mg/kg	[1]
Cyanide	6.1		mg/kg	[1]
Selenium	2.1	J	mg/kg	[1]

SB13 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	15.2	J	mg/kg	[1]
Selenium	1.2	J	mg/kg	[1]

SB11 10/20/10

Parameter	Result		Units	[Criteria]
Cobalt	3	J-	mg/kg	[1]
Cyanide	4.7		mg/kg	[1]

SB3 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	5.9	J	mg/kg	[1]
Cobalt	9	J	mg/kg	[1]
Cyanide	1.7		mg/kg	[1]
Selenium	1.2	J	mg/kg	[1]

SB5 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	8.4		mg/kg	[1, 2]
Cobalt	9.6	J	mg/kg	[1]
Cyanide	31.5		mg/kg	[1, 2]
Selenium	1.5	J	mg/kg	[1]

SB14 10/20/10

Parameter	Result		Units	[Criteria]
Cobalt	11.8	J	mg/kg	[1]
Selenium	0.62	J	mg/kg	[1]

SB2 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	10.9	J	mg/kg	[1]
Selenium	0.96	J	mg/kg	[1]

SB20 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	10.6	J	mg/kg	[1]
Cyanide	0.84		mg/kg	[1]
Selenium	1	J	mg/kg	[1]

SB15 10/20/10

Parameter	Result		Units	[Criteria]
Cobalt	12.9	J	mg/kg	[1]
Selenium	0.59	J	mg/kg	[1]

Note: Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This figure reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Critiera: 1 = GSI 2 = Direct Contact

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J- = The result is an estimated quantity, but the result may be biased low.

Legend

- Locations with no exceedances
- Locations with at least one exceedance
- Site Boundary

ug/kg = microgram per kilogram

0 300 Feet

N

Prepared For:
US EPA Region V
Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
WESTON SOLUTIONS, INC.
600 East Lakeshore Dr, Suite 200
Houghton, Michigan 49931

Figure 4-2a
Inorganic Subsurface Soil Analytical Results Exceeding GSI and Direct Contact Criteria
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

File: D:\Ironwood_MPG\mxd\F4-2a_Soil_SB_Inorg_Excd_GSI_DC.mxd, 26-Apr-11 13:55, wojdakon

Imagery Source: ESRI Bing Maps

SS8 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	15.9	J	mg/kg	[1]
Cyanide	3.7		mg/kg	[1]
Selenium	1.7	J	mg/kg	[1]
Silver	0.52	J	mg/kg	[1]

SS6 10/20/10

Parameter	Result		Units	[Criteria]
Arsenic	8		mg/kg	[1, 2]
Cobalt	5.3	J	mg/kg	[1]
Cyanide	21.9		mg/kg	[1, 2]
Selenium	1.9	J	mg/kg	[1]

SS5 10/20/10

Parameter	Result		Units	[Criteria]
Arsenic	22.3		mg/kg	[1, 2]
Cobalt	5.5	J	mg/kg	[1]
Cyanide	24.2		mg/kg	[1, 2]
Selenium	2.9	J	mg/kg	[1]
Silver	0.51	J	mg/kg	[1]

SS4 10/20/10

Parameter	Result		Units	[Criteria]
Arsenic	23.5		mg/kg	[1, 2]
Cobalt	10.4	J	mg/kg	[1]
Cyanide	4.7		mg/kg	[1]
Selenium	2	J	mg/kg	[1]

SS9 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	11.5	J	mg/kg	[1]
Selenium	1.2	J	mg/kg	[1]

SS3 10/20/10

Parameter	Result		Units	[Criteria]
Cobalt	9.2	J	mg/kg	[1]
Selenium	1.2	J	mg/kg	[1]

SS10 10/20/10

Parameter	Result		Units	[Criteria]
Cobalt	8.3	J	mg/kg	[1]
Selenium	1.4	J	mg/kg	[1]

SS1 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	6.1		mg/kg	[1]
Cobalt	10	J	mg/kg	[1]
Cyanide	2.6		mg/kg	[1]
Selenium	1.7	J	mg/kg	[1]

SS12 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	36.3		mg/kg	[1, 2]
Cobalt	6.1	J	mg/kg	[1]
Cyanide	359		mg/kg	[1, 2]
Selenium	4.1	J	mg/kg	[1]
Silver	1.4	J	mg/kg	[1]

SS12D 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	24.1		mg/kg	[1, 2]
Cobalt	2.5	J	mg/kg	[1]
Cyanide	269		mg/kg	[1, 2]
Selenium	2.9	J	mg/kg	[1]

SS2 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	11	J	mg/kg	[1]
Cyanide	1.5		mg/kg	[1]
Selenium	1.3	J	mg/kg	[1]

SS2D 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	5.5		mg/kg	[1]
Cobalt	10.5	J	mg/kg	[1]
Cyanide	1.8		mg/kg	[1]
Selenium	1.4	J	mg/kg	[1]

SS15 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	8.8	J	mg/kg	[1]
Selenium	1.3	J	mg/kg	[1]

SS7 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	11.9	J	mg/kg	[1]
Cyanide	1.5		mg/kg	[1]
Selenium	0.73	J	mg/kg	[1]

SS13 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	6.8		mg/kg	[1]
Cobalt	8	J	mg/kg	[1]
Cyanide	0.89		mg/kg	[1]
Selenium	2.5	J	mg/kg	[1]

SS14 10/19/10

Parameter	Result		Units	[Criteria]
Arsenic	5.3		mg/kg	[1]
Cobalt	8.2	J	mg/kg	[1]
Cyanide	1.1		mg/kg	[1]
Lead	577	J	mg/kg	[2]
Manganese	3070	J	mg/kg	[1]
Selenium	2.7	J	mg/kg	[1]

SS11 10/19/10

Parameter	Result		Units	[Criteria]
Cobalt	16.9	J	mg/kg	[1]
Selenium	1.4	J	mg/kg	[1]

Note: Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This figure reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Critiera: 1 = GSI 2 = Direct Contact

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

Legend

- Locations with no exceedances
- Locations with at least one exceedance
- Site Boundary

mg/kg = milligram per kilogram

0 300 Feet

N

Prepared For:
US EPA Region V
Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
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Figure 4-2b
Inorganic Surface Soil Analytical Results Exceeding
GSI and Direct Contact Criteria
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

File: D:\Ironwood_MPG\mxd\F4-2b_Soil_SS_Inorg_Excd_GSI_DC.mxd, 26-Apr-11 14:00, wojdakon

File: D:\Ironwood_MPG\mxd\F4-3_GSI_Locations.mxd, 22-Apr-11 15:09, wojdakon

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DCN: 1273-2A-AMCP

Prepared By:
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600 East Lakeshore Drive
Suite 200
Houghton, Michigan 49931

Figure 4-3
MDEQ GSI Study Sampling Locations
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

Imagery Source: ESRI Bing Maps

TMW7 10/20/10

Parameter	Result		Units
2-Methylnaphthalene, SVOC	220	J	ug/l
Ethylbenzene	590		ug/l
Naphthalene, SVOC	2200		ug/l
Styrene	150		ug/l
Total Xylene	710		ug/l

TMW8 10/20/10

Parameter	Result	Units
Acenaphthene	50	ug/l
Ethylbenzene	46	ug/l
Naphthalene, SVOC	190	ug/l

TMW6 10/20/10

Parameter	Result		Units
2-Methylnaphthalene, SVOC	120	J	ug/l
Benzene	250		ug/l
Ethylbenzene	1300		ug/l
Naphthalene, SVOC	3300		ug/l
Total Xylene	1720		ug/l

TMW4 10/20/10

Parameter	Result		Units
2-Methylnaphthalene, SVOC	610		ug/l
Acenaphthene	140	J	ug/l
Benzene	1100		ug/l
Ethylbenzene	1500		ug/l
Isopropylbenzene	57	J	ug/l
Naphthalene, SVOC	3200		ug/l
Phenanthrene	180	J	ug/l
Toluene	420		ug/l
Total Xylene	1270		ug/l

TMW4-Water Phase 10/21/10

Parameter	Result	Units
2-Methylnaphthalene, SVOC	110000	ug/l
Acenaphthene	28000	ug/l
Fluoranthene	19000	ug/l
Fluorene	18000	ug/l
Naphthalene, SVOC	130000	ug/l
Phenanthrene	71000	ug/l

TMW5 10/20/10

Parameter	Result		Units
2-Methylnaphthalene, SVOC	600		ug/l
Benzene	3200		ug/l
Ethylbenzene	1100		ug/l
Naphthalene, SVOC	9000	J	ug/l
Styrene	120	J	ug/l
Toluene	1000		ug/l
Total Xylene	1000		ug/l

TMW1
TMW2
TMW3
MW2

Note: Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This figure reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

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

Legend

- Locations with no exceedances
- Locations with at least one exceedance
- Site Boundary

ug/l = microgram per liter

0 300 Feet

N

Prepared For:
US EPA Region V
Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
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600 East Lakeshore Dr, Suite 200
Houghton, Michigan 49931

Figure 4-4
VOC/SVOC Groundwater Analytical Results
Exceeding GSI Criteria
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

File: D:\Ironwood_MPG\mxd\F4-4_GW_VOC-BNA_Excd_GSI.mxd, 26-Apr-11 14:10, wojdakon

Imagery Source: ESRI Bing Maps

TMW7 10/21/10

Parameter	Result	Units
Cyanide	2780	ug/l
Lead	16	ug/l
Manganese	4240 J	ug/l

TMW8 10/20/10

Parameter	Result	Units
Cyanide	400	ug/l
Lead	17	ug/l
Manganese	14000 J	ug/l
Silver	5.1 J	ug/l
Vanadium	12.9 J	ug/l

TMW6 10/20/10

Parameter	Result	Units
Cyanide	2140	ug/l
Lead	19	ug/l
Manganese	6030 J	ug/l

TMW1 10/19/10

Parameter	Result	Units
Arsenic	12.4 J+	ug/l
Lead	10	ug/l

TMW4 10/20/10

Parameter	Result	Units
Arsenic	14.5 J+	ug/l
Cyanide	169	ug/l
Lead	14.4	ug/l
Manganese	1810 J	ug/l

TMW5 10/20/10

Parameter	Result	Units
Arsenic	13.7 J+	ug/l
Cyanide	2080	ug/l
Lead	18.1	ug/l
Manganese	2410 J	ug/l

TMW3 10/20/10

Parameter	Result	Units
Arsenic	15.3 J+	ug/l
Cyanide	26.4	ug/l
Lead	14.5	ug/l

TMW2 10/19/10

Parameter	Result	Units
Arsenic	13.9 J+	ug/l
Copper	7.4 J-	ug/l
Lead	11.6	ug/l

MW2 10/21/10

Parameter	Result	Units
Lead	6.3 J	ug/l

Note: Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This figure reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+ = The result is an estimated quantity, but the result may be biased high
J- = The result is an estimated quantity, but the result may be biased low.

Legend

- Locations with no exceedances
- Locations with at least one exceedance
- Site Boundary

ug/l = microgram per liter

0 300 Feet

N

Prepared For:
US EPA Region V
Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
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Houghton, Michigan 49931

Figure 4-5
Inorganic Groundwater Analytical Results Exceeding GSI Criteria
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

File: D:\Ironwood_MPG\mxd\F4-5_GW_Inorg_Excd_GSI.mxd, 26-Apr-11 14:13, wojdakon

Imagery Source: ESRI Bing Maps

SD3 10/21/10

Parameter	Result		Units	[Criteria]
1,2,4-Trimethylbenzene	40000		ug/kg	[1]
1,3,5-Trimethylbenz	16000		ug/kg	[1]
2-Methylnaphthalene, SVOC	360000		ug/kg	[1]
2-Methylnaphthalene, VOC	840000		ug/kg	[1]
Acenaphthene	260000	J	ug/kg	[1]
Benzo(a)anthracene	69000		ug/kg	[2]
Benzo(a)pyrene	69000		ug/kg	[2]
Benzo(b)fluoranthene	30000	J	ug/kg	[2]
Fluoranthene	140000		ug/kg	[1]
Fluorene	140000		ug/kg	[1]
Indeno(1,2,3-cd)pyrene	28000	J	ug/kg	[2]
Naphthalene, SVOC	390000		ug/kg	[1]
Naphthalene, VOC	1100000		ug/kg	[1]
Phenanthrene	600000		ug/kg	[1]

SD5 10/21/10

Parameter	Result	Units	[Criteria]
Benzo(a)pyrene	5800	ug/kg	[2]

SD2 10/21/10

Parameter	Result	Units	[Criteria]
1,2,4-Trimethylbenzene	3000	ug/kg	[1]
2-Methylnaphthalene, VOC	18000	ug/kg	[1]
Ethylbenzene	5200	ug/kg	[1]
Naphthalene, SVOC	6100	ug/kg	[1]
Naphthalene, VOC	51000	ug/kg	[1]
Total Xylene	5700	ug/kg	[1]

SD2D 10/21/10

Parameter	Result	Units	[Criteria]
1,2,4-Trimethylbenzene	13000	ug/kg	[1]
1,3,5-Trimethylbenz	3500	ug/kg	[1]
2-Methylnaphthalene, VOC	72000	ug/kg	[1]
Ethylbenzene	15000	ug/kg	[1]
Naphthalene, SVOC	2500	ug/kg	[1]
Naphthalene, VOC	240000	ug/kg	[1]
Phenanthrene	2500	ug/kg	[1]
Total Xylene	23500	ug/kg	[1]

Note: Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This figure reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Critiera: 1 = GSI 2 = Direct Contact

All surface water samples had no exceedances of the Human Cancer Value for Surface Water Used as a Drinking Water Source criteria or Human Non-Cancer Value for Surface Water Used as a Drinking Water Source critieria. Criteria derived from the Rule 57 Water Quality Values as calculated by the Michigan Department of Environmental Quality (Updated 10/8/2010)

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

Legend

- Locations with no exceedances
- Locations with at least one exceedance
- Site Boundary

ug/kg = microgram per kilogram

0 300 Feet

N

Prepared For:
US EPA Region V
Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
WESTON SOLUTIONS, INC.
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Figure 4-6
VOC/SVOC Sediment Analytical Results
Exceeding GSI and Direct Contact Criteria
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

File: D:\Ironwood_MPG\mxd\F4-6_SD_VOC-BNA_Excd_GSI_DC.mxd, 26-Apr-11 20:10, wojdakon

Imagery Source: ESRI Bing Maps

SD4 10/21/10

Parameter	Result		Units	[Criteria]
Cobalt	20.8	J	mg/kg	[1]
Selenium	1.6	J	mg/kg	[1]

SD3 10/21/10

Parameter	Result		Units	[Criteria]
Cobalt	12.7	J	mg/kg	[1]
Cyanide	1.6		mg/kg	[1]
Selenium	1.6	J	mg/kg	[1]

SD2 10/21/10

Parameter	Result		Units	[Criteria]
Cobalt	5.3	J	mg/kg	[1]
Selenium	0.64	J	mg/kg	[1]

SD2D 10/21/10

Parameter	Result		Units	[Criteria]
Cobalt	6.4	J	mg/kg	[1]
Selenium	0.81	J	mg/kg	[1]

SD1 10/21/10

Parameter	Result		Units	[Criteria]
Cobalt	12.9	J	mg/kg	[1]
Selenium	1.1	J	mg/kg	[1]

SD5 10/21/10

Parameter	Result		Units	[Criteria]
Cobalt	11.6	J	mg/kg	[1]
Selenium	0.57	J	mg/kg	[1]

Note: Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This figure reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.

Critiera: 1 = GSI 2 = Direct Contact

All surface water samples had no exceedances of the Human Cancer Value for Surface Water Used as a Drinking Water Source criteria or Human Non-Cancer Value for Surface Water Used as a Drinking Water Source critieria. Criteria derived from the Rule 57 Water Quality Values as calculated by the Michigan Department of Environmental Quality (Updated 10/8/2010)

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

Legend

- Locations with no exceedances
- Locations with at least one exceedance
- Site Boundary

mg/kg = milligram per kilogram

0 300 Feet

N

Prepared For:
US EPA Region V
Contract No: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
WESTON SOLUTIONS, INC.
600 East Lakeshore Dr, Suite 200
Houghton, Michigan 49931

Figure 4-7
Inorganic Surface Water and Sediment Analytical Results
Exceeding GSI and Direct Contact Criteria
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

File: D:\Ironwood_MPG\mxd\F4-7_SD_Inorg_Excd_GSI_DC.mxd, 26-Apr-11 14:30, wojdakon

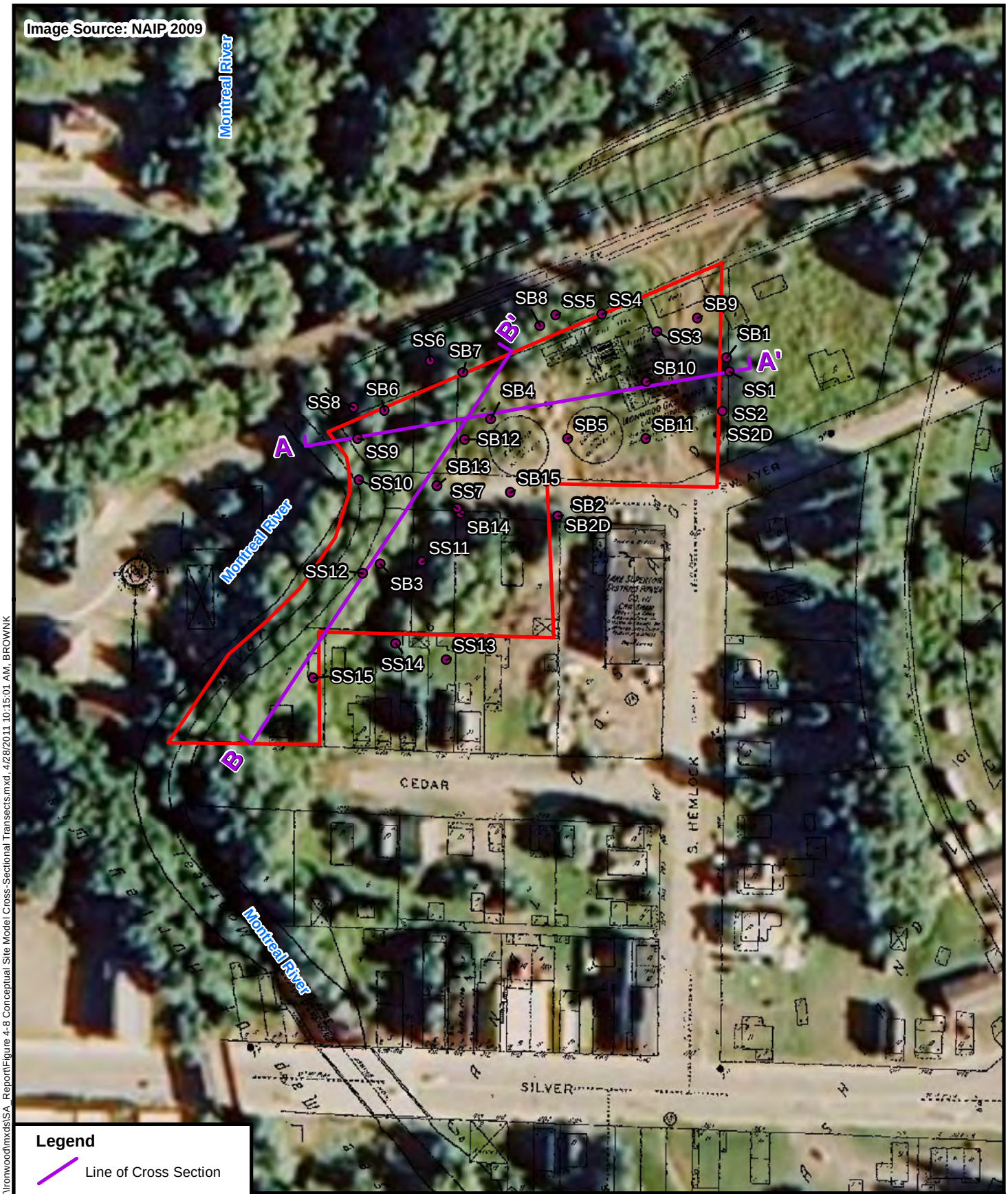
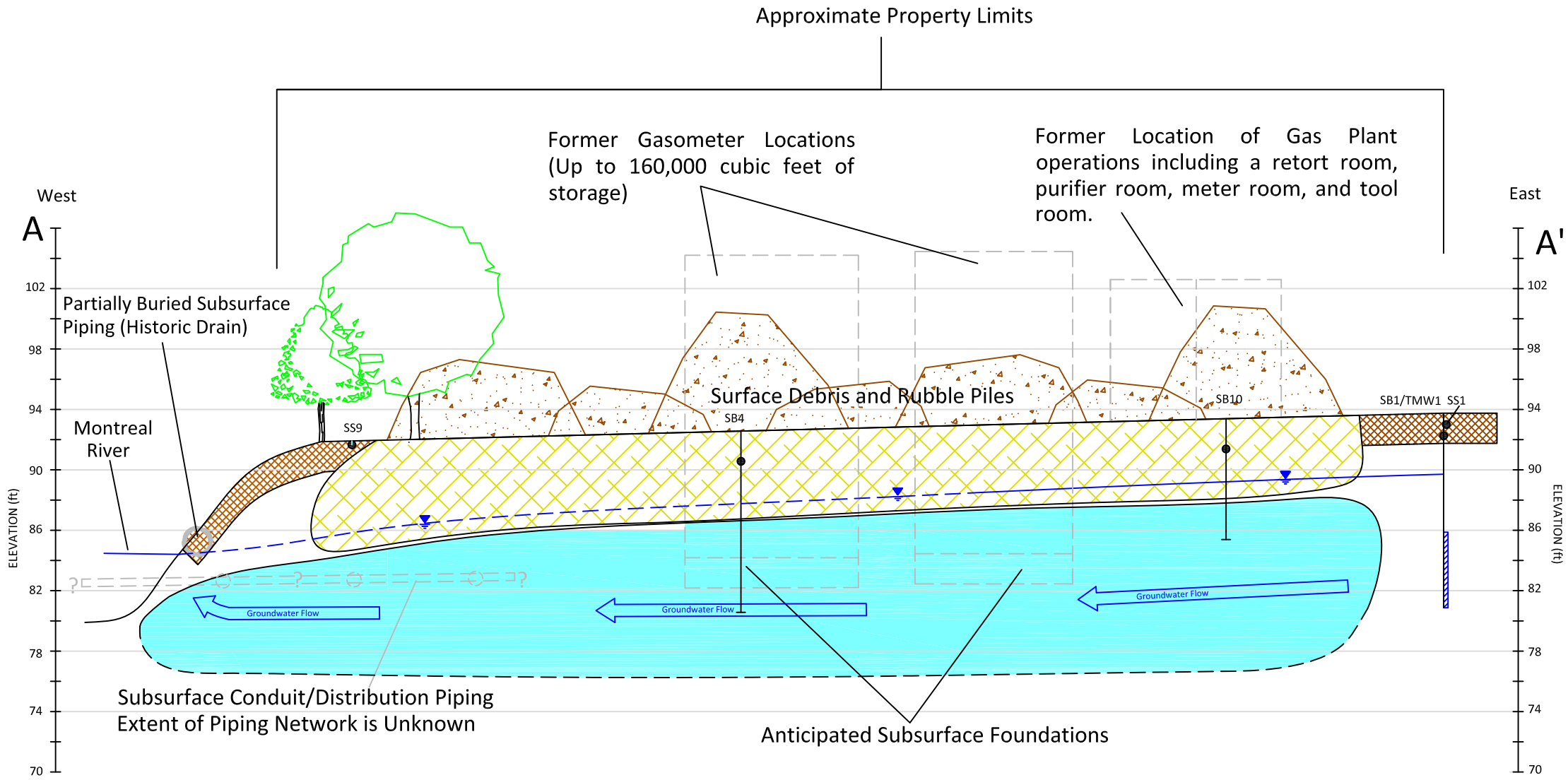
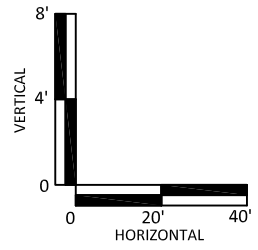


Image Source: NAIP 2009
Montreal River
SB8
SS5
SS4
SB9
B'
SS6
SB7
SS3
SB1
A'
SB10
SS1
SB6
SB4
SS8
SS2
SB5
SB11
SS2D
A
SB12
SS9
SB13
SB15
SS10
SS7
SB2
SB14
SB2D
SS11
Montreal River
SS12
SB3
SS13
SS14
SS15
B
CEDAR
S. HEMLOCK
Montreal River
SILVER
Legend
Line of Cross Section
Soil Sampling Locations
Site Boundary
0
125
Feet
N
Prepared for:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP
Prepared By:
WESTON SOLUTIONS, INC
600 East Lakeshore Drive,
Suite 200
Houghton, MI 49931
Figure 4-8
Conceptual Site Model Cross-Sectional Transects
Ironwood MGP SA
Ironwood, Gogebic County, Michigan
Path: D:\GIS_Projects\START\Ironwood\mxds\SA_Report\Figure 4-8 Conceptual Site Model Cross-Sectional Transects.mxd, 4/28/2011 10:15:01 AM, BROWNK





LEGEND

- Approximate Extent of Impacted Soil Commingled with Coal Tar, Purifier and other Process Wastes
- Approximate Extent of Saturated Impacted Soil Commingled with Coal Tar, Purifier and other Process Wastes
- Approximate Extent of Shallow (0-2') Impacted Soil Commingled with Coal Tar, Purifier and other Process Wastes
- Sample Location
- TMW-4 — Temporary Monitoring Well Location and Screened Interval
- Approximate Groundwater Elevation October 2010

DRAFT

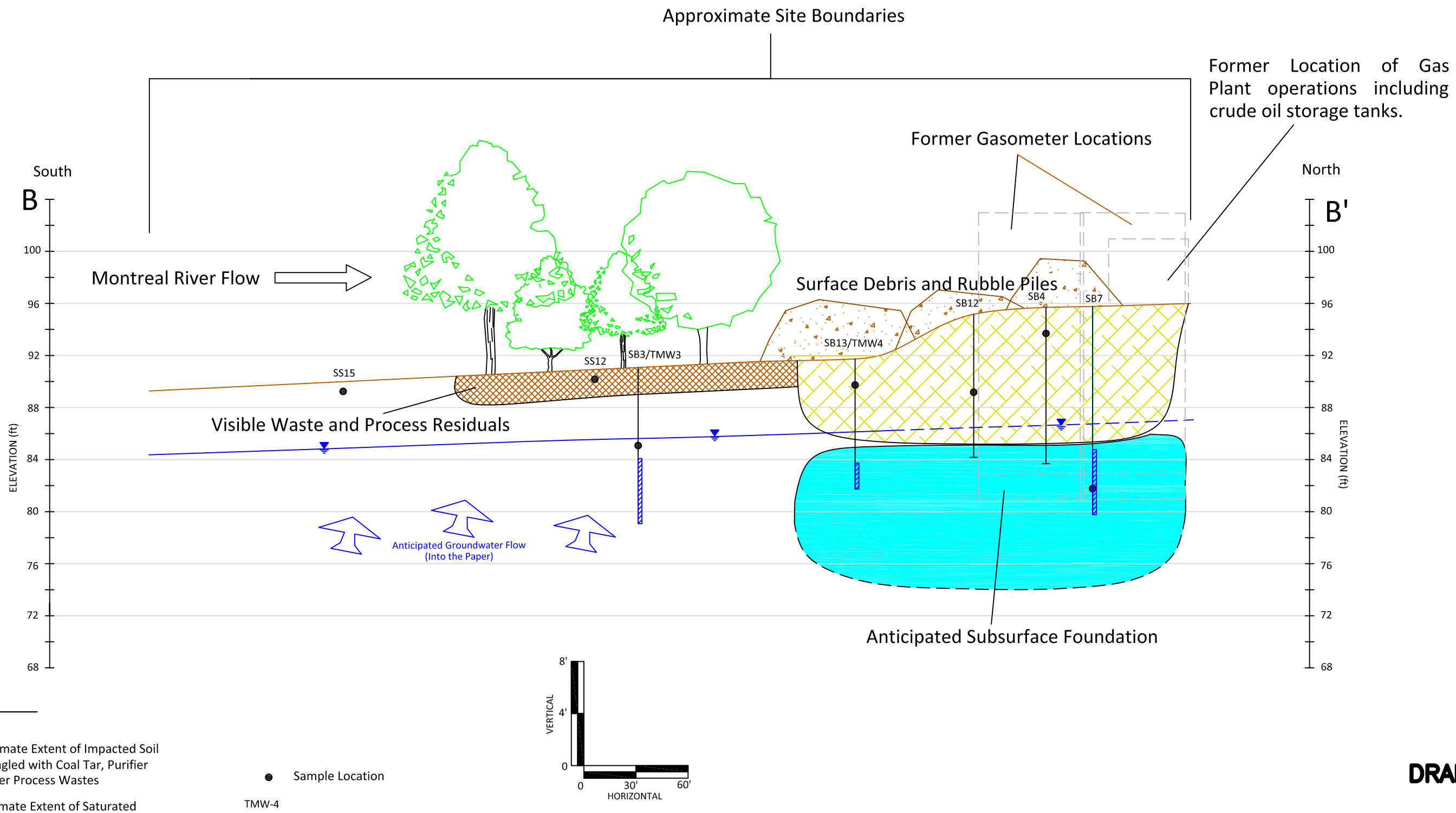
K:\Ironwood MGP\Preliminary Conceptual Site Model

Prepared for:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

600 EAST LAKESHORE DRIVE
SUITE 200
HOUGHTON, MI
49931

FIGURE 4-9
PRELIMINARY CONCEPTUAL SITE MODEL
EAST-WEST PROFILE
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

SCALE:	DRAWN:	DATE:	CHECKED BY:
AS NOTED	DPL	3/2011	DMC



LEGEND

- Approximate Extent of Impacted Soil Commingled with Coal Tar, Purifier and other Process Wastes
- Approximate Extent of Saturated Impacted Soil Commingled with Coal Tar, Purifier and other Process Wastes
- Approximate Extent of Shallow (0-2') Impacted Soil Commingled with Coal Tar, Purifier and other Process Wastes
- Sample Location
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DRAFT

K:\Ironwood MGP\Preliminary Conceptual Site Model

Prepared for:
U.S. EPA REGION V
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TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

600 EAST LAKESHORE DRIVE
SUITE 200
HOUGHTON, MI
49931

FIGURE 4-10
PRELIMINARY CONCEPTUAL SITE MODEL
NORTH-SOUTH PROFILE
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

SCALE:	DRAWN:	DATE:	CHECKED BY:
AS NOTED	DPL	3/2011	DMC

Legend

N

0 150 Feet

Prepared for:
U.S. EPA REGION V

Contract No.: EP-S5-06-04
TDD: S05-0001-1011-003
DCN: 1273-2A-AMCP

Prepared By:
WESTON SOLUTIONS, INC

600 East Lakeshore Drive,
Suite 200
Houghton, MI 49931

Figure 6-1
Source Area Extent of Contamination Map
Ironwood MGP SA
Ironwood, Gogebic County, Michigan

Path: D:\GIS_Projects\START\Ironwood\mxds\SA_Report\Figure 6-1 Source Area Extent of Contamination Map.mxd, 4/28/2011 10:28:09 AM, BROWNK

ATTACHMENT A
MDEQ SOIL SAMPLING DESCRIPTION SUMMARIES

TABLE A-1

SURFICIAL SOIL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH (in.)	DESCRIPTION	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting			
SS1	664032.4	179113.9	0-5 5-10	Moist, dark brownish-black, silty sand with some gravel and organic matter. Moist, dark brownish-black, silty sand and gravel with some organic matter.	Potential background. Grab sample. Volatile organic analysis (VOA) portion of sample collected at 5 in. Remainder of sample collected at 0-10 in.
SS2	664021.1	179111.9	0-12	Moist, dark brown, silty sand with some slag and organic matter and trace gravel.	Potential background. Grab sample. VOA portion of sample collected at 6 in. Remainder of sample collected at 0-12 in. Duplicate sample collected (SS2D).
SS3	664044.3	179093.2	0-7	Moist, dark rusty brown, silty sand with some clay, gravel, and organic matter.	Grab sample. VOA portion of sample collected at 4 in. Remainder of sample collected at 0-7 in. MS/MSD sample collected.
SS4	664049.6	179077.4	0-10	Moist, dark blackish-brown, silty sand topsoil with some fine gravel, clay, and slag.	Grab sample. VOA portion of sample collected at 6 in. Remainder of sample collected at 0-10 in.

TABLE A-1

SURFICIAL SOIL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH (in.)	DESCRIPTION	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting			
SS5	664049.5	179064.0	0-10	Moist, brownish-black, silty sand topsoil with some gravel, clay, and slag.	Grab sample. VOA portion of sample collected at 5-6 in. Remainder of sample collected at 0-10 in.
SS6	664036.7	179027.7	0-12	Moist, very dark brown, silty sand with some gravel, clay, slag, and organic material	Grab sample. VOA portion of sample collected at 6 in. Remainder of sample collected at 0-12 in.
SS7	663994.0	179034.9	0-1.5 1.5-10	Moist, dark brownish-black, silty sand with some fine gravel, slag, and organic material and a slight tar odor. Moist, dark brown, fine to coarse sand with some silt and gravel.	Grab sample. VOA portion of sample collected at 3.5 in. Remainder of sample collected at 0-10 in.
SS8	664023.6	179005.3	0-2 2-4	Hard tar waste. Moist, rusty brown, silty sand with some gravel and organic material.	Grab sample. VOA portion of sample collected at 3 in. Remainder of sample collected at 2-4 in.
SS9	664014.5	179006.4	0-0.75 0.75-3	Hard tar waste. Moist, dark rusty brown, silty sand with some gravel and organic material.	Grab sample. VOA portion of sample collected at 3 in. Remainder of sample collected at 0.75-3 in.

TABLE A-1

SURFICIAL SOIL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH (in.)	DESCRIPTION	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting			
SS10	664002.5	179006.7	0-3 3+	Very moist, dark rusty brown, silty sand with some clay, gravel, organic material, and debris (glass and porcelain). Large rocks.	Grab sample. VOA portion of sample collected at 2 in. Remainder of sample collected at 0-3 in.
SS11	663978.7	179024.5	0-7 7+	Moist, dark brown, fine to coarse sand with some gravel. Large rocks.	Grab sample. VOA portion of sample collected at 3 in. Remainder of sample collected at 0-7 in.
SS12	663975.7	179007.4	0-4 4-13	Moist, brown to dark brown, fine to coarse sand with some gravel and roots. Moist, black, clayey silt with some organic material and wood chips – slight sulfur odor.	Grab sample. VOA portion of sample collected at 6 in. Remainder of sample collected at 4-13 in.
SS13	663950.3	179031.1	0-10.5 10.5+	Moist, dark brownish-black, silty sand with some gravel and organic material. Large rocks.	Grab sample. VOA portion of sample collected at 4.5 in. Remainder of sample collected at 0-10.5 in.
SS14	663955.3	179016.5	0-12	Moist, dark brownish-black, silty fine sand with some organic material and debris (metal, glass, porcelain).	Grab sample. VOA portion of sample collected at 5 in. Remainder of sample collected at 0-12 in.

TABLE A-1

SURFICIAL SOIL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH (in.)	DESCRIPTION	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting			
SS15	663945.7	178992.6	0-7 7-12	Moist, dark brown, silty sand with some gravel and organic material. Moist, rusty brown, silty sand with some organic material.	Potential background. Grab sample. VOA portion of sample collected at 6 in. Remainder of sample collected at 0-12 in.

Location Coordinates: Michigan Georef North American Datum (NAD) 1983 meters

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB1	664036.6	179113.1	0-4	20	0-2	Moist, brown, silty fine sand with some organic material and trace gravel. 0.0	Potential background.
					2-13	Moist, brown, fine sand with some silt and gravel. 0.4	Grab sample.
					13-20	Very moist, brown, fine sand with some gravel and trace silt. 0.5	VOA portion of sample collected from 15 in. in 0-4 ft. core.
			4-8	48	0-3	Very moist, brown, fine sand with some gravel and trace silt. 0.0	
					3-23	Wet, brown, fine to medium sand with some silt and fine gravel. 0.0	Remainder of sample collected from 10-20 in. in 0-4 ft. core and 0-3 in. in 4-8 ft. core.
					23-38	Moist, brown, fine sand with some fine gravel. 0.0	
					38-48	Wet, brown, fine sand with some gravel. 0.0	Monitoring well TMW1 installed in this boring.
			8-11	36	0-33	Wet, brown, fine sand with some gravel. 0.0	
					33-36	Broken rock. 0.0	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB2	663991.5	179063.9	0-4	36	0-1	Wet, brown, silty fine sand with some fine gravel and organic material. 0.0	Grab sample.
					1-9	Moist, brown, medium sand with some silt and fine gravel. 0.0	VOA portion of sample collected from 17 in. in 0-4 ft. core.
					9-13	Moist, brown, broken rock with some medium sand. 0.0	
					13-17	Moist, brown, fine sand with trace fine gravel. 0.0	Remainder of sample collected from 13-36 in. in 0-4 ft. core and 0-9 in. in 4-8 ft. core.
					17-24	Moist, brown, silty fine sand. 0.0	
					24-36	Very moist, brown, fine sand. 0.0	
			4-8	47	0-9	Very moist, brown, fine sand. 0.0	
					9-17	Wet, brown, medium sand with some fine gravel. 0.0	Monitoring well TMW2 installed in this boring.
					17-30	Very moist, brown, medium sand with some fine gravel. 0.0	
					30-47	Wet, brown, medium sand with some fine gravel. 0.0	
			8-11	48	0-45	Wet, brown, fine to medium sand with some fine gravel. 0.0	
					45-48	Very moist, brown, fine sand and broken rock. 0.0	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB3	663978.3	179012.4	0-4	16	0-5	Moist, brown, fine sand with some silt and fine gravel. 0.0	Grab sample.
					5-12	Very moist, brown, fine sand with some gravel and silt. 0.0	VOA portion of sample collected from 8-9 in. in 4-8 ft. core.
					12-16	Wet, brown, fine to medium sand with some gravel and wood chips. 0.0	
			4-8	38	0-3	Wet, brown, fine to medium sand with some gravel and wood chips. 0.0	Remainder of sample collected from 3-25 in. in 4-8 ft. core.
					3-18	Moist, dark brown, silt and fine sand with trace gravel. 0.0	
					18-25	Very moist, brownish-gray, silty clay. 0.0	Monitoring well TMW3 installed in this boring.
					25-30	Very moist, gray, silty clay. 0.0	
					30-34	Very moist, brown, fine sand with some silt. 0.0	
					34-36	Wet, brown, fine sand with some silt. 0.0	
					36-38	Wet, broken rock. 0.0	
			8-12	8	0-8	Wet, broken rock with some sand. 0.0	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB4	664019.6	179044.9	0-4	25	0-13.5	Moist, brown, fine sand with some silt and little gravel. 0.0	Grab sample.
					13.5-19	Moist, black, fine sand with some fine gravel. 0-770	VOA portion of sample collected from 18 in. in 0-4 ft. core.
					19-22	Black tar with some gravel and strong odor. 770	
					22-25	Moist, black, fine sand with some fine gravel. 770-277	Remainder of sample collected from 13.5-25 in. in 0-4 ft. core.
			4-8	32	0-4	Slough. 277-217	
					4-7	Moist to wet, very dark olive brown, sandy silt with strong odor. 217-104	Free product noted throughout the 4-8 and 8-12 ft. cores.
					7-11	Wet, very dark olive brown, sandy silt with strong odor and sheen. 121-83	
					11-17	Moist, brown, fine sand with strong odor and oily appearance. 56-26	
					17-24	Moist, olive brown, fine to medium sand with some gravel and strong odor and sheen. 215-131	
					24-32	Moist, olive brown with orange mottling, fine to coarse sand with oily sheen and strong odor. 131-360-144	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB4 (cont.)	664019.6	179044.9	8-12	32	0-2 2-6 6-8 8-19 19-29 29-32	Slough. 151 Wet, dark olive brown, sandy silt with oily sheen and strong odor. 151-235 Wet, rusty brown, sandy silt with strong odor. 235-117 Wet, dark olive brown, sandy silt with oily sheen and strong odor. 117-213-142 Wet, brown to dark brown, silty sand with some fine gravel and oily sheen and strong odor. 124-190-32 Wet, dark olive brown, fine sand with some silt and fine gravel and strong odor. 38	Grab sample. VOA portion of sample collected from 18 in. in 0-4 ft. core. Remainder of sample collected from 13.5-25 in. in 0-4 ft. core. Free product noted throughout the 4-8 and 8-12 ft. cores.

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB5	664013.8	179066.9	0-4	42	0-8	Moist, tan, medium sand with trace fine gravel. 0.0	Grab sample.
					8-14	Moist, brown, silty fine sand with some fine gravel. 7.0	VOA portion of sample collected from 12-13 in. in 4-8 ft. core.
					14-35	Moist, dark brown to black, silty fine sand with slight odor. 20-40	
					35-42	Very moist, blackish-brown, silty sand with strong odor. 100+	Remainder of sample collected from 18-42 in. in 0-4 ft. core.
			4-8	31	0-7	Slough. 100+	
					7-9	Very moist, blackish-brown, silty sand with strong odor. 100+	Monitoring well TMW5 installed in this boring.
					9-26	Wet, blackish-brown, silty fine sand with oily sheen and strong odor. 100+	
					26-31	Broken rock. 100+	
			8-11	48	0-37	Wet, brown to black, coarse sand with some fine gravel, oily sheen, and strong odor. 100+	
					37-48	Wet, brown, fine sand with some silt and strong odor. 100+	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB6	664022.5	179014.3	0-4	36	0-6	Dry, dark brown, fine to medium sand with some fine gravel. 0.0	Grab sample.
					6-10	Moist, brown, fine sand with some gravel. 0.0	VOA portion of sample collected from 38 in. in 8-12 ft. core.
					10-19	Moist, dark brown, silty fine sand with some gravel. 0.0	
					19-26	Dry, reddish-brown, fine sand with some fine gravel. 0.0	Remainder of sample collected from 18-46 in. in 8-12 ft. core.
					26-36	Dry, brown, medium sand with some gravel and silt. 0.0	
			4-8	42	0-4	Dry, brown, silty fine to medium sand with some fine gravel. 0.0	Monitoring well TMW6 installed in this boring.
					4-10	Moist, dark brown, silty fine sand with some gravel. 0.0	
					10-16	Moist, dark brown, silty fine sand with some coal chunks. 0.0	
					16-24	Moist, dark brown, silty fine sand. 0.0	
					24-33	Moist, dark tan, silty fine sand with some fine gravel. 0.0	
					33-35	Moist, olive brown, silty medium sand. 0.0	
					35-42	Moist, reddish-brown, silty fine sand with some fine gravel. 0.0	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB6 (cont.)	664022.5	179014.3	8-12	46	0-3 3-6 6-20 20-25 25-30 30-35 35-46	Moist, brown, silty fine sand with some gravel. 0.2 Wet, dark brown, silty fine sand. 0.2 Wet, dark reddish-tan, silty fine sand with some gravel. 0.2-0.4 Wet, gray with black streaking, silty fine sand with some gravel. 0.4 Wet, dark tan, silty fine sand with some gravel. 0.4 Wet, tan, silty fine sand with some gravel. 0.6 Wet, tan, silty fine sand with some black gravel. 0.6	Grab sample. VOA portion of sample collected from 38 in. in 8-12 ft. core. Remainder of sample collected from 18-46 in. in 8-12 ft. core. Monitoring well TMW6 installed in this boring.
SB7	664033.2	179037.0	0-4	32	0-16 16-32	Moist, blackish-brown, organic-rich, silty sand with some clay and gravel. 0.0 Moist, rusty blackish-brown, sandy silt with some fine gravel, organic material and debris (concrete, porcelain, etc.). 0.1	Grab sample. VOA portion of sample collected from 26 in. in 12-16 ft. core. Remainder of sample collected from 18-32 in. in 12-16 ft. core. Monitoring well TMW7 installed in this boring.

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB7 (cont.)	664033.2	179037.0	4-8	40	0-10.5	Slough. 0.0	Grab sample.
					10.5-12	Very moist, olive brown, sandy silt with some mottling. 0.0	VOA portion of sample collected from 26 in. in 12-16 ft. core.
					12-28	Very moist to wet, dark grayish-brown, sandy silt with some roots and oily sheen and odor at 20-28 in. 0.2-0.5	
					28-37	Wet, dark brown, silty sand with odor. 0.5-4.0	Remainder of sample collected from 18-32 in. in 12-16 ft. core.
					37-40	Moist, dark brown, fine sand with some silt and odor. 4.0	
			8-12	20	0-3.5	Slough. 0.2	Monitoring well TMW7 installed in this boring.
					3.5-8	Moist, blackish-brown, silty sand with some fine gravel and debris (concrete, ceramic) 0.2-2.4	
					8-18	Moist, brown to rusty brown, sandy silt with strong odor. 2.4-42	
					18-20	Moist, rusty brown, silty sand with some broken rock. 42-18	
			12-16	48	0-4	Slough. 18	
					4-32	Wet, olive brown, silt with oily sheen and strong odor. 18-70	
					32-39	Wet, dark brown, silty sand with some broken rock, oily sheen, and odor. 70	
					39-48	Broken rock with oily sheen and strong odor. 70	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB8	664044.9	179059.2	0-4	34	0-10	Moist, black, medium to coarse sand with some fine gravel. 0.0	Grab sample.
					10-25	Wet, brown medium to coarse sand with some fine gravel. 0.5	VOA portion of sample collected from 18 in. in 4-8 ft. core.
					25-34	Very moist, brown, medium sand with some fine gravel. 0.5	
			4-8	29	0-8	Very moist, brown, medium sand with some fine gravel. 5.0	Remainder of sample collected from 25-34 in. in 0-4 ft. core and 0-16 in. in 4-8 ft. core.
					8-16	Wet, brown to black, oil stained, silty fine sand. 5.0-50	
					16-26	Wet, grayish-brown, silty clay with some fine sand. 50	Monitoring well TMW8 installed in this boring.
					26-29	Wet, brown, fine sand. 50+	
			8-11	26	0-3	Slough. 5.0-10	
					3-16	Wet, brown, fine sane. 10	
					16-26	Wet, brown, fine sand with some gravel. 10	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB9	664048.1	179104.9	0-4	33	0-2	Dry, brown, fine san with some silt, fine gravel, and organic material. 0.0	Grab sample.
					2-7	Moist, brown, fine sand. 0.0	VOA portion of sample collected from 16 in. in 0-4 ft. core.
					7-18	Moist, brown, silty fine sand with some fine gravel. 0.8	
					18-22	Broken rock. 0.0	
					22-33	Moist, brown, silty fine sand with some gravel and broken rock. 0.6	Remainder of sample collected from 10-33 in. in 0-4 ft. core.
			4-8	8	0-8	Wet, brown, silty fine sand with some gravel. 0.1	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB10	664029.8	179090.0	0-4	29	0-2	Dry, brown, silty fine sand with some gravel and organic material. 0.0	Grab sample.
					2-13	Moist, brown, silty fine sand with some fine gravel. 0.0	VOA portion of sample collected from 14-15 in. in 0-4 ft. core.
					13-17	Moist, dark brown, silty fine sand with some fine gravel. 0.0	
					17-21	Broken rock. 0.0	Remainder of sample collected from 17-29 in. in 0-4 ft. core and 2-8 in. in 4-8 ft. core.
					21-24	Very moist, dark brown to black, silty fine to medium sand with some gravel. 0.0	
					24-29	Very moist, brown, silt with some fine sand. 0.0	
			4-8	25	0-2	Slough. 0.0	
					2-15	Very moist, brown, silt with some fine sand. 0.0	
					15-25	Wet, brown, fine sand with some gravel. 0.2-0.3	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB11	664013.5	179089.6	0-4	27	0-2	Dry, brown, silty fine sand with some organic material. 0.0	Grab sample.
					2-27	Moist, brown, silty fine sand with some gravel and broken rock. 0.4	VOA portion of sample collected from 25-26 in. in 0-4 ft. core.
			4-8	38	0-12	Moist, brown, silty fine sand with some gravel. 0.0	
					12-20	Moist, dark brown, silt with some fine gravel. 0.0	Remainder of sample collected from 12-27 in. in 4-8 ft. core.
					20-27	Very moist, dark brown, silt with some fine gravel. 0.0	
					27-32	Wet, dark brown, silt with some fine gravel. 0.0	
					32-38	Wet, light brown, fine sand with some silt and fine gravel. 0.0	
			8-12	48	0-15	Slough. 0.0	
					15-48	Wet, light brown, fine sand with some silt and gravel. 0.0	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB12	664013.9	179037.3	0-4	32	0-6	Moist, brown, silty fine sand with little fine gravel. 0.0	Grab sample.
					6-10	Very moist, brown, silty fine sand with some fine gravel. 0.0	VOA portion of sample collected from 25-26 in. in 4-8 ft. core.
					10-13	Wet brown, fine sand with some silt. 0.0	
					13-21	Moist, dark brown, silt with some fine sand and fine gravel. 0.0-2.0	Remainder of sample collected from 18-32 in. in 0-4 ft. core and 0-10 in. in 4-8 ft. core.
					21-28	Moist, dark brown to black silt. 50	
					28-32	Very moist, brown, silty fine sand with some gravel. 59	
			4-8	35	0-6	Very moist, brown, silty fine sand with some gravel and oil staining. 58	
					6-10	Wet, brown to gray, fine sand with some silt and fine gravel. 60	
					10-27	Very moist, brown, silt and fine sand with some gravel. 60-130-60	
					27-35	Wet, brown, silty fine sand with some gravel and oil staining. 60	
			8-11	48	0-19	Wet, blackish-brown, oily, silty fine sand. 30-75	
					19-48	Wet, brown, fine sand with some silt and oily residue – strong odor. 75-56	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB13	664000.6	179029.1	0-4	35	0-4	Dry, brown, fine sand with some silt and fine gravel. 0.0	Grab sample.
					4-13	Moist, brown, fine to medium sand with some gravel. 0.5	VOA portion of sample collected from 31-32 in. in 0-4 ft. core.
					13-18	Moist, brown, fine sand with some gravel. 0.5	
					18-28	Wet, brown, fine to medium sand with some gravel. 1.2	Remainder of sample collected from 28-35 in. in 0-4 ft. core and 0-8 in. in 4-8 ft. core.
					28-35	Moist, blackish-gray, silt with slight odor. 1.2	
			4-8	30	0-3	Moist, blackish-gray, silt. 0.5	
					3-7	Moist, brown, fine sand. 0.5	Monitoring well TMW4 installed in this boring.
					7-24	Moist, blackish-gray to brown, silty clay. 0.8	
					24-30	Very moist, brown, fine sand with some gravel and oil staining and odor. 0.5	
			8-10	0	NA	Wet slurry would not stay in core barrel for retrieval. Oil stained with strong odor.	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB14	663992.4	179035.8	0-4	36	0-4	Moist, light brown, fine to medium sand. 0.0	Grab sample.
					4-36	Moist, brown, fine to medium sand with some gravel. 0.0-0.1-0.2	VOA portion of sample collected from 24 in. in 0-4 ft. core.
			4-8	33	0-10	Moist, brown, silty fine sand with some fine gravel. 0.0	
					10-18	Wet, brown, fine sandy silt. 0.0	Remainder of sample collected from 10-36 in. in 0-4 ft. core.
					18-33	Wet, brown, silty fine sand with some gravel. 0.0	
			8-12	41	0-14	Slough. 0.0	
					14-19	Wet, brown, silty medium sand with some fine gravel. 0.0	
					19-30	Wet, brown, silty fine sand with some fine gravel. 0.0	
					30-41	Wet, brown, silty fine sand with some gravel. 0.0	

TABLE A-2

SOIL BORING LITHOLGY AND SAMPLE LOG

SAMPLE NUMBER	LOCATION COORDINATES		SPOON INTERVAL (ft.)	RECOVERY (in.)	UNIT THICKNESS (in.)	LITHOLOGICAL DESCRIPTION WITH PHOTOIONIZATION DETECTOR (PID) READING*	SAMPLE INTERVALS AND COMMENTS
	Northing	Easting					
SB15	663998.5	179050.2	0-4	39	0-18	Moist, brown, fine to medium sand with some silt and gravel. 0.0	Grab sample.
					18-39	Moist, brown, silty fine sand with some fine gravel. 0.4-0.7	VOA portion of sample collected from 10 in. in 4-8 ft. core.
			4-8	43	0-10	Moist, brown, silty fine sand with some fine gravel. 0.6	
					10-15	Very moist, brown with black staining, silty fine sand with trace fine gravel. 0.6	Remainder of sample collected from 0-15 in. in 4-8 ft. core.
					15-43	Wet, brown, fine to medium sand with some fine gravel. 0.6-0.0	
			8-12	48	0-28	Wet, brown, fine to medium sand with some fine gravel. 0.1-0.0	
					28-48	Wet, brown, silty fine sand with some gravel. 0.0	

Location Coordinates: Michigan Georef NAD 1983 meters

* PID reading units are parts per million (ppm).

ATTACHMENT B
MDEQ GROUNDWATER SAMPLING DESCRIPTION SUMMARIES

TABLE B-3

GROUNDWATER MONITORING WELL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		SAMPLE DESCRIPTION	PHYSICAL PARAMETERS	WELL CONSTRUCTION	COMMENTS
	Northing	Easting				
TMW1	664036.5	179113.1	Clear.	Cond = 466 pH = 7.45 T = 10.8 ORP = NA TDS = NA	Screen: 1 in. Polyvinyl Chloride (PVC), #10 slot – 5 ft. Casing: 1 in. PVC	Potential background. Grab sample. Corresponding boring: SB1 Well set permanent.
TMW2	663991.5	179063.9	Clear.	Cond = 543 pH = 7.23 T = 12.0 ORP = 0 TDS = 371	Screen: 1 in. PVC, #10 slot – 5 ft. Casing: 1 in. PVC	Potential background. Grab sample. Corresponding boring: SB2 Slow recharging well. Well removed.
TMW3	663978.3	179012.5	Mostly clear, some fines.	Cond = 385 pH = 6.64 T = 11.6 ORP = 13 TDS = 261	Screen: 1 in. PVC, #10 slot – 5 ft. Casing: 1 in. PVC	Grab sample. Corresponding boring: SB3
TMW4	664000.6	179029.0	Clear with strong odor and sheen.	Cond = 597 pH = 6.46 T = 11.6 ORP = -21 TDS = 413	Screen: 1 in. PVC, #10 slot – 2 ft. Casing: 1 in. PVC	Grab sample. Corresponding boring: SB13 Free product in well. Oil staining, sheen, and odor in boring.
TMW5	664013.8	179067.0	Clear with strong odor.	Cond = 706 pH = 6.58 T = 12.0 ORP = -62 TDS = 490	Screen: 1 in. PVC, #10 slot – 2 ft. Casing: 1 in. PVC	Grab sample. Corresponding boring: SB5 Oil staining, sheen, and odor in boring.

TABLE B-3

GROUNDWATER MONITORING WELL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		SAMPLE DESCRIPTION	PHYSICAL PARAMETERS	WELL CONSTRUCTION	COMMENTS
	Northing	Easting				
TMW6	664022.6	179014.3	Clear with strong odor.	Cond = 902 pH = 7.16 T = 11.1 ORP = -68 TDS = NA	Screen: 1 in. PVC, #10 slot – 2 ft. Casing: 1 in. PVC	Grab sample. Corresponding boring: SB6
TMW7	664033.2	179037.1	Clear with strong odor and sheen.	Cond = 1,052 pH = 7.16 T = 9.5 ORP =-62 TDS = NA	Screen: 1 in. PVC, #10 slot – 5 ft. Casing: 1 in. PVC	Grab sample. Corresponding boring: SB7 Free product in well. Oil staining, sheen, and odor in boring.
TMW8	664040.0	179060.4	Some fines with strong odor and sheen.	Cond = 1,691 pH = 7.16 T = 11.6 ORP = NA TDS = NA	Screen: 1 in. PVC, #10 slot – 2 ft. Casing: 1 in. PVC	Grab sample. Corresponding boring: SB8 Oil staining, sheen, and odor in boring.
MW2	663951.2	179072.5	Clear.	Cond = 717 pH = 6.99 T = 11.9 ORP = NA TDS = NA	Screen: ? Casing: 2 in. PVC	Grab sample. Existing well on neighboring property. Potential background.

TABLE B-3

GROUNDWATER MONITORING WELL SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		SAMPLE DESCRIPTION	PHYSICAL PARAMETERS	WELL CONSTRUCTION	COMMENTS
	Northing	Easting				
WTMW1	663801.5	178993.0		Cond = pH = T = ORP = TDS =	Screen: 1 in. PVC, #10 slot – 2 ft. Casing: 1 in. PVC	
WTMW2	664086.5	178961.7		Cond = pH = T = ORP = TDS =	Screen: 1 in. PVC, #10 slot – 2 ft. Casing: 1 in. PVC	
WTMW3	664305.3	178999.0		Cond = pH = T = ORP = TDS =	Screen: 1 in. PVC, #10 slot – 2 ft. Casing: 1 in. PVC	

Location Coordinates: Michigan Georef NAD 1983 meters

Cond = Conductivity (μs/cm)
pH = Hydrogen Ionization Potential
T = Temperature (°C)
ORP = Oxidation Reduction Potential (millivolts)
TDS = Total Dissolved Solids (ppm – parts per million)

TABLE B-4

GROUNDWATER MONITORING WELL DATA

GROUNDWATER MONITORING WELL	LOCATION COORDINATES		GROUND ELEVATION	TOP OF CASING (TOC) ELEVATION	DEPTH TO WATER (from TOC)	WATER TABLE ELEVATION	DEPTH OF WELL (from TOC)	SCREEN LENGTH	SCREENED INTERVAL ELEVATION
	Northing	Easting							
TMW1	664036.5	179113.1	93.75	97.00	5.27	91.73	12.88	5 ft.	
TMW2	663991.5	179063.9	91.53	92.25	4.24	88.01	11.35	5 ft.	
TMW3	663978.3	179012.5	90.97	93.89	8.32	85.57	14.38	5 ft.	
TMW4	664000.6	179029.0	91.97	95.67	9.42	86.25	13.44	2 ft.	
TMW5	664013.8	179067.0	93.41	96.82	8.16	88.66	13.46	2 ft.	
TMW6	664022.6	179014.3		95.04	7.03	88.01	11.65	2 ft.	
TMW7	664033.2	179037.1			11.56		19.04	5 ft.	
TMW8	664040.0	179060.4	95.25	96.19	7.05	89.14	11.59	2 ft.	
MW2	663951.2	179072.5		96.00	7.78	88.22	13.08	?	
WTMW1	663801.5	178993.0	97.80	96.81	7.07	89.74		2 ft.	
WTMW2	664086.5	178961.7	89.53	88.38	6.00	82.38		2 ft.	
WTMW3	664305.3	178999.0			7.70			2 ft.	
River @ WTMW1			NA	NA	NA	87.96	NA	NA	NA
River @ TMW3			NA	NA	NA	84.20	NA	NA	NA
River @ TMW6			NA	NA	NA	84.12	NA	NA	NA
River @WTMW2			NA	NA	NA	82.92	NA	NA	NA

Location Coordinates: Michigan Georef NAD 1983 meters

* - All elevations in feet, referenced to an arbitrary elevation of 100.00 feet.

TABLE B-5

PUSH POINT SAMPLE DESCRIPTIONS

PUSH POINT SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF PUSH POINT IN SEDIMENT	Δ HEAD (mm)	CHEMICAL AND PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting					
PW1	663940.5	178962.2	6 in.	10 in.	+3	Cond = 760 pH = 7.02 T = 8.2 ORP = -102 TDS = 525 DO = 0.837 Fe^{+2} = 2.218	Slight hydrocarbon odor.
PW2	663940.0	178960.2	12 in.	8 in.	0	Cond = 300 pH = 7.03 T = 7.5 ORP = 12 TDS = 203 DO = NA Fe^{+2} = 6.434	
PW3	663925.1	178957.5	6 in.	6 in.	+8	Cond = 506 pH = 6.93 T = 7.7 ORP = -30 TDS = 348 DO = >2 ppm Fe^{+2} = NA	Hydrocarbon odor.

TABLE B-5

PUSH POINT SAMPLE DESCRIPTIONS

PUSH POINT SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF PUSH POINT IN SEDIMENT	Δ HEAD (mm)	CHEMICAL AND PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting					
PW4	663902.2	178963.7	4 in.	8 in.	-3	Cond = 116 pH = 7.14 T = 7.9 ORP = -39 TDS = 77 DO = NA Fe^{+2} = NA	Very slight hydrocarbon odor.
PW5	664	179	5 in.	8 in.	-3	Cond = 125 pH = 6.74 T = 8.8 ORP = -56 TDS = 82 DO = 0.203 Fe^{+2} = NA	Organic odor.
PW6	663955.6	178975.5	11 in.	7 in.	-2	Cond = 750 pH = 6.60 T = 8.5 ORP = -13 TDS = 517 DO = 0.588 Fe^{+2} = 6.389	Hydrogen sulfide odor.

TABLE B-5

PUSH POINT SAMPLE DESCRIPTIONS

PUSH POINT SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF PUSH POINT IN SEDIMENT	Δ HEAD (mm)	CHEMICAL AND PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting					
PW7	663972.5	178988.9	12 in.	8 in.	0	Cond = 164 pH = 7.22 T = 8.7 ORP = -81 TDS = 108 DO = NA Fe^{+2} = NA	Hydrogen sulfide odor.
PW8	663991.4	179001.7	16 in.	9 in.	+4	Cond = 117 pH = 6.87 T = 8.7 ORP = -90 TDS = 77 DO = 0.112 Fe^{+2} = >6	Hydrocarbon and hydrogen sulfide odor.
PW9	664013.0	179005.4	0 in. Edge of water.	26 in.	+4	Cond = 549 pH = 6.93 T = 9.9 ORP =-121 TDS = 375 DO = 0.124 Fe^{+2} = >6	Strong hydrocarbon odor. Bubbles in water.

TABLE B-5

PUSH POINT SAMPLE DESCRIPTIONS

PUSH POINT SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF PUSH POINT IN SEDIMENT	Δ HEAD (mm)	CHEMICAL AND PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting					
PW10	664024.0	179002.5	4 in.	7 in.	+3	Cond = 1,062 pH = 6.54 T = 9.6 ORP = -100 TDS = 742 DO = 0.166 Fe^{+2} = >6	Strong hydrocarbon odor. Bubbles in water. Sheen on water – free product discharge.
PW11	664044.3	178990.1	4 in.	10 in.	0	Cond = 505 pH = 6.70 T = 9.7 ORP = -136 TDS = 345 DO = 0.066 Fe^{+2} = >6	Sheen on water – free product discharge.
PW12	664059.2	178989.2	0 in. Edge of water.	12 in.	-1	Cond = 166 pH = 6.95 T = 9.5 ORP = -130 TDS = 110 DO = 0.519 Fe^{+2} = 5.495	

TABLE B-5

PUSH POINT SAMPLE DESCRIPTIONS

PUSH POINT SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF PUSH POINT IN SEDIMENT	Δ HEAD (mm)	CHEMICAL AND PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting					
PW13	664075.5	178982.9	6 in.	11 in.	0	Cond = 157 pH = 6.85 T = 8.9 ORP = -96 TDS = 103 DO = 0.087 Fe^{+2} = 5.811	
PW14	664088.5	178977.7	0 in. Edge of water.	20 in.	+28	Cond = 238 pH = 6.43 T = 9.5 ORP = -100 TDS = 159 DO = 0.168 Fe^{+2} = >6	Strong hydrocarbon odor.
PW15	664108.6	178971.5	0 in. Edge of water.	18 in.	+3	Cond = 165 pH = 6.55 T = 9.5 ORP = -111 TDS = 108 DO = 0.219 Fe^{+2} = >6	Strong hydrocarbon odor.

TABLE B-5

PUSH POINT SAMPLE DESCRIPTIONS

PUSH POINT SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF PUSH POINT IN SEDIMENT	Δ HEAD (mm)	CHEMICAL AND PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting					
PW16	664084.8	178968.9	0 in. Edge of water.	16 in.	+6	Cond = 807 pH = 6.58 T = 9.1 ORP = -90 TDS = 558 DO = 0.060 Fe^{+2} = >6	Hydrogen sulfide odor.
PW17	664134.8	178968.5	0 in. Edge of water.	15 in.	-9	Cond = 124 pH = 6.93 T = 9.6 ORP = -101 TDS = 82 DO = 0.165 Fe^{+2} = 4.405	Septic odor.
PW18	664150.3	178962.4	2 in.	7 in.	-4	Cond = 119 pH = 6.82 T = 8.5 ORP = -77 TDS = 78 DO = 1.942 Fe^{+2} = NA	

TABLE B-5

PUSH POINT SAMPLE DESCRIPTIONS

PUSH POINT SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF PUSH POINT IN SEDIMENT	Δ HEAD (mm)	CHEMICAL AND PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting					
PW19	664158.4	178962.5	2 in.	6 in.	+6	Cond = 291 pH = 6.45 T = 8.7 ORP = -48 TDS = 196 DO = 0.114 Fe^{+2} = >6	Slight hydro carbon odor and sheen.

Location Coordinates: Michigan Georef NAD 1983 meters

Δ HEAD (mm) = The head difference in millimeters (mm) between water in the push point sample and the surface water body. When the Push Point sampler is inserted into a permeable formation below and in direct contact with a surface water body, this measurement can be used to determine whether groundwater is discharging into the surface water body.

Cond = Conductivity (μs/cm)
pH = Hydrogen Ionization Potential
T = Temperature (°C)
ORP = Oxidation Reduction Potential (millivolts)
TDS = Total Dissolved Solids (ppm – parts per million)
DO = Dissolved Oxygen (mg/l – milligrams per liter)
Fe^{+2} = Dissolved Iron (mg/l)

ATTACHMENT C
MDEQ SURFACE WATER AND SEDIMENT SAMPLING DESCRIPTION SUMMARIES

TABLE C-6

SURFACE WATER SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		SAMPLE DESCRIPTION	DEPTH OF WATER AT SAMPLE LOCATION	PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting				
SW1	663853.0	178991.5	Slightly tannic.	11 in.	Cond = 108 pH = 7.12 T = 7.4 ORP =188 TDS = 72	Upgradient background sample. Grab sample. Associated with sediment sample SD1.
SW2	664007.4	179006.0	Slightly tannic.	18 in.	Cond = 110 pH = 6.78 T = 7.2 ORP =168 TDS = 73	Grab sample. Duplicate sample collected (SW2D). Associated with sediment sample SD2.
SW3	664024.2	179003.3	Slightly tannic.	12 in.	Cond = 116 pH = 7.03 T = 7.2 ORP =167 TDS = NA	Grab sample. Associated with sediment sample SD3.
SW4	664146.8	178963.1	Slightly tannic.	8 in.	Cond = 118 pH = 6.92 T = 6.3 ORP =138 TDS = 80	Grab sample. Associated with sediment sample SD4.
SW5	664740.3	179028.0	Slightly tannic.	14 in.	Cond = 122 pH = 6.63 T = 6.2 ORP =149 TDS = 83	Grab sample. Associated with sediment sample SD5.

TABLE C-6

SURFACE WATER SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		SAMPLE DESCRIPTION	DEPTH OF WATER AT SAMPLE LOCATION	PHYSICAL PARAMETERS	COMMENTS
	Northing	Easting				

Location Coordinates: Michigan Georef NAD 1983 meters

Cond = Conductivity (μs/cm)
pH = Hydrogen Ionization Potential
T = Temperature (°C)
ORP = Oxidation Reduction Potential (millivolts)
TDS = Total Dissolved Solids (ppm – parts per million)

TABLE C-7

SEDIMENT SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF SAMPLE	DESCRIPTION	COMMENTS
	Northing	Easting				
SD1	663853.0	178991.5	6 in.	0-4 in.	Wet, reddish-brown, medium sand with some silt, gravel, roots, and broken glass.	Upgradient background sample. Grab sample. Associated with surface water sample SW1.
SD2	664007.4	179006.0	10 in.	0-4 in.	Wet, black, sand and gravel with some tar and glass.	Grab sample. Duplicate sample collected (SD2D). Associated with surface water sample SW2. Strong odor and sheen produced when sediment is disturbed.
SD3	664024.2	179003.3	6 in.	0-3 in.	Wet, black, oily, sand and gravel with some tar.	Grab sample. Associated with surface water sample SW3. Strong odor and sheen produced when sediment is disturbed.

TABLE C-7

SEDIMENT SAMPLE DESCRIPTIONS

SAMPLE NUMBER	LOCATION COORDINATES		DEPTH OF WATER AT SAMPLE LOCATION	DEPTH OF SAMPLE	DESCRIPTION	COMMENTS
	Northing	Easting				
SD4	664146.8	178963.1	8 in.	0-8 in.	Wet, brown, medium to coarse sand with some broken glass and brick fragments.	Grab sample. Associated with surface water sample SW4.
SD5	664740.3	179028.0	6 in.	0-6 in.	Wet, brown, silt and fine sand with some gravel.	Grab sample. Associated with surface water sample SW5.

Location Coordinates: Michigan Georef NAD 1983 meters

ATTACHMENT D
SITE RECONNAISSANCE PHOTOGRAPHIC LOG

Site: Ironwood MGP Site
Photograph No.: 1 **Date:** 11/19/10
Direction: West **Photographer:** C. Lantinga
Subject: Product staining on a disposable bailer that was inserted into monitoring well TMW-4

Site: Ironwood MGP Site
Photograph No.: 2 **Date:** 11/19/10
Direction: West/Northwest **Photographer:** C. Lantinga
Subject: Poling/agitation of sediment along the eastern bank of the Montreal River

Site: Ironwood MGP Site
Photograph No.: 3 **Date:** 11/19/10
Direction: Northwest **Photographer:** C. Lantinga
Subject: Sheen that developed after poling in the Montreal River near the northwestern Site boundary

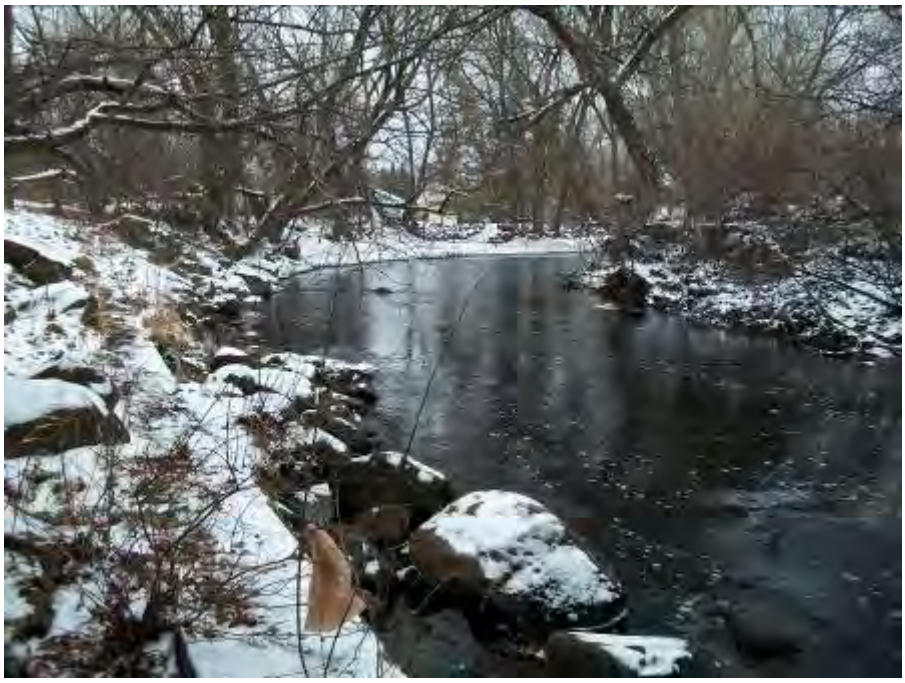
Site: Ironwood MGP Site
Photograph No.: 4 **Date:** 11/19/10
Direction: Northeast **Photographer:** C. Lantinga
Subject: Broken large-diameter pipe along the eastern bank of the Montreal River

Site: Ironwood MGP Site
Photograph No.: 5 **Date:** 11/19/10
Direction: Northwest **Photographer:** C. Lantinga
Subject: The northern portion of the Site showing stockpiled debris and rubble

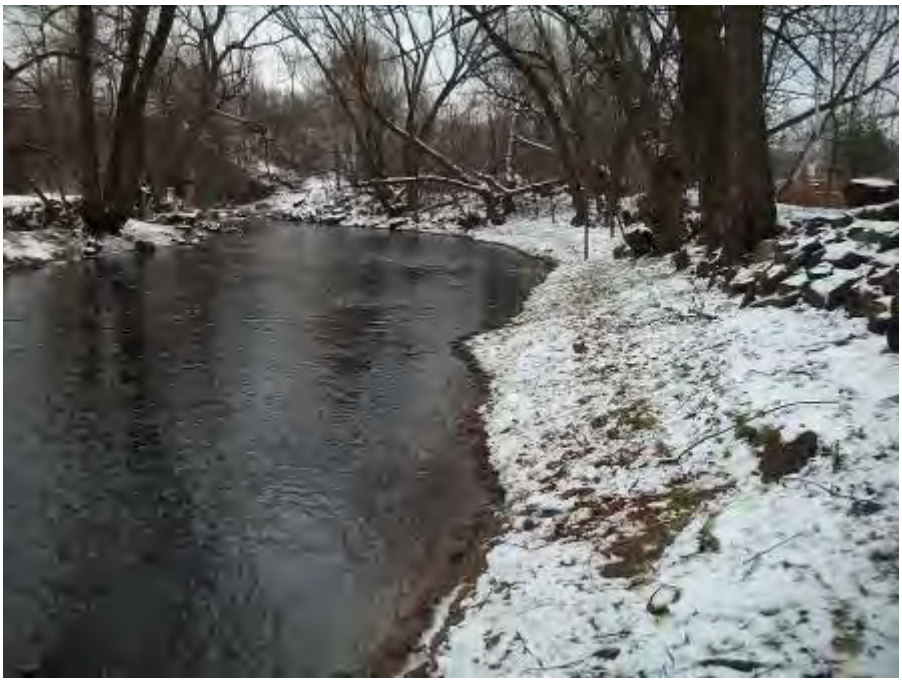
Site: Ironwood MGP Site
Photograph No.: 6 **Date:** 11/19/10
Direction: North **Photographer:** C. Lantinga
Subject: The northern portion of the Site showing stockpiled debris and rubble

Site: Ironwood MGP Site
Photograph No.: 7 **Date:** 11/19/10
Direction: South **Photographer:** C. Lantinga
Subject: The northern portion of the Site showing stockpiled debris and rubble

Site: Ironwood MGP Site
Photograph No.: 8 **Date:** 11/19/10
Direction: Southeast **Photographer:** C. Lantinga
Subject: The northwestern limits of the Site showing existing vegetation and debris



Site: Ironwood MGP Site
Photograph No.: 9 **Date:** 11/19/10
Direction: South **Photographer:** C. Lantinga
Subject: The eastern bank of the Montreal River at the northwestern limits of the Site



Site: Ironwood MGP Site
Photograph No.: 10 **Date:** 11/19/10
Direction: North **Photographer:** C. Lantinga
Subject: The eastern bank of the Montreal River at the southwestern limits of the Site

ATTACHMENT E
LABORATORY ANALYTICAL REPORTS

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
ENVIRONMENTAL LABORATORY
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Division: RD
Report to: JOE WALCZAK
MDNRE-RD-LANSING
CONSTITUTION HALL
525 W. ALLEGAN, LANSING, MI 48909

Total: $5,611.50

Lab Work Order # : 01000243
Work Site ID : 27000066
Site Name : IRONWOOD MGP SITE
Received: 10/25/2010
Reported: 12/09/2010
Collected By: JOE WALCZAK

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
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P.O. Box 30270
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TEL: (517) 335-9800
FAX: (517) 335-9600

Samples Received :

No:	Sample ID	Sample Description	Matrix:	Collection Date
01	AB65599	SS1	SEDIMENT	10/19/2010
02	AB65600	SS2	SEDIMENT	10/19/2010
03	AB65601	SS2D	SEDIMENT	10/19/2010
04	AB65602	SS3	SEDIMENT	10/20/2010
05	AB65603	SS3 MS	SEDIMENT	10/20/2010
06	AB65604	SS3 MSD	SEDIMENT	10/20/2010
07	AB65605	SS4	SEDIMENT	10/20/2010
08	AB65606	SS5	SEDIMENT	10/20/2010
09	AB65607	SS6	SEDIMENT	10/20/2010
10	AB65608	SS7	SEDIMENT	10/19/2010
11	AB65609	SS8	SEDIMENT	10/19/2010
12	AB65610	SS9	SEDIMENT	10/19/2010
13	AB65611	SS10	SEDIMENT	10/20/2010
14	AB65612	SS11	SEDIMENT	10/19/2010
15	AB65613	SS12	SEDIMENT	10/19/2010
16	AB65614	SS12D	SEDIMENT	10/19/2010
17	AB65615	SS13	SEDIMENT	10/19/2010
18	AB65616	SS14	SEDIMENT	10/19/2010
19	AB65617	SS15	SEDIMENT	10/19/2010
20	AB65618	SB1	SEDIMENT	10/19/2010
21	AB65619	SB2	SEDIMENT	10/19/2010
22	AB65620	SB2D	SEDIMENT	10/19/2010
23	AB65621	SB3	SEDIMENT	10/19/2010
24	AB65622	SB4	SEDIMENT	10/20/2010
25	AB65623	SB5	SEDIMENT	10/19/2010
26	AB65624	SB6	SEDIMENT	10/20/2010
27	AB65625	SB7	SEDIMENT	10/20/2010
28	AB65626	SB8	SEDIMENT	10/19/2010
29	AB65627	SB9	SEDIMENT	10/20/2010
30	AB65628	SB10	SEDIMENT	10/20/2010
31	AB65629	SB11	SEDIMENT	10/20/2010
32	AB65630	SB12	SEDIMENT	10/20/2010
33	AB65631	SB13	SEDIMENT	10/19/2010
34	AB65632	SB14	SEDIMENT	10/20/2010
35	AB65633	SB15	SEDIMENT	10/20/2010
36	AB65634	SD1	SEDIMENT	10/21/2010
37	AB65635	SD2	SEDIMENT	10/21/2010
38	AB65636	SD2D	SEDIMENT	10/21/2010
39	AB65637	SD3	SEDIMENT	10/21/2010
40	AB65638	SD3 MS	SEDIMENT	10/21/2010
41	AB65639	SD3 MSD	SEDIMENT	10/21/2010
42	AB65640	SD4	SEDIMENT	10/21/2010
43	AB65641	SD5	SEDIMENT	10/21/2010

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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I certify that the analysis performed by the MDEQ Environmental Laboratory are accurate and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Bob Avery, Laboratory Director

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Sample Number: AB65599 SS1

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.97			
SURROGATE	#Bromofluorobenzene#	92.9			
SURROGATE	#Dibromofluoromethane#	107			
SURROGATE	#Toluene-d8#	106			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	61		50
71-55-6	1,1,1-Trichloroethane	Not Detected	61		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	61		50
79-00-5	1,1,2-Trichloroethane	Not Detected	61		50
75-34-3	1,1-Dichloroethane	Not Detected	61		50
75-35-4	1,1-Dichloroethylene	Not Detected	61		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	300		50
96-18-4	1,2,3-Trichloropropane	Not Detected	61		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	61		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	300		50
95-63-6	1,2,4-Trimethylbenzene	97	61		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	300		50
106-93-4	1,2-Dibromoethane	Not Detected	61	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	61		50
107-06-2	1,2-Dichloroethane	Not Detected	61		50
78-87-5	1,2-Dichloropropane	Not Detected	61		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	61		50
541-73-1	1,3-Dichlorobenzene	Not Detected	61		50
106-46-7	1,4-Dichlorobenzene	Not Detected	61		50
78-93-3	2-Butanone (MEK)	Not Detected	300		50
591-78-6	2-Hexanone	Not Detected	300		50
91-57-6	2-Methylnaphthalene	530	300	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1200		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	300		50
107-13-1	Acrylonitrile	Not Detected	300	Z	50
71-43-2	Benzene	70	61		50
108-86-1	Bromobenzene	Not Detected	61		50
74-97-5	Bromochloromethane	Not Detected	61		50
75-27-4	Bromodichloromethane	Not Detected	61		50
75-25-2	Bromoform	Not Detected	61		50
74-83-9	Bromomethane	Not Detected	240		50
75-15-0	Carbon disulfide	Not Detected	61		50
56-23-5	Carbon tetrachloride	Not Detected	61		50
108-90-7	Chlorobenzene	Not Detected	61		50
75-00-3	Chloroethane	Not Detected	300		50
67-66-3	Chloroform	Not Detected	61		50

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Volatile Compounds

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Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	300		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	61		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	61		50
110-82-7	Cyclohexane	Not Detected	300		50
124-48-1	Dibromochloromethane	Not Detected	61		50
74-95-3	Dibromomethane	Not Detected	61		50
75-71-8	Dichlorodifluoromethane	Not Detected	300		50
60-29-7	Diethyl ether	Not Detected	240		50
108-20-3	Diisopropyl Ether	Not Detected	300		50
100-41-4	Ethylbenzene	66	61		50
637-92-3	Ethyltertiarybutylether	Not Detected	300		50
67-72-1	Hexachloroethane	Not Detected	300		50
98-82-8	Isopropylbenzene	Not Detected	61		50
108383,106423	m & p - Xylene	200	120		50
74-88-4	Methyl iodide	Not Detected	180	* 5 7	50
75-09-2	Methylene chloride	Not Detected	120		50
1634-04-4	Methyltertiarybutylether	Not Detected	61		50
91-20-3	Naphthalene	1200	300	X	50
104-51-8	n-Butylbenzene	Not Detected	61		50
103-65-1	n-Propylbenzene	Not Detected	61		50
95-47-6	o-Xylene	100	61		50
99-87-6	p-Isopropyl toluene	Not Detected	61		50
135-98-8	sec-Butylbenzene	Not Detected	61		50
100-42-5	Styrene	97	61		50
98-06-6	tert-Butylbenzene	Not Detected	61		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3000		50
994-05-8	tertiaryAmylmethylether	Not Detected	300		50
127-18-4	Tetrachloroethylene	Not Detected	61		50
109-99-9	Tetrahydrofuran	Not Detected	300		50
108-88-3	Toluene	220	61		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	61		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	61		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	300	Z	50
79-01-6	Trichloroethylene	Not Detected	61		50
75-69-4	Trichlorofluoromethane	Not Detected	61		50
75-01-4	Vinyl chloride	Not Detected	61	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

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Sample Number: AB65599 SS1

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	90.5	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
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Sample Number: AB65600 SS2

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.14			
SURROGATE	#Bromofluorobenzene#	134			
SURROGATE	#Dibromofluoromethane#	147			
SURROGATE	#Toluene-d8#	147			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	71		50
71-55-6	1,1,1-Trichloroethane	Not Detected	71		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	71		50
79-00-5	1,1,2-Trichloroethane	Not Detected	71		50
75-34-3	1,1-Dichloroethane	Not Detected	71		50
75-35-4	1,1-Dichloroethylene	Not Detected	71		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	360		50
96-18-4	1,2,3-Trichloropropane	Not Detected	71		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	71		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	360		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	71		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	360		50
106-93-4	1,2-Dibromoethane	Not Detected	71	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	71		50
107-06-2	1,2-Dichloroethane	Not Detected	71		50
78-87-5	1,2-Dichloropropane	Not Detected	71		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	71		50
541-73-1	1,3-Dichlorobenzene	Not Detected	71		50
106-46-7	1,4-Dichlorobenzene	Not Detected	71		50
78-93-3	2-Butanone (MEK)	Not Detected	360		50
591-78-6	2-Hexanone	Not Detected	360		50
91-57-6	2-Methylnaphthalene	Not Detected	360	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1400		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	360		50
107-13-1	Acrylonitrile	Not Detected	360	Z	50
71-43-2	Benzene	90	71		50
108-86-1	Bromobenzene	Not Detected	71		50
74-97-5	Bromochloromethane	Not Detected	71		50
75-27-4	Bromodichloromethane	Not Detected	71		50
75-25-2	Bromoform	Not Detected	71		50
74-83-9	Bromomethane	Not Detected	290		50
75-15-0	Carbon disulfide	Not Detected	71		50
56-23-5	Carbon tetrachloride	Not Detected	71		50
108-90-7	Chlorobenzene	Not Detected	71		50
75-00-3	Chloroethane	Not Detected	360		50
67-66-3	Chloroform	Not Detected	71		50

CAS# : Chemical Abstract Service Registry Number
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Sample Number: AB65600 SS2

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	360		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	71		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	71		50
110-82-7	Cyclohexane	Not Detected	360		50
124-48-1	Dibromochloromethane	Not Detected	71		50
74-95-3	Dibromomethane	Not Detected	71		50
75-71-8	Dichlorodifluoromethane	Not Detected	360		50
60-29-7	Diethyl ether	Not Detected	290		50
108-20-3	Diisopropyl Ether	Not Detected	360		50
100-41-4	Ethylbenzene	77	71		50
637-92-3	Ethyltertiarybutylether	Not Detected	360		50
67-72-1	Hexachloroethane	Not Detected	360	3	50
98-82-8	Isopropylbenzene	Not Detected	71		50
108383,106423	m & p - Xylene	Not Detected	140		50
74-88-4	Methyl iodide	Not Detected	140	* 5 7	50
75-09-2	Methylene chloride	Not Detected	140		50
1634-04-4	Methyltertiarybutylether	Not Detected	71		50
91-20-3	Naphthalene	1200	360	X	50
104-51-8	n-Butylbenzene	Not Detected	71		50
103-65-1	n-Propylbenzene	Not Detected	71		50
95-47-6	o-Xylene	Not Detected	71		50
99-87-6	p-Isopropyl toluene	Not Detected	71		50
135-98-8	sec-Butylbenzene	Not Detected	71		50
100-42-5	Styrene	Not Detected	71		50
98-06-6	tert-Butylbenzene	Not Detected	71		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3600		50
994-05-8	tertiaryAmylmethylether	Not Detected	360		50
127-18-4	Tetrachloroethylene	Not Detected	71		50
109-99-9	Tetrahydrofuran	Not Detected	360		50
108-88-3	Toluene	200	71		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	71		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	71		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	360	Z	50
79-01-6	Trichloroethylene	Not Detected	71		50
75-69-4	Trichlorofluoromethane	Not Detected	71		50
75-01-4	Vinyl chloride	Not Detected	71	Z	50

*RL raised due to possible laboratory contamination.

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Sample Number: AB65600 SS2

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	86.3	%	0.1		11/15/2010	2540B SM	RG

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Sample Number: AB65601 SS2D

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.23			
SURROGATE	#Bromofluorobenzene#	141			
SURROGATE	#Dibromofluoromethane#	155			
SURROGATE	#Toluene-d8#	156			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	73		50
71-55-6	1,1,1-Trichloroethane	Not Detected	73		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	73		50
79-00-5	1,1,2-Trichloroethane	Not Detected	73		50
75-34-3	1,1-Dichloroethane	Not Detected	73		50
75-35-4	1,1-Dichloroethylene	Not Detected	73		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	370		50
96-18-4	1,2,3-Trichloropropane	Not Detected	73		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	73		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	370		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	73		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	370		50
106-93-4	1,2-Dibromoethane	Not Detected	73	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	73		50
107-06-2	1,2-Dichloroethane	Not Detected	73		50
78-87-5	1,2-Dichloropropane	Not Detected	73		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	73		50
541-73-1	1,3-Dichlorobenzene	Not Detected	73		50
106-46-7	1,4-Dichlorobenzene	Not Detected	73		50
78-93-3	2-Butanone (MEK)	Not Detected	370		50
591-78-6	2-Hexanone	Not Detected	370		50
91-57-6	2-Methylnaphthalene	Not Detected	370	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1500		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	370		50
107-13-1	Acrylonitrile	Not Detected	370	Z	50
71-43-2	Benzene	Not Detected	73		50
108-86-1	Bromobenzene	Not Detected	73		50
74-97-5	Bromochloromethane	Not Detected	73		50
75-27-4	Bromodichloromethane	Not Detected	73		50
75-25-2	Bromoform	Not Detected	73		50
74-83-9	Bromomethane	Not Detected	290		50
75-15-0	Carbon disulfide	Not Detected	73		50
56-23-5	Carbon tetrachloride	Not Detected	73		50
108-90-7	Chlorobenzene	Not Detected	73		50
75-00-3	Chloroethane	Not Detected	370		50
67-66-3	Chloroform	Not Detected	73		50

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Sample Number: AB65601 SS2D

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	370		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	73		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	73		50
110-82-7	Cyclohexane	Not Detected	370		50
124-48-1	Dibromochloromethane	Not Detected	73		50
74-95-3	Dibromomethane	Not Detected	73		50
75-71-8	Dichlorodifluoromethane	Not Detected	370		50
60-29-7	Diethyl ether	Not Detected	290		50
108-20-3	Diisopropyl Ether	Not Detected	370		50
100-41-4	Ethylbenzene	Not Detected	73		50
637-92-3	Ethyltertiarybutylether	Not Detected	370		50
67-72-1	Hexachloroethane	Not Detected	370	3	50
98-82-8	Isopropylbenzene	Not Detected	73		50
108383,106423	m & p - Xylene	Not Detected	150		50
74-88-4	Methyl iodide	Not Detected	73	5 7	50
75-09-2	Methylene chloride	Not Detected	150		50
1634-04-4	Methyltertiarybutylether	Not Detected	73		50
91-20-3	Naphthalene	550	370	X	50
104-51-8	n-Butylbenzene	Not Detected	73		50
103-65-1	n-Propylbenzene	Not Detected	73		50
95-47-6	o-Xylene	Not Detected	73		50
99-87-6	p-Isopropyl toluene	100	73		50
135-98-8	sec-Butylbenzene	Not Detected	73		50
100-42-5	Styrene	Not Detected	73		50
98-06-6	tert-Butylbenzene	Not Detected	73		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3700		50
994-05-8	tertiaryAmylmethylether	Not Detected	370		50
127-18-4	Tetrachloroethylene	Not Detected	73		50
109-99-9	Tetrahydrofuran	Not Detected	370		50
108-88-3	Toluene	75	73		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	73		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	73		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	370	Z	50
79-01-6	Trichloroethylene	Not Detected	73		50
75-69-4	Trichlorofluoromethane	Not Detected	73		50
75-01-4	Vinyl chloride	Not Detected	73	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65601 SS2D

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	84.5	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65602 SS3

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.82			
SURROGATE	#Bromofluorobenzene#	117			
SURROGATE	#Dibromofluoromethane#	128			
SURROGATE	#Toluene-d8#	130			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	62		50
71-55-6	1,1,1-Trichloroethane	Not Detected	62		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	62		50
79-00-5	1,1,2-Trichloroethane	Not Detected	62		50
75-34-3	1,1-Dichloroethane	Not Detected	62		50
75-35-4	1,1-Dichloroethylene	Not Detected	62		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	310		50
96-18-4	1,2,3-Trichloropropane	Not Detected	62		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	62		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	310		50
95-63-6	1,2,4-Trimethylbenzene	130	62		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	310		50
106-93-4	1,2-Dibromoethane	Not Detected	62	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	62		50
107-06-2	1,2-Dichloroethane	Not Detected	62		50
78-87-5	1,2-Dichloropropane	Not Detected	62		50
108-67-8	1,3,5-Trimethylbenzene	130	62		50
541-73-1	1,3-Dichlorobenzene	Not Detected	62		50
106-46-7	1,4-Dichlorobenzene	Not Detected	62		50
78-93-3	2-Butanone (MEK)	Not Detected	310		50
591-78-6	2-Hexanone	Not Detected	310		50
91-57-6	2-Methylnaphthalene	Not Detected	310	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1200		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	310		50
107-13-1	Acrylonitrile	Not Detected	310	Z	50
71-43-2	Benzene	95	62		50
108-86-1	Bromobenzene	Not Detected	62		50
74-97-5	Bromochloromethane	Not Detected	62		50
75-27-4	Bromodichloromethane	Not Detected	62		50
75-25-2	Bromoform	Not Detected	62		50
74-83-9	Bromomethane	Not Detected	250		50
75-15-0	Carbon disulfide	Not Detected	62		50
56-23-5	Carbon tetrachloride	Not Detected	62		50
108-90-7	Chlorobenzene	Not Detected	62		50
75-00-3	Chloroethane	Not Detected	310		50
67-66-3	Chloroform	Not Detected	62		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65602 SS3

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	310		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	62		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	62		50
110-82-7	Cyclohexane	Not Detected	310		50
124-48-1	Dibromochloromethane	Not Detected	62		50
74-95-3	Dibromomethane	Not Detected	62		50
75-71-8	Dichlorodifluoromethane	Not Detected	310		50
60-29-7	Diethyl ether	Not Detected	250		50
108-20-3	Diisopropyl Ether	Not Detected	310		50
100-41-4	Ethylbenzene	62	62		50
637-92-3	Ethyltertiarybutylether	Not Detected	310		50
67-72-1	Hexachloroethane	Not Detected	310	3	50
98-82-8	Isopropylbenzene	Not Detected	62		50
108383,106423	m & p - Xylene	240	120		50
74-88-4	Methyl iodide	Not Detected	62	5 7	50
75-09-2	Methylene chloride	Not Detected	120		50
1634-04-4	Methyltertiarybutylether	Not Detected	62		50
91-20-3	Naphthalene	430	310	X	50
104-51-8	n-Butylbenzene	Not Detected	62		50
103-65-1	n-Propylbenzene	Not Detected	62		50
95-47-6	o-Xylene	190	62		50
99-87-6	p-Isopropyl toluene	Not Detected	62		50
135-98-8	sec-Butylbenzene	Not Detected	62		50
100-42-5	Styrene	Not Detected	62		50
98-06-6	tert-Butylbenzene	Not Detected	62		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3100		50
994-05-8	tertiaryAmylmethylether	Not Detected	310		50
127-18-4	Tetrachloroethylene	Not Detected	62		50
109-99-9	Tetrahydrofuran	Not Detected	310		50
108-88-3	Toluene	260	62		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	62		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	62		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	310	Z	50
79-01-6	Trichloroethylene	Not Detected	62		50
75-69-4	Trichlorofluoromethane	Not Detected	62		50
75-01-4	Vinyl chloride	Not Detected	62	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65602 SS3

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	90.1	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65603 SS3 MS

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.82			
SURROGATE	#Bromofluorobenzene#	120			
SURROGATE	#Dibromofluoromethane#	129			
SURROGATE	#Toluene-d8#	124			
630-20-6	1,1,1,2-Tetrachloroethane	2700	62		50
71-55-6	1,1,1-Trichloroethane	2800	62		50
79-34-5	1,1,2,2-Tetrachloroethane	3000	62		50
79-00-5	1,1,2-Trichloroethane	2800	62		50
75-34-3	1,1-Dichloroethane	2900	62		50
75-35-4	1,1-Dichloroethylene	2700	62		50
87-61-6	1,2,3-Trichlorobenzene	3000	310		50
96-18-4	1,2,3-Trichloropropane	2900	62		50
526-73-8	1,2,3-Trimethylbenzene	2800	62		50
120-82-1	1,2,4-Trichlorobenzene	3000	310		50
95-63-6	1,2,4-Trimethylbenzene	3000	62		50
96-12-8	1,2-Dibromo-3-chloropropane	2800	310		50
106-93-4	1,2-Dibromoethane	2800	62	Z	50
95-50-1	1,2-Dichlorobenzene	3100	62		50
107-06-2	1,2-Dichloroethane	2800	62		50
78-87-5	1,2-Dichloropropane	2900	62		50
108-67-8	1,3,5-Trimethylbenzene	3000	62		50
541-73-1	1,3-Dichlorobenzene	2900	62		50
106-46-7	1,4-Dichlorobenzene	2800	62		50
78-93-3	2-Butanone (MEK)	3100	310		50
591-78-6	2-Hexanone	3100	310		50
91-57-6	2-Methylnaphthalene	3400	310	X	50
67-64-1	2-Propanone (acetone)	3100	1200	6	50
108-10-1	4-Methyl-2-pentanone (MIBK)	3000	310		50
107-13-1	Acrylonitrile	2700	310	Z	50
71-43-2	Benzene	2900	62		50
108-86-1	Bromobenzene	2800	62		50
74-97-5	Bromochloromethane	3000	62		50
75-27-4	Bromodichloromethane	2700	62		50
75-25-2	Bromoform	2300	62		50
74-83-9	Bromomethane	2700	250		50
75-15-0	Carbon disulfide	2500	62		50
56-23-5	Carbon tetrachloride	2800	62		50
108-90-7	Chlorobenzene	2900	62		50
75-00-3	Chloroethane	2900	310		50
67-66-3	Chloroform	2800	62		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65603 SS3 MS

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	2700	310		50
156-59-2	cis-1,2-Dichloroethylene	2800	62		50
10061-01-5	cis-1,3-Dichloropropylene	3000	62		50
110-82-7	Cyclohexane	2500	310		50
124-48-1	Dibromochloromethane	2700	62		50
74-95-3	Dibromomethane	3000	62		50
75-71-8	Dichlorodifluoromethane	2700	310		50
60-29-7	Diethyl ether	2900	250		50
108-20-3	Diisopropyl Ether	2800	310		50
100-41-4	Ethylbenzene	3000	62		50
637-92-3	Ethyltertiarybutylether	2900	310		50
67-72-1	Hexachloroethane	2100	310	3	50
98-82-8	Isopropylbenzene	3100	62		50
108383,106423	m & p - Xylene	6000	120		50
74-88-4	Methyl iodide	1500	62	5 7	50
75-09-2	Methylene chloride	2600	120		50
1634-04-4	Methyltertiarybutylether	2800	62		50
91-20-3	Naphthalene	3500	310	X	50
104-51-8	n-Butylbenzene	2900	62		50
103-65-1	n-Propylbenzene	3000	62		50
95-47-6	o-Xylene	2900	62		50
99-87-6	p-Isopropyl toluene	2800	62		50
135-98-8	sec-Butylbenzene	2900	62		50
100-42-5	Styrene	3200	62		50
98-06-6	tert-Butylbenzene	2900	62		50
75-65-0	tertiary Butyl Alcohol	14000	3100		50
994-05-8	tertiaryAmylmethylether	2900	310		50
127-18-4	Tetrachloroethylene	2800	62		50
109-99-9	Tetrahydrofuran	2800	310		50
108-88-3	Toluene	3000	62		50
156-60-5	trans-1,2-Dichloroethylene	2800	62		50
10061-02-6	trans-1,3-Dichloropropylene	3000	62		50
110-57-6	trans-1,4-Dichloro-2-butene	2900	310	Z	50
79-01-6	Trichloroethylene	2700	62		50
75-69-4	Trichlorofluoromethane	2900	62		50
75-01-4	Vinyl chloride	2900	62	Z	50

Sample is a matrix spike.
Compounds spiked at 3100 ug/Kg, except tertiary butyl alcohol spiked at 15500 ug/Kg & m&p-xylene spiked at 6200 ug/Kg.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65603 SS3 MS

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	90.1	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65604 SS3 MSD

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.82			
SURROGATE	#Bromofluorobenzene#	117			
SURROGATE	#Dibromofluoromethane#	132			
SURROGATE	#Toluene-d8#	125			
630-20-6	1,1,1,2-Tetrachloroethane	2800	62		50
71-55-6	1,1,1-Trichloroethane	2800	62		50
79-34-5	1,1,2,2-Tetrachloroethane	3000	62		50
79-00-5	1,1,2-Trichloroethane	2900	62		50
75-34-3	1,1-Dichloroethane	3000	62		50
75-35-4	1,1-Dichloroethylene	2500	62		50
87-61-6	1,2,3-Trichlorobenzene	3100	310		50
96-18-4	1,2,3-Trichloropropane	3100	62		50
526-73-8	1,2,3-Trimethylbenzene	2800	62		50
120-82-1	1,2,4-Trichlorobenzene	3000	310		50
95-63-6	1,2,4-Trimethylbenzene	3100	62		50
96-12-8	1,2-Dibromo-3-chloropropane	2700	310		50
106-93-4	1,2-Dibromoethane	2900	62	Z	50
95-50-1	1,2-Dichlorobenzene	3100	62		50
107-06-2	1,2-Dichloroethane	2800	62		50
78-87-5	1,2-Dichloropropane	2900	62		50
108-67-8	1,3,5-Trimethylbenzene	3000	62		50
541-73-1	1,3-Dichlorobenzene	3000	62		50
106-46-7	1,4-Dichlorobenzene	2900	62		50
78-93-3	2-Butanone (MEK)	2900	310		50
591-78-6	2-Hexanone	3000	310		50
91-57-6	2-Methylnaphthalene	3600	310	X	50
67-64-1	2-Propanone (acetone)	2700	1200	6	50
108-10-1	4-Methyl-2-pentanone (MIBK)	3000	310		50
107-13-1	Acrylonitrile	2500	310	Z	50
71-43-2	Benzene	3000	62		50
108-86-1	Bromobenzene	2900	62		50
74-97-5	Bromochloromethane	3000	62		50
75-27-4	Bromodichloromethane	2700	62		50
75-25-2	Bromoform	2300	62		50
74-83-9	Bromomethane	2800	250		50
75-15-0	Carbon disulfide	2500	62		50
56-23-5	Carbon tetrachloride	2800	62		50
108-90-7	Chlorobenzene	3100	62		50
75-00-3	Chloroethane	3100	310		50
67-66-3	Chloroform	2800	62		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65604 SS3 MSD

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	2900	310		50
156-59-2	cis-1,2-Dichloroethylene	2800	62		50
10061-01-5	cis-1,3-Dichloropropylene	3100	62		50
110-82-7	Cyclohexane	2400	310		50
124-48-1	Dibromochloromethane	2800	62		50
74-95-3	Dibromomethane	2900	62		50
75-71-8	Dichlorodifluoromethane	2500	310		50
60-29-7	Diethyl ether	2700	250		50
108-20-3	Diisopropyl Ether	2800	310		50
100-41-4	Ethylbenzene	3000	62		50
637-92-3	Ethyltertiarybutylether	2900	310		50
67-72-1	Hexachloroethane	2300	310		50
98-82-8	Isopropylbenzene	3100	62		50
108383,106423	m & p - Xylene	6100	120		50
74-88-4	Methyl iodide	2300	62	5 7	50
75-09-2	Methylene chloride	2600	120		50
1634-04-4	Methyltertiarybutylether	2800	62		50
91-20-3	Naphthalene	3600	310	X	50
104-51-8	n-Butylbenzene	2900	62		50
103-65-1	n-Propylbenzene	2900	62		50
95-47-6	o-Xylene	3000	62		50
99-87-6	p-Isopropyl toluene	2900	62		50
135-98-8	sec-Butylbenzene	2900	62		50
100-42-5	Styrene	3300	62		50
98-06-6	tert-Butylbenzene	2900	62		50
75-65-0	tertiary Butyl Alcohol	12000	3100		50
994-05-8	tertiaryAmylmethylether	3000	310		50
127-18-4	Tetrachloroethylene	2800	62		50
109-99-9	Tetrahydrofuran	2800	310		50
108-88-3	Toluene	3100	62		50
156-60-5	trans-1,2-Dichloroethylene	2700	62		50
10061-02-6	trans-1,3-Dichloropropylene	3100	62		50
110-57-6	trans-1,4-Dichloro-2-butene	3100	310	Z	50
79-01-6	Trichloroethylene	2600	62		50
75-69-4	Trichlorofluoromethane	2900	62		50
75-01-4	Vinyl chloride	2900	62	Z	50

Sample is a matrix spike duplicate.
Compounds spiked at 3100 ug/Kg, except tertiary butyl alcohol spiked at 15500 ug/Kg & m&p-xylene spiked at 6200 ug/Kg.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65604 SS3 MSD

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	90.1	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65605 SS4

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.43			
SURROGATE	#Bromofluorobenzene#	134			
SURROGATE	#Dibromofluoromethane#	143			
SURROGATE	#Toluene-d8#	143			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	77		50
71-55-6	1,1,1-Trichloroethane	Not Detected	77		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	77		50
79-00-5	1,1,2-Trichloroethane	Not Detected	77		50
75-34-3	1,1-Dichloroethane	Not Detected	77		50
75-35-4	1,1-Dichloroethylene	Not Detected	77		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	390		50
96-18-4	1,2,3-Trichloropropane	Not Detected	77		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	77		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	390		50
95-63-6	1,2,4-Trimethylbenzene	160	77		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	390		50
106-93-4	1,2-Dibromoethane	Not Detected	77	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	77		50
107-06-2	1,2-Dichloroethane	Not Detected	77		50
78-87-5	1,2-Dichloropropane	Not Detected	77		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	77		50
541-73-1	1,3-Dichlorobenzene	Not Detected	77		50
106-46-7	1,4-Dichlorobenzene	Not Detected	77		50
78-93-3	2-Butanone (MEK)	Not Detected	390		50
591-78-6	2-Hexanone	Not Detected	390		50
91-57-6	2-Methylnaphthalene	730	390	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1500		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	390		50
107-13-1	Acrylonitrile	Not Detected	390	Z	50
71-43-2	Benzene	130	77		50
108-86-1	Bromobenzene	Not Detected	77		50
74-97-5	Bromochloromethane	Not Detected	77		50
75-27-4	Bromodichloromethane	Not Detected	77		50
75-25-2	Bromoform	Not Detected	77		50
74-83-9	Bromomethane	Not Detected	310		50
75-15-0	Carbon disulfide	Not Detected	77		50
56-23-5	Carbon tetrachloride	Not Detected	77		50
108-90-7	Chlorobenzene	Not Detected	77		50
75-00-3	Chloroethane	Not Detected	390		50
67-66-3	Chloroform	Not Detected	77		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65605 SS4

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	390		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	77		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	77		50
110-82-7	Cyclohexane	Not Detected	390		50
124-48-1	Dibromochloromethane	Not Detected	77		50
74-95-3	Dibromomethane	Not Detected	77		50
75-71-8	Dichlorodifluoromethane	Not Detected	390		50
60-29-7	Diethyl ether	Not Detected	310		50
108-20-3	Diisopropyl Ether	Not Detected	390		50
100-41-4	Ethylbenzene	100	77		50
637-92-3	Ethyltertiarybutylether	Not Detected	390		50
67-72-1	Hexachloroethane	Not Detected	390	3	50
98-82-8	Isopropylbenzene	Not Detected	77		50
108383,106423	m & p - Xylene	360	150		50
74-88-4	Methyl iodide	Not Detected	150	* 5 7	50
75-09-2	Methylene chloride	Not Detected	150		50
1634-04-4	Methyltertiarybutylether	Not Detected	77		50
91-20-3	Naphthalene	1000	390	X	50
104-51-8	n-Butylbenzene	Not Detected	77		50
103-65-1	n-Propylbenzene	Not Detected	77		50
95-47-6	o-Xylene	200	77		50
99-87-6	p-Isopropyl toluene	Not Detected	77		50
135-98-8	sec-Butylbenzene	Not Detected	77		50
100-42-5	Styrene	Not Detected	77		50
98-06-6	tert-Butylbenzene	Not Detected	77		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3900		50
994-05-8	tertiaryAmylmethylether	Not Detected	390		50
127-18-4	Tetrachloroethylene	Not Detected	77		50
109-99-9	Tetrahydrofuran	Not Detected	390		50
108-88-3	Toluene	450	77		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	77		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	77		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	390	Z	50
79-01-6	Trichloroethylene	Not Detected	77		50
75-69-4	Trichlorofluoromethane	Not Detected	77		50
75-01-4	Vinyl chloride	Not Detected	77	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65605 SS4

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	81.1	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65606 SS5

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.23			
SURROGATE	#Bromofluorobenzene#	128			
SURROGATE	#Dibromofluoromethane#	148			
SURROGATE	#Toluene-d8#	146			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	76		50
71-55-6	1,1,1-Trichloroethane	Not Detected	76		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	76		50
79-00-5	1,1,2-Trichloroethane	Not Detected	76		50
75-34-3	1,1-Dichloroethane	Not Detected	76		50
75-35-4	1,1-Dichloroethylene	Not Detected	76		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	380		50
96-18-4	1,2,3-Trichloropropane	Not Detected	76		50
526-73-8	1,2,3-Trimethylbenzene	100	76		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	380		50
95-63-6	1,2,4-Trimethylbenzene	260	76		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	380		50
106-93-4	1,2-Dibromoethane	Not Detected	76	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	76		50
107-06-2	1,2-Dichloroethane	Not Detected	76		50
78-87-5	1,2-Dichloropropane	Not Detected	76		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	76		50
541-73-1	1,3-Dichlorobenzene	Not Detected	76		50
106-46-7	1,4-Dichlorobenzene	Not Detected	76		50
78-93-3	2-Butanone (MEK)	Not Detected	380		50
591-78-6	2-Hexanone	Not Detected	380		50
91-57-6	2-Methylnaphthalene	780	380	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1500		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	380		50
107-13-1	Acrylonitrile	Not Detected	380	Z	50
71-43-2	Benzene	460	76		50
108-86-1	Bromobenzene	Not Detected	76		50
74-97-5	Bromochloromethane	Not Detected	76		50
75-27-4	Bromodichloromethane	Not Detected	76		50
75-25-2	Bromoform	Not Detected	76		50
74-83-9	Bromomethane	Not Detected	300		50
75-15-0	Carbon disulfide	Not Detected	76		50
56-23-5	Carbon tetrachloride	Not Detected	76		50
108-90-7	Chlorobenzene	Not Detected	76		50
75-00-3	Chloroethane	Not Detected	380		50
67-66-3	Chloroform	Not Detected	76		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65606 SS5

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	380		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	76		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	76		50
110-82-7	Cyclohexane	Not Detected	380		50
124-48-1	Dibromochloromethane	Not Detected	76		50
74-95-3	Dibromomethane	Not Detected	76		50
75-71-8	Dichlorodifluoromethane	Not Detected	380		50
60-29-7	Diethyl ether	Not Detected	300		50
108-20-3	Diisopropyl Ether	Not Detected	380		50
100-41-4	Ethylbenzene	220	76		50
637-92-3	Ethyltertiarybutylether	Not Detected	380		50
67-72-1	Hexachloroethane	Not Detected	380	3	50
98-82-8	Isopropylbenzene	91	76		50
108383,106423	m & p - Xylene	650	150		50
74-88-4	Methyl iodide	Not Detected	150	* 5 7	50
75-09-2	Methylene chloride	Not Detected	150		50
1634-04-4	Methyltertiarybutylether	Not Detected	76		50
91-20-3	Naphthalene	1000	380	X	50
104-51-8	n-Butylbenzene	Not Detected	76		50
103-65-1	n-Propylbenzene	110	76		50
95-47-6	o-Xylene	450	76		50
99-87-6	p-Isopropyl toluene	Not Detected	76		50
135-98-8	sec-Butylbenzene	Not Detected	76		50
100-42-5	Styrene	Not Detected	76		50
98-06-6	tert-Butylbenzene	Not Detected	76		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3800		50
994-05-8	tertiaryAmylmethylether	Not Detected	380		50
127-18-4	Tetrachloroethylene	Not Detected	76		50
109-99-9	Tetrahydrofuran	Not Detected	380		50
108-88-3	Toluene	1100	76		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	76		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	76		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	380	Z	50
79-01-6	Trichloroethylene	Not Detected	76		50
75-69-4	Trichlorofluoromethane	Not Detected	76		50
75-01-4	Vinyl chloride	Not Detected	76	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65606 SS5

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	83.0	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65607 SS6

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.30			
SURROGATE	#Bromofluorobenzene#	115			
SURROGATE	#Dibromofluoromethane#	125			
SURROGATE	#Toluene-d8#	124			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	99		50
71-55-6	1,1,1-Trichloroethane	Not Detected	99		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	99		50
79-00-5	1,1,2-Trichloroethane	Not Detected	99		50
75-34-3	1,1-Dichloroethane	Not Detected	99		50
75-35-4	1,1-Dichloroethylene	Not Detected	99		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	500		50
96-18-4	1,2,3-Trichloropropane	Not Detected	99		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	99		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	500		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	99		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	500		50
106-93-4	1,2-Dibromoethane	Not Detected	99	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	99		50
107-06-2	1,2-Dichloroethane	Not Detected	99		50
78-87-5	1,2-Dichloropropane	Not Detected	99		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	99		50
541-73-1	1,3-Dichlorobenzene	Not Detected	99		50
106-46-7	1,4-Dichlorobenzene	Not Detected	99		50
78-93-3	2-Butanone (MEK)	Not Detected	500		50
591-78-6	2-Hexanone	Not Detected	500		50
91-57-6	2-Methylnaphthalene	Not Detected	500	X	50
67-64-1	2-Propanone (acetone)	Not Detected	2000		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	500		50
107-13-1	Acrylonitrile	Not Detected	500	Z	50
71-43-2	Benzene	Not Detected	99		50
108-86-1	Bromobenzene	Not Detected	99		50
74-97-5	Bromochloromethane	Not Detected	99		50
75-27-4	Bromodichloromethane	Not Detected	99		50
75-25-2	Bromoform	Not Detected	99		50
74-83-9	Bromomethane	Not Detected	400		50
75-15-0	Carbon disulfide	Not Detected	99		50
56-23-5	Carbon tetrachloride	Not Detected	99		50
108-90-7	Chlorobenzene	Not Detected	99		50
75-00-3	Chloroethane	Not Detected	500		50
67-66-3	Chloroform	Not Detected	99		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65607 SS6

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	500		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	99		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	99		50
110-82-7	Cyclohexane	Not Detected	500		50
124-48-1	Dibromochloromethane	Not Detected	99		50
74-95-3	Dibromomethane	Not Detected	99		50
75-71-8	Dichlorodifluoromethane	Not Detected	500		50
60-29-7	Diethyl ether	Not Detected	400		50
108-20-3	Diisopropyl Ether	Not Detected	500		50
100-41-4	Ethylbenzene	Not Detected	99		50
637-92-3	Ethyltertiarybutylether	Not Detected	500		50
67-72-1	Hexachloroethane	Not Detected	500	3	50
98-82-8	Isopropylbenzene	Not Detected	99		50
108383,106423	m & p - Xylene	Not Detected	200		50
74-88-4	Methyl iodide	Not Detected	99	5 7	50
75-09-2	Methylene chloride	Not Detected	200		50
1634-04-4	Methyltertiarybutylether	Not Detected	99		50
91-20-3	Naphthalene	800	500	X	50
104-51-8	n-Butylbenzene	Not Detected	99		50
103-65-1	n-Propylbenzene	Not Detected	99		50
95-47-6	o-Xylene	Not Detected	99		50
99-87-6	p-Isopropyl toluene	Not Detected	99		50
135-98-8	sec-Butylbenzene	Not Detected	99		50
100-42-5	Styrene	Not Detected	99		50
98-06-6	tert-Butylbenzene	Not Detected	99		50
75-65-0	tertiary Butyl Alcohol	Not Detected	5000		50
994-05-8	tertiaryAmylmethylether	Not Detected	500		50
127-18-4	Tetrachloroethylene	Not Detected	99		50
109-99-9	Tetrahydrofuran	Not Detected	500		50
108-88-3	Toluene	120	99		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	99		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	99		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	500	Z	50
79-01-6	Trichloroethylene	Not Detected	99		50
75-69-4	Trichlorofluoromethane	Not Detected	99		50
75-01-4	Vinyl chloride	Not Detected	99	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65607 SS6

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	69.6	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65608 SS7

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.76			
SURROGATE	#Bromofluorobenzene#	110			
SURROGATE	#Dibromofluoromethane#	116			
SURROGATE	#Toluene-d8#	119			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	57		50
71-55-6	1,1,1-Trichloroethane	Not Detected	57		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	57		50
79-00-5	1,1,2-Trichloroethane	Not Detected	57		50
75-34-3	1,1-Dichloroethane	Not Detected	57		50
75-35-4	1,1-Dichloroethylene	Not Detected	57		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	280		50
96-18-4	1,2,3-Trichloropropane	Not Detected	57		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	57		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	280		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	57		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	280		50
106-93-4	1,2-Dibromoethane	Not Detected	57	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	57		50
107-06-2	1,2-Dichloroethane	Not Detected	57		50
78-87-5	1,2-Dichloropropane	Not Detected	57		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	57		50
541-73-1	1,3-Dichlorobenzene	Not Detected	57		50
106-46-7	1,4-Dichlorobenzene	Not Detected	57		50
78-93-3	2-Butanone (MEK)	Not Detected	280		50
591-78-6	2-Hexanone	Not Detected	280		50
91-57-6	2-Methylnaphthalene	Not Detected	280	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1100		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	280		50
107-13-1	Acrylonitrile	Not Detected	280	Z	50
71-43-2	Benzene	Not Detected	57		50
108-86-1	Bromobenzene	Not Detected	57		50
74-97-5	Bromochloromethane	Not Detected	57		50
75-27-4	Bromodichloromethane	Not Detected	57		50
75-25-2	Bromoform	Not Detected	57		50
74-83-9	Bromomethane	Not Detected	230		50
75-15-0	Carbon disulfide	Not Detected	57		50
56-23-5	Carbon tetrachloride	Not Detected	57		50
108-90-7	Chlorobenzene	Not Detected	57		50
75-00-3	Chloroethane	Not Detected	280		50
67-66-3	Chloroform	Not Detected	57		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65608 SS7

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	280		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	57		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	57		50
110-82-7	Cyclohexane	Not Detected	280		50
124-48-1	Dibromochloromethane	Not Detected	57		50
74-95-3	Dibromomethane	Not Detected	57		50
75-71-8	Dichlorodifluoromethane	Not Detected	280		50
60-29-7	Diethyl ether	Not Detected	230		50
108-20-3	Diisopropyl Ether	Not Detected	280		50
100-41-4	Ethylbenzene	Not Detected	57		50
637-92-3	Ethyltertiarybutylether	Not Detected	280		50
67-72-1	Hexachloroethane	Not Detected	280	3	50
98-82-8	Isopropylbenzene	Not Detected	57		50
108383,106423	m & p - Xylene	Not Detected	110		50
74-88-4	Methyl iodide	Not Detected	57	5 7	50
75-09-2	Methylene chloride	Not Detected	110		50
1634-04-4	Methyltertiarybutylether	Not Detected	57		50
91-20-3	Naphthalene	Not Detected	280	X	50
104-51-8	n-Butylbenzene	Not Detected	57		50
103-65-1	n-Propylbenzene	Not Detected	57		50
95-47-6	o-Xylene	Not Detected	57		50
99-87-6	p-Isopropyl toluene	Not Detected	57		50
135-98-8	sec-Butylbenzene	Not Detected	57		50
100-42-5	Styrene	Not Detected	57		50
98-06-6	tert-Butylbenzene	Not Detected	57		50
75-65-0	tertiary Butyl Alcohol	Not Detected	2800		50
994-05-8	tertiaryAmylmethylether	Not Detected	280		50
127-18-4	Tetrachloroethylene	Not Detected	57		50
109-99-9	Tetrahydrofuran	Not Detected	280		50
108-88-3	Toluene	Not Detected	57		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	57		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	57		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	280	Z	50
79-01-6	Trichloroethylene	Not Detected	57		50
75-69-4	Trichlorofluoromethane	Not Detected	57		50
75-01-4	Vinyl chloride	Not Detected	57	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65608 SS7

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	94.8	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65609 SS8

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	8.51			
SURROGATE	#Bromofluorobenzene#	124			
SURROGATE	#Dibromofluoromethane#	135			
SURROGATE	#Toluene-d8#	131			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	77		50
71-55-6	1,1,1-Trichloroethane	Not Detected	77		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	77		50
79-00-5	1,1,2-Trichloroethane	Not Detected	77		50
75-34-3	1,1-Dichloroethane	Not Detected	77		50
75-35-4	1,1-Dichloroethylene	Not Detected	77		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	380		50
96-18-4	1,2,3-Trichloropropane	Not Detected	77		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	77		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	380		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	77		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	380		50
106-93-4	1,2-Dibromoethane	Not Detected	77	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	77		50
107-06-2	1,2-Dichloroethane	Not Detected	77		50
78-87-5	1,2-Dichloropropane	Not Detected	77		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	77		50
541-73-1	1,3-Dichlorobenzene	Not Detected	77		50
106-46-7	1,4-Dichlorobenzene	Not Detected	77		50
78-93-3	2-Butanone (MEK)	Not Detected	380		50
591-78-6	2-Hexanone	Not Detected	380		50
91-57-6	2-Methylnaphthalene	Not Detected	380	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1500		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	380		50
107-13-1	Acrylonitrile	Not Detected	380	Z	50
71-43-2	Benzene	Not Detected	77		50
108-86-1	Bromobenzene	Not Detected	77		50
74-97-5	Bromochloromethane	Not Detected	77		50
75-27-4	Bromodichloromethane	Not Detected	77		50
75-25-2	Bromoform	Not Detected	77		50
74-83-9	Bromomethane	Not Detected	310		50
75-15-0	Carbon disulfide	Not Detected	77		50
56-23-5	Carbon tetrachloride	Not Detected	77		50
108-90-7	Chlorobenzene	Not Detected	77		50
75-00-3	Chloroethane	Not Detected	380		50
67-66-3	Chloroform	Not Detected	77		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65609 SS8

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	380		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	77		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	77		50
110-82-7	Cyclohexane	Not Detected	380		50
124-48-1	Dibromochloromethane	Not Detected	77		50
74-95-3	Dibromomethane	Not Detected	77		50
75-71-8	Dichlorodifluoromethane	Not Detected	380		50
60-29-7	Diethyl ether	Not Detected	310		50
108-20-3	Diisopropyl Ether	Not Detected	380		50
100-41-4	Ethylbenzene	Not Detected	77		50
637-92-3	Ethyltertiarybutylether	Not Detected	380		50
67-72-1	Hexachloroethane	Not Detected	380	3	50
98-82-8	Isopropylbenzene	Not Detected	77		50
108383,106423	m & p - Xylene	Not Detected	150		50
74-88-4	Methyl iodide	Not Detected	77	5 7	50
75-09-2	Methylene chloride	Not Detected	150		50
1634-04-4	Methyltertiarybutylether	Not Detected	77		50
91-20-3	Naphthalene	800	380	X	50
104-51-8	n-Butylbenzene	Not Detected	77		50
103-65-1	n-Propylbenzene	Not Detected	77		50
95-47-6	o-Xylene	Not Detected	77		50
99-87-6	p-Isopropyl toluene	Not Detected	77		50
135-98-8	sec-Butylbenzene	Not Detected	77		50
100-42-5	Styrene	Not Detected	77		50
98-06-6	tert-Butylbenzene	Not Detected	77		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3800		50
994-05-8	tertiaryAmylmethylether	Not Detected	380		50
127-18-4	Tetrachloroethylene	Not Detected	77		50
109-99-9	Tetrahydrofuran	Not Detected	380		50
108-88-3	Toluene	Not Detected	77		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	77		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	77		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	380	Z	50
79-01-6	Trichloroethylene	Not Detected	77		50
75-69-4	Trichlorofluoromethane	Not Detected	77		50
75-01-4	Vinyl chloride	Not Detected	77	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65609 SS8

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	85.7	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65610 SS9

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.31			
SURROGATE	#Bromofluorobenzene#	107			
SURROGATE	#Dibromofluoromethane#	111			
SURROGATE	#Toluene-d8#	118			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	64		50
71-55-6	1,1,1-Trichloroethane	Not Detected	64		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	64		50
79-00-5	1,1,2-Trichloroethane	Not Detected	64		50
75-34-3	1,1-Dichloroethane	Not Detected	64		50
75-35-4	1,1-Dichloroethylene	Not Detected	64		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	320		50
96-18-4	1,2,3-Trichloropropane	Not Detected	64		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	64		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	320		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	64		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	320		50
106-93-4	1,2-Dibromoethane	Not Detected	64	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	64		50
107-06-2	1,2-Dichloroethane	Not Detected	64		50
78-87-5	1,2-Dichloropropane	Not Detected	64		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	64		50
541-73-1	1,3-Dichlorobenzene	Not Detected	64		50
106-46-7	1,4-Dichlorobenzene	Not Detected	64		50
78-93-3	2-Butanone (MEK)	Not Detected	320		50
591-78-6	2-Hexanone	Not Detected	320		50
91-57-6	2-Methylnaphthalene	Not Detected	320	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1300		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	320		50
107-13-1	Acrylonitrile	Not Detected	320	Z	50
71-43-2	Benzene	Not Detected	64		50
108-86-1	Bromobenzene	Not Detected	64		50
74-97-5	Bromochloromethane	Not Detected	64		50
75-27-4	Bromodichloromethane	Not Detected	64		50
75-25-2	Bromoform	Not Detected	64		50
74-83-9	Bromomethane	Not Detected	260		50
75-15-0	Carbon disulfide	Not Detected	64		50
56-23-5	Carbon tetrachloride	Not Detected	64		50
108-90-7	Chlorobenzene	Not Detected	64		50
75-00-3	Chloroethane	Not Detected	320		50
67-66-3	Chloroform	Not Detected	64		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65610 SS9

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	320		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	64		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	64		50
110-82-7	Cyclohexane	Not Detected	320		50
124-48-1	Dibromochloromethane	Not Detected	64		50
74-95-3	Dibromomethane	Not Detected	64		50
75-71-8	Dichlorodifluoromethane	Not Detected	320		50
60-29-7	Diethyl ether	Not Detected	260		50
108-20-3	Diisopropyl Ether	Not Detected	320		50
100-41-4	Ethylbenzene	Not Detected	64		50
637-92-3	Ethyltertiarybutylether	Not Detected	320		50
67-72-1	Hexachloroethane	Not Detected	320	3	50
98-82-8	Isopropylbenzene	Not Detected	64		50
108383,106423	m & p - Xylene	Not Detected	130		50
74-88-4	Methyl iodide	Not Detected	64	5 7	50
75-09-2	Methylene chloride	Not Detected	130		50
1634-04-4	Methyltertiarybutylether	Not Detected	64		50
91-20-3	Naphthalene	Not Detected	320	X	50
104-51-8	n-Butylbenzene	Not Detected	64		50
103-65-1	n-Propylbenzene	Not Detected	64		50
95-47-6	o-Xylene	Not Detected	64		50
99-87-6	p-Isopropyl toluene	Not Detected	64		50
135-98-8	sec-Butylbenzene	Not Detected	64		50
100-42-5	Styrene	Not Detected	64		50
98-06-6	tert-Butylbenzene	Not Detected	64		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3200		50
994-05-8	tertiaryAmylmethylether	Not Detected	320		50
127-18-4	Tetrachloroethylene	Not Detected	64		50
109-99-9	Tetrahydrofuran	Not Detected	320		50
108-88-3	Toluene	Not Detected	64		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	64		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	64		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	320	Z	50
79-01-6	Trichloroethylene	Not Detected	64		50
75-69-4	Trichlorofluoromethane	Not Detected	64		50
75-01-4	Vinyl chloride	Not Detected	64	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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TEL: (517) 335-9800
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Sample Number: AB65610 SS9

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	91.0	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65611 SS10

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	8.98			
SURROGATE	#Bromofluorobenzene#	109			
SURROGATE	#Dibromofluoromethane#	122			
SURROGATE	#Toluene-d8#	118			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	93		50
71-55-6	1,1,1-Trichloroethane	Not Detected	93		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	93		50
79-00-5	1,1,2-Trichloroethane	Not Detected	93		50
75-34-3	1,1-Dichloroethane	Not Detected	93		50
75-35-4	1,1-Dichloroethylene	Not Detected	93		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	460		50
96-18-4	1,2,3-Trichloropropane	Not Detected	93		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	93		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	460		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	93		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	460		50
106-93-4	1,2-Dibromoethane	Not Detected	93	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	93		50
107-06-2	1,2-Dichloroethane	Not Detected	93		50
78-87-5	1,2-Dichloropropane	Not Detected	93		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	93		50
541-73-1	1,3-Dichlorobenzene	Not Detected	93		50
106-46-7	1,4-Dichlorobenzene	Not Detected	93		50
78-93-3	2-Butanone (MEK)	Not Detected	460		50
591-78-6	2-Hexanone	Not Detected	460		50
91-57-6	2-Methylnaphthalene	Not Detected	460	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1900		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	460		50
107-13-1	Acrylonitrile	Not Detected	460	Z	50
71-43-2	Benzene	Not Detected	93		50
108-86-1	Bromobenzene	Not Detected	93		50
74-97-5	Bromochloromethane	Not Detected	93		50
75-27-4	Bromodichloromethane	Not Detected	93		50
75-25-2	Bromoform	Not Detected	93		50
74-83-9	Bromomethane	Not Detected	370		50
75-15-0	Carbon disulfide	Not Detected	93		50
56-23-5	Carbon tetrachloride	Not Detected	93		50
108-90-7	Chlorobenzene	Not Detected	93		50
75-00-3	Chloroethane	Not Detected	460		50
67-66-3	Chloroform	Not Detected	93		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65611 SS10

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	460		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	93		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	93		50
110-82-7	Cyclohexane	Not Detected	460		50
124-48-1	Dibromochloromethane	Not Detected	93		50
74-95-3	Dibromomethane	Not Detected	93		50
75-71-8	Dichlorodifluoromethane	Not Detected	460		50
60-29-7	Diethyl ether	Not Detected	370		50
108-20-3	Diisopropyl Ether	Not Detected	460		50
100-41-4	Ethylbenzene	Not Detected	93		50
637-92-3	Ethyltertiarybutylether	Not Detected	460		50
67-72-1	Hexachloroethane	Not Detected	460	3	50
98-82-8	Isopropylbenzene	Not Detected	93		50
108383,106423	m & p - Xylene	Not Detected	190		50
74-88-4	Methyl iodide	Not Detected	93	5 7	50
75-09-2	Methylene chloride	Not Detected	190		50
1634-04-4	Methyltertiarybutylether	Not Detected	93		50
91-20-3	Naphthalene	Not Detected	460	X	50
104-51-8	n-Butylbenzene	Not Detected	93		50
103-65-1	n-Propylbenzene	Not Detected	93		50
95-47-6	o-Xylene	Not Detected	93		50
99-87-6	p-Isopropyl toluene	Not Detected	93		50
135-98-8	sec-Butylbenzene	Not Detected	93		50
100-42-5	Styrene	Not Detected	93		50
98-06-6	tert-Butylbenzene	Not Detected	93		50
75-65-0	tertiary Butyl Alcohol	Not Detected	4600		50
994-05-8	tertiaryAmylmethylether	Not Detected	460		50
127-18-4	Tetrachloroethylene	Not Detected	93		50
109-99-9	Tetrahydrofuran	Not Detected	460		50
108-88-3	Toluene	Not Detected	93		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	93		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	93		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	460	Z	50
79-01-6	Trichloroethylene	Not Detected	93		50
75-69-4	Trichlorofluoromethane	Not Detected	93		50
75-01-4	Vinyl chloride	Not Detected	93	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65611 SS10

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	74.0	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65612 SS11

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.35			
SURROGATE	#Bromofluorobenzene#	107			
SURROGATE	#Dibromofluoromethane#	120			
SURROGATE	#Toluene-d8#	117			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	63		50
71-55-6	1,1,1-Trichloroethane	Not Detected	63		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	63		50
79-00-5	1,1,2-Trichloroethane	Not Detected	63		50
75-34-3	1,1-Dichloroethane	Not Detected	63		50
75-35-4	1,1-Dichloroethylene	Not Detected	63		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	310		50
96-18-4	1,2,3-Trichloropropane	Not Detected	63		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	63		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	310		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	63		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	310		50
106-93-4	1,2-Dibromoethane	Not Detected	63	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	63		50
107-06-2	1,2-Dichloroethane	Not Detected	63		50
78-87-5	1,2-Dichloropropane	Not Detected	63		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	63		50
541-73-1	1,3-Dichlorobenzene	Not Detected	63		50
106-46-7	1,4-Dichlorobenzene	Not Detected	63		50
78-93-3	2-Butanone (MEK)	Not Detected	310	7	50
591-78-6	2-Hexanone	Not Detected	310		50
91-57-6	2-Methylnaphthalene	Not Detected	310	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1300	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	310		50
107-13-1	Acrylonitrile	Not Detected	310	Z	50
71-43-2	Benzene	Not Detected	63		50
108-86-1	Bromobenzene	Not Detected	63	7	50
74-97-5	Bromochloromethane	Not Detected	63		50
75-27-4	Bromodichloromethane	Not Detected	63		50
75-25-2	Bromoform	Not Detected	63		50
74-83-9	Bromomethane	Not Detected	250		50
75-15-0	Carbon disulfide	Not Detected	63		50
56-23-5	Carbon tetrachloride	Not Detected	63		50
108-90-7	Chlorobenzene	Not Detected	63		50
75-00-3	Chloroethane	Not Detected	310		50
67-66-3	Chloroform	Not Detected	63		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65612 SS11

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	310		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	63		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	63		50
110-82-7	Cyclohexane	Not Detected	310		50
124-48-1	Dibromochloromethane	Not Detected	63		50
74-95-3	Dibromomethane	Not Detected	63		50
75-71-8	Dichlorodifluoromethane	Not Detected	310		50
60-29-7	Diethyl ether	Not Detected	250		50
108-20-3	Diisopropyl Ether	Not Detected	310		50
100-41-4	Ethylbenzene	Not Detected	63		50
637-92-3	Ethyltertiarybutylether	Not Detected	310		50
67-72-1	Hexachloroethane	Not Detected	310		50
98-82-8	Isopropylbenzene	Not Detected	63		50
108383,106423	m & p - Xylene	Not Detected	130		50
74-88-4	Methyl iodide	Not Detected	190	* 5 7	50
75-09-2	Methylene chloride	Not Detected	130		50
1634-04-4	Methyltertiarybutylether	Not Detected	63		50
91-20-3	Naphthalene	Not Detected	310	X	50
104-51-8	n-Butylbenzene	Not Detected	63		50
103-65-1	n-Propylbenzene	Not Detected	63		50
95-47-6	o-Xylene	Not Detected	63		50
99-87-6	p-Isopropyl toluene	Not Detected	63		50
135-98-8	sec-Butylbenzene	Not Detected	63		50
100-42-5	Styrene	Not Detected	63		50
98-06-6	tert-Butylbenzene	Not Detected	63		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3100		50
994-05-8	tertiaryAmylmethylether	Not Detected	310		50
127-18-4	Tetrachloroethylene	Not Detected	63		50
109-99-9	Tetrahydrofuran	Not Detected	310		50
108-88-3	Toluene	Not Detected	63		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	63		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	63		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	310	Z	50
79-01-6	Trichloroethylene	Not Detected	63		50
75-69-4	Trichlorofluoromethane	Not Detected	63		50
75-01-4	Vinyl chloride	Not Detected	63	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65612 SS11

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	91.8	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65613 SS12

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	8.66			
SURROGATE	#Bromofluorobenzene#	69.9			
SURROGATE	#Dibromofluoromethane#	97.8			
SURROGATE	#Toluene-d8#	86.9			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	120		50
71-55-6	1,1,1-Trichloroethane	Not Detected	120		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	120		50
79-00-5	1,1,2-Trichloroethane	Not Detected	120		50
75-34-3	1,1-Dichloroethane	Not Detected	120		50
75-35-4	1,1-Dichloroethylene	Not Detected	120		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	580		50
96-18-4	1,2,3-Trichloropropane	Not Detected	120		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	120		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	580		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	120		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	580		50
106-93-4	1,2-Dibromoethane	Not Detected	120	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	120		50
107-06-2	1,2-Dichloroethane	Not Detected	120		50
78-87-5	1,2-Dichloropropane	Not Detected	120		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	120		50
541-73-1	1,3-Dichlorobenzene	Not Detected	120		50
106-46-7	1,4-Dichlorobenzene	Not Detected	120		50
78-93-3	2-Butanone (MEK)	Not Detected	580	7	50
591-78-6	2-Hexanone	Not Detected	580		50
91-57-6	2-Methylnaphthalene	Not Detected	580	X	50
67-64-1	2-Propanone (acetone)	Not Detected	2300	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	580		50
107-13-1	Acrylonitrile	Not Detected	580	Z	50
71-43-2	Benzene	Not Detected	120		50
108-86-1	Bromobenzene	Not Detected	120	7	50
74-97-5	Bromochloromethane	Not Detected	120		50
75-27-4	Bromodichloromethane	Not Detected	120		50
75-25-2	Bromoform	Not Detected	120		50
74-83-9	Bromomethane	Not Detected	460		50
75-15-0	Carbon disulfide	Not Detected	120		50
56-23-5	Carbon tetrachloride	Not Detected	120		50
108-90-7	Chlorobenzene	Not Detected	120		50
75-00-3	Chloroethane	Not Detected	580		50
67-66-3	Chloroform	Not Detected	120		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65613 SS12

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	580		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	120		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	120		50
110-82-7	Cyclohexane	Not Detected	580		50
124-48-1	Dibromochloromethane	Not Detected	120		50
74-95-3	Dibromomethane	Not Detected	120		50
75-71-8	Dichlorodifluoromethane	Not Detected	580		50
60-29-7	Diethyl ether	Not Detected	460		50
108-20-3	Diisopropyl Ether	Not Detected	580		50
100-41-4	Ethylbenzene	Not Detected	120		50
637-92-3	Ethyltertiarybutylether	Not Detected	580		50
67-72-1	Hexachloroethane	Not Detected	580		50
98-82-8	Isopropylbenzene	Not Detected	120		50
108383,106423	m & p - Xylene	Not Detected	230		50
74-88-4	Methyl iodide	Not Detected	350	* 5 7	50
75-09-2	Methylene chloride	Not Detected	230		50
1634-04-4	Methyltertiarybutylether	Not Detected	120		50
91-20-3	Naphthalene	700	580	X	50
104-51-8	n-Butylbenzene	Not Detected	120		50
103-65-1	n-Propylbenzene	Not Detected	120		50
95-47-6	o-Xylene	Not Detected	120		50
99-87-6	p-Isopropyl toluene	Not Detected	120		50
135-98-8	sec-Butylbenzene	Not Detected	120		50
100-42-5	Styrene	Not Detected	120		50
98-06-6	tert-Butylbenzene	Not Detected	120		50
75-65-0	tertiary Butyl Alcohol	Not Detected	5800		50
994-05-8	tertiaryAmylmethylether	Not Detected	580		50
127-18-4	Tetrachloroethylene	Not Detected	120		50
109-99-9	Tetrahydrofuran	Not Detected	580		50
108-88-3	Toluene	120	120		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	120		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	120		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	580	Z	50
79-01-6	Trichloroethylene	Not Detected	120		50
75-69-4	Trichlorofluoromethane	Not Detected	120		50
75-01-4	Vinyl chloride	Not Detected	120	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65613 SS12

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	65.2	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Sample Number: AB65614 SS12D

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.28			
SURROGATE	#Bromofluorobenzene#	97.5			
SURROGATE	#Dibromofluoromethane#	134			
SURROGATE	#Toluene-d8#	120			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	130		50
71-55-6	1,1,1-Trichloroethane	Not Detected	130		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	130		50
79-00-5	1,1,2-Trichloroethane	Not Detected	130		50
75-34-3	1,1-Dichloroethane	Not Detected	130		50
75-35-4	1,1-Dichloroethylene	Not Detected	130		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	630		50
96-18-4	1,2,3-Trichloropropane	Not Detected	130		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	130		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	630		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	130		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	630		50
106-93-4	1,2-Dibromoethane	Not Detected	130	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	130		50
107-06-2	1,2-Dichloroethane	Not Detected	130		50
78-87-5	1,2-Dichloropropane	Not Detected	130		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	130		50
541-73-1	1,3-Dichlorobenzene	Not Detected	130		50
106-46-7	1,4-Dichlorobenzene	Not Detected	130		50
78-93-3	2-Butanone (MEK)	Not Detected	630	7	50
591-78-6	2-Hexanone	Not Detected	630		50
91-57-6	2-Methylnaphthalene	Not Detected	630	X	50
67-64-1	2-Propanone (acetone)	Not Detected	2500	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	630		50
107-13-1	Acrylonitrile	Not Detected	630	Z	50
71-43-2	Benzene	Not Detected	130		50
108-86-1	Bromobenzene	Not Detected	130	7	50
74-97-5	Bromochloromethane	Not Detected	130		50
75-27-4	Bromodichloromethane	Not Detected	130		50
75-25-2	Bromoform	Not Detected	130		50
74-83-9	Bromomethane	Not Detected	510		50
75-15-0	Carbon disulfide	Not Detected	130		50
56-23-5	Carbon tetrachloride	Not Detected	130		50
108-90-7	Chlorobenzene	Not Detected	130		50
75-00-3	Chloroethane	Not Detected	630		50
67-66-3	Chloroform	Not Detected	130		50

CAS# : Chemical Abstract Service Registry Number
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ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65614 SS12D

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/29/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	630		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	130		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	130		50
110-82-7	Cyclohexane	Not Detected	630		50
124-48-1	Dibromochloromethane	Not Detected	130		50
74-95-3	Dibromomethane	Not Detected	130		50
75-71-8	Dichlorodifluoromethane	Not Detected	630		50
60-29-7	Diethyl ether	Not Detected	510		50
108-20-3	Diisopropyl Ether	Not Detected	630		50
100-41-4	Ethylbenzene	Not Detected	130		50
637-92-3	Ethyltertiarybutylether	Not Detected	630		50
67-72-1	Hexachloroethane	Not Detected	630		50
98-82-8	Isopropylbenzene	Not Detected	130		50
108383,106423	m & p - Xylene	Not Detected	250		50
74-88-4	Methyl iodide	Not Detected	250	* 5 7	50
75-09-2	Methylene chloride	Not Detected	250		50
1634-04-4	Methyltertiarybutylether	Not Detected	130		50
91-20-3	Naphthalene	1300	630	X	50
104-51-8	n-Butylbenzene	Not Detected	130		50
103-65-1	n-Propylbenzene	Not Detected	130		50
95-47-6	o-Xylene	Not Detected	130		50
99-87-6	p-Isopropyl toluene	Not Detected	130		50
135-98-8	sec-Butylbenzene	Not Detected	130		50
100-42-5	Styrene	Not Detected	130		50
98-06-6	tert-Butylbenzene	Not Detected	130		50
75-65-0	tertiary Butyl Alcohol	Not Detected	6300		50
994-05-8	tertiaryAmylmethylether	Not Detected	630		50
127-18-4	Tetrachloroethylene	Not Detected	130		50
109-99-9	Tetrahydrofuran	Not Detected	630		50
108-88-3	Toluene	140	130		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	130		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	130		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	630	Z	50
79-01-6	Trichloroethylene	Not Detected	130		50
75-69-4	Trichlorofluoromethane	Not Detected	130		50
75-01-4	Vinyl chloride	Not Detected	130	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65614 SS12D

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	58.9	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65615 SS13

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.21			
SURROGATE	#Bromofluorobenzene#	152			
SURROGATE	#Dibromofluoromethane#	163			
SURROGATE	#Toluene-d8#	165			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	87		50
71-55-6	1,1,1-Trichloroethane	Not Detected	87		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	87		50
79-00-5	1,1,2-Trichloroethane	Not Detected	87		50
75-34-3	1,1-Dichloroethane	Not Detected	87		50
75-35-4	1,1-Dichloroethylene	Not Detected	87		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	430		50
96-18-4	1,2,3-Trichloropropane	Not Detected	87		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	87		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	430		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	87		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	430		50
106-93-4	1,2-Dibromoethane	Not Detected	87	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	87		50
107-06-2	1,2-Dichloroethane	Not Detected	87		50
78-87-5	1,2-Dichloropropane	Not Detected	87		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	87		50
541-73-1	1,3-Dichlorobenzene	Not Detected	87		50
106-46-7	1,4-Dichlorobenzene	Not Detected	87		50
78-93-3	2-Butanone (MEK)	Not Detected	430	7	50
591-78-6	2-Hexanone	Not Detected	430		50
91-57-6	2-Methylnaphthalene	Not Detected	430	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1700	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	430		50
107-13-1	Acrylonitrile	Not Detected	430	Z	50
71-43-2	Benzene	Not Detected	87		50
108-86-1	Bromobenzene	Not Detected	87	7	50
74-97-5	Bromochloromethane	Not Detected	87		50
75-27-4	Bromodichloromethane	Not Detected	87		50
75-25-2	Bromoform	Not Detected	87		50
74-83-9	Bromomethane	Not Detected	350		50
75-15-0	Carbon disulfide	Not Detected	87		50
56-23-5	Carbon tetrachloride	Not Detected	87		50
108-90-7	Chlorobenzene	Not Detected	87		50
75-00-3	Chloroethane	Not Detected	430		50
67-66-3	Chloroform	Not Detected	87		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65615 SS13

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	430		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	87		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	87		50
110-82-7	Cyclohexane	Not Detected	430		50
124-48-1	Dibromochloromethane	Not Detected	87		50
74-95-3	Dibromomethane	Not Detected	87		50
75-71-8	Dichlorodifluoromethane	Not Detected	430		50
60-29-7	Diethyl ether	Not Detected	350		50
108-20-3	Diisopropyl Ether	Not Detected	430		50
100-41-4	Ethylbenzene	Not Detected	87		50
637-92-3	Ethyltertiarybutylether	Not Detected	430		50
67-72-1	Hexachloroethane	Not Detected	430		50
98-82-8	Isopropylbenzene	Not Detected	87		50
108383,106423	m & p - Xylene	Not Detected	170		50
74-88-4	Methyl iodide	Not Detected	260	* 5 7	50
75-09-2	Methylene chloride	Not Detected	170		50
1634-04-4	Methyltertiarybutylether	Not Detected	87		50
91-20-3	Naphthalene	Not Detected	430	X	50
104-51-8	n-Butylbenzene	Not Detected	87		50
103-65-1	n-Propylbenzene	Not Detected	87		50
95-47-6	o-Xylene	Not Detected	87		50
99-87-6	p-Isopropyl toluene	Not Detected	87		50
135-98-8	sec-Butylbenzene	Not Detected	87		50
100-42-5	Styrene	Not Detected	87		50
98-06-6	tert-Butylbenzene	Not Detected	87		50
75-65-0	tertiary Butyl Alcohol	Not Detected	4300		50
994-05-8	tertiaryAmylmethylether	Not Detected	430		50
127-18-4	Tetrachloroethylene	Not Detected	87		50
109-99-9	Tetrahydrofuran	Not Detected	430		50
108-88-3	Toluene	Not Detected	87		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	87		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	87		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	430	Z	50
79-01-6	Trichloroethylene	Not Detected	87		50
75-69-4	Trichlorofluoromethane	Not Detected	87		50
75-01-4	Vinyl chloride	Not Detected	87	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65615 SS13

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	76.2	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65616 SS14

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	8.91			
SURROGATE	#Bromofluorobenzene#	138			
SURROGATE	#Dibromofluoromethane#	150			
SURROGATE	#Toluene-d8#	155			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	100		50
71-55-6	1,1,1-Trichloroethane	Not Detected	100		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	100		50
79-00-5	1,1,2-Trichloroethane	Not Detected	100		50
75-34-3	1,1-Dichloroethane	Not Detected	100		50
75-35-4	1,1-Dichloroethylene	Not Detected	100		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	500		50
96-18-4	1,2,3-Trichloropropane	Not Detected	100		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	100		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	500		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	100		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	500		50
106-93-4	1,2-Dibromoethane	Not Detected	100	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	100		50
107-06-2	1,2-Dichloroethane	Not Detected	100		50
78-87-5	1,2-Dichloropropane	Not Detected	100		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	100		50
541-73-1	1,3-Dichlorobenzene	Not Detected	100		50
106-46-7	1,4-Dichlorobenzene	Not Detected	100		50
78-93-3	2-Butanone (MEK)	Not Detected	500	7	50
591-78-6	2-Hexanone	Not Detected	500		50
91-57-6	2-Methylnaphthalene	Not Detected	500	X	50
67-64-1	2-Propanone (acetone)	Not Detected	2000	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	500		50
107-13-1	Acrylonitrile	Not Detected	500	Z	50
71-43-2	Benzene	Not Detected	100		50
108-86-1	Bromobenzene	Not Detected	100	7	50
74-97-5	Bromochloromethane	Not Detected	100		50
75-27-4	Bromodichloromethane	Not Detected	100		50
75-25-2	Bromoform	Not Detected	100		50
74-83-9	Bromomethane	Not Detected	400		50
75-15-0	Carbon disulfide	Not Detected	100		50
56-23-5	Carbon tetrachloride	Not Detected	100		50
108-90-7	Chlorobenzene	Not Detected	100		50
75-00-3	Chloroethane	Not Detected	500		50
67-66-3	Chloroform	Not Detected	100		50

CAS# : Chemical Abstract Service Registry Number
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mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65616 SS14

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	500		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	100		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	100		50
110-82-7	Cyclohexane	Not Detected	500		50
124-48-1	Dibromochloromethane	Not Detected	100		50
74-95-3	Dibromomethane	Not Detected	100		50
75-71-8	Dichlorodifluoromethane	Not Detected	500		50
60-29-7	Diethyl ether	Not Detected	400		50
108-20-3	Diisopropyl Ether	Not Detected	500		50
100-41-4	Ethylbenzene	Not Detected	100		50
637-92-3	Ethyltertiarybutylether	Not Detected	500		50
67-72-1	Hexachloroethane	Not Detected	500		50
98-82-8	Isopropylbenzene	Not Detected	100		50
108383,106423	m & p - Xylene	Not Detected	200		50
74-88-4	Methyl iodide	Not Detected	200	* 5 7	50
75-09-2	Methylene chloride	Not Detected	200		50
1634-04-4	Methyltertiarybutylether	Not Detected	100		50
91-20-3	Naphthalene	Not Detected	500	X	50
104-51-8	n-Butylbenzene	Not Detected	100		50
103-65-1	n-Propylbenzene	Not Detected	100		50
95-47-6	o-Xylene	Not Detected	100		50
99-87-6	p-Isopropyl toluene	Not Detected	100		50
135-98-8	sec-Butylbenzene	Not Detected	100		50
100-42-5	Styrene	Not Detected	100		50
98-06-6	tert-Butylbenzene	Not Detected	100		50
75-65-0	tertiary Butyl Alcohol	Not Detected	5000		50
994-05-8	tertiaryAmylmethylether	Not Detected	500		50
127-18-4	Tetrachloroethylene	Not Detected	100		50
109-99-9	Tetrahydrofuran	Not Detected	500		50
108-88-3	Toluene	Not Detected	100		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	100		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	100		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	500	Z	50
79-01-6	Trichloroethylene	Not Detected	100		50
75-69-4	Trichlorofluoromethane	Not Detected	100		50
75-01-4	Vinyl chloride	Not Detected	100	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65616 SS14

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	70.4	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65617 SS15

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.30			
SURROGATE	#Bromofluorobenzene#	122			
SURROGATE	#Dibromofluoromethane#	124			
SURROGATE	#Toluene-d8#	133			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	72		50
71-55-6	1,1,1-Trichloroethane	Not Detected	72		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	72		50
79-00-5	1,1,2-Trichloroethane	Not Detected	72		50
75-34-3	1,1-Dichloroethane	Not Detected	72		50
75-35-4	1,1-Dichloroethylene	Not Detected	72		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	360		50
96-18-4	1,2,3-Trichloropropane	Not Detected	72		50
526-73-8	1,2,3-Trimethylbenzene	74	72		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	360		50
95-63-6	1,2,4-Trimethylbenzene	190	72		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	360		50
106-93-4	1,2-Dibromoethane	Not Detected	72	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	72		50
107-06-2	1,2-Dichloroethane	Not Detected	72		50
78-87-5	1,2-Dichloropropane	Not Detected	72		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	72		50
541-73-1	1,3-Dichlorobenzene	Not Detected	72		50
106-46-7	1,4-Dichlorobenzene	Not Detected	72		50
78-93-3	2-Butanone (MEK)	Not Detected	360	7	50
591-78-6	2-Hexanone	Not Detected	360		50
91-57-6	2-Methylnaphthalene	Not Detected	360	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1400	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	360		50
107-13-1	Acrylonitrile	Not Detected	360	Z	50
71-43-2	Benzene	Not Detected	72		50
108-86-1	Bromobenzene	Not Detected	72	7	50
74-97-5	Bromochloromethane	Not Detected	72		50
75-27-4	Bromodichloromethane	Not Detected	72		50
75-25-2	Bromoform	Not Detected	72		50
74-83-9	Bromomethane	Not Detected	290		50
75-15-0	Carbon disulfide	Not Detected	72		50
56-23-5	Carbon tetrachloride	Not Detected	72		50
108-90-7	Chlorobenzene	Not Detected	72		50
75-00-3	Chloroethane	Not Detected	360		50
67-66-3	Chloroform	Not Detected	72		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65617 SS15

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	360		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	72		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	72		50
110-82-7	Cyclohexane	Not Detected	360		50
124-48-1	Dibromochloromethane	Not Detected	72		50
74-95-3	Dibromomethane	Not Detected	72		50
75-71-8	Dichlorodifluoromethane	Not Detected	360		50
60-29-7	Diethyl ether	Not Detected	290		50
108-20-3	Diisopropyl Ether	Not Detected	360		50
100-41-4	Ethylbenzene	Not Detected	72		50
637-92-3	Ethyltertiarybutylether	Not Detected	360		50
67-72-1	Hexachloroethane	Not Detected	360		50
98-82-8	Isopropylbenzene	Not Detected	72		50
108383,106423	m & p - Xylene	160	140		50
74-88-4	Methyl iodide	Not Detected	140	* 5 7	50
75-09-2	Methylene chloride	Not Detected	140		50
1634-04-4	Methyltertiarybutylether	Not Detected	72		50
91-20-3	Naphthalene	Not Detected	360	X	50
104-51-8	n-Butylbenzene	Not Detected	72		50
103-65-1	n-Propylbenzene	Not Detected	72		50
95-47-6	o-Xylene	180	72		50
99-87-6	p-Isopropyl toluene	Not Detected	72		50
135-98-8	sec-Butylbenzene	Not Detected	72		50
100-42-5	Styrene	Not Detected	72		50
98-06-6	tert-Butylbenzene	Not Detected	72		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3600		50
994-05-8	tertiaryAmylmethylether	Not Detected	360		50
127-18-4	Tetrachloroethylene	Not Detected	72		50
109-99-9	Tetrahydrofuran	Not Detected	360		50
108-88-3	Toluene	140	72		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	72		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	72		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	360	Z	50
79-01-6	Trichloroethylene	Not Detected	72		50
75-69-4	Trichlorofluoromethane	Not Detected	72		50
75-01-4	Vinyl chloride	Not Detected	72	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65617 SS15

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	85.0	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65618 SB1

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	10.23			
SURROGATE	#Bromofluorobenzene#	128			
SURROGATE	#Dibromofluoromethane#	138			
SURROGATE	#Toluene-d8#	142			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	57		50
71-55-6	1,1,1-Trichloroethane	Not Detected	57		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	57		50
79-00-5	1,1,2-Trichloroethane	Not Detected	57		50
75-34-3	1,1-Dichloroethane	Not Detected	57		50
75-35-4	1,1-Dichloroethylene	Not Detected	57		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	290		50
96-18-4	1,2,3-Trichloropropane	Not Detected	57		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	57		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	290		50
95-63-6	1,2,4-Trimethylbenzene	100	57		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	290		50
106-93-4	1,2-Dibromoethane	Not Detected	57	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	57		50
107-06-2	1,2-Dichloroethane	Not Detected	57		50
78-87-5	1,2-Dichloropropane	Not Detected	57		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	57		50
541-73-1	1,3-Dichlorobenzene	Not Detected	57		50
106-46-7	1,4-Dichlorobenzene	Not Detected	57		50
78-93-3	2-Butanone (MEK)	Not Detected	290	7	50
591-78-6	2-Hexanone	Not Detected	290		50
91-57-6	2-Methylnaphthalene	Not Detected	290	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1100	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	290		50
107-13-1	Acrylonitrile	Not Detected	290	Z	50
71-43-2	Benzene	88	57		50
108-86-1	Bromobenzene	Not Detected	57	7	50
74-97-5	Bromochloromethane	Not Detected	57		50
75-27-4	Bromodichloromethane	Not Detected	57		50
75-25-2	Bromoform	Not Detected	57		50
74-83-9	Bromomethane	Not Detected	230		50
75-15-0	Carbon disulfide	Not Detected	57		50
56-23-5	Carbon tetrachloride	Not Detected	57		50
108-90-7	Chlorobenzene	Not Detected	57		50
75-00-3	Chloroethane	Not Detected	290		50
67-66-3	Chloroform	Not Detected	57		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65618 SB1

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	290		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	57		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	57		50
110-82-7	Cyclohexane	Not Detected	290		50
124-48-1	Dibromochloromethane	Not Detected	57		50
74-95-3	Dibromomethane	Not Detected	57		50
75-71-8	Dichlorodifluoromethane	Not Detected	290		50
60-29-7	Diethyl ether	Not Detected	230		50
108-20-3	Diisopropyl Ether	Not Detected	290		50
100-41-4	Ethylbenzene	Not Detected	57		50
637-92-3	Ethyltertiarybutylether	Not Detected	290		50
67-72-1	Hexachloroethane	Not Detected	290		50
98-82-8	Isopropylbenzene	Not Detected	57		50
108383,106423	m & p - Xylene	200	110		50
74-88-4	Methyl iodide	Not Detected	57	5 7	50
75-09-2	Methylene chloride	Not Detected	110		50
1634-04-4	Methyltertiarybutylether	Not Detected	57		50
91-20-3	Naphthalene	600	290	X	50
104-51-8	n-Butylbenzene	Not Detected	57		50
103-65-1	n-Propylbenzene	Not Detected	57		50
95-47-6	o-Xylene	80	57		50
99-87-6	p-Isopropyl toluene	Not Detected	57		50
135-98-8	sec-Butylbenzene	Not Detected	57		50
100-42-5	Styrene	Not Detected	57		50
98-06-6	tert-Butylbenzene	Not Detected	57		50
75-65-0	tertiary Butyl Alcohol	Not Detected	2900		50
994-05-8	tertiaryAmylmethylether	Not Detected	290		50
127-18-4	Tetrachloroethylene	Not Detected	57		50
109-99-9	Tetrahydrofuran	Not Detected	290		50
108-88-3	Toluene	260	57		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	57		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	57		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	290	Z	50
79-01-6	Trichloroethylene	Not Detected	57		50
75-69-4	Trichlorofluoromethane	Not Detected	57		50
75-01-4	Vinyl chloride	Not Detected	57	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65618 SB1

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	92.2	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65619 SB2

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	10.21			
SURROGATE	#Bromofluorobenzene#	158			
SURROGATE	#Dibromofluoromethane#	163			
SURROGATE	#Toluene-d8#	174			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	69		50
71-55-6	1,1,1-Trichloroethane	Not Detected	69		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	69		50
79-00-5	1,1,2-Trichloroethane	Not Detected	69		50
75-34-3	1,1-Dichloroethane	Not Detected	69		50
75-35-4	1,1-Dichloroethylene	Not Detected	69		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	340		50
96-18-4	1,2,3-Trichloropropane	Not Detected	69		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	69		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	340		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	69		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	340		50
106-93-4	1,2-Dibromoethane	Not Detected	69	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	69		50
107-06-2	1,2-Dichloroethane	Not Detected	69		50
78-87-5	1,2-Dichloropropane	Not Detected	69		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	69		50
541-73-1	1,3-Dichlorobenzene	Not Detected	69		50
106-46-7	1,4-Dichlorobenzene	Not Detected	69		50
78-93-3	2-Butanone (MEK)	Not Detected	340	7	50
591-78-6	2-Hexanone	Not Detected	340		50
91-57-6	2-Methylnaphthalene	Not Detected	340	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1400	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	340		50
107-13-1	Acrylonitrile	Not Detected	340	Z	50
71-43-2	Benzene	Not Detected	69		50
108-86-1	Bromobenzene	Not Detected	69	7	50
74-97-5	Bromochloromethane	Not Detected	69		50
75-27-4	Bromodichloromethane	Not Detected	69		50
75-25-2	Bromoform	Not Detected	69		50
74-83-9	Bromomethane	Not Detected	270		50
75-15-0	Carbon disulfide	Not Detected	69		50
56-23-5	Carbon tetrachloride	Not Detected	69		50
108-90-7	Chlorobenzene	Not Detected	69		50
75-00-3	Chloroethane	Not Detected	340		50
67-66-3	Chloroform	Not Detected	69		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65619 SB2

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	340		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	69		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	69		50
110-82-7	Cyclohexane	Not Detected	340		50
124-48-1	Dibromochloromethane	Not Detected	69		50
74-95-3	Dibromomethane	Not Detected	69		50
75-71-8	Dichlorodifluoromethane	Not Detected	340		50
60-29-7	Diethyl ether	Not Detected	270		50
108-20-3	Diisopropyl Ether	Not Detected	340		50
100-41-4	Ethylbenzene	Not Detected	69		50
637-92-3	Ethyltertiarybutylether	Not Detected	340		50
67-72-1	Hexachloroethane	Not Detected	340		50
98-82-8	Isopropylbenzene	Not Detected	69		50
108383,106423	m & p - Xylene	Not Detected	140		50
74-88-4	Methyl iodide	Not Detected	140	* 5 7	50
75-09-2	Methylene chloride	Not Detected	140		50
1634-04-4	Methyltertiarybutylether	Not Detected	69		50
91-20-3	Naphthalene	Not Detected	340	X	50
104-51-8	n-Butylbenzene	Not Detected	69		50
103-65-1	n-Propylbenzene	Not Detected	69		50
95-47-6	o-Xylene	Not Detected	69		50
99-87-6	p-Isopropyl toluene	Not Detected	69		50
135-98-8	sec-Butylbenzene	Not Detected	69		50
100-42-5	Styrene	Not Detected	69		50
98-06-6	tert-Butylbenzene	Not Detected	69		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3400		50
994-05-8	tertiaryAmylmethylether	Not Detected	340		50
127-18-4	Tetrachloroethylene	Not Detected	69		50
109-99-9	Tetrahydrofuran	Not Detected	340		50
108-88-3	Toluene	94	69		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	69		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	69		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	340	Z	50
79-01-6	Trichloroethylene	Not Detected	69		50
75-69-4	Trichlorofluoromethane	Not Detected	69		50
75-01-4	Vinyl chloride	Not Detected	69	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65619 SB2

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	83.5	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65620 SB2D

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	8.93			
SURROGATE	#Bromofluorobenzene#	138			
SURROGATE	#Dibromofluoromethane#	146			
SURROGATE	#Toluene-d8#	149			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	73		50
71-55-6	1,1,1-Trichloroethane	Not Detected	73		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	73		50
79-00-5	1,1,2-Trichloroethane	Not Detected	73		50
75-34-3	1,1-Dichloroethane	Not Detected	73		50
75-35-4	1,1-Dichloroethylene	Not Detected	73		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	360		50
96-18-4	1,2,3-Trichloropropane	Not Detected	73		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	73		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	360		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	73		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	360		50
106-93-4	1,2-Dibromoethane	Not Detected	73	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	73		50
107-06-2	1,2-Dichloroethane	Not Detected	73		50
78-87-5	1,2-Dichloropropane	Not Detected	73		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	73		50
541-73-1	1,3-Dichlorobenzene	Not Detected	73		50
106-46-7	1,4-Dichlorobenzene	Not Detected	73		50
78-93-3	2-Butanone (MEK)	Not Detected	360	7	50
591-78-6	2-Hexanone	Not Detected	360		50
91-57-6	2-Methylnaphthalene	Not Detected	360	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1500	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	360		50
107-13-1	Acrylonitrile	Not Detected	360	Z	50
71-43-2	Benzene	Not Detected	73		50
108-86-1	Bromobenzene	Not Detected	73	7	50
74-97-5	Bromochloromethane	Not Detected	73		50
75-27-4	Bromodichloromethane	Not Detected	73		50
75-25-2	Bromoform	Not Detected	73		50
74-83-9	Bromomethane	Not Detected	290		50
75-15-0	Carbon disulfide	Not Detected	73		50
56-23-5	Carbon tetrachloride	Not Detected	73		50
108-90-7	Chlorobenzene	Not Detected	73		50
75-00-3	Chloroethane	Not Detected	360		50
67-66-3	Chloroform	Not Detected	73		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65620 SB2D

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	360		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	73		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	73		50
110-82-7	Cyclohexane	Not Detected	360		50
124-48-1	Dibromochloromethane	Not Detected	73		50
74-95-3	Dibromomethane	Not Detected	73		50
75-71-8	Dichlorodifluoromethane	Not Detected	360		50
60-29-7	Diethyl ether	Not Detected	290		50
108-20-3	Diisopropyl Ether	Not Detected	360		50
100-41-4	Ethylbenzene	Not Detected	73		50
637-92-3	Ethyltertiarybutylether	Not Detected	360		50
67-72-1	Hexachloroethane	Not Detected	360		50
98-82-8	Isopropylbenzene	Not Detected	73		50
108383,106423	m & p - Xylene	Not Detected	150		50
74-88-4	Methyl iodide	Not Detected	150	* 5 7	50
75-09-2	Methylene chloride	Not Detected	150		50
1634-04-4	Methyltertiarybutylether	Not Detected	73		50
91-20-3	Naphthalene	Not Detected	360	X	50
104-51-8	n-Butylbenzene	Not Detected	73		50
103-65-1	n-Propylbenzene	Not Detected	73		50
95-47-6	o-Xylene	Not Detected	73		50
99-87-6	p-Isopropyl toluene	Not Detected	73		50
135-98-8	sec-Butylbenzene	Not Detected	73		50
100-42-5	Styrene	Not Detected	73		50
98-06-6	tert-Butylbenzene	Not Detected	73		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3600		50
994-05-8	tertiaryAmylmethylether	Not Detected	360		50
127-18-4	Tetrachloroethylene	Not Detected	73		50
109-99-9	Tetrahydrofuran	Not Detected	360		50
108-88-3	Toluene	90	73		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	73		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	73		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	360	Z	50
79-01-6	Trichloroethylene	Not Detected	73		50
75-69-4	Trichlorofluoromethane	Not Detected	73		50
75-01-4	Vinyl chloride	Not Detected	73	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65620 SB2D

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	86.5	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65621 SB3

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.94			
SURROGATE	#Bromofluorobenzene#	152			
SURROGATE	#Dibromofluoromethane#	167			
SURROGATE	#Toluene-d8#	173			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	76		50
71-55-6	1,1,1-Trichloroethane	Not Detected	76		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	76		50
79-00-5	1,1,2-Trichloroethane	Not Detected	76		50
75-34-3	1,1-Dichloroethane	Not Detected	76		50
75-35-4	1,1-Dichloroethylene	Not Detected	76		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	380		50
96-18-4	1,2,3-Trichloropropane	Not Detected	76		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	76		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	380		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	76		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	380		50
106-93-4	1,2-Dibromoethane	Not Detected	76	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	76		50
107-06-2	1,2-Dichloroethane	Not Detected	76		50
78-87-5	1,2-Dichloropropane	Not Detected	76		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	76		50
541-73-1	1,3-Dichlorobenzene	Not Detected	76		50
106-46-7	1,4-Dichlorobenzene	Not Detected	76		50
78-93-3	2-Butanone (MEK)	Not Detected	380	7	50
591-78-6	2-Hexanone	Not Detected	380		50
91-57-6	2-Methylnaphthalene	Not Detected	380	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1500	7	50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	380		50
107-13-1	Acrylonitrile	Not Detected	380	Z	50
71-43-2	Benzene	Not Detected	76		50
108-86-1	Bromobenzene	Not Detected	76	7	50
74-97-5	Bromochloromethane	Not Detected	76		50
75-27-4	Bromodichloromethane	Not Detected	76		50
75-25-2	Bromoform	Not Detected	76		50
74-83-9	Bromomethane	Not Detected	310		50
75-15-0	Carbon disulfide	Not Detected	76		50
56-23-5	Carbon tetrachloride	Not Detected	76		50
108-90-7	Chlorobenzene	Not Detected	76		50
75-00-3	Chloroethane	Not Detected	380		50
67-66-3	Chloroform	Not Detected	76		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65621 SB3

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/30/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/27/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	380		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	76		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	76		50
110-82-7	Cyclohexane	Not Detected	380		50
124-48-1	Dibromochloromethane	Not Detected	76		50
74-95-3	Dibromomethane	Not Detected	76		50
75-71-8	Dichlorodifluoromethane	Not Detected	380		50
60-29-7	Diethyl ether	Not Detected	310		50
108-20-3	Diisopropyl Ether	Not Detected	380		50
100-41-4	Ethylbenzene	Not Detected	76		50
637-92-3	Ethyltertiarybutylether	Not Detected	380		50
67-72-1	Hexachloroethane	Not Detected	380		50
98-82-8	Isopropylbenzene	Not Detected	76		50
108383,106423	m & p - Xylene	Not Detected	150		50
74-88-4	Methyl iodide	Not Detected	76	5 7	50
75-09-2	Methylene chloride	Not Detected	150		50
1634-04-4	Methyltertiarybutylether	Not Detected	76		50
91-20-3	Naphthalene	Not Detected	380	X	50
104-51-8	n-Butylbenzene	Not Detected	76		50
103-65-1	n-Propylbenzene	Not Detected	76		50
95-47-6	o-Xylene	Not Detected	76		50
99-87-6	p-Isopropyl toluene	Not Detected	76		50
135-98-8	sec-Butylbenzene	Not Detected	76		50
100-42-5	Styrene	Not Detected	76		50
98-06-6	tert-Butylbenzene	Not Detected	76		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3800		50
994-05-8	tertiaryAmylmethylether	Not Detected	380		50
127-18-4	Tetrachloroethylene	Not Detected	76		50
109-99-9	Tetrahydrofuran	Not Detected	380		50
108-88-3	Toluene	100	76		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	76		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	76		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	380	Z	50
79-01-6	Trichloroethylene	Not Detected	76		50
75-69-4	Trichlorofluoromethane	Not Detected	76		50
75-01-4	Vinyl chloride	Not Detected	76	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65621 SB3

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	79.3	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65622 SB4

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.08			
SURROGATE	#Bromofluorobenzene#	Not Applicable		V	
SURROGATE	#Dibromofluoromethane#	Not Applicable		V	
SURROGATE	#Toluene-d8#	Not Applicable		V	
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	9700		8000
71-55-6	1,1,1-Trichloroethane	Not Detected	9700		8000
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	9700		8000
79-00-5	1,1,2-Trichloroethane	Not Detected	9700		8000
75-34-3	1,1-Dichloroethane	Not Detected	9700		8000
75-35-4	1,1-Dichloroethylene	Not Detected	9700		8000
87-61-6	1,2,3-Trichlorobenzene	Not Detected	49000		8000
96-18-4	1,2,3-Trichloropropane	Not Detected	9700		8000
526-73-8	1,2,3-Trimethylbenzene	69000	9700		8000
120-82-1	1,2,4-Trichlorobenzene	Not Detected	49000		8000
95-63-6	1,2,4-Trimethylbenzene	210000	9700		8000
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	49000		8000
106-93-4	1,2-Dibromoethane	Not Detected	9700	Z	8000
95-50-1	1,2-Dichlorobenzene	Not Detected	9700		8000
107-06-2	1,2-Dichloroethane	Not Detected	9700		8000
78-87-5	1,2-Dichloropropane	Not Detected	9700		8000
108-67-8	1,3,5-Trimethylbenzene	71000	9700		8000
541-73-1	1,3-Dichlorobenzene	Not Detected	9700		8000
106-46-7	1,4-Dichlorobenzene	Not Detected	9700		8000
78-93-3	2-Butanone (MEK)	Not Detected	49000		8000
591-78-6	2-Hexanone	Not Detected	49000		8000
91-57-6	2-Methylnaphthalene	3500000	490000	X	80000
67-64-1	2-Propanone (acetone)	Not Detected	190000		8000
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	49000		8000
107-13-1	Acrylonitrile	Not Detected	49000	Z	8000
71-43-2	Benzene	110000	9700		8000
108-86-1	Bromobenzene	Not Detected	9700		8000
74-97-5	Bromochloromethane	Not Detected	9700		8000
75-27-4	Bromodichloromethane	Not Detected	9700		8000
75-25-2	Bromoform	Not Detected	9700		8000
74-83-9	Bromomethane	Not Detected	39000		8000
75-15-0	Carbon disulfide	Not Detected	9700		8000
56-23-5	Carbon tetrachloride	Not Detected	9700		8000
108-90-7	Chlorobenzene	Not Detected	9700		8000
75-00-3	Chloroethane	Not Detected	49000		8000
67-66-3	Chloroform	Not Detected	9700		8000

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65622 SB4

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	49000		8000
156-59-2	cis-1,2-Dichloroethylene	Not Detected	9700		8000
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	9700		8000
110-82-7	Cyclohexane	Not Detected	49000		8000
124-48-1	Dibromochloromethane	Not Detected	9700		8000
74-95-3	Dibromomethane	Not Detected	9700		8000
75-71-8	Dichlorodifluoromethane	Not Detected	49000		8000
60-29-7	Diethyl ether	Not Detected	39000		8000
108-20-3	Diisopropyl Ether	Not Detected	49000		8000
100-41-4	Ethylbenzene	54000	9700		8000
637-92-3	Ethyltertiarybutylether	Not Detected	49000		8000
67-72-1	Hexachloroethane	Not Detected	49000		8000
98-82-8	Isopropylbenzene	Not Detected	9700		8000
108383,106423	m & p - Xylene	410000	19000		8000
74-88-4	Methyl iodide	Not Detected	9700	5 7	8000
75-09-2	Methylene chloride	Not Detected	19000		8000
1634-04-4	Methyltertiarybutylether	Not Detected	9700		8000
91-20-3	Naphthalene	7400000	490000	X	80000
104-51-8	n-Butylbenzene	Not Detected	9700		8000
103-65-1	n-Propylbenzene	11000	9700		8000
95-47-6	o-Xylene	180000	9700		8000
99-87-6	p-Isopropyl toluene	Not Detected	9700		8000
135-98-8	sec-Butylbenzene	Not Detected	9700		8000
100-42-5	Styrene	600000	9700		8000
98-06-6	tert-Butylbenzene	Not Detected	9700		8000
75-65-0	tertiary Butyl Alcohol	Not Detected	490000		8000
994-05-8	tertiaryAmylmethylether	Not Detected	49000		8000
127-18-4	Tetrachloroethylene	Not Detected	9700		8000
109-99-9	Tetrahydrofuran	Not Detected	49000		8000
108-88-3	Toluene	410000	9700		8000
156-60-5	trans-1,2-Dichloroethylene	Not Detected	9700		8000
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	9700		8000
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	49000	Z	8000
79-01-6	Trichloroethylene	Not Detected	9700		8000
75-69-4	Trichlorofluoromethane	Not Detected	9700		8000
75-01-4	Vinyl chloride	Not Detected	9700	Z	8000

Unidentified peaks present in sample.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65622 SB4

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	94.9	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65623 SB5

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	10.12			
SURROGATE	#Bromofluorobenzene#	Not Applicable		V	
SURROGATE	#Dibromofluoromethane#	Not Applicable		V	
SURROGATE	#Toluene-d8#	Not Applicable		V	
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	10000		8000
71-55-6	1,1,1-Trichloroethane	Not Detected	10000		8000
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	10000		8000
79-00-5	1,1,2-Trichloroethane	Not Detected	10000		8000
75-34-3	1,1-Dichloroethane	Not Detected	10000		8000
75-35-4	1,1-Dichloroethylene	Not Detected	10000		8000
87-61-6	1,2,3-Trichlorobenzene	Not Detected	51000		8000
96-18-4	1,2,3-Trichloropropane	Not Detected	10000		8000
526-73-8	1,2,3-Trimethylbenzene	74000	10000		8000
120-82-1	1,2,4-Trichlorobenzene	Not Detected	51000		8000
95-63-6	1,2,4-Trimethylbenzene	230000	10000		8000
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	51000		8000
106-93-4	1,2-Dibromoethane	Not Detected	10000	Z	8000
95-50-1	1,2-Dichlorobenzene	Not Detected	10000		8000
107-06-2	1,2-Dichloroethane	Not Detected	10000		8000
78-87-5	1,2-Dichloropropane	Not Detected	10000		8000
108-67-8	1,3,5-Trimethylbenzene	82000	10000		8000
541-73-1	1,3-Dichlorobenzene	Not Detected	10000		8000
106-46-7	1,4-Dichlorobenzene	Not Detected	10000		8000
78-93-3	2-Butanone (MEK)	Not Detected	51000		8000
591-78-6	2-Hexanone	Not Detected	51000		8000
91-57-6	2-Methylnaphthalene	2500000	510000	X	80000
67-64-1	2-Propanone (acetone)	Not Detected	200000		8000
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	51000		8000
107-13-1	Acrylonitrile	Not Detected	51000	Z	8000
71-43-2	Benzene	370000	10000		8000
108-86-1	Bromobenzene	Not Detected	10000		8000
74-97-5	Bromochloromethane	Not Detected	10000		8000
75-27-4	Bromodichloromethane	Not Detected	10000		8000
75-25-2	Bromoform	Not Detected	10000		8000
74-83-9	Bromomethane	Not Detected	41000		8000
75-15-0	Carbon disulfide	Not Detected	10000		8000
56-23-5	Carbon tetrachloride	Not Detected	10000		8000
108-90-7	Chlorobenzene	Not Detected	10000		8000
75-00-3	Chloroethane	Not Detected	51000		8000
67-66-3	Chloroform	Not Detected	10000		8000

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65623 SB5

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	51000		8000
156-59-2	cis-1,2-Dichloroethylene	Not Detected	10000		8000
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	10000		8000
110-82-7	Cyclohexane	Not Detected	51000		8000
124-48-1	Dibromochloromethane	Not Detected	10000		8000
74-95-3	Dibromomethane	Not Detected	10000		8000
75-71-8	Dichlorodifluoromethane	Not Detected	51000		8000
60-29-7	Diethyl ether	Not Detected	41000		8000
108-20-3	Diisopropyl Ether	Not Detected	51000		8000
100-41-4	Ethylbenzene	110000	10000		8000
637-92-3	Ethyltertiarybutylether	Not Detected	51000		8000
67-72-1	Hexachloroethane	Not Detected	51000		8000
98-82-8	Isopropylbenzene	Not Detected	10000		8000
108383,106423	m & p - Xylene	580000	20000		8000
74-88-4	Methyl iodide	Not Detected	10000	5 7	8000
75-09-2	Methylene chloride	Not Detected	20000		8000
1634-04-4	Methyltertiarybutylether	Not Detected	10000		8000
91-20-3	Naphthalene	6800000	510000	X	80000
104-51-8	n-Butylbenzene	Not Detected	10000		8000
103-65-1	n-Propylbenzene	16000	10000		8000
95-47-6	o-Xylene	250000	10000		8000
99-87-6	p-Isopropyl toluene	Not Detected	10000		8000
135-98-8	sec-Butylbenzene	Not Detected	10000		8000
100-42-5	Styrene	820000	10000		8000
98-06-6	tert-Butylbenzene	Not Detected	10000		8000
75-65-0	tertiary Butyl Alcohol	Not Detected	510000		8000
994-05-8	tertiaryAmylmethylether	Not Detected	51000		8000
127-18-4	Tetrachloroethylene	Not Detected	10000		8000
109-99-9	Tetrahydrofuran	Not Detected	51000		8000
108-88-3	Toluene	840000	10000		8000
156-60-5	trans-1,2-Dichloroethylene	Not Detected	10000		8000
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	10000		8000
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	51000	Z	8000
79-01-6	Trichloroethylene	Not Detected	10000		8000
75-69-4	Trichlorofluoromethane	Not Detected	10000		8000
75-01-4	Vinyl chloride	Not Detected	10000	Z	8000

Unidentified peaks present in sample.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65623 SB5

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	87.3	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65624 SB6

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.52			
SURROGATE	#Bromofluorobenzene#	116			
SURROGATE	#Dibromofluoromethane#	138			
SURROGATE	#Toluene-d8#	137			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	63		50
71-55-6	1,1,1-Trichloroethane	Not Detected	63		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	63		50
79-00-5	1,1,2-Trichloroethane	Not Detected	63		50
75-34-3	1,1-Dichloroethane	Not Detected	63		50
75-35-4	1,1-Dichloroethylene	Not Detected	63		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	310		50
96-18-4	1,2,3-Trichloropropane	Not Detected	63		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	63		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	310		50
95-63-6	1,2,4-Trimethylbenzene	160	63		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	310		50
106-93-4	1,2-Dibromoethane	Not Detected	63	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	63		50
107-06-2	1,2-Dichloroethane	Not Detected	63		50
78-87-5	1,2-Dichloropropane	Not Detected	63		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	63		50
541-73-1	1,3-Dichlorobenzene	Not Detected	63		50
106-46-7	1,4-Dichlorobenzene	Not Detected	63		50
78-93-3	2-Butanone (MEK)	Not Detected	310		50
591-78-6	2-Hexanone	Not Detected	310		50
91-57-6	2-Methylnaphthalene	380	310	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1300		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	310		50
107-13-1	Acrylonitrile	Not Detected	310	Z	50
71-43-2	Benzene	140	63		50
108-86-1	Bromobenzene	Not Detected	63		50
74-97-5	Bromochloromethane	Not Detected	63		50
75-27-4	Bromodichloromethane	Not Detected	63		50
75-25-2	Bromoform	Not Detected	63		50
74-83-9	Bromomethane	Not Detected	250		50
75-15-0	Carbon disulfide	Not Detected	63		50
56-23-5	Carbon tetrachloride	Not Detected	63		50
108-90-7	Chlorobenzene	Not Detected	63		50
75-00-3	Chloroethane	Not Detected	310		50
67-66-3	Chloroform	Not Detected	63		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65624 SB6

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	310		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	63		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	63		50
110-82-7	Cyclohexane	Not Detected	310		50
124-48-1	Dibromochloromethane	Not Detected	63		50
74-95-3	Dibromomethane	Not Detected	63		50
75-71-8	Dichlorodifluoromethane	Not Detected	310		50
60-29-7	Diethyl ether	Not Detected	250		50
108-20-3	Diisopropyl Ether	Not Detected	310		50
100-41-4	Ethylbenzene	480	63		50
637-92-3	Ethyltertiarybutylether	Not Detected	310		50
67-72-1	Hexachloroethane	Not Detected	310		50
98-82-8	Isopropylbenzene	Not Detected	63		50
108383,106423	m & p - Xylene	410	130		50
74-88-4	Methyl iodide	Not Detected	130	* 5 7	50
75-09-2	Methylene chloride	Not Detected	130		50
1634-04-4	Methyltertiarybutylether	Not Detected	63		50
91-20-3	Naphthalene	2600	310	X	50
104-51-8	n-Butylbenzene	Not Detected	63		50
103-65-1	n-Propylbenzene	Not Detected	63		50
95-47-6	o-Xylene	190	63		50
99-87-6	p-Isopropyl toluene	Not Detected	63		50
135-98-8	sec-Butylbenzene	Not Detected	63		50
100-42-5	Styrene	Not Detected	63		50
98-06-6	tert-Butylbenzene	Not Detected	63		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3100		50
994-05-8	tertiaryAmylmethylether	Not Detected	310		50
127-18-4	Tetrachloroethylene	Not Detected	63		50
109-99-9	Tetrahydrofuran	Not Detected	310		50
108-88-3	Toluene	170	63		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	63		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	63		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	310	Z	50
79-01-6	Trichloroethylene	Not Detected	63		50
75-69-4	Trichlorofluoromethane	Not Detected	63		50
75-01-4	Vinyl chloride	Not Detected	63	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65624 SB6

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	90.8	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65625 SB7

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.71			
SURROGATE	#Bromofluorobenzene#	Not Applicable		V	
SURROGATE	#Dibromofluoromethane#	Not Applicable		V	
SURROGATE	#Toluene-d8#	Not Applicable		V	
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	2600		2000
71-55-6	1,1,1-Trichloroethane	Not Detected	2600		2000
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	2600		2000
79-00-5	1,1,2-Trichloroethane	Not Detected	2600		2000
75-34-3	1,1-Dichloroethane	Not Detected	2600		2000
75-35-4	1,1-Dichloroethylene	Not Detected	2600		2000
87-61-6	1,2,3-Trichlorobenzene	Not Detected	13000		2000
96-18-4	1,2,3-Trichloropropane	Not Detected	2600		2000
526-73-8	1,2,3-Trimethylbenzene	8200	2600		2000
120-82-1	1,2,4-Trichlorobenzene	Not Detected	13000		2000
95-63-6	1,2,4-Trimethylbenzene	23000	2600		2000
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	13000		2000
106-93-4	1,2-Dibromoethane	Not Detected	2600	Z	2000
95-50-1	1,2-Dichlorobenzene	Not Detected	2600		2000
107-06-2	1,2-Dichloroethane	Not Detected	2600		2000
78-87-5	1,2-Dichloropropane	Not Detected	2600		2000
108-67-8	1,3,5-Trimethylbenzene	7100	2600		2000
541-73-1	1,3-Dichlorobenzene	Not Detected	2600		2000
106-46-7	1,4-Dichlorobenzene	Not Detected	2600		2000
78-93-3	2-Butanone (MEK)	Not Detected	13000		2000
591-78-6	2-Hexanone	Not Detected	13000		2000
91-57-6	2-Methylnaphthalene	160000	13000	X	2000
67-64-1	2-Propanone (acetone)	Not Detected	53000		2000
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	13000		2000
107-13-1	Acrylonitrile	Not Detected	13000	Z	2000
71-43-2	Benzene	Not Detected	2600		2000
108-86-1	Bromobenzene	Not Detected	2600		2000
74-97-5	Bromochloromethane	Not Detected	2600		2000
75-27-4	Bromodichloromethane	Not Detected	2600		2000
75-25-2	Bromoform	Not Detected	2600		2000
74-83-9	Bromomethane	Not Detected	11000		2000
75-15-0	Carbon disulfide	Not Detected	2600		2000
56-23-5	Carbon tetrachloride	Not Detected	2600		2000
108-90-7	Chlorobenzene	Not Detected	2600		2000
75-00-3	Chloroethane	Not Detected	13000		2000
67-66-3	Chloroform	Not Detected	2600		2000

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65625 SB7

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	13000		2000
156-59-2	cis-1,2-Dichloroethylene	Not Detected	2600		2000
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	2600		2000
110-82-7	Cyclohexane	Not Detected	13000		2000
124-48-1	Dibromochloromethane	Not Detected	2600		2000
74-95-3	Dibromomethane	Not Detected	2600		2000
75-71-8	Dichlorodifluoromethane	Not Detected	13000		2000
60-29-7	Diethyl ether	Not Detected	11000		2000
108-20-3	Diisopropyl Ether	Not Detected	13000		2000
100-41-4	Ethylbenzene	13000	2600		2000
637-92-3	Ethyltertiarybutylether	Not Detected	13000		2000
67-72-1	Hexachloroethane	Not Detected	13000		2000
98-82-8	Isopropylbenzene	Not Detected	2600		2000
108383,106423	m & p - Xylene	41000	5300		2000
74-88-4	Methyl iodide	Not Detected	3300	* 5 7	2000
75-09-2	Methylene chloride	Not Detected	5300		2000
1634-04-4	Methyltertiarybutylether	Not Detected	2600		2000
91-20-3	Naphthalene	270000	13000	X	2000
104-51-8	n-Butylbenzene	Not Detected	2600		2000
103-65-1	n-Propylbenzene	Not Detected	2600		2000
95-47-6	o-Xylene	17000	2600		2000
99-87-6	p-Isopropyl toluene	Not Detected	2600		2000
135-98-8	sec-Butylbenzene	Not Detected	2600		2000
100-42-5	Styrene	20000	2600		2000
98-06-6	tert-Butylbenzene	Not Detected	2600		2000
75-65-0	tertiary Butyl Alcohol	Not Detected	130000		2000
994-05-8	tertiaryAmylmethylether	Not Detected	13000		2000
127-18-4	Tetrachloroethylene	Not Detected	2600		2000
109-99-9	Tetrahydrofuran	Not Detected	13000		2000
108-88-3	Toluene	14000	2600		2000
156-60-5	trans-1,2-Dichloroethylene	Not Detected	2600		2000
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	2600		2000
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	13000	Z	2000
79-01-6	Trichloroethylene	Not Detected	2600		2000
75-69-4	Trichlorofluoromethane	Not Detected	2600		2000
75-01-4	Vinyl chloride	Not Detected	2600	Z	2000

Unidentified peaks present in sample. *RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65625 SB7

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	87.6	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65626 SB8

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	8.97			
SURROGATE	#Bromofluorobenzene#	Not Applicable		V	
SURROGATE	#Dibromofluoromethane#	Not Applicable		V	
SURROGATE	#Toluene-d8#	Not Applicable		V	
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	4300		2000
71-55-6	1,1,1-Trichloroethane	Not Detected	4300		2000
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	4300		2000
79-00-5	1,1,2-Trichloroethane	Not Detected	4300		2000
75-34-3	1,1-Dichloroethane	Not Detected	4300		2000
75-35-4	1,1-Dichloroethylene	Not Detected	4300		2000
87-61-6	1,2,3-Trichlorobenzene	Not Detected	21000		2000
96-18-4	1,2,3-Trichloropropane	Not Detected	4300		2000
526-73-8	1,2,3-Trimethylbenzene	11000	4300		2000
120-82-1	1,2,4-Trichlorobenzene	Not Detected	21000		2000
95-63-6	1,2,4-Trimethylbenzene	16000	4300		2000
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	21000		2000
106-93-4	1,2-Dibromoethane	Not Detected	4300	Z	2000
95-50-1	1,2-Dichlorobenzene	Not Detected	4300		2000
107-06-2	1,2-Dichloroethane	Not Detected	4300		2000
78-87-5	1,2-Dichloropropane	Not Detected	4300		2000
108-67-8	1,3,5-Trimethylbenzene	4500	4300		2000
541-73-1	1,3-Dichlorobenzene	Not Detected	4300		2000
106-46-7	1,4-Dichlorobenzene	Not Detected	4300		2000
78-93-3	2-Butanone (MEK)	Not Detected	21000		2000
591-78-6	2-Hexanone	Not Detected	21000		2000
91-57-6	2-Methylnaphthalene	220000	21000	X	2000
67-64-1	2-Propanone (acetone)	Not Detected	86000		2000
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	21000		2000
107-13-1	Acrylonitrile	Not Detected	21000	Z	2000
71-43-2	Benzene	Not Detected	4300		2000
108-86-1	Bromobenzene	Not Detected	4300		2000
74-97-5	Bromochloromethane	Not Detected	4300		2000
75-27-4	Bromodichloromethane	Not Detected	4300		2000
75-25-2	Bromoform	Not Detected	4300		2000
74-83-9	Bromomethane	Not Detected	17000		2000
75-15-0	Carbon disulfide	Not Detected	4300		2000
56-23-5	Carbon tetrachloride	Not Detected	4300		2000
108-90-7	Chlorobenzene	Not Detected	4300		2000
75-00-3	Chloroethane	Not Detected	21000		2000
67-66-3	Chloroform	Not Detected	4300		2000

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65626 SB8

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	21000		2000
156-59-2	cis-1,2-Dichloroethylene	Not Detected	4300		2000
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	4300		2000
110-82-7	Cyclohexane	Not Detected	21000		2000
124-48-1	Dibromochloromethane	Not Detected	4300		2000
74-95-3	Dibromomethane	Not Detected	4300		2000
75-71-8	Dichlorodifluoromethane	Not Detected	21000		2000
60-29-7	Diethyl ether	Not Detected	17000		2000
108-20-3	Diisopropyl Ether	Not Detected	21000		2000
100-41-4	Ethylbenzene	17000	4300		2000
637-92-3	Ethyltertiarybutylether	Not Detected	21000		2000
67-72-1	Hexachloroethane	Not Detected	21000		2000
98-82-8	Isopropylbenzene	Not Detected	4300		2000
108383,106423	m & p - Xylene	Not Detected	8600		2000
74-88-4	Methyl iodide	Not Detected	4300	5 7	2000
75-09-2	Methylene chloride	Not Detected	8600		2000
1634-04-4	Methyltertiarybutylether	Not Detected	4300		2000
91-20-3	Naphthalene	700000	21000	X	2000
104-51-8	n-Butylbenzene	Not Detected	4300		2000
103-65-1	n-Propylbenzene	Not Detected	4300		2000
95-47-6	o-Xylene	7000	4300		2000
99-87-6	p-Isopropyl toluene	Not Detected	4300		2000
135-98-8	sec-Butylbenzene	Not Detected	4300		2000
100-42-5	Styrene	Not Detected	4300		2000
98-06-6	tert-Butylbenzene	Not Detected	4300		2000
75-65-0	tertiary Butyl Alcohol	Not Detected	210000		2000
994-05-8	tertiaryAmylmethylether	Not Detected	21000		2000
127-18-4	Tetrachloroethylene	Not Detected	4300		2000
109-99-9	Tetrahydrofuran	Not Detected	21000		2000
108-88-3	Toluene	4500	4300		2000
156-60-5	trans-1,2-Dichloroethylene	Not Detected	4300		2000
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	4300		2000
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	21000	Z	2000
79-01-6	Trichloroethylene	Not Detected	4300		2000
75-69-4	Trichlorofluoromethane	Not Detected	4300		2000
75-01-4	Vinyl chloride	Not Detected	4300	Z	2000

Unidentified peaks present in sample.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65626 SB8

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	67.3	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65627 SB9

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/01/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.52			
SURROGATE	#Bromofluorobenzene#	130			
SURROGATE	#Dibromofluoromethane#	143			
SURROGATE	#Toluene-d8#	146			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	61		50
71-55-6	1,1,1-Trichloroethane	Not Detected	61		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	61		50
79-00-5	1,1,2-Trichloroethane	Not Detected	61		50
75-34-3	1,1-Dichloroethane	Not Detected	61		50
75-35-4	1,1-Dichloroethylene	Not Detected	61		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	300		50
96-18-4	1,2,3-Trichloropropane	Not Detected	61		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	61		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	300		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	61		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	300		50
106-93-4	1,2-Dibromoethane	Not Detected	61	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	61		50
107-06-2	1,2-Dichloroethane	Not Detected	61		50
78-87-5	1,2-Dichloropropane	Not Detected	61		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	61		50
541-73-1	1,3-Dichlorobenzene	Not Detected	61		50
106-46-7	1,4-Dichlorobenzene	Not Detected	61		50
78-93-3	2-Butanone (MEK)	Not Detected	300		50
591-78-6	2-Hexanone	Not Detected	300		50
91-57-6	2-Methylnaphthalene	Not Detected	300	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1200		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	300		50
107-13-1	Acrylonitrile	Not Detected	300	Z	50
71-43-2	Benzene	Not Detected	61		50
108-86-1	Bromobenzene	Not Detected	61		50
74-97-5	Bromochloromethane	Not Detected	61		50
75-27-4	Bromodichloromethane	Not Detected	61		50
75-25-2	Bromoform	Not Detected	61		50
74-83-9	Bromomethane	Not Detected	240		50
75-15-0	Carbon disulfide	Not Detected	61		50
56-23-5	Carbon tetrachloride	Not Detected	61		50
108-90-7	Chlorobenzene	Not Detected	61		50
75-00-3	Chloroethane	Not Detected	300		50
67-66-3	Chloroform	Not Detected	61		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65627 SB9

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/01/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	300		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	61		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	61		50
110-82-7	Cyclohexane	Not Detected	300		50
124-48-1	Dibromochloromethane	Not Detected	61		50
74-95-3	Dibromomethane	Not Detected	61		50
75-71-8	Dichlorodifluoromethane	Not Detected	300		50
60-29-7	Diethyl ether	Not Detected	240		50
108-20-3	Diisopropyl Ether	Not Detected	300		50
100-41-4	Ethylbenzene	Not Detected	61		50
637-92-3	Ethyltertiarybutylether	Not Detected	300		50
67-72-1	Hexachloroethane	Not Detected	300		50
98-82-8	Isopropylbenzene	Not Detected	61		50
108383,106423	m & p - Xylene	Not Detected	120		50
74-88-4	Methyl iodide	Not Detected	180	* 5 7	50
75-09-2	Methylene chloride	Not Detected	120		50
1634-04-4	Methyltertiarybutylether	Not Detected	61		50
91-20-3	Naphthalene	450	300	X	50
104-51-8	n-Butylbenzene	Not Detected	61		50
103-65-1	n-Propylbenzene	Not Detected	61		50
95-47-6	o-Xylene	Not Detected	61		50
99-87-6	p-Isopropyl toluene	Not Detected	61		50
135-98-8	sec-Butylbenzene	Not Detected	61		50
100-42-5	Styrene	Not Detected	61		50
98-06-6	tert-Butylbenzene	Not Detected	61		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3000		50
994-05-8	tertiaryAmylmethylether	Not Detected	300		50
127-18-4	Tetrachloroethylene	Not Detected	61		50
109-99-9	Tetrahydrofuran	Not Detected	300		50
108-88-3	Toluene	150	61		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	61		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	61		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	300	Z	50
79-01-6	Trichloroethylene	Not Detected	61		50
75-69-4	Trichlorofluoromethane	Not Detected	61		50
75-01-4	Vinyl chloride	Not Detected	61	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65627 SB9

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	92.6	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65628 SB10

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.17			
SURROGATE	#Bromofluorobenzene#	146			
SURROGATE	#Dibromofluoromethane#	156			
SURROGATE	#Toluene-d8#	154			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	69		50
71-55-6	1,1,1-Trichloroethane	Not Detected	69		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	69		50
79-00-5	1,1,2-Trichloroethane	Not Detected	69		50
75-34-3	1,1-Dichloroethane	Not Detected	69		50
75-35-4	1,1-Dichloroethylene	Not Detected	69		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	350		50
96-18-4	1,2,3-Trichloropropane	Not Detected	69		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	69		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	350		50
95-63-6	1,2,4-Trimethylbenzene	120	69		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	350		50
106-93-4	1,2-Dibromoethane	Not Detected	69	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	69		50
107-06-2	1,2-Dichloroethane	Not Detected	69		50
78-87-5	1,2-Dichloropropane	Not Detected	69		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	69		50
541-73-1	1,3-Dichlorobenzene	Not Detected	69		50
106-46-7	1,4-Dichlorobenzene	Not Detected	69		50
78-93-3	2-Butanone (MEK)	Not Detected	350		50
591-78-6	2-Hexanone	Not Detected	350		50
91-57-6	2-Methylnaphthalene	420	350	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1400		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	350		50
107-13-1	Acrylonitrile	Not Detected	350	Z	50
71-43-2	Benzene	91	69		50
108-86-1	Bromobenzene	Not Detected	69		50
74-97-5	Bromochloromethane	Not Detected	69		50
75-27-4	Bromodichloromethane	Not Detected	69		50
75-25-2	Bromoform	Not Detected	69		50
74-83-9	Bromomethane	Not Detected	280		50
75-15-0	Carbon disulfide	Not Detected	69		50
56-23-5	Carbon tetrachloride	Not Detected	69		50
108-90-7	Chlorobenzene	Not Detected	69		50
75-00-3	Chloroethane	Not Detected	350		50
67-66-3	Chloroform	Not Detected	69		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65628 SB10

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	350		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	69		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	69		50
110-82-7	Cyclohexane	Not Detected	350		50
124-48-1	Dibromochloromethane	Not Detected	69		50
74-95-3	Dibromomethane	Not Detected	69		50
75-71-8	Dichlorodifluoromethane	Not Detected	350		50
60-29-7	Diethyl ether	Not Detected	280		50
108-20-3	Diisopropyl Ether	Not Detected	350		50
100-41-4	Ethylbenzene	Not Detected	69		50
637-92-3	Ethyltertiarybutylether	Not Detected	350		50
67-72-1	Hexachloroethane	Not Detected	350		50
98-82-8	Isopropylbenzene	Not Detected	69		50
108383,106423	m & p - Xylene	210	140		50
74-88-4	Methyl iodide	Not Detected	140	* 5 7	50
75-09-2	Methylene chloride	Not Detected	140		50
1634-04-4	Methyltertiarybutylether	Not Detected	69		50
91-20-3	Naphthalene	950	350	X	50
104-51-8	n-Butylbenzene	Not Detected	69		50
103-65-1	n-Propylbenzene	Not Detected	69		50
95-47-6	o-Xylene	94	69		50
99-87-6	p-Isopropyl toluene	Not Detected	69		50
135-98-8	sec-Butylbenzene	Not Detected	69		50
100-42-5	Styrene	Not Detected	69		50
98-06-6	tert-Butylbenzene	Not Detected	69		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3500		50
994-05-8	tertiaryAmylmethylether	Not Detected	350		50
127-18-4	Tetrachloroethylene	Not Detected	69		50
109-99-9	Tetrahydrofuran	Not Detected	350		50
108-88-3	Toluene	210	69		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	69		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	69		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	350	Z	50
79-01-6	Trichloroethylene	Not Detected	69		50
75-69-4	Trichlorofluoromethane	Not Detected	69		50
75-01-4	Vinyl chloride	Not Detected	69	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65628 SB10

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	87.7	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65629 SB11

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	10.75			
SURROGATE	#Bromofluorobenzene#	129			
SURROGATE	#Dibromofluoromethane#	143			
SURROGATE	#Toluene-d8#	137			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	64		50
71-55-6	1,1,1-Trichloroethane	Not Detected	64		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	64		50
79-00-5	1,1,2-Trichloroethane	Not Detected	64		50
75-34-3	1,1-Dichloroethane	Not Detected	64		50
75-35-4	1,1-Dichloroethylene	Not Detected	64		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	320		50
96-18-4	1,2,3-Trichloropropane	Not Detected	64		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	64		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	320		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	64		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	320		50
106-93-4	1,2-Dibromoethane	Not Detected	64	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	64		50
107-06-2	1,2-Dichloroethane	Not Detected	64		50
78-87-5	1,2-Dichloropropane	Not Detected	64		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	64		50
541-73-1	1,3-Dichlorobenzene	Not Detected	64		50
106-46-7	1,4-Dichlorobenzene	Not Detected	64		50
78-93-3	2-Butanone (MEK)	Not Detected	320		50
591-78-6	2-Hexanone	Not Detected	320		50
91-57-6	2-Methylnaphthalene	Not Detected	320	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1300		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	320		50
107-13-1	Acrylonitrile	Not Detected	320	Z	50
71-43-2	Benzene	Not Detected	64		50
108-86-1	Bromobenzene	Not Detected	64		50
74-97-5	Bromochloromethane	Not Detected	64		50
75-27-4	Bromodichloromethane	Not Detected	64		50
75-25-2	Bromoform	Not Detected	64		50
74-83-9	Bromomethane	Not Detected	250		50
75-15-0	Carbon disulfide	Not Detected	64		50
56-23-5	Carbon tetrachloride	Not Detected	64		50
108-90-7	Chlorobenzene	Not Detected	64		50
75-00-3	Chloroethane	Not Detected	320		50
67-66-3	Chloroform	Not Detected	64		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65629 SB11

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	320		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	64		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	64		50
110-82-7	Cyclohexane	Not Detected	320		50
124-48-1	Dibromochloromethane	Not Detected	64		50
74-95-3	Dibromomethane	Not Detected	64		50
75-71-8	Dichlorodifluoromethane	Not Detected	320		50
60-29-7	Diethyl ether	Not Detected	250		50
108-20-3	Diisopropyl Ether	Not Detected	320		50
100-41-4	Ethylbenzene	Not Detected	64		50
637-92-3	Ethyltertiarybutylether	Not Detected	320		50
67-72-1	Hexachloroethane	Not Detected	320		50
98-82-8	Isopropylbenzene	Not Detected	64		50
108383,106423	m & p - Xylene	Not Detected	130		50
74-88-4	Methyl iodide	Not Detected	130	* 5 7	50
75-09-2	Methylene chloride	Not Detected	130		50
1634-04-4	Methyltertiarybutylether	Not Detected	64		50
91-20-3	Naphthalene	Not Detected	320	X	50
104-51-8	n-Butylbenzene	Not Detected	64		50
103-65-1	n-Propylbenzene	Not Detected	64		50
95-47-6	o-Xylene	Not Detected	64		50
99-87-6	p-Isopropyl toluene	Not Detected	64		50
135-98-8	sec-Butylbenzene	Not Detected	64		50
100-42-5	Styrene	Not Detected	64		50
98-06-6	tert-Butylbenzene	Not Detected	64		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3200		50
994-05-8	tertiaryAmylmethylether	Not Detected	320		50
127-18-4	Tetrachloroethylene	Not Detected	64		50
109-99-9	Tetrahydrofuran	Not Detected	320		50
108-88-3	Toluene	Not Detected	64		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	64		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	64		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	320	Z	50
79-01-6	Trichloroethylene	Not Detected	64		50
75-69-4	Trichlorofluoromethane	Not Detected	64		50
75-01-4	Vinyl chloride	Not Detected	64	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65629 SB11

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	89.0	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65630 SB12

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	11.67			
SURROGATE	#Bromofluorobenzene#	Not Applicable		V	
SURROGATE	#Dibromofluoromethane#	Not Applicable		V	
SURROGATE	#Toluene-d8#	Not Applicable		V	
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	2500		2000
71-55-6	1,1,1-Trichloroethane	Not Detected	2500		2000
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	2500		2000
79-00-5	1,1,2-Trichloroethane	Not Detected	2500		2000
75-34-3	1,1-Dichloroethane	Not Detected	2500		2000
75-35-4	1,1-Dichloroethylene	Not Detected	2500		2000
87-61-6	1,2,3-Trichlorobenzene	Not Detected	12000		2000
96-18-4	1,2,3-Trichloropropane	Not Detected	2500		2000
526-73-8	1,2,3-Trimethylbenzene	21000	2500		2000
120-82-1	1,2,4-Trichlorobenzene	Not Detected	12000		2000
95-63-6	1,2,4-Trimethylbenzene	64000	2500		2000
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	12000		2000
106-93-4	1,2-Dibromoethane	Not Detected	2500	Z	2000
95-50-1	1,2-Dichlorobenzene	Not Detected	2500		2000
107-06-2	1,2-Dichloroethane	Not Detected	2500		2000
78-87-5	1,2-Dichloropropane	Not Detected	2500		2000
108-67-8	1,3,5-Trimethylbenzene	18000	2500		2000
541-73-1	1,3-Dichlorobenzene	Not Detected	2500		2000
106-46-7	1,4-Dichlorobenzene	Not Detected	2500		2000
78-93-3	2-Butanone (MEK)	Not Detected	12000		2000
591-78-6	2-Hexanone	Not Detected	12000		2000
91-57-6	2-Methylnaphthalene	470000	12000	X	2000
67-64-1	2-Propanone (acetone)	Not Detected	49000		2000
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	12000		2000
107-13-1	Acrylonitrile	Not Detected	12000	Z	2000
71-43-2	Benzene	Not Detected	2500		2000
108-86-1	Bromobenzene	Not Detected	2500		2000
74-97-5	Bromochloromethane	Not Detected	2500		2000
75-27-4	Bromodichloromethane	Not Detected	2500		2000
75-25-2	Bromoform	Not Detected	2500		2000
74-83-9	Bromomethane	Not Detected	9900		2000
75-15-0	Carbon disulfide	Not Detected	2500		2000
56-23-5	Carbon tetrachloride	Not Detected	2500		2000
108-90-7	Chlorobenzene	Not Detected	2500		2000
75-00-3	Chloroethane	Not Detected	12000		2000
67-66-3	Chloroform	Not Detected	2500		2000

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65630 SB12

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	12000		2000
156-59-2	cis-1,2-Dichloroethylene	Not Detected	2500		2000
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	2500		2000
110-82-7	Cyclohexane	Not Detected	12000		2000
124-48-1	Dibromochloromethane	Not Detected	2500		2000
74-95-3	Dibromomethane	Not Detected	2500		2000
75-71-8	Dichlorodifluoromethane	Not Detected	12000		2000
60-29-7	Diethyl ether	Not Detected	9900		2000
108-20-3	Diisopropyl Ether	Not Detected	12000		2000
100-41-4	Ethylbenzene	16000	2500		2000
637-92-3	Ethyltertiarybutylether	Not Detected	12000		2000
67-72-1	Hexachloroethane	Not Detected	12000		2000
98-82-8	Isopropylbenzene	Not Detected	2500		2000
108383,106423	m & p - Xylene	110000	4900		2000
74-88-4	Methyl iodide	Not Detected	2500	5 7	2000
75-09-2	Methylene chloride	Not Detected	4900		2000
1634-04-4	Methyltertiarybutylether	Not Detected	2500		2000
91-20-3	Naphthalene	740000	49000	X	8000
104-51-8	n-Butylbenzene	Not Detected	2500		2000
103-65-1	n-Propylbenzene	5000	2500		2000
95-47-6	o-Xylene	48000	2500		2000
99-87-6	p-Isopropyl toluene	Not Detected	2500		2000
135-98-8	sec-Butylbenzene	Not Detected	2500		2000
100-42-5	Styrene	48000	2500		2000
98-06-6	tert-Butylbenzene	Not Detected	2500		2000
75-65-0	tertiary Butyl Alcohol	Not Detected	120000		2000
994-05-8	tertiaryAmylmethylether	Not Detected	12000		2000
127-18-4	Tetrachloroethylene	Not Detected	2500		2000
109-99-9	Tetrahydrofuran	Not Detected	12000		2000
108-88-3	Toluene	26000	2500		2000
156-60-5	trans-1,2-Dichloroethylene	Not Detected	2500		2000
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	2500		2000
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	12000	Z	2000
79-01-6	Trichloroethylene	Not Detected	2500		2000
75-69-4	Trichlorofluoromethane	Not Detected	2500		2000
75-01-4	Vinyl chloride	Not Detected	2500	Z	2000

Unidentified peaks present in sample.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65630 SB12

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	90.7	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65631 SB13

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/01/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.70			
SURROGATE	#Bromofluorobenzene#	147			
SURROGATE	#Dibromofluoromethane#	157			
SURROGATE	#Toluene-d8#	150			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	82		50
71-55-6	1,1,1-Trichloroethane	Not Detected	82		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	82		50
79-00-5	1,1,2-Trichloroethane	Not Detected	82		50
75-34-3	1,1-Dichloroethane	Not Detected	82		50
75-35-4	1,1-Dichloroethylene	Not Detected	82		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	410		50
96-18-4	1,2,3-Trichloropropane	Not Detected	82		50
526-73-8	1,2,3-Trimethylbenzene	120	82		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	410		50
95-63-6	1,2,4-Trimethylbenzene	460	82		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	410		50
106-93-4	1,2-Dibromoethane	Not Detected	82	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	82		50
107-06-2	1,2-Dichloroethane	Not Detected	82		50
78-87-5	1,2-Dichloropropane	Not Detected	82		50
108-67-8	1,3,5-Trimethylbenzene	230	82		50
541-73-1	1,3-Dichlorobenzene	Not Detected	82		50
106-46-7	1,4-Dichlorobenzene	Not Detected	82		50
78-93-3	2-Butanone (MEK)	Not Detected	410		50
591-78-6	2-Hexanone	Not Detected	410		50
91-57-6	2-Methylnaphthalene	Not Detected	410	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1600		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	410		50
107-13-1	Acrylonitrile	Not Detected	410	Z	50
71-43-2	Benzene	Not Detected	82		50
108-86-1	Bromobenzene	Not Detected	82		50
74-97-5	Bromochloromethane	Not Detected	82		50
75-27-4	Bromodichloromethane	Not Detected	82		50
75-25-2	Bromoform	Not Detected	82		50
74-83-9	Bromomethane	Not Detected	330		50
75-15-0	Carbon disulfide	Not Detected	82		50
56-23-5	Carbon tetrachloride	Not Detected	82		50
108-90-7	Chlorobenzene	Not Detected	82		50
75-00-3	Chloroethane	Not Detected	410		50
67-66-3	Chloroform	Not Detected	82		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65631 SB13

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/01/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	410		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	82		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	82		50
110-82-7	Cyclohexane	Not Detected	410		50
124-48-1	Dibromochloromethane	Not Detected	82		50
74-95-3	Dibromomethane	Not Detected	82		50
75-71-8	Dichlorodifluoromethane	Not Detected	410		50
60-29-7	Diethyl ether	Not Detected	330		50
108-20-3	Diisopropyl Ether	Not Detected	410		50
100-41-4	Ethylbenzene	99	82		50
637-92-3	Ethyltertiarybutylether	Not Detected	410		50
67-72-1	Hexachloroethane	Not Detected	410		50
98-82-8	Isopropylbenzene	100	82		50
108383,106423	m & p - Xylene	Not Detected	160		50
74-88-4	Methyl iodide	Not Detected	160	* 5 7	50
75-09-2	Methylene chloride	Not Detected	160		50
1634-04-4	Methyltertiarybutylether	Not Detected	82		50
91-20-3	Naphthalene	Not Detected	410	X	50
104-51-8	n-Butylbenzene	Not Detected	82		50
103-65-1	n-Propylbenzene	200	82		50
95-47-6	o-Xylene	Not Detected	82		50
99-87-6	p-Isopropyl toluene	150	82		50
135-98-8	sec-Butylbenzene	140	82		50
100-42-5	Styrene	Not Detected	82		50
98-06-6	tert-Butylbenzene	Not Detected	82		50
75-65-0	tertiary Butyl Alcohol	Not Detected	4100		50
994-05-8	tertiaryAmylmethylether	Not Detected	410		50
127-18-4	Tetrachloroethylene	Not Detected	82		50
109-99-9	Tetrahydrofuran	Not Detected	410		50
108-88-3	Toluene	110	82		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	82		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	82		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	410	Z	50
79-01-6	Trichloroethylene	Not Detected	82		50
75-69-4	Trichlorofluoromethane	Not Detected	82		50
75-01-4	Vinyl chloride	Not Detected	82	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65631 SB13

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	77.1	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65632 SB14

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/01/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	10.27			
SURROGATE	#Bromofluorobenzene#	111			
SURROGATE	#Dibromofluoromethane#	121			
SURROGATE	#Toluene-d8#	122			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	56		50
71-55-6	1,1,1-Trichloroethane	Not Detected	56		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	56		50
79-00-5	1,1,2-Trichloroethane	Not Detected	56		50
75-34-3	1,1-Dichloroethane	Not Detected	56		50
75-35-4	1,1-Dichloroethylene	Not Detected	56		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	280		50
96-18-4	1,2,3-Trichloropropane	Not Detected	56		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	56		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	280		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	56		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	280		50
106-93-4	1,2-Dibromoethane	Not Detected	56	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	56		50
107-06-2	1,2-Dichloroethane	Not Detected	56		50
78-87-5	1,2-Dichloropropane	Not Detected	56		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	56		50
541-73-1	1,3-Dichlorobenzene	Not Detected	56		50
106-46-7	1,4-Dichlorobenzene	Not Detected	56		50
78-93-3	2-Butanone (MEK)	Not Detected	280		50
591-78-6	2-Hexanone	Not Detected	280		50
91-57-6	2-Methylnaphthalene	Not Detected	280	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1100		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	280		50
107-13-1	Acrylonitrile	Not Detected	280	Z	50
71-43-2	Benzene	Not Detected	56		50
108-86-1	Bromobenzene	Not Detected	56		50
74-97-5	Bromochloromethane	Not Detected	56		50
75-27-4	Bromodichloromethane	Not Detected	56		50
75-25-2	Bromoform	Not Detected	56		50
74-83-9	Bromomethane	Not Detected	230		50
75-15-0	Carbon disulfide	Not Detected	56		50
56-23-5	Carbon tetrachloride	Not Detected	56		50
108-90-7	Chlorobenzene	Not Detected	56		50
75-00-3	Chloroethane	Not Detected	280		50
67-66-3	Chloroform	Not Detected	56		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
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Sample Number: AB65632 SB14

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/01/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	280		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	56		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	56		50
110-82-7	Cyclohexane	Not Detected	280		50
124-48-1	Dibromochloromethane	Not Detected	56		50
74-95-3	Dibromomethane	Not Detected	56		50
75-71-8	Dichlorodifluoromethane	Not Detected	280		50
60-29-7	Diethyl ether	Not Detected	230		50
108-20-3	Diisopropyl Ether	Not Detected	280		50
100-41-4	Ethylbenzene	Not Detected	56		50
637-92-3	Ethyltertiarybutylether	Not Detected	280		50
67-72-1	Hexachloroethane	Not Detected	280		50
98-82-8	Isopropylbenzene	Not Detected	56		50
108383,106423	m & p - Xylene	Not Detected	110		50
74-88-4	Methyl iodide	Not Detected	110	* 5 7	50
75-09-2	Methylene chloride	Not Detected	110		50
1634-04-4	Methyltertiarybutylether	Not Detected	56		50
91-20-3	Naphthalene	Not Detected	280	X	50
104-51-8	n-Butylbenzene	Not Detected	56		50
103-65-1	n-Propylbenzene	Not Detected	56		50
95-47-6	o-Xylene	Not Detected	56		50
99-87-6	p-Isopropyl toluene	Not Detected	56		50
135-98-8	sec-Butylbenzene	Not Detected	56		50
100-42-5	Styrene	Not Detected	56		50
98-06-6	tert-Butylbenzene	Not Detected	56		50
75-65-0	tertiary Butyl Alcohol	Not Detected	2800		50
994-05-8	tertiaryAmylmethylether	Not Detected	280		50
127-18-4	Tetrachloroethylene	Not Detected	56		50
109-99-9	Tetrahydrofuran	Not Detected	280		50
108-88-3	Toluene	Not Detected	56		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	56		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	56		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	280	Z	50
79-01-6	Trichloroethylene	Not Detected	56		50
75-69-4	Trichlorofluoromethane	Not Detected	56		50
75-01-4	Vinyl chloride	Not Detected	56	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65632 SB14

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	92.8	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65633 SB15

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	10.24			
SURROGATE	#Bromofluorobenzene#	110			
SURROGATE	#Dibromofluoromethane#	118			
SURROGATE	#Toluene-d8#	119			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	65		50
71-55-6	1,1,1-Trichloroethane	Not Detected	65		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	65		50
79-00-5	1,1,2-Trichloroethane	Not Detected	65		50
75-34-3	1,1-Dichloroethane	Not Detected	65		50
75-35-4	1,1-Dichloroethylene	Not Detected	65		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	320		50
96-18-4	1,2,3-Trichloropropane	Not Detected	65		50
526-73-8	1,2,3-Trimethylbenzene	430	65		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	320		50
95-63-6	1,2,4-Trimethylbenzene	140	65		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	320		50
106-93-4	1,2-Dibromoethane	Not Detected	65	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	65		50
107-06-2	1,2-Dichloroethane	Not Detected	65		50
78-87-5	1,2-Dichloropropane	Not Detected	65		50
108-67-8	1,3,5-Trimethylbenzene	85	65		50
541-73-1	1,3-Dichlorobenzene	Not Detected	65		50
106-46-7	1,4-Dichlorobenzene	Not Detected	65		50
78-93-3	2-Butanone (MEK)	Not Detected	320		50
591-78-6	2-Hexanone	Not Detected	320		50
91-57-6	2-Methylnaphthalene	Not Detected	320	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1300		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	320		50
107-13-1	Acrylonitrile	Not Detected	320	Z	50
71-43-2	Benzene	140	65		50
108-86-1	Bromobenzene	Not Detected	65		50
74-97-5	Bromochloromethane	Not Detected	65		50
75-27-4	Bromodichloromethane	Not Detected	65		50
75-25-2	Bromoform	Not Detected	65		50
74-83-9	Bromomethane	Not Detected	260		50
75-15-0	Carbon disulfide	Not Detected	65		50
56-23-5	Carbon tetrachloride	Not Detected	65		50
108-90-7	Chlorobenzene	Not Detected	65		50
75-00-3	Chloroethane	Not Detected	320		50
67-66-3	Chloroform	Not Detected	65		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65633 SB15

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	320		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	65		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	65		50
110-82-7	Cyclohexane	Not Detected	320		50
124-48-1	Dibromochloromethane	Not Detected	65		50
74-95-3	Dibromomethane	Not Detected	65		50
75-71-8	Dichlorodifluoromethane	Not Detected	320		50
60-29-7	Diethyl ether	Not Detected	260		50
108-20-3	Diisopropyl Ether	Not Detected	320		50
100-41-4	Ethylbenzene	88	65		50
637-92-3	Ethyltertiarybutylether	Not Detected	320		50
67-72-1	Hexachloroethane	Not Detected	320		50
98-82-8	Isopropylbenzene	360	65		50
108383,106423	m & p - Xylene	Not Detected	130		50
74-88-4	Methyl iodide	Not Detected	65	5 7	50
75-09-2	Methylene chloride	Not Detected	130		50
1634-04-4	Methyltertiarybutylether	Not Detected	65		50
91-20-3	Naphthalene	960	320	X	50
104-51-8	n-Butylbenzene	Not Detected	65		50
103-65-1	n-Propylbenzene	Not Detected	65		50
95-47-6	o-Xylene	290	65		50
99-87-6	p-Isopropyl toluene	Not Detected	65		50
135-98-8	sec-Butylbenzene	Not Detected	65		50
100-42-5	Styrene	Not Detected	65		50
98-06-6	tert-Butylbenzene	Not Detected	65		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3200		50
994-05-8	tertiaryAmylmethylether	Not Detected	320		50
127-18-4	Tetrachloroethylene	Not Detected	65		50
109-99-9	Tetrahydrofuran	Not Detected	320		50
108-88-3	Toluene	Not Detected	65		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	65		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	65		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	320	Z	50
79-01-6	Trichloroethylene	Not Detected	65		50
75-69-4	Trichlorofluoromethane	Not Detected	65		50
75-01-4	Vinyl chloride	Not Detected	65	Z	50

Unidentified peaks present in sample.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65633 SB15

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	86.2	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65634 SD1

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.61			
SURROGATE	#Bromofluorobenzene#	105			
SURROGATE	#Dibromofluoromethane#	109			
SURROGATE	#Toluene-d8#	117			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	71		50
71-55-6	1,1,1-Trichloroethane	Not Detected	71		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	71		50
79-00-5	1,1,2-Trichloroethane	Not Detected	71		50
75-34-3	1,1-Dichloroethane	Not Detected	71		50
75-35-4	1,1-Dichloroethylene	Not Detected	71		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	350		50
96-18-4	1,2,3-Trichloropropane	Not Detected	71		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	71		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	350		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	71		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	350		50
106-93-4	1,2-Dibromoethane	Not Detected	71	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	71		50
107-06-2	1,2-Dichloroethane	Not Detected	71		50
78-87-5	1,2-Dichloropropane	Not Detected	71		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	71		50
541-73-1	1,3-Dichlorobenzene	Not Detected	71		50
106-46-7	1,4-Dichlorobenzene	Not Detected	71		50
78-93-3	2-Butanone (MEK)	Not Detected	350		50
591-78-6	2-Hexanone	Not Detected	350		50
91-57-6	2-Methylnaphthalene	Not Detected	350	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1400		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	350		50
107-13-1	Acrylonitrile	Not Detected	350	Z	50
71-43-2	Benzene	Not Detected	71		50
108-86-1	Bromobenzene	Not Detected	71		50
74-97-5	Bromochloromethane	Not Detected	71		50
75-27-4	Bromodichloromethane	Not Detected	71		50
75-25-2	Bromoform	Not Detected	71		50
74-83-9	Bromomethane	Not Detected	280		50
75-15-0	Carbon disulfide	Not Detected	71		50
56-23-5	Carbon tetrachloride	Not Detected	71		50
108-90-7	Chlorobenzene	Not Detected	71		50
75-00-3	Chloroethane	Not Detected	350		50
67-66-3	Chloroform	Not Detected	71		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65634 SD1

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	350		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	71		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	71		50
110-82-7	Cyclohexane	Not Detected	350		50
124-48-1	Dibromochloromethane	Not Detected	71		50
74-95-3	Dibromomethane	Not Detected	71		50
75-71-8	Dichlorodifluoromethane	Not Detected	350		50
60-29-7	Diethyl ether	Not Detected	280		50
108-20-3	Diisopropyl Ether	Not Detected	350		50
100-41-4	Ethylbenzene	Not Detected	71		50
637-92-3	Ethyltertiarybutylether	Not Detected	350		50
67-72-1	Hexachloroethane	Not Detected	350		50
98-82-8	Isopropylbenzene	Not Detected	71		50
108383,106423	m & p - Xylene	Not Detected	140		50
74-88-4	Methyl iodide	Not Detected	71	5 7	50
75-09-2	Methylene chloride	Not Detected	140		50
1634-04-4	Methyltertiarybutylether	Not Detected	71		50
91-20-3	Naphthalene	Not Detected	350	X	50
104-51-8	n-Butylbenzene	Not Detected	71		50
103-65-1	n-Propylbenzene	Not Detected	71		50
95-47-6	o-Xylene	Not Detected	71		50
99-87-6	p-Isopropyl toluene	Not Detected	71		50
135-98-8	sec-Butylbenzene	Not Detected	71		50
100-42-5	Styrene	Not Detected	71		50
98-06-6	tert-Butylbenzene	Not Detected	71		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3500		50
994-05-8	tertiaryAmylmethylether	Not Detected	350		50
127-18-4	Tetrachloroethylene	Not Detected	71		50
109-99-9	Tetrahydrofuran	Not Detected	350		50
108-88-3	Toluene	Not Detected	71		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	71		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	71		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	350	Z	50
79-01-6	Trichloroethylene	Not Detected	71		50
75-69-4	Trichlorofluoromethane	Not Detected	71		50
75-01-4	Vinyl chloride	Not Detected	71	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65634 SD1

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	84.5	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65635 SD2

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.20			
SURROGATE	#Bromofluorobenzene#	99.1			
SURROGATE	#Dibromofluoromethane#	104			
SURROGATE	#Toluene-d8#	109			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	70		50
71-55-6	1,1,1-Trichloroethane	Not Detected	70		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	70		50
79-00-5	1,1,2-Trichloroethane	Not Detected	70		50
75-34-3	1,1-Dichloroethane	Not Detected	70		50
75-35-4	1,1-Dichloroethylene	Not Detected	70		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	350		50
96-18-4	1,2,3-Trichloropropane	Not Detected	70		50
526-73-8	1,2,3-Trimethylbenzene	1000	70		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	350		50
95-63-6	1,2,4-Trimethylbenzene	3000	70		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	350		50
106-93-4	1,2-Dibromoethane	Not Detected	70	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	70		50
107-06-2	1,2-Dichloroethane	Not Detected	70		50
78-87-5	1,2-Dichloropropane	Not Detected	70		50
108-67-8	1,3,5-Trimethylbenzene	880	70		50
541-73-1	1,3-Dichlorobenzene	Not Detected	70		50
106-46-7	1,4-Dichlorobenzene	Not Detected	70		50
78-93-3	2-Butanone (MEK)	Not Detected	350		50
591-78-6	2-Hexanone	Not Detected	350		50
91-57-6	2-Methylnaphthalene	18000	7000	X	1000
67-64-1	2-Propanone (acetone)	Not Detected	1400		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	350		50
107-13-1	Acrylonitrile	Not Detected	350	Z	50
71-43-2	Benzene	520	70		50
108-86-1	Bromobenzene	Not Detected	70		50
74-97-5	Bromochloromethane	Not Detected	70		50
75-27-4	Bromodichloromethane	Not Detected	70		50
75-25-2	Bromoform	Not Detected	70		50
74-83-9	Bromomethane	Not Detected	280		50
75-15-0	Carbon disulfide	Not Detected	70		50
56-23-5	Carbon tetrachloride	Not Detected	70		50
108-90-7	Chlorobenzene	Not Detected	70		50
75-00-3	Chloroethane	Not Detected	350		50
67-66-3	Chloroform	Not Detected	70		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65635 SD2

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	350		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	70		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	70		50
110-82-7	Cyclohexane	Not Detected	350		50
124-48-1	Dibromochloromethane	Not Detected	70		50
74-95-3	Dibromomethane	Not Detected	70		50
75-71-8	Dichlorodifluoromethane	Not Detected	350		50
60-29-7	Diethyl ether	Not Detected	280		50
108-20-3	Diisopropyl Ether	Not Detected	350		50
100-41-4	Ethylbenzene	5200	70		50
637-92-3	Ethyltertiarybutylether	Not Detected	350		50
67-72-1	Hexachloroethane	Not Detected	350		50
98-82-8	Isopropylbenzene	540	70		50
108383,106423	m & p - Xylene	3700	140		50
74-88-4	Methyl iodide	Not Detected	70	5 7	50
75-09-2	Methylene chloride	Not Detected	140		50
1634-04-4	Methyltertiarybutylether	Not Detected	70		50
91-20-3	Naphthalene	51000	7000	X	1000
104-51-8	n-Butylbenzene	Not Detected	70		50
103-65-1	n-Propylbenzene	230	70		50
95-47-6	o-Xylene	2000	70		50
99-87-6	p-Isopropyl toluene	190	70		50
135-98-8	sec-Butylbenzene	Not Detected	70		50
100-42-5	Styrene	Not Detected	70		50
98-06-6	tert-Butylbenzene	Not Detected	70		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3500		50
994-05-8	tertiaryAmylmethylether	Not Detected	350		50
127-18-4	Tetrachloroethylene	Not Detected	70		50
109-99-9	Tetrahydrofuran	Not Detected	350		50
108-88-3	Toluene	66	70	T	50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	70		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	70		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	350	Z	50
79-01-6	Trichloroethylene	Not Detected	70		50
75-69-4	Trichlorofluoromethane	Not Detected	70		50
75-01-4	Vinyl chloride	Not Detected	70	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65635 SD2

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	86.9	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65636 SD2D

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/01/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.06			
SURROGATE	#Bromofluorobenzene#	103			
SURROGATE	#Dibromofluoromethane#	111			
SURROGATE	#Toluene-d8#	111			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	82		50
71-55-6	1,1,1-Trichloroethane	Not Detected	82		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	82		50
79-00-5	1,1,2-Trichloroethane	Not Detected	82		50
75-34-3	1,1-Dichloroethane	Not Detected	82		50
75-35-4	1,1-Dichloroethylene	Not Detected	82		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	410		50
96-18-4	1,2,3-Trichloropropane	Not Detected	82		50
526-73-8	1,2,3-Trimethylbenzene	4500	82		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	410		50
95-63-6	1,2,4-Trimethylbenzene	13000	82		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	410		50
106-93-4	1,2-Dibromoethane	Not Detected	82	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	82		50
107-06-2	1,2-Dichloroethane	Not Detected	82		50
78-87-5	1,2-Dichloropropane	Not Detected	82		50
108-67-8	1,3,5-Trimethylbenzene	3500	82		50
541-73-1	1,3-Dichlorobenzene	Not Detected	82		50
106-46-7	1,4-Dichlorobenzene	Not Detected	82		50
78-93-3	2-Butanone (MEK)	Not Detected	410		50
591-78-6	2-Hexanone	Not Detected	410		50
91-57-6	2-Methylnaphthalene	72000	33000	X	4000
67-64-1	2-Propanone (acetone)	Not Detected	1600		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	410		50
107-13-1	Acrylonitrile	Not Detected	410	Z	50
71-43-2	Benzene	1800	82		50
108-86-1	Bromobenzene	Not Detected	82		50
74-97-5	Bromochloromethane	Not Detected	82		50
75-27-4	Bromodichloromethane	Not Detected	82		50
75-25-2	Bromoform	Not Detected	82		50
74-83-9	Bromomethane	Not Detected	330		50
75-15-0	Carbon disulfide	Not Detected	82		50
56-23-5	Carbon tetrachloride	Not Detected	82		50
108-90-7	Chlorobenzene	Not Detected	82		50
75-00-3	Chloroethane	Not Detected	410		50
67-66-3	Chloroform	Not Detected	82		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65636 SD2D

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/01/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/28/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	410		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	82		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	82		50
110-82-7	Cyclohexane	Not Detected	410		50
124-48-1	Dibromochloromethane	Not Detected	82		50
74-95-3	Dibromomethane	Not Detected	82		50
75-71-8	Dichlorodifluoromethane	Not Detected	410		50
60-29-7	Diethyl ether	Not Detected	330		50
108-20-3	Diisopropyl Ether	Not Detected	410		50
100-41-4	Ethylbenzene	15000	6600		4000
637-92-3	Ethyltertiarybutylether	Not Detected	410		50
67-72-1	Hexachloroethane	Not Detected	410		50
98-82-8	Isopropylbenzene	2400	82		50
108383,106423	m & p - Xylene	15000	160		50
74-88-4	Methyl iodide	Not Detected	82	5 7	50
75-09-2	Methylene chloride	Not Detected	160		50
1634-04-4	Methyltertiarybutylether	Not Detected	82		50
91-20-3	Naphthalene	240000	33000	X	4000
104-51-8	n-Butylbenzene	Not Detected	82		50
103-65-1	n-Propylbenzene	1000	82		50
95-47-6	o-Xylene	8500	82		50
99-87-6	p-Isopropyl toluene	810	82		50
135-98-8	sec-Butylbenzene	Not Detected	82		50
100-42-5	Styrene	Not Detected	82		50
98-06-6	tert-Butylbenzene	Not Detected	82		50
75-65-0	tertiary Butyl Alcohol	Not Detected	4100		50
994-05-8	tertiaryAmylmethylether	Not Detected	410		50
127-18-4	Tetrachloroethylene	Not Detected	82		50
109-99-9	Tetrahydrofuran	Not Detected	410		50
108-88-3	Toluene	160	82		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	82		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	82		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	410	Z	50
79-01-6	Trichloroethylene	Not Detected	82		50
75-69-4	Trichlorofluoromethane	Not Detected	82		50
75-01-4	Vinyl chloride	Not Detected	82	Z	50

*RL raised due to possible laboratory contamination.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65636 SD2D

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	79.4	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65637 SD3

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.66			
SURROGATE	#Bromofluorobenzene#	Not Applicable		V	
SURROGATE	#Dibromofluoromethane#	Not Applicable		V	
SURROGATE	#Toluene-d8#	Not Applicable		V	
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	12000		8000
71-55-6	1,1,1-Trichloroethane	Not Detected	12000		8000
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	12000		8000
79-00-5	1,1,2-Trichloroethane	Not Detected	12000		8000
75-34-3	1,1-Dichloroethane	Not Detected	12000		8000
75-35-4	1,1-Dichloroethylene	Not Detected	12000		8000
87-61-6	1,2,3-Trichlorobenzene	Not Detected	59000		8000
96-18-4	1,2,3-Trichloropropane	Not Detected	12000		8000
526-73-8	1,2,3-Trimethylbenzene	16000	12000		8000
120-82-1	1,2,4-Trichlorobenzene	Not Detected	59000		8000
95-63-6	1,2,4-Trimethylbenzene	40000	12000		8000
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	59000		8000
106-93-4	1,2-Dibromoethane	Not Detected	12000	Z	8000
95-50-1	1,2-Dichlorobenzene	Not Detected	12000		8000
107-06-2	1,2-Dichloroethane	Not Detected	12000		8000
78-87-5	1,2-Dichloropropane	Not Detected	12000		8000
108-67-8	1,3,5-Trimethylbenzene	16000	12000		8000
541-73-1	1,3-Dichlorobenzene	Not Detected	12000		8000
106-46-7	1,4-Dichlorobenzene	Not Detected	12000		8000
78-93-3	2-Butanone (MEK)	Not Detected	59000		8000
591-78-6	2-Hexanone	Not Detected	59000		8000
91-57-6	2-Methylnaphthalene	840000	59000	X	8000
67-64-1	2-Propanone (acetone)	Not Detected	240000		8000
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	59000		8000
107-13-1	Acrylonitrile	Not Detected	59000	Z	8000
71-43-2	Benzene	Not Detected	12000		8000
108-86-1	Bromobenzene	Not Detected	12000		8000
74-97-5	Bromochloromethane	Not Detected	12000		8000
75-27-4	Bromodichloromethane	Not Detected	12000		8000
75-25-2	Bromoform	Not Detected	12000		8000
74-83-9	Bromomethane	Not Detected	47000		8000
75-15-0	Carbon disulfide	Not Detected	12000		8000
56-23-5	Carbon tetrachloride	Not Detected	12000		8000
108-90-7	Chlorobenzene	Not Detected	12000		8000
75-00-3	Chloroethane	Not Detected	59000		8000
67-66-3	Chloroform	Not Detected	12000		8000

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
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Sample Number: AB65637 SD3

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	59000		8000
156-59-2	cis-1,2-Dichloroethylene	Not Detected	12000		8000
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	12000		8000
110-82-7	Cyclohexane	Not Detected	59000		8000
124-48-1	Dibromochloromethane	Not Detected	12000		8000
74-95-3	Dibromomethane	Not Detected	12000		8000
75-71-8	Dichlorodifluoromethane	Not Detected	59000		8000
60-29-7	Diethyl ether	Not Detected	47000		8000
108-20-3	Diisopropyl Ether	Not Detected	59000		8000
100-41-4	Ethylbenzene	Not Detected	12000		8000
637-92-3	Ethyltertiarybutylether	Not Detected	59000		8000
67-72-1	Hexachloroethane	Not Detected	59000	3	8000
98-82-8	Isopropylbenzene	Not Detected	12000		8000
108383,106423	m & p - Xylene	Not Detected	24000		8000
74-88-4	Methyl iodide	Not Detected	12000	5 7	8000
75-09-2	Methylene chloride	Not Detected	24000		8000
1634-04-4	Methyltertiarybutylether	Not Detected	12000		8000
91-20-3	Naphthalene	1100000	59000	X	8000
104-51-8	n-Butylbenzene	Not Detected	12000		8000
103-65-1	n-Propylbenzene	Not Detected	12000		8000
95-47-6	o-Xylene	Not Detected	12000		8000
99-87-6	p-Isopropyl toluene	Not Detected	12000		8000
135-98-8	sec-Butylbenzene	Not Detected	12000		8000
100-42-5	Styrene	Not Detected	12000		8000
98-06-6	tert-Butylbenzene	Not Detected	12000		8000
75-65-0	tertiary Butyl Alcohol	Not Detected	590000		8000
994-05-8	tertiaryAmylmethylether	Not Detected	59000		8000
127-18-4	Tetrachloroethylene	Not Detected	12000		8000
109-99-9	Tetrahydrofuran	Not Detected	59000		8000
108-88-3	Toluene	Not Detected	12000		8000
156-60-5	trans-1,2-Dichloroethylene	Not Detected	12000		8000
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	12000		8000
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	59000	Z	8000
79-01-6	Trichloroethylene	Not Detected	12000		8000
75-69-4	Trichlorofluoromethane	Not Detected	12000		8000
75-01-4	Vinyl chloride	Not Detected	12000	Z	8000

Unidentified peaks present in sample.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65637 SD3

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	82.0	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65638 SD3 MS

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.66			
SURROGATE	#Bromofluorobenzene#	Not Applicable		V	
SURROGATE	#Dibromofluoromethane#	Not Applicable		V	
SURROGATE	#Toluene-d8#	Not Applicable		V	
630-20-6	1,1,1,2-Tetrachloroethane	510000	12000		8000
71-55-6	1,1,1-Trichloroethane	530000	12000		8000
79-34-5	1,1,2,2-Tetrachloroethane	590000	12000		8000
79-00-5	1,1,2-Trichloroethane	540000	12000		8000
75-34-3	1,1-Dichloroethane	570000	12000		8000
75-35-4	1,1-Dichloroethylene	550000	12000		8000
87-61-6	1,2,3-Trichlorobenzene	510000	59000		8000
96-18-4	1,2,3-Trichloropropane	540000	12000		8000
526-73-8	1,2,3-Trimethylbenzene	520000	12000		8000
120-82-1	1,2,4-Trichlorobenzene	500000	59000		8000
95-63-6	1,2,4-Trimethylbenzene	570000	12000		8000
96-12-8	1,2-Dibromo-3-chloropropane	520000	59000		8000
106-93-4	1,2-Dibromoethane	550000	12000	Z	8000
95-50-1	1,2-Dichlorobenzene	580000	12000		8000
107-06-2	1,2-Dichloroethane	550000	12000		8000
78-87-5	1,2-Dichloropropane	570000	12000		8000
108-67-8	1,3,5-Trimethylbenzene	560000	12000		8000
541-73-1	1,3-Dichlorobenzene	520000	12000		8000
106-46-7	1,4-Dichlorobenzene	530000	12000		8000
78-93-3	2-Butanone (MEK)	520000	59000		8000
591-78-6	2-Hexanone	590000	59000		8000
91-57-6	2-Methylnaphthalene	1300000	59000	X	8000
67-64-1	2-Propanone (acetone)	410000	240000	6	8000
108-10-1	4-Methyl-2-pentanone (MIBK)	610000	59000		8000
107-13-1	Acrylonitrile	510000	59000	Z	8000
71-43-2	Benzene	560000	12000		8000
108-86-1	Bromobenzene	560000	12000		8000
74-97-5	Bromochloromethane	640000	12000		8000
75-27-4	Bromodichloromethane	530000	12000		8000
75-25-2	Bromoform	470000	12000		8000
74-83-9	Bromomethane	830000	47000	4	8000
75-15-0	Carbon disulfide	480000	12000		8000
56-23-5	Carbon tetrachloride	520000	12000		8000
108-90-7	Chlorobenzene	560000	12000		8000
75-00-3	Chloroethane	1100000	59000		8000
67-66-3	Chloroform	560000	12000		8000

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

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Sample Number: AB65638 SD3 MS

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	430000	59000		8000
156-59-2	cis-1,2-Dichloroethylene	550000	12000		8000
10061-01-5	cis-1,3-Dichloropropylene	520000	12000		8000
110-82-7	Cyclohexane	490000	59000		8000
124-48-1	Dibromochloromethane	550000	12000		8000
74-95-3	Dibromomethane	540000	12000		8000
75-71-8	Dichlorodifluoromethane	480000	59000		8000
60-29-7	Diethyl ether	530000	47000		8000
108-20-3	Diisopropyl Ether	550000	59000		8000
100-41-4	Ethylbenzene	570000	12000		8000
637-92-3	Ethyltertiarybutylether	540000	59000		8000
67-72-1	Hexachloroethane	420000	59000	3	8000
98-82-8	Isopropylbenzene	570000	12000		8000
108383,106423	m & p - Xylene	1100000	24000		8000
74-88-4	Methyl iodide	300000	12000	5 7	8000
75-09-2	Methylene chloride	500000	24000		8000
1634-04-4	Methyltertiarybutylether	560000	12000		8000
91-20-3	Naphthalene	1600000	59000	X	8000
104-51-8	n-Butylbenzene	500000	12000		8000
103-65-1	n-Propylbenzene	540000	12000		8000
95-47-6	o-Xylene	530000	12000		8000
99-87-6	p-Isopropyl toluene	510000	12000		8000
135-98-8	sec-Butylbenzene	530000	12000		8000
100-42-5	Styrene	610000	12000		8000
98-06-6	tert-Butylbenzene	530000	12000		8000
75-65-0	tertiary Butyl Alcohol	2300000	590000		8000
994-05-8	tertiaryAmylmethylether	550000	59000		8000
127-18-4	Tetrachloroethylene	560000	12000		8000
109-99-9	Tetrahydrofuran	590000	59000		8000
108-88-3	Toluene	560000	12000		8000
156-60-5	trans-1,2-Dichloroethylene	550000	12000		8000
10061-02-6	trans-1,3-Dichloropropylene	530000	12000		8000
110-57-6	trans-1,4-Dichloro-2-butene	430000	59000	Z	8000
79-01-6	Trichloroethylene	520000	12000		8000
75-69-4	Trichlorofluoromethane	600000	12000		8000
75-01-4	Vinyl chloride	550000	12000	Z	8000

Unidentified peaks present in sample. Sample is a matrix spike.
Compounds spiked at 590000 ug/Kg, except tertiary butyl alcohol spiked at 2950000 ug/Kg & m&p-xylene spiked at 1180000 ug/Kg.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65638 SD3 MS

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	82.0	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65639 SD3 MSD

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.66			
SURROGATE	#Bromofluorobenzene#	Not Applicable		V	
SURROGATE	#Dibromofluoromethane#	Not Applicable		V	
SURROGATE	#Toluene-d8#	Not Applicable		V	
630-20-6	1,1,1,2-Tetrachloroethane	540000	12000		8000
71-55-6	1,1,1-Trichloroethane	530000	12000		8000
79-34-5	1,1,2,2-Tetrachloroethane	600000	12000		8000
79-00-5	1,1,2-Trichloroethane	570000	12000		8000
75-34-3	1,1-Dichloroethane	600000	12000		8000
75-35-4	1,1-Dichloroethylene	550000	12000		8000
87-61-6	1,2,3-Trichlorobenzene	550000	59000		8000
96-18-4	1,2,3-Trichloropropane	570000	12000		8000
526-73-8	1,2,3-Trimethylbenzene	540000	12000		8000
120-82-1	1,2,4-Trichlorobenzene	530000	59000		8000
95-63-6	1,2,4-Trimethylbenzene	590000	12000		8000
96-12-8	1,2-Dibromo-3-chloropropane	550000	59000		8000
106-93-4	1,2-Dibromoethane	550000	12000	Z	8000
95-50-1	1,2-Dichlorobenzene	600000	12000		8000
107-06-2	1,2-Dichloroethane	540000	12000		8000
78-87-5	1,2-Dichloropropane	560000	12000		8000
108-67-8	1,3,5-Trimethylbenzene	570000	12000		8000
541-73-1	1,3-Dichlorobenzene	560000	12000		8000
106-46-7	1,4-Dichlorobenzene	540000	12000		8000
78-93-3	2-Butanone (MEK)	520000	59000		8000
591-78-6	2-Hexanone	640000	59000		8000
91-57-6	2-Methylnaphthalene	1500000	59000	X	8000
67-64-1	2-Propanone (acetone)	390000	240000	6	8000
108-10-1	4-Methyl-2-pentanone (MIBK)	610000	59000		8000
107-13-1	Acrylonitrile	560000	59000	Z	8000
71-43-2	Benzene	550000	12000		8000
108-86-1	Bromobenzene	570000	12000		8000
74-97-5	Bromochloromethane	620000	12000		8000
75-27-4	Bromodichloromethane	550000	12000		8000
75-25-2	Bromoform	460000	12000		8000
74-83-9	Bromomethane	840000	47000	4	8000
75-15-0	Carbon disulfide	500000	12000		8000
56-23-5	Carbon tetrachloride	560000	12000		8000
108-90-7	Chlorobenzene	570000	12000		8000
75-00-3	Chloroethane	1100000	59000		8000
67-66-3	Chloroform	590000	12000		8000

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

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Sample Number: AB65639 SD3 MSD

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 10/31/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	480000	59000		8000
156-59-2	cis-1,2-Dichloroethylene	570000	12000		8000
10061-01-5	cis-1,3-Dichloropropylene	530000	12000		8000
110-82-7	Cyclohexane	510000	59000		8000
124-48-1	Dibromochloromethane	580000	12000		8000
74-95-3	Dibromomethane	570000	12000		8000
75-71-8	Dichlorodifluoromethane	480000	59000		8000
60-29-7	Diethyl ether	550000	47000		8000
108-20-3	Diisopropyl Ether	560000	59000		8000
100-41-4	Ethylbenzene	580000	12000		8000
637-92-3	Ethyltertiarybutylether	560000	59000		8000
67-72-1	Hexachloroethane	450000	59000		8000
98-82-8	Isopropylbenzene	600000	12000		8000
108383,106423	m & p - Xylene	1100000	24000		8000
74-88-4	Methyl iodide	450000	12000	5 7	8000
75-09-2	Methylene chloride	530000	24000		8000
1634-04-4	Methyltertiarybutylether	560000	12000		8000
91-20-3	Naphthalene	1700000	59000	X	8000
104-51-8	n-Butylbenzene	530000	12000		8000
103-65-1	n-Propylbenzene	580000	12000		8000
95-47-6	o-Xylene	540000	12000		8000
99-87-6	p-Isopropyl toluene	530000	12000		8000
135-98-8	sec-Butylbenzene	550000	12000		8000
100-42-5	Styrene	640000	12000		8000
98-06-6	tert-Butylbenzene	560000	12000		8000
75-65-0	tertiary Butyl Alcohol	2400000	590000		8000
994-05-8	tertiaryAmylmethylether	540000	59000		8000
127-18-4	Tetrachloroethylene	560000	12000		8000
109-99-9	Tetrahydrofuran	580000	59000		8000
108-88-3	Toluene	570000	12000		8000
156-60-5	trans-1,2-Dichloroethylene	580000	12000		8000
10061-02-6	trans-1,3-Dichloropropylene	520000	12000		8000
110-57-6	trans-1,4-Dichloro-2-butene	450000	59000	Z	8000
79-01-6	Trichloroethylene	530000	12000		8000
75-69-4	Trichlorofluoromethane	610000	12000		8000
75-01-4	Vinyl chloride	560000	12000	Z	8000

Unidentified peaks present in sample. Sample is a matrix spike duplicate.
Compounds spiked at 590000 ug/Kg, except tertiary butyl alcohol spiked at 2950000 ug/Kg & m&p-xylene spiked at 1180000 ug/Kg.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65639 SD3 MSD

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	82.0	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65640 SD4

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/02/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	9.40			
SURROGATE	#Bromofluorobenzene#	105			
SURROGATE	#Dibromofluoromethane#	110			
SURROGATE	#Toluene-d8#	110			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	62		50
71-55-6	1,1,1-Trichloroethane	Not Detected	62		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	62		50
79-00-5	1,1,2-Trichloroethane	Not Detected	62		50
75-34-3	1,1-Dichloroethane	Not Detected	62		50
75-35-4	1,1-Dichloroethylene	Not Detected	62		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	310		50
96-18-4	1,2,3-Trichloropropane	Not Detected	62		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	62		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	310		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	62		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	310		50
106-93-4	1,2-Dibromoethane	Not Detected	62	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	62		50
107-06-2	1,2-Dichloroethane	Not Detected	62		50
78-87-5	1,2-Dichloropropane	Not Detected	62		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	62		50
541-73-1	1,3-Dichlorobenzene	Not Detected	62		50
106-46-7	1,4-Dichlorobenzene	Not Detected	62		50
78-93-3	2-Butanone (MEK)	Not Detected	310		50
591-78-6	2-Hexanone	Not Detected	310		50
91-57-6	2-Methylnaphthalene	Not Detected	310	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1200		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	310		50
107-13-1	Acrylonitrile	Not Detected	310	Z	50
71-43-2	Benzene	Not Detected	62		50
108-86-1	Bromobenzene	Not Detected	62		50
74-97-5	Bromochloromethane	Not Detected	62		50
75-27-4	Bromodichloromethane	Not Detected	62		50
75-25-2	Bromoform	Not Detected	62		50
74-83-9	Bromomethane	Not Detected	250		50
75-15-0	Carbon disulfide	Not Detected	62		50
56-23-5	Carbon tetrachloride	Not Detected	62		50
108-90-7	Chlorobenzene	Not Detected	62		50
75-00-3	Chloroethane	Not Detected	310		50
67-66-3	Chloroform	Not Detected	62		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65640 SD4

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/02/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	310		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	62		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	62		50
110-82-7	Cyclohexane	Not Detected	310		50
124-48-1	Dibromochloromethane	Not Detected	62		50
74-95-3	Dibromomethane	Not Detected	62		50
75-71-8	Dichlorodifluoromethane	Not Detected	310		50
60-29-7	Diethyl ether	Not Detected	250		50
108-20-3	Diisopropyl Ether	Not Detected	310		50
100-41-4	Ethylbenzene	Not Detected	62		50
637-92-3	Ethyltertiarybutylether	Not Detected	310		50
67-72-1	Hexachloroethane	Not Detected	310		50
98-82-8	Isopropylbenzene	Not Detected	62		50
108383,106423	m & p - Xylene	Not Detected	120		50
74-88-4	Methyl iodide	Not Detected	62	5	50
75-09-2	Methylene chloride	Not Detected	120		50
1634-04-4	Methyltertiarybutylether	Not Detected	62		50
91-20-3	Naphthalene	Not Detected	310	X	50
104-51-8	n-Butylbenzene	Not Detected	62		50
103-65-1	n-Propylbenzene	Not Detected	62		50
95-47-6	o-Xylene	Not Detected	62		50
99-87-6	p-Isopropyl toluene	Not Detected	62		50
135-98-8	sec-Butylbenzene	Not Detected	62		50
100-42-5	Styrene	Not Detected	62		50
98-06-6	tert-Butylbenzene	Not Detected	62		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3100		50
994-05-8	tertiaryAmylmethylether	Not Detected	310		50
127-18-4	Tetrachloroethylene	Not Detected	62		50
109-99-9	Tetrahydrofuran	Not Detected	310		50
108-88-3	Toluene	Not Detected	62		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	62		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	62		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	310	Z	50
79-01-6	Trichloroethylene	Not Detected	62		50
75-69-4	Trichlorofluoromethane	Not Detected	62		50
75-01-4	Vinyl chloride	Not Detected	62	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
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ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65640 SD4

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	91.9	%	0.1		11/15/2010	2540B SM	RG

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65641 SD5

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/02/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
	##Weight of sample(grams)	10.24			
SURROGATE	#Bromofluorobenzene#	117			
SURROGATE	#Dibromofluoromethane#	127			
SURROGATE	#Toluene-d8#	129			
630-20-6	1,1,1,2-Tetrachloroethane	Not Detected	73		50
71-55-6	1,1,1-Trichloroethane	Not Detected	73		50
79-34-5	1,1,2,2-Tetrachloroethane	Not Detected	73		50
79-00-5	1,1,2-Trichloroethane	Not Detected	73		50
75-34-3	1,1-Dichloroethane	Not Detected	73		50
75-35-4	1,1-Dichloroethylene	Not Detected	73		50
87-61-6	1,2,3-Trichlorobenzene	Not Detected	370		50
96-18-4	1,2,3-Trichloropropane	Not Detected	73		50
526-73-8	1,2,3-Trimethylbenzene	Not Detected	73		50
120-82-1	1,2,4-Trichlorobenzene	Not Detected	370		50
95-63-6	1,2,4-Trimethylbenzene	Not Detected	73		50
96-12-8	1,2-Dibromo-3-chloropropane	Not Detected	370		50
106-93-4	1,2-Dibromoethane	Not Detected	73	Z	50
95-50-1	1,2-Dichlorobenzene	Not Detected	73		50
107-06-2	1,2-Dichloroethane	Not Detected	73		50
78-87-5	1,2-Dichloropropane	Not Detected	73		50
108-67-8	1,3,5-Trimethylbenzene	Not Detected	73		50
541-73-1	1,3-Dichlorobenzene	Not Detected	73		50
106-46-7	1,4-Dichlorobenzene	Not Detected	73		50
78-93-3	2-Butanone (MEK)	Not Detected	370		50
591-78-6	2-Hexanone	Not Detected	370		50
91-57-6	2-Methylnaphthalene	Not Detected	370	X	50
67-64-1	2-Propanone (acetone)	Not Detected	1500		50
108-10-1	4-Methyl-2-pentanone (MIBK)	Not Detected	370		50
107-13-1	Acrylonitrile	Not Detected	370	Z	50
71-43-2	Benzene	Not Detected	73		50
108-86-1	Bromobenzene	Not Detected	73		50
74-97-5	Bromochloromethane	Not Detected	73		50
75-27-4	Bromodichloromethane	Not Detected	73		50
75-25-2	Bromoform	Not Detected	73		50
74-83-9	Bromomethane	Not Detected	290		50
75-15-0	Carbon disulfide	Not Detected	73		50
56-23-5	Carbon tetrachloride	Not Detected	73		50
108-90-7	Chlorobenzene	Not Detected	73		50
75-00-3	Chloroethane	Not Detected	370		50
67-66-3	Chloroform	Not Detected	73		50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

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mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
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Sample Number: AB65641 SD5

Volatile Compounds

Analytical Method: 8260 **Date Tested:** 11/02/2010 **Analyst:** SJR
Extraction Method: 5035 **Extraction Date:** 10/29/2010 **Qualifier:**

CAS #	Compound	Result ug/Kg dry	RL	Qualifier	Dilution Factor
74-87-3	Chloromethane	Not Detected	370		50
156-59-2	cis-1,2-Dichloroethylene	Not Detected	73		50
10061-01-5	cis-1,3-Dichloropropylene	Not Detected	73		50
110-82-7	Cyclohexane	Not Detected	370		50
124-48-1	Dibromochloromethane	Not Detected	73		50
74-95-3	Dibromomethane	Not Detected	73		50
75-71-8	Dichlorodifluoromethane	Not Detected	370		50
60-29-7	Diethyl ether	Not Detected	290		50
108-20-3	Diisopropyl Ether	Not Detected	370		50
100-41-4	Ethylbenzene	Not Detected	73		50
637-92-3	Ethyltertiarybutylether	Not Detected	370		50
67-72-1	Hexachloroethane	Not Detected	370		50
98-82-8	Isopropylbenzene	Not Detected	73		50
108383,106423	m & p - Xylene	Not Detected	150		50
74-88-4	Methyl iodide	Not Detected	73	5	50
75-09-2	Methylene chloride	Not Detected	150		50
1634-04-4	Methyltertiarybutylether	Not Detected	73		50
91-20-3	Naphthalene	Not Detected	370	X	50
104-51-8	n-Butylbenzene	Not Detected	73		50
103-65-1	n-Propylbenzene	Not Detected	73		50
95-47-6	o-Xylene	Not Detected	73		50
99-87-6	p-Isopropyl toluene	Not Detected	73		50
135-98-8	sec-Butylbenzene	Not Detected	73		50
100-42-5	Styrene	Not Detected	73		50
98-06-6	tert-Butylbenzene	Not Detected	73		50
75-65-0	tertiary Butyl Alcohol	Not Detected	3700		50
994-05-8	tertiaryAmylmethylether	Not Detected	370		50
127-18-4	Tetrachloroethylene	Not Detected	73		50
109-99-9	Tetrahydrofuran	Not Detected	370		50
108-88-3	Toluene	Not Detected	73		50
156-60-5	trans-1,2-Dichloroethylene	Not Detected	73		50
10061-02-6	trans-1,3-Dichloropropylene	Not Detected	73		50
110-57-6	trans-1,4-Dichloro-2-butene	Not Detected	370	Z	50
79-01-6	Trichloroethylene	Not Detected	73		50
75-69-4	Trichlorofluoromethane	Not Detected	73		50
75-01-4	Vinyl chloride	Not Detected	73	Z	50

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
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P.O. Box 30270
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Sample Number: AB65641 SD5

CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	% Total Solids	80.1	%	0.1		11/15/2010	2540B SM	RG

Qualifier Code	Qualifier Description
1	Result(s) and RL(s) are estimated due to low surrogate recovery.
2	Result is estimated due to high surrogate recovery.
3	Result(s) and RL(s) are estimated due to low matrix spike recovery.
4	Result is estimated due to high matrix spike recovery.
5	Result and RL are estimated due to low continuing calibration standard criteria failure.
6	Result is estimated due to high continuing calibration standard criteria failure.
7	Result(s) and RL(s) are estimated due to poor precision.
8	Result(s) and RL(s) are estimated due to low recovery of batch QC.
9	Result outside QC acceptance criteria.
A	Value reported is the mean of two or more determinations.
C	Value calculated from other independent parameters.
D	Analyte value quantified from a dilution(s); reporting limit (RL) raised.
E	Result is estimated due to high recovery of batch QC.
F	Amenable cyanide was not analyzed due to low level of total cyanide.
G	Result and RL are estimated due to initial calibration standard criteria failure.
H	Recommended laboratory holding time was exceeded.
I	Dilution required due to matrix interference; reporting limit (RL) raised.
J	Analyte was positively identified. Value is an estimate.
JA	Result is estimated due to multiple Aroclors present.
JC	Result is estimated since confirmation analysis did not meet acceptance criteria
JD	Due to severe degradation, specific Aroclor identification is difficult and quantitation is estimated.
K	RL(s) raised due to matrix interferences.
KR	RL(s) raised due to low sample volume submitted.
KS	RL(s) raised due to low total solids.
KW	RL(s) raised due to light sample weight.
LB	Reported library search compounds are tentative identifications with estimated concentrations.
M	The level of the method preparation blank (MPB) is reported in the qualifier column.
N	Non-homogeneous sample made analysis of sample questionable.
O	Result and RL estimated due to analysis from an open vial.
P	Recommended sample collection/preservation technique not used; reported result(s) is an estimate.
Q	Quantity of sample insufficient to perform analyses requested.
R	Result confirmed by re-extraction and analysis.
S	Supernatant analyzed.
T	Reported value is less than the reporting limit (RL). Result is estimated.
V	Value not available due to dilution.
W	Reported value is less than the method detection limit (MDL).
X	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200°C. 2-Methylnaphthalene & naphthalene have boiling points above 200°C and are better suited to analysis by methods 8270 or 625 as semivolatile organics.
PI	Possible interference may have affected the accuracy of the laboratory result
Z	Result reported below the RL to meet the TDL in RRD Op Memo 2 (10/22/04) multiplied by applicable dilution factor.

CAS# : Chemical Abstract Service Registry Number
RL : Reporting Limit
ND : Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

Analytical Results (Qualified Data)

Case #: 40702 SDG : E51H3

Site : IRONWOOD MGP SITE Number of Soil Samples : 19

Lab. : KAP Number of Water Samples : 0

Reviewer : Number of Sediment Samples : 0

Date :

Sample Number :	E51H3		E51H3DL		E51H3MS		E51H3MSD		E51H4	
Sampling Location :	SD3		SD3		SD3		SD3		SD4	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/21/2010								10/21/2010	
Time Sampled :										
%Moisture :	16		16		16		16		17	
pH :	6.3		6.3		6.3		6.3		6.7	
Dilution Factor :	1.0		200.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	200	U	40000	U	200	R	200	R	200	U
Phenol	200	UJ	40000	UJ	900	J	1600	J	200	U
Bis(2-chloroethyl)ether	200	U	40000	U	200	R	200	R	200	U
2-Chlorophenol	200	U	40000	U	870	J	1300	J	200	U
2-Methylphenol	200	U	40000	U	200	R	200	R	200	U
2,2'-Oxybis(1-chloropropane)	200	U	40000	U	200	R	200	R	200	U
Acetophenone	2100		40000	U	3200	J	3700	J	200	U
4-Methylphenol	200	U	40000	U	200	R	200	R	200	U
N-Nitroso-di-n-propylamine	200	UJ	40000	UJ	1900	J	2800	J	200	U
Hexachloroethane	200	U	40000	U	200	R	200	R	200	U
Nitrobenzene	200	U	40000	U	200	R	200	R	200	U
Isophorone	200	U	40000	U	200	R	200	R	200	U
2-Nitrophenol	200	U	40000	U	200	R	200	R	200	U
2,4-Dimethylphenol	200	U	40000	U	200	R	200	R	200	U
Bis(2-chloroethoxy)methane	200	U	40000	U	200	R	200	R	200	U
2,4-Dichlorophenol	200	U	40000	U	200	R	200	R	200	U
Naphthalene	38000	J	390000		380000	J	290000	J	200	U
4-Chloroaniline	200	U	40000	U	200	R	2000	J	200	U
Hexachlorobutadiene	200	U	40000	U	200	R	200	R	200	U
Caprolactam	200	U	40000	U	200	R	200	R	200	U
4-Chloro-3-methylphenol	200	UJ	40000	UJ	3000	J	1500	J	200	U
2-Methylnaphthalene	140000	J	360000		580000	J	370000	J	200	UJ
Hexachlorocyclopentadiene	200	U	40000	U	200	U	200	U	200	U
2,4,6-Trichlorophenol	200	U	40000	U	200	U	200	U	200	U
2,4,5-Trichlorophenol	200	U	40000	U	200	U	200	U	200	U
1,1'-Biphenyl	39000	J	45000		13000	J	16000	J	200	U
2-Chloronaphthalene	200	U	40000	U	200	U	200	U	200	U
2-Nitroaniline	390	U	78000	U	390	U	390	U	400	U
Dimethylphthalate	200	U	40000	U	200	UJ	200	UJ	200	U
2,6-Dinitrotoluene	200	U	40000	U	200	U	200	U	200	U
Acenaphthylene	39000	J	41000		25000	J	27000	J	200	U
3-Nitroaniline	390	U	78000	U	390	U	390	U	400	U
Acenaphthene	100000	J	260000	J	47000	J	54000	J	200	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51H3		E51H3DL		E51H3MS		E51H3MSD		E51H4	
Sampling Location :	SD3		SD3		SD3		SD3		SD4	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/21/2010								10/21/2010	
Time Sampled :										
%Moisture :	16		16		16		16		17	
pH :	6.3		6.3		6.3		6.3		6.7	
Dilution Factor :	1.0		200.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	390	U	78000	U	390	U	390	U	400	U
4-Nitrophenol	390	U	78000	U	1100		1400		400	U
Dibenzofuran	23000	J	40000	U	10000	J	12000	J	200	U
2,4-Dinitrotoluene	200	UJ	40000	UJ	2200		750		200	U
Diethylphthalate	200	U	40000	U	200	UJ	200	UJ	200	U
Fluorene	95000	J	140000		59000	J	64000	J	200	U
4-Chlorophenyl-phenylether	200	U	40000	U	200	U	200	U	200	U
4-Nitroaniline	390	U	78000	U	390	U	390	U	400	U
4,6-Dinitro-2-methylphenol	390	U	78000	U	390	U	390	UJ	400	U
N-Nitrosodiphenylamine	200	U	40000	U	200	U	200	UJ	200	U
1,2,4,5-Tetrachlorobenzene	200	U	40000	U	200	U	200	U	200	U
4-Bromophenyl-phenylether	200	U	40000	U	200	U	200	UJ	200	U
Hexachlorobenzene	200	U	40000	U	200	U	200	UJ	200	U
Atrazine	200	U	40000	U	200	U	200	UJ	200	U
Pentachlorophenol	390	UJ	78000	U	1500	J	1800	J	400	UJ
Phenanthrene	210000	J	600000		150000	J	230000	J	160	J
Anthracene	81000	J	450000		100000	J	160000	J	200	U
Carbazole	200	U	40000	U	200	U	200	UJ	200	U
Di-n-butylphthalate	200	U	40000	U	200	UJ	200	UJ	200	U
Fluoranthene	130000	J	140000		130000	J	190000	J	290	
Pyrene	32000	J	300000	J	47000	J	99000	J	260	
Butylbenzylphthalate	200	U	40000	U	200	UJ	200	UJ	200	U
3,3'-Dichlorobenzidine	200	U	40000	U	200	U	200	UJ	200	U
Benzo(a)anthracene	49000	J	69000		60000	J	130000	J	150	J
Chrysene	22000	J	62000		33000	J	82000	J	150	J
Bis(2-ethylhexyl)phthalate	200	U	40000	U	200	UJ	200	UJ	200	U
Di-n-octylphthalate	200	U	40000	UJ	200	UJ	200	UJ	200	U
Benzo(b)fluoranthene	31000	J	30000	J	19000	J	21000	J	200	U
Benzo(k)fluoranthene	21000	J	44000		14000	J	16000	J	200	U
Benzo(a)pyrene	84000	J	69000		54000	J	63000	J	150	J
Indeno(1,2,3-cd)pyrene	44000	J	28000	J	10000	J	12000	J	200	U
Dibenzo(a,h)anthracene	27000	J	40000	U	6200	J	7300	J	200	U
Benzo(g,h,i)perylene	47000	J	38000	J	11000	J	13000	J	200	U
2,3,4,6-Tetrachlorophenol	200	U	40000	U	200	U	200	U	200	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51H5		E51H5DL		E51H6		E51H6DL		E51H7	
Sampling Location :	SD5		SD5		SB1		SB1		SB2	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/21/2010				10/19/2010				10/19/2010	
Time Sampled :										
%Moisture :	34		34		15		15		13	
pH :	6.0		6.0		6.5		6.5		6.4	
Dilution Factor :	1.0		5.0		1.0		10.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	260	U	1300	U	200	U	2000	U	190	U
Phenol	260	U	1300	U	200	U	2000	U	190	U
Bis(2-chloroethyl)ether	260	U	1300	U	200	U	2000	U	190	U
2-Chlorophenol	260	U	1300	U	200	U	2000	U	190	U
2-Methylphenol	260	U	1300	U	200	U	2000	U	190	U
2,2'-Oxybis(1-chloropropane)	260	U	1300	U	200	U	2000	U	190	U
Acetophenone	260	U	1300	U	200	U	2000	U	190	U
4-Methylphenol	260	U	1300	U	200	U	2000	U	190	U
N-Nitroso-di-n-propylamine	260	U	1300	U	200	U	2000	U	190	U
Hexachloroethane	260	U	1300	U	200	U	2000	U	190	U
Nitrobenzene	260	U	1300	U	200	U	2000	U	190	U
Isophorone	260	U	1300	U	200	U	2000	U	190	U
2-Nitrophenol	260	U	1300	U	200	U	2000	U	190	U
2,4-Dimethylphenol	260	U	1300	U	200	U	2000	U	190	U
Bis(2-chloroethoxy)methane	260	U	1300	U	200	U	2000	U	190	U
2,4-Dichlorophenol	260	U	1300	U	200	U	2000	U	190	U
Naphthalene	260	U	1300	U	270	J	2000	U	190	U
4-Chloroaniline	260	U	1300	U	200	U	2000	U	190	U
Hexachlorobutadiene	260	U	1300	U	200	U	2000	U	190	U
Caprolactam	260	U	1300	U	200	U	2000	U	190	U
4-Chloro-3-methylphenol	260	U	1300	U	200	U	2000	U	190	U
2-Methylnaphthalene	260	U	1300	U	170	J	2000	U	190	U
Hexachlorocyclopentadiene	260	U	1300	U	200	U	2000	U	190	U
2,4,6-Trichlorophenol	260	U	1300	U	200	U	2000	U	190	U
2,4,5-Trichlorophenol	260	U	1300	U	200	U	2000	U	190	U
1,1'-Biphenyl	260	U	1300	U	200	U	2000	U	190	U
2-Chloronaphthalene	260	U	1300	U	200	U	2000	U	190	U
2-Nitroaniline	500	U	2500	U	390	U	3900	U	380	U
Dimethylphthalate	260	U	1300	U	200	U	2000	U	190	U
2,6-Dinitrotoluene	260	U	1300	U	200	U	2000	U	190	U
Acenaphthylene	1400		1300	U	5000	J	2400		190	U
3-Nitroaniline	500	U	2500	U	390	U	3900	U	380	U
Acenaphthene	260	U	1300	U	200	U	2000	U	190	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51H5		E51H5DL		E51H6		E51H6DL		E51H7	
Sampling Location :	SD5		SD5		SB1		SB1		SB2	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/21/2010				10/19/2010				10/19/2010	
Time Sampled :										
%Moisture :	34		34		15		15		13	
pH :	6.0		6.0		6.5		6.5		6.4	
Dilution Factor :	1.0		5.0		1.0		10.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	500	U	2500	U	390	U	3900	UJ	380	U
4-Nitrophenol	500	U	2500	U	390	U	3900	U	380	U
Dibenzofuran	260	U	1300	U	200	U	2000	U	190	U
2,4-Dinitrotoluene	260	U	1300	U	200	U	2000	U	190	U
Diethylphthalate	260	U	1300	U	200	U	2000	U	190	U
Fluorene	260	U	1300	U	200	U	2000	U	190	U
4-Chlorophenyl-phenylether	260	U	1300	U	200	U	2000	U	190	U
4-Nitroaniline	500	U	2500	U	390	U	3900	U	380	U
4,6-Dinitro-2-methylphenol	500	U	2500	U	390	U	3900	U	380	U
N-Nitrosodiphenylamine	260	U	1300	U	200	U	2000	U	190	U
1,2,4,5-Tetrachlorobenzene	260	U	1300	U	200	U	2000	U	190	U
4-Bromophenyl-phenylether	260	U	1300	U	200	U	2000	U	190	U
Hexachlorobenzene	260	U	1300	U	200	U	2000	U	190	U
Atrazine	260	U	1300	U	200	U	2000	U	190	U
Pentachlorophenol	500	UJ	2500	U	390	UJ	3900	U	380	UJ
Phenanthrene	590	J	1300	U	1600	J	1400	J	190	U
Anthracene	1300	J	910	J	940	J	2000	U	190	U
Carbazole	260	U	1300	U	200	U	2000	U	190	U
Di-n-butylphthalate	260	U	1300	U	200	U	2000	U	190	U
Fluoranthene	7700	J	4000		9900	J	4600		190	U
Pyrene	5100	J	8000		5500	J	13000	J	190	U
Butylbenzylphthalate	260	U	1300	U	200	U	2000	U	190	U
3,3'-Dichlorobenzidine	260	U	1300	U	200	U	2000	U	190	U
Benzo(a)anthracene	4800	J	3900		6200	J	5800		190	U
Chrysene	4700	J	3600		6000	J	6000		100	J
Bis(2-ethylhexyl)phthalate	260	U	1300	U	200	U	2000	U	190	U
Di-n-octylphthalate	260	U	1300	UJ	200	U	2000	U	190	U
Benzo(b)fluoranthene	4200	J	2700		8500	J	4300		110	J
Benzo(k)fluoranthene	4000		3400		7800	J	5300		140	J
Benzo(a)pyrene	9100	J	5800		9700	J	6000		160	J
Indeno(1,2,3-cd)pyrene	2600		2900		5300	J	3900		190	U
Dibenzo(a,h)anthracene	950		850	J	2100	J	1300	J	190	U
Benzo(g,h,i)perylene	3400		3800		6900	J	5100		120	J
2,3,4,6-Tetrachlorophenol	260	U	1300	U	200	U	2000	U	190	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51H8		E51H9		E51J0		E51J0DL		E51J0RE	
Sampling Location :	SB2D		SB3		SB4		SB4		SB4	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/19/2010		10/19/2010		10/20/2010					
Time Sampled :										
%Moisture :	12		29		14		14		14	
pH :	6.1		5.4		5.3		5.3		5.3	
Dilution Factor :	1.0		1.0		1.0		500.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	190	U	240	U	200	U	99000	U	200	UJ
Phenol	190	U	240	U	1100	J	99000	U	1700	J
Bis(2-chloroethyl)ether	190	U	240	U	200	U	99000	U	200	UJ
2-Chlorophenol	190	U	240	U	200	U	99000	U	200	UJ
2-Methylphenol	190	U	240	U	2800	J	99000	U	3200	J
2,2'-Oxybis(1-chloropropane)	190	U	240	U	200	U	99000	U	200	UJ
Acetophenone	190	U	240	U	2000	J	99000	U	200	UJ
4-Methylphenol	190	U	240	U	4200	J	99000	U	5300	J
N-Nitroso-di-n-propylamine	190	U	240	U	200	U	99000	U	200	UJ
Hexachloroethane	190	U	240	U	200	U	99000	U	200	UJ
Nitrobenzene	190	U	240	U	200	U	99000	U	200	U
Isophorone	190	U	240	U	200	U	99000	U	200	UJ
2-Nitrophenol	190	U	240	U	200	U	99000	U	200	UJ
2,4-Dimethylphenol	190	U	240	U	3200	J	99000	U	3100	J
Bis(2-chloroethoxy)methane	190	U	240	U	200	U	99000	U	200	U
2,4-Dichlorophenol	190	U	240	U	200	U	99000	U	200	UJ
Naphthalene	190	U	190	J	63000	J	1200000		150000	J
4-Chloroaniline	190	U	240	U	200	U	590000		200	U
Hexachlorobutadiene	190	U	240	U	200	U	99000	U	200	UJ
Caprolactam	190	U	240	U	200	U	99000	U	200	UJ
4-Chloro-3-methylphenol	190	U	240	U	200	U	99000	U	200	UJ
2-Methylnaphthalene	190	U	240	U	190000	J	610000		200000	J
Hexachlorocyclopentadiene	190	U	240	U	200	U	99000	U	200	U
2,4,6-Trichlorophenol	190	U	240	U	200	U	99000	U	200	UJ
2,4,5-Trichlorophenol	190	U	240	U	200	U	99000	U	200	UJ
1,1'-Biphenyl	190	U	240	U	31000	J	59000	J	11000	J
2-Chloronaphthalene	190	U	240	U	200	U	99000	U	200	U
2-Nitroaniline	380	U	460	U	380	U	190000	U	380	U
Dimethylphthalate	190	U	240	U	200	U	99000	U	200	UJ
2,6-Dinitrotoluene	190	U	240	U	200	U	99000	U	200	U
Acenaphthylene	190	U	240	U	58000	J	290000		21000	J
3-Nitroaniline	380	U	460	U	380	U	190000	U	380	U
Acenaphthene	190	U	240	U	25000	J	99000	U	9600	J

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51H8		E51H9		E51J0		E51J0DL		E51J0RE	
Sampling Location :	SB2D		SB3		SB4		SB4		SB4	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/19/2010		10/19/2010		10/20/2010					
Time Sampled :										
%Moisture :	12		29		14		14		14	
pH :	6.1		5.4		5.3		5.3		5.3	
Dilution Factor :	1.0		1.0		1.0		500.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	380	UJ	460	U	380	U	190000	U	380	U
4-Nitrophenol	380	U	460	U	380	U	190000	U	380	U
Dibenzofuran	190	U	240	U	28000	J	99000	U	11000	J
2,4-Dinitrotoluene	190	U	240	U	200	U	99000	U	200	U
Diethylphthalate	190	U	240	U	200	U	99000	U	200	UJ
Fluorene	190	U	240	U	80000	J	150000		31000	J
4-Chlorophenyl-phenylether	190	U	240	U	200	U	99000	U	200	UJ
4-Nitroaniline	380	U	460	U	380	U	190000	U	380	U
4,6-Dinitro-2-methylphenol	380	U	460	U	380	U	190000	U	380	U
N-Nitrosodiphenylamine	190	U	240	U	200	U	99000	U	200	U
1,2,4,5-Tetrachlorobenzene	190	U	240	U	200	U	99000	U	200	UJ
4-Bromophenyl-phenylether	190	U	240	U	200	U	99000	U	200	UJ
Hexachlorobenzene	190	U	240	U	200	U	99000	U	200	U
Atrazine	190	U	240	U	200	U	99000	U	200	U
Pentachlorophenol	380	U	460	UJ	380	UJ	190000	U	380	UJ
Phenanthrene	190	U	240	U	70000	J	460000		77000	J
Anthracene	190	U	240	U	24000	J	140000		28000	J
Carbazole	190	U	240	U	200	U	99000	U	200	UJ
Di-n-butylphthalate	190	U	240	U	200	U	99000	U	200	UJ
Fluoranthene	190	U	240	U	56000	J	190000		59000	J
Pyrene	100	J	240	U	17000	J	320000		14000	J
Butylbenzylphthalate	190	U	240	U	200	U	99000	U	200	UJ
3,3'-Dichlorobenzidine	190	U	240	U	200	U	99000	U	200	U
Benzo(a)anthracene	190	U	240	U	26000	J	120000		19000	J
Chrysene	190	U	240	U	22000	J	120000		19000	J
Bis(2-ethylhexyl)phthalate	190	U	240	U	200	U	99000	U	200	UJ
Di-n-octylphthalate	190	U	240	U	200	U	99000	UJ	200	UJ
Benzo(b)fluoranthene	190	U	240	U	76000	J	74000	J	69000	J
Benzo(k)fluoranthene	190	U	140	J	38000	J	110000		29000	J
Benzo(a)pyrene	100	J	150	J	150000	J	140000		110000	J
Indeno(1,2,3-cd)pyrene	190	U	240	U	88000	J	63000	J	58000	J
Dibenzo(a,h)anthracene	190	U	240	U	59000	J	99000	U	35000	J
Benzo(g,h,i)perylene	190	U	240	U	83000	J	86000	J	59000	J
2,3,4,6-Tetrachlorophenol	190	U	240	U	200	U	99000	U	200	UJ

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J0RX		E51J1		E51J1DL		E51J1RE		E51J1RX	
Sampling Location :			SB5		SB5		SB5			
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :			10/19/2010							
Time Sampled :										
%Moisture :	14		16		16		16		16	
pH :	5.3		5.4		5.4		5.4		5.4	
Dilution Factor :	1.0		1.0		100.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	200	R	200	U	20000	U	200	R	200	R
Phenol	1700	J	200	U	20000	U	200	R	200	R
Bis(2-chloroethyl)ether	200	R	200	U	20000	U	200	R	200	R
2-Chlorophenol	200	R	200	U	20000	U	200	R	200	R
2-Methylphenol	3900	J	410	J	20000	U	630	J	1200	J
2,2'-Oxybis(1-chloropropane)	200	R	200	U	20000	U	200	R	200	R
Acetophenone	3700	J	1400	J	20000	U	200	R	200	R
4-Methylphenol	6200	J	870	J	20000	U	1800	J	3000	J
N-Nitroso-di-n-propylamine	200	R	200	U	20000	U	200	R	200	R
Hexachloroethane	200	R	200	U	20000	U	200	R	200	R
Nitrobenzene	200	UJ	200	U	20000	U	200	UJ	200	R
Isophorone	200	UJ	200	U	20000	U	200	UJ	200	R
2-Nitrophenol	200	UJ	200	U	20000	U	200	UJ	200	R
2,4-Dimethylphenol	2500	J	670	J	20000	U	850	J	200	R
Bis(2-chloroethoxy)methane	200	UJ	200	U	20000	U	200	UJ	200	R
2,4-Dichlorophenol	200	UJ	200	U	20000	U	200	UJ	200	R
Naphthalene	250000	J	43000	J	160000		190000	J	220000	J
4-Chloroaniline	200	UJ	200	U	20000	U	200	UJ	200	R
Hexachlorobutadiene	200	UJ	200	U	20000	U	200	UJ	200	R
Caprolactam	200	UJ	200	U	20000	U	200	UJ	200	R
4-Chloro-3-methylphenol	200	UJ	200	U	20000	U	200	UJ	200	R
2-Methylnaphthalene	300000	J	110000	J	43000		150000	J	180000	J
Hexachlorocyclopentadiene	200	U	200	U	20000	U	200	U	200	U
2,4,6-Trichlorophenol	200	U	200	U	20000	U	200	U	200	U
2,4,5-Trichlorophenol	200	U	200	U	20000	U	200	U	200	U
1,1'-Biphenyl	11000	J	15000	J	20000	U	8100	J	8100	J
2-Chloronaphthalene	200	U	200	U	20000	U	200	U	200	U
2-Nitroaniline	380	U	390	U	39000	U	390	UJ	390	U
Dimethylphthalate	200	UJ	200	U	20000	U	200	U	200	U
2,6-Dinitrotoluene	200	U	200	U	20000	U	200	U	200	U
Acenaphthylene	27000	J	26000	J	12000	J	34000	J	41000	J
3-Nitroaniline	380	U	390	U	39000	U	390	UJ	390	U
Acenaphthene	9100	J	11000	J	20000	U	7500	J	9000	J

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J0RX		E51J1		E51J1DL		E51J1RE		E51J1RX	
Sampling Location :			SB5		SB5		SB5			
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :			10/19/2010							
Time Sampled :										
%Moisture :	14		16		16		16		16	
pH :	5.3		5.4		5.4		5.4		5.4	
Dilution Factor :	1.0		1.0		100.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	380	U	390	U	39000	U	390	UJ	390	U
4-Nitrophenol	380	U	390	U	39000	U	390	UJ	390	U
Dibenzofuran	12000	J	11000	J	20000	U	6800	J	6000	J
2,4-Dinitrotoluene	200	U	200	U	20000	U	200	U	200	U
Diethylphthalate	200	UJ	200	U	20000	U	110	J	200	U
Fluorene	43000	J	44000	J	20000	U	27000	J	30000	J
4-Chlorophenyl-phenylether	200	U	200	U	20000	U	200	U	200	U
4-Nitroaniline	380	U	390	U	39000	U	390	UJ	390	U
4,6-Dinitro-2-methylphenol	380	U	140	J	39000	U	390	U	390	U
N-Nitrosodiphenylamine	200	U	200	U	20000	U	200	U	200	U
1,2,4,5-Tetrachlorobenzene	200	U	200	U	20000	U	200	U	200	U
4-Bromophenyl-phenylether	200	U	200	U	20000	U	200	U	200	U
Hexachlorobenzene	200	U	200	U	20000	U	200	U	200	U
Atrazine	200	U	200	U	20000	U	200	U	200	U
Pentachlorophenol	380	UJ	210	J	39000	U	390	UJ	390	UJ
Phenanthrene	56000	J	22000	J	31000		30000	J	35000	J
Anthracene	23000	J	12000	J	20000	U	16000	J	20000	J
Carbazole	200	U	170	J	20000	U	3000		2300	
Di-n-butylphthalate	200	UJ	200	U	20000	U	200	U	200	U
Fluoranthene	47000	J	21000	J	13000	J	32000	J	41000	J
Pyrene	12000	J	30000	J	25000		19000	J	42000	J
Butylbenzylphthalate	200	UJ	200	U	20000	U	200	U	200	UJ
3,3'-Dichlorobenzidine	200	U	200	U	20000	U	200	U	200	UJ
Benzo(a)anthracene	17000	J	28000	J	20000	U	35000	J	110000	J
Chrysene	20000	J	17000	J	20000	U	20000	J	64000	J
Bis(2-ethylhexyl)phthalate	200	UJ	200	U	20000	U	200	U	200	UJ
Di-n-octylphthalate	200	UJ	200	U	20000	UJ	200	U	200	U
Benzo(b)fluoranthene	14000	J	4300	J	20000	U	12000	J	8400	J
Benzo(k)fluoranthene	15000	J	4900	J	20000	U	11000	J	7500	J
Benzo(a)pyrene	48000	J	18000	J	20000	U	38000	J	28000	J
Indeno(1,2,3-cd)pyrene	15000	J	8600	J	20000	U	13000	J	6400	J
Dibenzo(a,h)anthracene	8900	J	5800	J	20000	U	8500	J	3500	J
Benzo(g,h,i)perylene	14000	J	9300	J	20000	U	15000	J	8000	J
2,3,4,6-Tetrachlorophenol	200	U	200	U	20000	U	200	U	200	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J2		E51J3		E51J3DL		E51J4		E51J4DL	
Sampling Location :	SB6		SB7		SB7		SB8		SB8	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010		10/20/2010				10/19/2010			
Time Sampled :										
%Moisture :	11		17		17		14		14	
pH :	6.4		5.9		5.9		6.1		6.1	
Dilution Factor :	1.0		1.0		20.0		1.0		10.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	190	U	210	U	4100	U	200	U	2000	U
Phenol	190	U	210	U	4100	U	200	U	2000	U
Bis(2-chloroethyl)ether	190	U	210	U	4100	U	200	U	2000	U
2-Chlorophenol	190	U	210	U	4100	U	200	U	2000	U
2-Methylphenol	190	U	210	U	4100	U	200	U	2000	U
2,2'-Oxybis(1-chloropropane)	190	U	210	U	4100	U	200	U	2000	U
Acetophenone	190	U	210	U	4100	U	200	U	2000	U
4-Methylphenol	190	U	210	U	4100	U	200	U	2000	U
N-Nitroso-di-n-propylamine	190	U	210	U	4100	U	200	U	2000	U
Hexachloroethane	190	U	210	U	4100	U	200	U	2000	U
Nitrobenzene	190	U	210	U	4100	U	200	U	2000	U
Isophorone	190	U	210	U	4100	U	200	U	2000	U
2-Nitrophenol	190	U	210	U	4100	U	200	U	2000	U
2,4-Dimethylphenol	190	U	210	U	4100	U	200	U	2000	U
Bis(2-chloroethoxy)methane	190	U	210	U	4100	U	200	U	2000	U
2,4-Dichlorophenol	190	U	210	U	4100	U	200	U	2000	U
Naphthalene	120	J	21000	J	64000		220	J	2000	U
4-Chloroaniline	190	U	210	U	4100	U	200	U	2000	U
Hexachlorobutadiene	190	U	210	U	4100	U	200	U	2000	U
Caprolactam	190	U	210	U	4100	U	200	U	2000	U
4-Chloro-3-methylphenol	190	U	210	U	4100	U	200	U	2000	U
2-Methylnaphthalene	190	U	25000	J	49000	J	170	J	2000	U
Hexachlorocyclopentadiene	190	U	210	U	4100	U	200	U	2000	U
2,4,6-Trichlorophenol	190	U	210	U	4100	U	200	U	2000	U
2,4,5-Trichlorophenol	190	U	210	U	4100	U	200	U	2000	U
1,1'-Biphenyl	190	U	2300		2400	J	200	U	2000	U
2-Chloronaphthalene	190	U	210	U	4100	U	200	U	2000	U
2-Nitroaniline	370	U	400	U	8000	U	380	U	3800	U
Dimethylphthalate	190	U	210	U	4100	U	200	U	2000	U
2,6-Dinitrotoluene	190	U	210	U	4100	U	200	U	2000	U
Acenaphthylene	190	U	7300	J	8500		7200	J	1700	J
3-Nitroaniline	370	U	400	U	8000	U	380	U	3800	U
Acenaphthene	190	U	1000		4100	U	200	U	2000	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J2		E51J3		E51J3DL		E51J4		E51J4DL	
Sampling Location :	SB6		SB7		SB7		SB8		SB8	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010		10/20/2010				10/19/2010			
Time Sampled :										
%Moisture :	11		17		17		14		14	
pH :	6.4		5.9		5.9		6.1		6.1	
Dilution Factor :	1.0		1.0		20.0		1.0		10.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	370	U	400	U	8000	UJ	380	U	3800	U
4-Nitrophenol	370	U	400	U	8000	U	380	U	3800	U
Dibenzofuran	190	U	590		4100	U	200	U	2000	U
2,4-Dinitrotoluene	190	U	210	U	4100	U	200	U	2000	U
Diethylphthalate	190	U	210	U	4100	U	200	U	2000	U
Fluorene	190	U	4100	J	4300		200	U	2000	U
4-Chlorophenyl-phenylether	190	U	210	U	4100	U	200	U	2000	U
4-Nitroaniline	370	U	400	U	8000	U	380	U	3800	U
4,6-Dinitro-2-methylphenol	370	U	400	U	8000	U	380	U	3800	U
N-Nitrosodiphenylamine	190	U	210	U	4100	U	200	U	2000	U
1,2,4,5-Tetrachlorobenzene	190	U	210	U	4100	U	200	U	2000	U
4-Bromophenyl-phenylether	190	U	210	U	4100	U	200	U	2000	U
Hexachlorobenzene	190	U	210	U	4100	U	200	U	2000	U
Atrazine	190	U	210	U	4100	U	200	U	2000	U
Pentachlorophenol	370	UJ	400	UJ	8000	U	380	UJ	3800	U
Phenanthrene	190	U	11000	J	12000		2700	J	1700	J
Anthracene	190	U	4400	J	3800	J	1400	J	2000	U
Carbazole	190	U	210	U	4100	U	200	U	2000	U
Di-n-butylphthalate	190	U	210	U	4100	U	200	U	2000	U
Fluoranthene	190	U	5300	J	2600	J	11000	J	5900	
Pyrene	190	U	5800	J	7700	J	5900	J	22000	
Butylbenzylphthalate	190	U	210	U	4100	U	200	U	2000	U
3,3'-Dichlorobenzidine	190	U	210	U	4100	U	200	U	2000	U
Benzo(a)anthracene	190	U	2300		2600	J	6100	J	6500	
Chrysene	190	U	2200		2300	J	6100	J	7300	
Bis(2-ethylhexyl)phthalate	190	U	210	U	4100	U	200	U	2000	U
Di-n-octylphthalate	190	U	210	U	4100	U	200	U	2000	UJ
Benzo(b)fluoranthene	190	U	730		4100	U	8700	J	3200	
Benzo(k)fluoranthene	190	U	980		2100	J	5400	J	4900	
Benzo(a)pyrene	190	U	1800		3300	J	6900	J	4000	
Indeno(1,2,3-cd)pyrene	190	U	530		4100	U	4300	J	4400	
Dibenzo(a,h)anthracene	190	U	210		4100	U	1900	J	1500	J
Benzo(g,h,i)perylene	190	U	640		4100	U	5200	J	5700	
2,3,4,6-Tetrachlorophenol	190	U	210	U	4100	U	200	U	2000	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J5		E51J5DL		E51J6		E51J6DL		E51J6RE	
Sampling Location :	SB9		SB9		SB10		SB10		SB10	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010				10/20/2010					
Time Sampled :										
%Moisture :	10		10		21		21		21	
pH :	6.6		6.6		8.9		8.9		8.9	
Dilution Factor :	1.0		10.0		1.0		20.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	190	U	1900	U	210	UJ	4300	U	210	UJ
Phenol	190	U	1900	U	210	UJ	4300	U	210	UJ
Bis(2-chloroethyl)ether	190	U	1900	U	210	UJ	4300	U	210	UJ
2-Chlorophenol	190	U	1900	U	210	UJ	4300	U	210	UJ
2-Methylphenol	190	U	1900	U	210	UJ	4300	U	210	UJ
2,2'-Oxybis(1-chloropropane)	190	U	1900	U	210	UJ	4300	U	210	UJ
Acetophenone	190	U	1900	U	1100	J	4300	U	210	UJ
4-Methylphenol	190	U	1900	U	210	UJ	4300	U	210	UJ
N-Nitroso-di-n-propylamine	190	U	1900	U	210	UJ	4300	U	210	UJ
Hexachloroethane	190	U	1900	U	210	UJ	4300	U	210	UJ
Nitrobenzene	190	U	1900	U	210	U	4300	U	120	J
Isophorone	190	U	1900	U	210	U	4300	U	210	UJ
2-Nitrophenol	190	U	1900	U	210	U	4300	U	210	UJ
2,4-Dimethylphenol	190	U	1900	U	210	U	4300	U	210	UJ
Bis(2-chloroethoxy)methane	190	U	1900	U	210	U	4300	U	210	UJ
2,4-Dichlorophenol	190	U	1900	U	210	U	4300	U	210	UJ
Naphthalene	1300		1200	J	1400		4300	U	1400	J
4-Chloroaniline	190	U	1900	U	210	U	4300	U	210	UJ
Hexachlorobutadiene	190	U	1900	U	210	U	4300	U	210	UJ
Caprolactam	190	U	1900	U	210	U	4300	U	210	UJ
4-Chloro-3-methylphenol	190	U	1900	U	210	U	4300	U	210	UJ
2-Methylnaphthalene	410		1900	U	1400		4300	U	1700	J
Hexachlorocyclopentadiene	190	U	1900	U	210	U	4300	U	210	U
2,4,6-Trichlorophenol	190	U	1900	U	210	U	4300	U	210	U
2,4,5-Trichlorophenol	190	U	1900	U	210	U	4300	U	210	U
1,1'-Biphenyl	190	U	1900	U	210	U	4300	U	210	U
2-Chloronaphthalene	190	U	1900	U	210	U	4300	U	210	U
2-Nitroaniline	370	U	3700	U	420	U	8300	U	420	U
Dimethylphthalate	190	U	1900	U	210	U	4300	U	210	U
2,6-Dinitrotoluene	190	U	1900	U	210	U	4300	U	210	U
Acenaphthylene	2900		2600		37000	J	13000		54000	J
3-Nitroaniline	370	U	3700	U	420	U	8300	U	420	U
Acenaphthene	190	U	1900	U	1900		4300	U	3400	J

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J5		E51J5DL		E51J6		E51J6DL		E51J6RE	
Sampling Location :	SB9		SB9		SB10		SB10		SB10	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010				10/20/2010					
Time Sampled :										
%Moisture :	10		10		21		21		21	
pH :	6.6		6.6		8.9		8.9		8.9	
Dilution Factor :	1.0		10.0		1.0		20.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	370	UJ	3700	UJ	420	U	8300	U	420	U
4-Nitrophenol	370	U	3700	U	420	U	8300	U	420	U
Dibenzofuran	190	U	1900	U	210	U	4300	U	210	U
2,4-Dinitrotoluene	190	U	1900	U	210	U	4300	U	210	U
Diethylphthalate	190	U	1900	U	210	U	4300	U	210	U
Fluorene	150	J	1900	U	520	J	4300	U	7100	J
4-Chlorophenyl-phenylether	190	U	1900	U	210	U	4300	U	210	U
4-Nitroaniline	370	U	3700	U	420	U	8300	U	420	U
4,6-Dinitro-2-methylphenol	370	U	3700	U	420	U	8300	U	420	U
N-Nitrosodiphenylamine	190	U	1900	U	210	U	4300	U	210	U
1,2,4,5-Tetrachlorobenzene	190	U	1900	U	210	U	4300	U	210	U
4-Bromophenyl-phenylether	190	U	1900	U	210	U	4300	U	210	U
Hexachlorobenzene	190	U	1900	U	210	U	4300	U	210	U
Atrazine	190	U	1900	U	210	U	4300	U	210	U
Pentachlorophenol	370	U	3700	U	420	UJ	8300	U	420	UJ
Phenanthrene	2500		2400		3200	J	3500	J	3200	J
Anthracene	2300		2100		6000	J	2700	J	8300	J
Carbazole	190	U	1900	U	210	U	4300	U	210	U
Di-n-butylphthalate	190	U	1900	U	210	U	4300	U	210	U
Fluoranthene	12000	J	10000		12000	J	7200		19000	J
Pyrene	8200	J	27000	J	5300	J	24000		5700	J
Butylbenzylphthalate	190	U	1900	U	210	U	4300	U	210	U
3,3'-Dichlorobenzidine	190	U	1900	U	210	U	4300	U	210	U
Benzo(a)anthracene	8500	J	9600		7200	J	9900		7600	J
Chrysene	8300	J	9400		6100	J	12000		7000	J
Bis(2-ethylhexyl)phthalate	190	U	1900	U	210	U	4300	U	210	U
Di-n-octylphthalate	190	U	1900	U	210	U	4300	UJ	210	U
Benzo(b)fluoranthene	14000	J	6900		7800	J	13000		15000	J
Benzo(k)fluoranthene	11000	J	9900		5800	J	16000		10000	J
Benzo(a)pyrene	17000	J	11000		12000	J	21000		20000	J
Indeno(1,2,3-cd)pyrene	9300	J	6800		8700	J	16000		13000	J
Dibenzo(a,h)anthracene	4700	J	2400		4400	J	4700		7900	J
Benzo(g,h,i)perylene	10000	J	9000		10000	J	23000		15000	J
2,3,4,6-Tetrachlorophenol	190	U	1900	U	210	U	4300	U	210	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J7		E51J8		E51J8DL		E51J9		E51K0	
Sampling Location :	SB11		SB12		SB12		SB13		SB14	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010		10/20/2010				10/20/2010		10/20/2010	
Time Sampled :										
%Moisture :	22		25		25		8		20	
pH :	6.5		5.9		5.9		6.2		6.1	
Dilution Factor :	1.0		1.0		50.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	220	U	230	U	11000	U	180	U	210	U
Phenol	220	U	230	U	11000	U	180	U	210	U
Bis(2-chloroethyl)ether	220	U	230	U	11000	U	180	U	210	U
2-Chlorophenol	220	U	230	U	11000	U	180	U	210	U
2-Methylphenol	220	U	230	U	11000	U	180	U	210	U
2,2'-Oxybis(1-chloropropane)	220	U	230	U	11000	U	180	U	210	U
Acetophenone	220	U	230	U	11000	U	180	U	210	U
4-Methylphenol	220	U	230	U	11000	U	180	U	210	U
N-Nitroso-di-n-propylamine	220	U	230	U	11000	U	180	U	210	U
Hexachloroethane	220	U	230	U	11000	U	180	U	210	U
Nitrobenzene	220	U	230	U	11000	U	180	U	210	U
Isophorone	220	U	230	U	11000	U	180	U	210	U
2-Nitrophenol	220	U	230	U	11000	U	180	U	210	U
2,4-Dimethylphenol	220	U	230	U	11000	U	180	U	210	U
Bis(2-chloroethoxy)methane	220	U	230	U	11000	U	180	U	210	U
2,4-Dichlorophenol	220	U	230	U	11000	U	180	U	210	U
Naphthalene	490		27000	J	80000		180	U	210	U
4-Chloroaniline	220	U	230	U	11000	U	180	U	210	U
Hexachlorobutadiene	220	U	230	U	11000	U	180	U	210	U
Caprolactam	220	U	230	U	11000	U	180	U	210	U
4-Chloro-3-methylphenol	220	U	230	U	11000	U	180	U	210	U
2-Methylnaphthalene	310		42000	J	96000	J	180	U	210	U
Hexachlorocyclopentadiene	220	U	230	U	11000	U	180	U	210	U
2,4,6-Trichlorophenol	220	U	230	U	11000	U	180	U	210	U
2,4,5-Trichlorophenol	220	U	230	U	11000	U	180	U	210	U
1,1'-Biphenyl	220	U	7000	J	8200	J	180	U	210	U
2-Chloronaphthalene	220	U	230	U	11000	U	180	U	210	U
2-Nitroaniline	420	U	440	U	22000	U	360	U	410	U
Dimethylphthalate	220	U	230	U	11000	U	180	U	210	U
2,6-Dinitrotoluene	220	U	230	U	11000	U	180	U	210	U
Acenaphthylene	1100		12000	J	27000		320		140	J
3-Nitroaniline	420	U	440	U	22000	U	360	U	410	U
Acenaphthene	220	U	2800		11000	U	180	U	210	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J7		E51J8		E51J8DL		E51J9		E51K0	
Sampling Location :	SB11		SB12		SB12		SB13		SB14	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010		10/20/2010				10/20/2010		10/20/2010	
Time Sampled :										
%Moisture :	22		25		25		8		20	
pH :	6.5		5.9		5.9		6.2		6.1	
Dilution Factor :	1.0		1.0		50.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	420	U	440	UJ	22000	U	360	U	410	UJ
4-Nitrophenol	420	U	440	U	22000	U	360	U	410	U
Dibenzofuran	220	U	3200		11000	U	180	U	210	U
2,4-Dinitrotoluene	220	U	230	U	11000	U	180	U	210	U
Diethylphthalate	220	U	230	U	11000	U	180	U	210	U
Fluorene	350		12000	J	15000		130	J	210	U
4-Chlorophenyl-phenylether	220	U	230	U	11000	U	180	U	210	U
4-Nitroaniline	420	U	440	U	22000	U	360	U	410	U
4,6-Dinitro-2-methylphenol	420	U	440	U	22000	U	360	U	410	U
N-Nitrosodiphenylamine	220	U			11000	U	180	U	210	U
1,2,4,5-Tetrachlorobenzene	220	U	230	U	11000	U	180	U	210	U
4-Bromophenyl-phenylether	220	U	230	U	11000	U	180	U	210	U
Hexachlorobenzene	220	U	230	U	11000	U	180	U	210	U
Atrazine	220	U	230	U	11000	U	180	U	210	U
Pentachlorophenol	420	UJ	440	U	22000	U	360	UJ	410	U
Phenanthrene	1400		21000	J	57000		590	J	120	J
Anthracene	460		11000	J	15000		230	J	210	U
Carbazole	220	U	880		11000	U	180	U	210	U
Di-n-butylphthalate	220	U	230	U	11000	U	180	U	210	U
Fluoranthene	3000		17000	J	24000		1600		190	J
Pyrene	3000		10000	J	51000		990		440	J
Butylbenzylphthalate	220	U	230	U	11000	U	180	U	210	U
3,3'-Dichlorobenzidine	220	U	230	U	11000	U	180	U	210	U
Benzo(a)anthracene	2800		11000	J	16000		1300		230	
Chrysene	3300		10000	J	15000		1400		260	
Bis(2-ethylhexyl)phthalate	220	U	230	U	11000	U	180	U	210	U
Di-n-octylphthalate	220	U	230	U	11000	UJ	180	U	210	U
Benzo(b)fluoranthene	1300		16000	J	7000	J	440		230	
Benzo(k)fluoranthene	2200		11000	J	9400	J	720		200	J
Benzo(a)pyrene	1800		18000	J	12000		740		330	
Indeno(1,2,3-cd)pyrene	1100		5300	J	6500	J	330		210	
Dibenzo(a,h)anthracene	470		3400		11000	U	130	J	210	U
Benzo(g,h,i)perylene	1400		5400	J	8500	J	420		340	
2,3,4,6-Tetrachlorophenol	220	U	230	U	11000	U	180	U	210	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51K1		SBLK05		SBLK09					
Sampling Location :	SB15									
Matrix :	Soil		Soil		Soil					
Units :	ug/Kg		ug/Kg		ug/Kg					
Date Sampled :	10/20/2010									
Time Sampled :										
%Moisture :	13		0		0					
pH :	7.8									
Dilution Factor :	1.0		1.0		1.0					
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	190	U	170	U	170	U				
Phenol	190	U	170	U	170	U				
Bis(2-chloroethyl)ether	190	U	170	U	170	U				
2-Chlorophenol	190	U	170	U	170	U				
2-Methylphenol	190	U	170	U	170	U				
2,2'-Oxybis(1-chloropropane)	190	U	170	U	170	U				
Acetophenone	190	U	170	U	170	U				
4-Methylphenol	190	U	170	U	170	U				
N-Nitroso-di-n-propylamine	190	U	170	U	170	U				
Hexachloroethane	190	U	170	U	170	U				
Nitrobenzene	190	U	170	U	170	U				
Isophorone	190	U	170	U	170	U				
2-Nitrophenol	190	U	170	U	170	U				
2,4-Dimethylphenol	190	U	170	U	170	U				
Bis(2-chloroethoxy)methane	190	U	170	U	170	U				
2,4-Dichlorophenol	190	U	170	U	170	U				
Naphthalene	190	U	170	U	170	U				
4-Chloroaniline	190	U	170	U	170	U				
Hexachlorobutadiene	190	U	170	U	170	U				
Caprolactam	190	U	170	U	170	U				
4-Chloro-3-methylphenol	190	U	170	U	170	U				
2-Methylnaphthalene	190	U	170	U	170	U				
Hexachlorocyclopentadiene	190	U	170	U	170	U				
2,4,6-Trichlorophenol	190	U	170	U	170	U				
2,4,5-Trichlorophenol	190	U	170	U	170	U				
1,1'-Biphenyl	190	U	170	U	170	U				
2-Chloronaphthalene	190	U	170	U	170	U				
2-Nitroaniline	380	U	330	U	330	U				
Dimethylphthalate	190	U	170	U	170	U				
2,6-Dinitrotoluene	190	U	170	U	170	U				
Acenaphthylene	270		170	U	170	U				
3-Nitroaniline	380	U	330	U	330	U				
Acenaphthene	190	U	170	U	170	U				

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51K1		SBLK05		SBLK09					
Sampling Location :	SB15									
Matrix :	Soil		Soil		Soil					
Units :	ug/Kg		ug/Kg		ug/Kg					
Date Sampled :	10/20/2010									
Time Sampled :										
%Moisture :	13		0		0					
pH :	7.8									
Dilution Factor :	1.0		1.0		1.0					
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	380	U	330	U	330	U				
4-Nitrophenol	380	U	330	U	330	U				
Dibenzofuran	190	U	170	U	170	U				
2,4-Dinitrotoluene	190	U	170	U	170	U				
Diethylphthalate	190	U	170	U	170	U				
Fluorene	190	U	170	U	170	U				
4-Chlorophenyl-phenylether	190	U	170	U	170	U				
4-Nitroaniline	380	U	330	U	330	U				
4,6-Dinitro-2-methylphenol	380	U	330	U	330	U				
N-Nitrosodiphenylamine	190	U	170	U	170	U				
1,2,4,5-Tetrachlorobenzene	190	U	170	U	170	U				
4-Bromophenyl-phenylether	190	U	170	U	170	U				
Hexachlorobenzene	190	U	170	U	170	U				
Atrazine	190	U	170	U	170	U				
Pentachlorophenol	380	UJ	330	UJ	330	U				
Phenanthrene	130	J	170	U	170	U				
Anthracene	98	J	170	U	170	U				
Carbazole	190	U	170	U	170	U				
Di-n-butylphthalate	190	U	170	U	170	U				
Fluoranthene	420		170	U	170	U				
Pyrene	450		170	U	170	U				
Butylbenzylphthalate	190	U	170	U	170	U				
3,3'-Dichlorobenzidine	190	U	170	U	170	U				
Benzo(a)anthracene	540		170	U	170	U				
Chrysene	620		170	U	170	U				
Bis(2-ethylhexyl)phthalate	190	U	170	U	170	U				
Di-n-octylphthalate	190	U	170	U	170	U				
Benzo(b)fluoranthene	400		170	U	170	U				
Benzo(k)fluoranthene	540		170	U	170	U				
Benzo(a)pyrene	590		170	U	170	U				
Indeno(1,2,3-cd)pyrene	270		170	U	170	U				
Dibenzo(a,h)anthracene	120	J	170	U	170	U				
Benzo(g,h,i)perylene	340		170	U	170	U				
2,3,4,6-Tetrachlorophenol	190	U	170	U	170	U				

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE Number of Soil Samples : 19
Lab. : KAP Number of Water Samples : 0
Reviewer : Number of Sediment Samples : 0
Date :

Sample Number :	E51H3		E51H3MS		E51H3MSD		E51H4		E51H5	
Sampling Location :	SD3		SD3		SD3		SD4		SD5	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/21/2010						10/21/2010		10/21/2010	
Time Sampled :										
%Moisture :	16		16		16		17		34	
pH :	6.3		6.3		6.3		6.7		6.0	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.0	U	2.0	U	2.0	U	2.0	U	2.6	U
beta-BHC	2.0	U	2.0	U	2.0	U	2.0	U	2.6	U
delta-BHC	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.6	UJ
gamma-BHC (Lindane)	2.0	U	10	J	11		2.0	U	2.6	U
Heptachlor	2.0	U	11		12		2.0	U	2.6	U
Aldrin	2.0	U	12		12		2.0	U	2.6	U
Heptachlor epoxide	2.0	U	2.0	U	2.0	U	2.0	U	2.6	U
Endosulfan I	2.0	U	2.0	U	2.0	U	2.0	U	2.6	U
Dieldrin	3.9	U	28	J	29		3.9	U	5.0	U
4,4'-DDE	3.9	U	3.9	U	3.9	U	3.9	U	5.0	U
Endrin	3.9	U	27	J	28		3.9	U	5.0	U
Endosulfan II	3.9	U	3.9	U	3.9	U	3.9	U	5.0	U
4,4'-DDD	3.9	U	3.9	U	3.9	U	3.9	U	5.0	U
Endosulfan sulfate	3.9	U	3.9	U	3.9	U	3.9	U	5.0	U
4,4'-DDT	3.9	U	25	J	26	J	3.9	U	5.0	U
Methoxychlor	20	U	20	U	20	U	20	U	26	U
Endrin ketone	3.9	U	3.9	U	3.9	U	3.9	U	5.0	U
Endrin aldehyde	3.9	U	3.9	U	3.9	U	3.9	U	5.0	U
alpha-Chlordane	2.0	U	2.0	U	2.0	U	2.0	U	2.6	U
gamma-Chlordane	2.0	U	2.0	U	2.0	U	2.0	U	2.6	U
Toxaphene	200	U	200	U	200	U	200	U	260	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51H6		E51H7		E51H8		E51H9		E51J0	
Sampling Location :	SB1		SB2		SB2D		SB3		SB4	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/19/2010		10/19/2010		10/19/2010		10/19/2010		10/20/2010	
Time Sampled :										
%Moisture :	15		13		12		29		14	
pH :	6.5		6.4		6.1		5.4		5.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
beta-BHC	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
delta-BHC	2.0	UJ	1.9	U	1.9	U	2.4	U	2.0	U
gamma-BHC (Lindane)	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
Heptachlor	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
Aldrin	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
Heptachlor epoxide	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
Endosulfan I	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
Dieldrin	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
4,4'-DDE	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
Endrin	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
Endosulfan II	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
4,4'-DDD	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
Endosulfan sulfate	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
4,4'-DDT	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
Methoxychlor	20	U	19	U	19	U	24	U	20	U
Endrin ketone	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
Endrin aldehyde	3.8	U	3.8	U	3.7	U	4.6	U	3.8	U
alpha-Chlordane	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
gamma-Chlordane	2.0	U	1.9	U	1.9	U	2.4	U	2.0	U
Toxaphene	200	U	190	U	190	U	240	U	200	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J1		E51J2		E51J3		E51J4		E51J5	
Sampling Location :	SB5		SB6		SB7		SB8		SB9	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/19/2010		10/20/2010		10/20/2010		10/19/2010		10/20/2010	
Time Sampled :										
%Moisture :	16		11		17		14		10	
pH :	5.4		6.4		5.9		6.1		6.6	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
beta-BHC	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
delta-BHC	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
gamma-BHC (Lindane)	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
Heptachlor	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
Aldrin	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
Heptachlor epoxide	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
Endosulfan I	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
Dieldrin	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
4,4'-DDE	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
Endrin	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
Endosulfan II	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
4,4'-DDD	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
Endosulfan sulfate	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
4,4'-DDT	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
Methoxychlor	20	U	19	U	20	U	20	U	19	U
Endrin ketone	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
Endrin aldehyde	3.9	U	3.7	U	4.0	U	3.8	U	3.7	U
alpha-Chlordane	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
gamma-Chlordane	2.0	U	1.9	U	2.0	U	2.0	U	1.9	U
Toxaphene	200	U	190	U	200	U	200	U	190	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J6		E51J7		E51J8		E51J9		E51K0	
Sampling Location :	SB10		SB11		SB12		SB13		SB14	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010		10/20/2010		10/20/2010		10/20/2010		10/20/2010	
Time Sampled :										
%Moisture :	21		22		25		8		20	
pH :	8.9		6.5		5.9		6.2		6.1	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
beta-BHC	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
delta-BHC	2.1	U	2.2	U	2.3	U	1.8	U	2.1	UJ
gamma-BHC (Lindane)	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
Heptachlor	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
Aldrin	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
Heptachlor epoxide	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
Endosulfan I	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
Dieldrin	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
4,4'-DDE	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
Endrin	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
Endosulfan II	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
4,4'-DDD	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
Endosulfan sulfate	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
4,4'-DDT	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
Methoxychlor	21	U	22	U	23	U	18	U	21	U
Endrin ketone	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
Endrin aldehyde	4.1	U	4.2	U	4.4	U	3.6	U	4.1	U
alpha-Chlordane	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
gamma-Chlordane	2.1	U	2.2	U	2.3	U	1.8	U	2.1	U
Toxaphene	210	U	220	U	230	U	180	U	210	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51K1		PBLK42							
Sampling Location :	SB15									
Matrix :	Soil		Soil							
Units :	ug/Kg		ug/Kg							
Date Sampled :	10/20/2010									
Time Sampled :										
%Moisture :	13		0							
pH :	7.8									
Dilution Factor :	1.0		1.0							
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	1.9	U	1.7	U						
beta-BHC	1.9	U	1.7	U						
delta-BHC	1.9	UJ	1.7	UJ						
gamma-BHC (Lindane)	1.9	U	1.7	U						
Heptachlor	1.9	U	1.7	U						
Aldrin	1.9	U	1.7	U						
Heptachlor epoxide	1.9	U	1.7	U						
Endosulfan I	1.9	U	1.7	U						
Dieldrin	3.8	U	3.3	U						
4,4'-DDE	3.8	U	3.3	U						
Endrin	3.8	U	3.3	U						
Endosulfan II	3.8	U	3.3	U						
4,4'-DDD	3.8	U	3.3	U						
Endosulfan sulfate	3.8	U	3.3	U						
4,4'-DDT	3.8	U	3.3	U						
Methoxychlor	19	U	17	U						
Endrin ketone	3.8	U	3.3	U						
Endrin aldehyde	3.8	U	3.3	U						
alpha-Chlordane	1.9	U	1.7	U						
gamma-Chlordane	1.9	U	1.7	U						
Toxaphene	190	U	170	U						

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE Number of Soil Samples : 19
Lab. : KAP Number of Water Samples : 0
Reviewer : Number of Sediment Samples : 0
Date :

Sample Number :	ABLK41		E51H3		E51H3MS		E51H3MSD		E51H4	
Sampling Location :			SD3		SD3		SD3		SD4	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :			10/21/2010						10/21/2010	
Time Sampled :										
%Moisture :	0		16		16		16		17	
pH :			6.3		6.3		6.3		6.7	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	33	U	39	U	110		110		39	U
Aroclor-1221	33	U	39	U	39	U	39	U	39	U
Aroclor-1232	33	U	39	U	39	U	39	U	39	U
Aroclor-1242	33	U	39	U	39	U	39	U	39	U
Aroclor-1248	33	U	39	U	39	U	39	U	39	U
Aroclor-1254	33	U	39	U	39	U	39	U	39	U
Aroclor-1260	33	U	39	U	110		110		39	U
Aroclor-1262	33	U	39	U	39	U	39	U	39	U
Aroclor-1268	33	U	39	U	39	U	39	U	39	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51H5		E51H6		E51H7		E51H8		E51H9	
Sampling Location :	SD5		SB1		SB2		SB2D		SB3	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/21/2010		10/19/2010		10/19/2010		10/19/2010		10/19/2010	
Time Sampled :										
%Moisture :	34		15		13		12		29	
pH :	6.0		6.5		6.4		6.1		5.4	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	50	U	39	U	38	U	37	U	46	U
Aroclor-1221	50	U	39	U	38	U	37	U	46	U
Aroclor-1232	50	U	39	U	38	U	37	U	46	U
Aroclor-1242	50	U	39	U	38	U	37	U	46	U
Aroclor-1248	50	U	39	U	38	U	37	U	46	U
Aroclor-1254	50	U	39	U	38	U	37	U	46	U
Aroclor-1260	50	U	39	U	38	U	37	U	46	U
Aroclor-1262	50	U	39	U	38	U	37	U	46	U
Aroclor-1268	50	U	39	U	38	U	37	U	46	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J0		E51J1		E51J2		E51J3		E51J4	
Sampling Location :	SB4		SB5		SB6		SB7		SB8	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010		10/19/2010		10/20/2010		10/20/2010		10/19/2010	
Time Sampled :										
%Moisture :	14		16		11		17		14	
pH :	5.3		5.4		6.4		5.9		6.1	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	39	U	39	U	37	U	40	U	38	U
Aroclor-1221	39	U	39	U	37	U	40	U	38	U
Aroclor-1232	39	U	39	U	37	U	40	U	38	U
Aroclor-1242	39	U	39	U	37	U	40	U	38	U
Aroclor-1248	39	U	39	U	37	U	40	U	38	U
Aroclor-1254	39	U	39	U	37	U	40	U	38	U
Aroclor-1260	39	U	39	U	37	U	40	U	38	U
Aroclor-1262	39	U	39	U	37	U	40	U	38	U
Aroclor-1268	39	U	39	U	37	U	40	U	38	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51J5		E51J6		E51J7		E51J8		E51J9	
Sampling Location :	SB9		SB10		SB11		SB12		SB13	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	10/20/2010		10/20/2010		10/20/2010		10/20/2010		10/20/2010	
Time Sampled :										
%Moisture :	10		21		22		25		8	
pH :	6.6		8.9		6.5		5.9		6.2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	37	U	42	U	42	U	44	U	36	U
Aroclor-1221	37	U	42	U	42	U	44	U	36	U
Aroclor-1232	37	U	42	U	42	U	44	U	36	U
Aroclor-1242	37	U	42	U	42	U	44	U	36	U
Aroclor-1248	37	U	42	U	42	U	44	U	36	U
Aroclor-1254	37	U	42	U	42	U	44	U	36	U
Aroclor-1260	37	U	42	U	42	U	44	U	36	U
Aroclor-1262	37	U	42	U	42	U	44	U	36	U
Aroclor-1268	37	U	42	U	42	U	44	U	36	U

Case #: 40702 SDG : E51H3
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51K0		E51K1							
Sampling Location :	SB14		SB15							
Matrix :	Soil		Soil							
Units :	ug/Kg		ug/Kg							
Date Sampled :	10/20/2010		10/20/2010							
Time Sampled :										
%Moisture :	20		13							
pH :	6.1		7.8							
Dilution Factor :	1.0		1.0							
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	41	U	38	U						
Aroclor-1221	41	U	38	U						
Aroclor-1232	41	U	38	U						
Aroclor-1242	41	U	38	U						
Aroclor-1248	41	U	38	U						
Aroclor-1254	41	U	38	U						
Aroclor-1260	41	U	38	U						
Aroclor-1262	41	U	38	U						
Aroclor-1268	41	U	38	U						

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: November 16, 2010

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: MDNRE
Level 3 Data Validation

We have reviewed the data for the following case:

Site Name: Ironwood MGP (MI)

Case Number: 40702 SDG Number: E51H3

Number and Type of Samples: 19 Soils (Semivolatiles, Pesticides, Aroclors)

Sample Numbers: E51H3 – E51H9, E51J0 – E51J9, E51K0, E51K1

Laboratory: KAP Technologies Hrs for Review:_____

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 40702 SDG Number: E51H3
Site Name: Ironwood MGP (MI) Laboratory: KAP Technologies

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nineteen (19) soil samples; E51H3 through E51H9, E51J0 through E51J9, E51K0, and E51K1, were shipped to KAP Technologies located in The Woodlands, TX. All samples were collected between 10-19-2010 and 10-21-2010, and received on 10-22-2010 intact and within the proper shipping temperature range of 2 – 6 °C.

All samples were analyzed for the semvolatile, pesticide, and aroclor target compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.4.1).

Sample E51H3 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

No samples were identified as trip blanks or field blanks.

Samples E51H7 / E51H8 were identified as a field duplicate pair.

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening CCV percent difference (%D) outside criteria. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ".

E51H3, E51H3MS, E51H3MSD, E51J0, E51J0RE, E51J0RX, E51J1, E51J1RE, E51J1RX, E51J6, E51J6RE
Acenaphthylene, Pentachlorophenol, Fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene

E51H3DL, E51J0DL
Di-n-octylphthalate, Benzo(b)fluoranthene

E51H4, E51H5, E51H6, E51H7, E51H9, E51J2, E51J3, E51J4, E51J7, E51J9, E51K1, SBLK05
Pentachlorophenol

E51H5DL, E51J1DL, E51J4DL, E51J6DL, E51J8DL
Di-n-octylphthalate

E51H6DL, E51H8, E51J3DL, E51J5, E51J5DL, E51J8, E51K0
2,4-Dinitrophenol, Pyrene

The following semivolatile samples are associated with an opening continuing calibration in which a surrogate/DMC exceeded percent difference (%D) criteria. Detected and non-detected compounds are not qualified.

E51H6DL, E51H8, E51J3DL, E51J5, E51J5DL, E51J8, E51K0
Pyrene-d10

The following semivolatile samples are associated with a closing CCV percent difference (%D) outside criteria. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E51H6DL, E51H8, E51J3DL, E51J5, E51J5DL, E51J8, E51K0
2,4-Dinitrophenol

E51H5DL, E51J1DL, E51J4DL, E51J6DL, E51J8DL
Di-n-octylphthalate

The following pesticide samples are associated with a closing CCV percent difference (%D) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified "UJ".

E51H3, E51H3MS, E51H3MSD, E51H4, E51H5, E51H6, E51K0, E51K1, PBLK42, PLCS42
delta-BHC

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are not qualified for this criteria.

E51H3
Naphthalene, 2-Methylnaphthalene, 2-Chloronaphthalene, Acenaphthylene, Acenaphthene

E51H3MS
Hexachlorobutadiene, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2,4-Dichlorophenol, 1,2,4,5-Tetrachlorobenzene, Pentachlorophenol, 2,3,4,6-Tetrachlorophenol

E51H3MSD
2-Methylphenol, 4-Methylphenol, 2,4-Dimethylphenol

E51H5, E51H7, E51J2, E51J3
Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene

E51H6, E51J4
Naphthalene, 2-Methylnaphthalene, 2-Chloronaphthalene, Acenaphthylene, Acenaphthene, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51H9
Naphthalene, 2-Methylnaphthalene, 2-Chloronaphthalene, Acenaphthylene, Acenaphthene, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene

E51J0
Benzaldehyde, Phenol, 2-Chlorophenol, 2-Methylphenol, Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, 2,4-Dimethylphenol, 2,4-Dichlorophenol, Naphthalene, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1'-Biphenyl, 2-Chloronaphthalene, 2-Nitroaniline, Dimethylphthalate, 2,6-Dinitrotoluene, Acenaphthylene, 3-Nitroaniline, Acenaphthene, 2,4-Dinitrophenol, 4-Nitrophenol, Dibenzofuran, 2,4-Dinitrotoluene, Diethylphthalate, Fluorene, 4-Chlorophenyl-phenylether, 4-Nitroaniline, N-Nitrosodiphenylamine, 1,2,4,5-Tetrachlorobenzene, 4-Bromophenyl-phenylether, Pentachlorophenol, Carbazole, Di-n-butylphthalate, Butylbenzylphthalate, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, 2,3,4,6-Tetrachlorophenol

E51J0RE
Benzaldehyde, Phenol, bis-(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), 4-Methylphenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane

E51J0RX
Benzaldehyde, Phenol, 2-Methylphenol, 4-Methylphenol, 2,4-Dimethylphenol, 2,4-Dichlorophenol, 4-Chloroaniline, Hexachlorobutadiene, 4-Chloro-3-methylphenol, Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,2,4,5-Tetrachlorobenzene, Pentachlorophenol, 3,3'-Dichlorobenzidine, 2,3,4,6-Tetrachlorophenol

E51J1
2-Methylphenol, Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, 2,4-Dimethylphenol, 2,4-Dichlorophenol, Naphthalene, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1'-Biphenyl, 2-Chloronaphthalene, 2-Nitroaniline, Dimethylphthalate, 2,6-Dinitrotoluene, Acenaphthylene, 3-Nitroaniline, Acenaphthene, 2,4-Dinitrophenol, 4-Nitrophenol, Dibenzofuran, 2,4-Dinitrotoluene, Diethylphthalate, Fluorene, 4-Chlorophenyl-phenylether, 4-Nitroaniline, N-Nitrosodiphenylamine, 1,2,4,5-Tetrachlorobenzene, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Pentachlorophenol, Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Butylbenzylphthalate, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, 2,3,4,6-Tetrachlorophenol

E51J1RE
4-Chloroaniline, Hexachlorocyclopentadiene, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene, 3,3'-Dichlorobenzidine

E51J1RX
bis-(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 4-Chloroaniline, Hexachlorocyclopentadiene, 2-Nitroaniline, 2,6-Dinitrotoluene, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 2,4-Dinitrotoluene, 4-Nitroaniline, N-Nitrosodiphenylamine, Fluoranthene, Pyrene, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene

E51J5
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J6
Acetophenone, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, 2,6-Dinitrotoluene, Dibenzofuran, 2,4-Dinitrotoluene, Fluorene, 4-Chlorophenyl-phenylether, N-Nitrosodiphenylamine, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene, Carbazole

E51J6RE
2-Chlorophenol, 2-Methylphenol, Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, 2,4-Dimethylphenol, 2,6-Dinitrotoluene, 2,4-Dinitrotoluene, N-Nitrosodiphenylamine, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J9
Isophorone, 2-Nitrophenol, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene

The following diluted semivolatile samples with dilution factors greater than 5.0 have surrogate percent recoveries above the upper limit of the criteria window. Detected and non-detected compounds are not qualified for this criteria.

E51H3DL
4-Chloroaniline, Hexachlorocyclopentadiene, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene, 3,3'-Dichlorobenzidine, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J0DL
Naphthalene, 2-Methylnaphthalene, 2-Chloronaphthalene, Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene, 4-Chlorophenyl-phenylether, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene, Carbazole, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J1DL, E51J3DL, E51J6DL, E51J8DL
Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene

The following semivolatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (0%) of the criteria window. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ".

E51H3, E51J0
Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene

E51H3MS, E51H3MSD
Caprolactam, 1,1'-Biphenyl, Dimethylphthalate, Diethylphthalate, Di-n-butylphthalate, Butylbenzylphthalate, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate

E51J0RE
Isophorone, 2-Nitrophenol, 2,4-Dichlorophenol, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1'-Biphenyl, Dimethylphthalate, Dibenzofuran, Diethylphthalate, Fluorene, 4-Chlorophenyl-phenylether, 1,2,4,5-Tetrachlorobenzene, 4-Bromophenyl-phenylether, Pentachlorophenol, Carbazole, Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, 2,3,4,6-Tetrachlorophenol

E51J0RX
Caprolactam, 1,1'-Biphenyl, Dimethylphthalate, Diethylphthalate, Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J1RE
2-Nitroaniline, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 4-Nitroaniline

The following diluted semivolatile samples with dilution factors greater than 5.0 have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to

the expanded lower limit (0%) of the criteria window. Detected and non-detected compounds are not qualified for this criteria.

E51H3DL
Benzaldehyde, Phenol, bis-(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1'-Biphenyl, 2-Nitroaniline, Dimethylphthalate, 2,6-Dinitrotoluene, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 2,4-Dinitrotoluene, Diethylphthalate, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 1,2,4,5-Tetrachlorobenzene, Pentachlorophenol, Di-n-butylphthalate, Butylbenzylphthalate, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, 2,3,4,6-Tetrachlorophenol

E51H6DL, E51J3DL
4,6-Dinitro-2-methylphenol

E51J0DL
Benzaldehyde, Phenol, bis-(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1'-Biphenyl, 2-Nitroaniline, Dimethylphthalate, 2,6-Dinitrotoluene, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 2,4-Dinitrotoluene, Diethylphthalate, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 1,2,4,5-Tetrachlorobenzene, Pentachlorophenol, Di-n-butylphthalate, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, 2,3,4,6-Tetrachlorophenol

E51J1DL
Benzaldehyde, Phenol, bis-(2-Chloroethyl)ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene, Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1'-Biphenyl, 2-Chloronaphthalene, 2-Nitroaniline, Dimethylphthalate, 2,6-Dinitrotoluene, Acenaphthylene, 3-Nitroaniline, Acenaphthene, 2,4-Dinitrophenol, 4-Nitrophenol, Dibenzofuran, 2,4-Dinitrotoluene, Diethylphthalate, Fluorene, 4-Chlorophenyl-phenylether, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 1,2,4,5-Tetrachlorobenzene,

4-Bromophenyl-phenylether, Pentachlorophenol, Carbazole, Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, 2,3,4,6-Tetrachlorophenol

E51J5DL, E51J6DL
2-Nitroaniline, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol

E51J8DL
2-Methylphenol, Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, 2,4-Dichlorophenol, Hexachlorobutadiene, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2-Nitroaniline, 2,6-Dinitrotoluene, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 2,4-Dinitrotoluene, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 1,2,4,5-Tetrachlorobenzene, Pentachlorophenol, 2,3,4,6-Tetrachlorophenol

The following aroclor sample has a surrogate recovery greater than the upper acceptance criteria on only 1 GC column. Detected and non-detected compounds are not qualified as the lower of the 2 possible values (i.e. the reported value) is within the acceptance range.

E51J0
Tetrachloro-m-xylene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E51H3 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected Pyrene in the unspiked samples, E51H3 and E51H3DL, is qualified "J". Non-detected compounds in the unspiked samples are qualified "UJ".

E51H3MS, E51H3MSD
Phenol, N-nitroso-di-n-propylamine, 4-Chloro-3-methylphenol, 2,4-Dinitrotoluene, Pyrene

The following semivolatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. Detected Pyrene in the unspiked samples, E51H3 and E51H3DL, is qualified "J". Non-detected compounds in the unspiked samples are not qualified for this criteria.

E51H3MS
4-Chloro-3-methylphenol, 2,4-Dinitrotoluene, Pyrene

E51H3MSD
Phenol, N-nitroso-di-n-propylamine, Pentachlorophenol, Pyrene

The following semivolatile matrix spike/matrix spike duplicate samples have percent recoveries that are less than the expanded lower acceptance limit (5%). The detected compound in the unspiked samples, E51H3 and E51H3DL, is qualified "J".

E51H3MS, E51H3MSD
Acenaphthene

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as trip blanks or field blanks.

Samples E51H7 / E51H8 were identified as a field duplicate pair. Results are summarized in the following tables:

Semivolatile Compounds	E51H7	E51H8	%RPDs
	µg/Kg, Df 1	µg/Kg, Df 1	
Pyrene	ND	100	200
Chrysene	100	ND	200
Benzo(b)fluoranthene	110	ND	200
Benzo(k)fluoranthene	140	ND	200
Benzo(a)pyrene	160	100	46
Benzo(g,h,i)perylene	120	ND	200
# SVOA TICs	3	3	0

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified "J". Non-detected compounds are not qualified.

E51J0RE
Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 1,1'-Biphenyl, 2-Chloronaphthalene, 2-Nitroaniline, Dimethylphthalate, 2,6-Dinitrotoluene, Acenaphthylene, 3-Nitroaniline, Acenaphthene, 2,4-Dinitrophenol, 4-Nitrophenol, Dibenzofuran, 2,4-Dinitrotoluene, Diethylphthalate, Fluorene, 4-Chlorophenyl-phenylether, 4-Nitroaniline, 1,2,4,5-Tetrachlorobenzene, 2,3,4,6-Tetrachlorophenol

E51J0RX, E51J1RE, E51J1RX
Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J1
4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Pentachlorophenol, Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Fluoranthene, Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J6
Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J6RE
Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

The following semivolatile samples have internal standard area counts that are outside the primary lower limit criteria but greater than the expanded lower limit (20% of 12-Hr Std). Detected compounds are qualified "J". Non-detected compounds are qualified "UJ".

E51H3MSD
4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Pentachlorophenol, Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

E51J0RE, E51J6
Benzaldehyde, Phenol, bis (2-chloroethyl) ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis-(1-chloro-propane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane

E51J0RX, E51J1RE
Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-chloroethoxy)methane, 2,4-Dichlorophenol, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene

E51J1RX
Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

E51J6RE
Benzaldehyde, Phenol, bis (2-chloroethyl) ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis-(1-chloro-propane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-chloroethoxy)methane, 2,4-Dichlorophenol, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene

The following semivolatile samples have internal standard area counts that are outside the expanded lower limit of criteria (20% of 12-Hr Std). Detected compounds are qualified "J". Non-detected compounds are qualified "R".

E51H3MS, E51H3MSD, E51J1RX
Benzaldehyde, Phenol, bis (2-chloroethyl) ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis-(1-chloro-propane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-chloroethoxy)methane, 2,4-Dichlorophenol, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, Caprolactam, 4-Chloro-3-methylphenol, 2-Methylnaphthalene

E51J0RX, E51J1RE
Benzaldehyde, Phenol, bis (2-chloroethyl) ether, 2-Chlorophenol, 2-Methylphenol, 2,2'-oxybis-(1-chloro-propane), Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all semivolatile, pesticide, and aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E51H3DL
Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E51H4
Phenanthrene, Benzo(a)anthracene, Chrysene, Benzo(a)pyrene

E51H5DL
Anthracene, Dibenzo(a,h)anthracene

E51H6, E51J4
2-Methylnaphthalene

E51H6DL
Phenanthrene, Dibenzo(a,h)anthracene

E51H7
Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(g,h,i)perylene

E51H8
Pyrene, Benzo(a)pyrene

E51H9
Naphthalene, Benzo(k)fluoranthene, Benzo(a)pyrene

E51J0DL
1,1'-Biphenyl, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E51J1
4,6-Dinitro-2-methylphenol, Pentachlorophenol, Carbazole

E51J1DL
Acenaphthylene, Fluoranthene

E51J1RE
Diethylphthalate

E51J2, E51J5DL
Naphthalene

E51J3DL
1,1'-Biphenyl, Anthracene, Fluoranthene, Benzo(a)anthracene, Chrysene, Benzo(k)fluoranthene, Benzo(a)pyrene

E51J4DL
Acenaphthylene, Phenanthrene, Dibenzo(a,h)anthracene

E51J5
Fluorene

E51J6DL
Phenanthrene, Anthracene

E51J6RE
Nitrobenzene

E51J8DL
1,1'-Biphenyl, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E51J9
Fluorene, Dibenzo(a,h)anthracene

E51K0
Acenaphthylene, Phenanthrene, Fluoranthene, Benzo(k)fluoranthene

E51K1
Phenanthrene, Anthracene, Dibenzo(a,h)anthracene

A library search indicates a match at or above 85% for a TIC compound in the semivolatile sample. Detected compounds are qualified "NJ".

CAS No. 50-32-8 – Benzo(a)pyrene;
CAS No. 84-65-1 – 9,10-Anthracenedione;
CAS No. 238-84-6 – 11H-Benzo(a)fluorine;
CAS No. 21564-79-4 – Naphthalene, 1,2-dihydro-2-me;
CAS No. 33543-31-6 – Fluoranthene, 2-methyl-
E51J4

CAS No. 82-05-3 – 7H-Benz(de)anthracen-7-one
E51J0, E51J0RX, E51J6

CAS No. 83-33-0 – 1H-Inden-1-one, 2,3-dihydro-;
CAS No. 1127-76-0 – Naphthalene, 1-ethyl-
E51J8

CAS No. 86-73-7 – Fluorene
E51J1RX, E51J3, E51J6, E51J6RE

CAS No. 90-12-0 – Naphthalene, 1-methyl-
E51H3, E51H3DL, E51H5, E51J0, E51J0DL, E51J0RE, E51J1, E51J1RE, E51J8

CAS No. 91-57-6 – Naphthalene, 2-methyl-
E51H4, E51J0RE, E51J1RX, E51J3DL, E51J8DL

CAS No. 129-00-0 – Pyrene
E51J0RX, E51J1RE, E51J6

CAS No. 192-97-2 – Benzo(e)pyrene
E51J5

CAS No. 198-55-0 – Perylene;
CAS No. 239-35-0 – Benzo(b)naphtha(2,1-d)thophe;
CAS No. 2131-42-2 – Naphthalene, 1,4,6-trimethyl-;
CAS No. 3674-69-9 – Phenanthrene, 4,5-dimethyl-;
CAS No. 3710-23-4 – Naphthalene, 2-(1-methylethen
E51J1RE

CAS No. 203-11-2 – Indeno(1,2,3-fg)naphthacene;
CAS No. 301-02-0 – 9-Octadecenamide, (Z)-
E51H8

CAS No. 205-99-2 – Benz(e)acephenanthrylene;
CAS No. 612-78-2 – 2,2'-Binaphthalene;
CAS No. 2523-39-9 – 9H-Fluorene, 3-methyl-;
CAS No. 16587-52-3 – Dibenzothiophene, 3-methyl-
E51J1

CAS No. 239-85-0 – 13H-Dibenzo(a,h)fluorine;
CAS No. 262-89-5 – Dibenzo(a,e)cyclooctene
E51H3

CAS No. 264-09-5 – Benzocycloheptatriene
E51H5, E51J0, E51J0RE, E51J0RX

CAS No. 479-79-8 – 11H-Benzo(a)fluoren-11-one;
CAS No. 2235-15-6 – 1(2H)-Acenaphthylenone;
CAS No. 3351-28-8 – Chrysene, 1-methyl-;
CAS No. 3442-78-2 – Pyrene, 2-methyl-;
CAS No. 6974-97-6 – 1H-Indene, 4,7-dimethyl-;
CAS No. 101910-57-0 – 4.alpha.,5.beta.-Epoxy-9.alph
E51J6

CAS No. 483-87-4 – Phenanthrene, 1,7-dimethyl-
E51J1, E51J1RE

CAS No. 571-61-9 – Naphthalene, 1,5-dimethyl-;
CAS No. 575-43-9 – Naphthalene, 1,6-dimethyl-;
CAS No. 779-02-2 – Anthracene, 9-methyl-;
CAS No. 2131-41-1 – Naphthalene, 1,4,5-trimethyl-
E51J1RE, E51J1RX

CAS No. 575-37-1 – Naphthalene, 1,7-dimethyl-
E51H3, E51H3DL, E51J8

CAS No. 575-41-7 – Naphthalene, 1,3-dimethyl-;
CAS No. 4453-90-1 – 1,4-Methanonaphthalene, 1,4-d;
CAS No. 16587-47-6 – Benzo(b)thiophene, 6-methyl-
E51J0RE, E51J0RX

CAS No. 581-42-0 – Naphthalene, 2,6-dimethyl-
E51H3, E51J0RE, E51J1, E51J1RE, E51J1RX, E51J8

CAS No. 610-48-0 – Anthracene, 1-methyl-
E51J3, E51J4, E51J6

CAS No. 612-94-2 – Naphthalene, 2-phenyl-
E51J1RE, E51J1RX, E51J3, E51J4, E51J6RE

CAS No. 613-12-7 – Anthracene, 2-methyl-
E51J1RE, E51J3

CAS No. 827-54-3 – Naphthalene, 2-ethenyl-
E51J1RE, E51J1RX, E51J4, E51J6RE, E51J8

CAS No. 829-26-5 – Naphthalene, 2,3,6-trimethyl-
E51H3, E51J0RE, E51J1RE

CAS No. 939-27-5 – Naphthalene, 2-ethyl-
E51H3, E51J1RE, E51J1RX

CAS No. 1195-14-8 – Benzo(b)thiophene, 2-methyl-;
CAS No. 66563-30-2 – Bacchotricuneatin c
E51J0

CAS No. 1430-97-3 – 9H-Fluorene, 2-methyl-
E51J0, E51J1, E51J3

CAS No. 1556-99-6 – 9H-Fluorene, 4-methyl-
E51J3

CAS No. 1576-67-6 – Phenanthrene, 3,6-dimethyl-;
CAS No. 2531-84-2 – Phenanthrene, 2-methyl-
E51J1RX, E51J3, E51J4

CAS No. 1730-37-6 – 9H-Fluorene, 1-methyl-
E51J0, E51J0RE, E51J1, E51J3

CAS No. 2177-48-2 – 1H-Indene, 1,3-dimethyl-
E51H3, E51J0, E51J0RE, E51J0RX, E51J1, E51J6, E51J6RE, E51J8

CAS No. 2245-38-7 – Naphthalene, 1,6,7-trimethyl-
E51H3, E51J0, E51J1RE, E51J1RX

CAS No. 2381-21-7 – Pyrene, 1-methyl-
E51J1RX, E51J4, E51J6

CAS No. 2443-46-1 – Bicylco(4.4.1)undeca-1,3,5,7,;
CAS No. 14315-14-1 – Benzo(b)thiophene, 5-methyl-
E51J0RX

CAS No. 2471-83-2 – 1H-Indene, 1-ethylidene-
E51H3, E51J0, E51J0RE, E51J0RX, E51J5DL

CAS No. 3674-66-6 – Phenanthrene, 2,5-dimethyl-
E51J4, E51J6RE

CAS No. 4373-13-1 – Naphthalene, 1,2-dihydro-4-me
E51J0RE, E51J6RE, E51J8

CAS No. 4565-32-6 – Benzo(b)thiophene, 2,3-dihydr
E51H6

CAS No. 4706-89-2 – Benzene, 2,4-dimethyl-1-(1-me
E51J6RE

CAS No. 4773-82-4 – 1H-Indene, 2,3-dimethyl-
E51H6, E51J0, E51J1, E51J1RE, E51J4

CAS No. 5737-13-3 – Cyclopenta(def)phenanthrenone
E51J4, E51J6, E51J6RE

CAS No. 6572-60-7 – Tricyclo(8.2.2.2(4,7))hexadec
E51J3, E51J6, E51J6RE

CAS No. 18636-55-0 – 1H-Indene, 1,1-dimethyl-
E51H3, E51H3DL, E51J1RX, E51J8

A library search indicates a match below 85% for a TIC compound in the semivolatile sample. Detected compounds are qualified "J".

Unknown @ 10.05; Unknown @ 10.21 (2); Unknown @ 10.89; Unknown @ 14.70
E51J9

Unknown @ 10.06; Unknown @ 15.44
E51J8DL

Unknown @ 10.07; Unknown @ 10.61
E51J0DL

Unknown @ 10.08; Unknown @ 10.10; Unknown @ 10.17 (2); Unknown @ 10.19; Unknown @ 10.22; Unknown @ 10.48; Unknown @ 10.57 (2); Unknown @ 10.86; Unknown @ 13.47
E51J8

Unknown @ 10.11; Unknown @ 10.14
E51J7

Unknown @ 10.12
E51H6DL

Unknown @ 10.13
E51H9, E51J0DL, E51J4, E51J7

Unknown @ 10.16; Unknown @ 16.14; Unknown @ 17.49; Unknown @ 18.29; Unknown @ 18.74
E51J1RE

Unknown @ 10.17 (1)
E51J1RX, E51J8, E51J9

Unknown @ 10.20 (1)
E51H6, E51H9

Unknown @ 10.20 (2); Unknown @ 10.58 (2)
E51H6

Unknown @ 10.21 (1)
E51J3DL, E51J4, E51J4DL, E51J8, E51J9

Unknown @ 10.24
E51H6, E51J8

Unknown @ 10.26
E51J0, E51J1, E51J6DL

Unknown @ 10.27
E51J0RX, E51J1RX, E51J8

Unknown @ 10.31; Unknown @ 10.37; Unknown @ 12.43;
Unknown @ 16.72; Unknown @ 17.25; Unknown @ 17.38;
Unknown @ 17.45; Unknown @ 17.95; Unknown @ 18.35;
Unknown @ 18.49; Unknown @ 18.62
E51J0RX

Unknown @ 10.35
E51J0, E51J0RX, E51J1, E51J1RE

Unknown @ 10.36
E51H6, E51J0RE, E51J1RX

Unknown @ 10.44
E51J1DL, E51J8, E51J9

Unknown @ 10.50
E51J6DL

Unknown @ 10.51
E51J1DL, E51J8

Unknown @ 10.54
E51J4DL, E51J8

Unknown @ 10.55
E51H5DL, E51J4DL

Unknown @ 10.57 (1)
E51H5, E51H6, E51J6DL, E51J8, E51J8DL

Unknown @ 10.58 (1)
E51H3DL, E51H5DL, E51H6, E51J1DL

Unknown @ 10.60
E51J0DL, E51J6DL, E51J8DL

Unknown @ 10.62
E51H5, E51H5DL

Unknown @ 10.63
E51H5, E51J0RX

Unknown @ 10.64
E51H6, E51J7

Unknown @ 10.65
E51H5DL, E51J7

Unknown @ 10.66
E51J0, E51J1RX, E51K0

Unknown @ 10.67
E51H5, E51K1

Unknown @ 10.68 (1); Unknown @ 10.68 (2)
E51J4DL

Unknown @ 10.70 (1)
E51H5DL, E51H8, E51J0, E51J0RE, E51J0RX, E51J1RE, E51J1RX, E51K0

Unknown @ 10.70 (2); Unknown @ 10.80; Unknown @ 14.66;
Unknown @ 15.37; Unknown @ 15.39; Unknown @ 15.46;
Unknown @ 15.60; Unknown @ 16.05; Unknown @ 16.51;
Unknown @ 17.60
E51J0

Unknown @ 10.71
E51J0RE, E51J0RX, E51J1RX, E51J6DL, E51K0

Unknown @ 10.72 (1)
E51H4, E51H5, E51H6DL, E51J5DL, E51K1

Unknown @ 10.72 (2); Unknown @ 10.74 (2)
E51H5

Unknown @ 10.73 (1)
E51H4, E51H7, E51H9, E51J2, E51K1

Unknown @ 10.73 (2)
E51H7, E51J2

Unknown @ 10.74 (1)
E51H5, E51H6DL, E51H7, E51H9, E51J2, E51J5DL, E51K1

Unknown @ 10.75
E51J1DL, E51K1

Unknown @ 10.77
E51H9, SBLK05

Unknown @ 10.78
E51J1DL

Unknown @ 10.85; Unknown @ 15.30; Unknown @ 15.67;
Unknown @ 15.77; Unknown @ 16.09; Unknown @ 16.78;
Unknown @ 17.32; Unknown @ 17.55; Unknown @ 17.98;
Unknown @ 18.38; Unknown @ 18.45; Unknown @ 18.58;
Unknown @ 20.88
E51J1

Unknown @ 10.94; Unknown @ 11.14; Unknown @ 12.06;
Unknown @ 12.19; Unknown @ 12.24; Unknown @ 12.36;
Unknown @ 12.42; Unknown @ 14.19; Unknown @ 14.74;
Unknown @ 15.40; Unknown @ 15.65 (2); Unknown @ 16.55
E51H3

Unknown @ 11.88; Unknown @ 12.21; Unknown @ 12.38;
Unknown @ 13.12; Unknown @ 13.31; Unknown @ 13.50;
Unknown @ 14.26; Unknown @ 15.74; Unknown @ 17.14
E51J6

Unknown @ 11.89; Unknown @ 13.19; Unknown @ 13.66;
Unknown @ 14.14; Unknown @ 14.27; Unknown @ 15.35;
Unknown @ 15.70 (1); Unknown @ 15.70 (2); Unknown @ 15.87;
Unknown @ 15.91
E51J6RE

Unknown @ 12.22; Unknown @ 13.32
E51J1RX, E51J6RE

Unknown @ 12.39
E51H3, E51J1

Unknown @ 13.28; E51J4	Unknown @ 18.88;	Unknown @ 19.46
Unknown @ 13.41; E51H3, E51J6RE	Unknown @ 15.51;	Unknown @ 15.65 (1)
Unknown @ 13.44; Unknown @ 15.56 E51J6, E51J6RE	Unknown @ 14.60;	Unknown @ 15.13;
Unknown @ 13.51 E51J1RE, E51J6RE		
Unknown @ 13.52; Unknown @ 18.59 E51J1RX	Unknown @ 13.84;	Unknown @ 15.54;
Unknown @ 13.63; Unknown @ 15.63; Unknown @ 16.85; Unknown @ 20.52 E51J0RE	Unknown @ 14.62; Unknown @ 16.53; Unknown @ 16.96;	Unknown @ 15.31; Unknown @ 16.54; Unknown @ 18.34;
Unknown @ 13.85; E51J3	Unknown @ 15.94	
Unknown @ 15.45 E51H3DL		
Unknown @ 15.48; E51J0, E51J0RE	Unknown @ 15.61	
Unknown @ 16.07 E51H3, E51J1RX		
Unknown @ 18.10 E51J0RE, E51J0RX		
Unknown @ 18.86; E51J5	Unknown @ 20.68	

The following pesticide samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified “J”.

PLCS42
gamma-BHC (Lindane), Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin, Endosulfan sulfate, gamma-Chlordane

The relative percent difference between analyte results for the following pesticide samples is greater than 25% and the concentration is greater than 25% of the CRQL. Detected compounds are qualified "J".

E51H3MS
gamma-BHC (Lindane), Dieldrin, Endrin, 4,4'-DDT

E51H3MSD
4,4'-DDT

The following aroclor samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

ALCS41
Aroclor-1016, Aroclor-1260

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance. The GC baseline for the pesticide and aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following semivolatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the diluted analyses should be considered the final concentrations for the affected compounds.

E51H3, E51J1, E51J1RE, E51J1RX
Naphthalene, 2-Methylnaphthalene, 1,1'-Biphenyl, Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51H5
Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene

E51H6, E51J4
Acenaphthylene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E51J0
4-Methylphenol, 2,4-Dimethylphenol, Naphthalene, 2-Methylnaphthalene, 1,1'-Biphenyl, Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J0RE
2-Methylphenol, 4-Methylphenol, 2,4-Dimethylphenol, Naphthalene, 2-Methylnaphthalene, 1,1'-Biphenyl, Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J0RX
2-Methylphenol, Acetophenone, 4-Methylphenol, Naphthalene, 2-Methylnaphthalene, 1,1'-Biphenyl, Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J3
Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene

E51J5
Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J6
Acenaphthylene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J6RE
Acenaphthylene, Acenaphthene, Fluorene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51J8
Naphthalene, 2-Methylnaphthalene, 1,1'-Biphenyl, Acenaphthylene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

The following semivolatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". No dilution was required because these are laboratory QC samples.

E51H3MS, E51H3MSD
Acetophenone, Naphthalene, 2-Methylnaphthalene, 1,1'-Biphenyl, Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

The following semivolatile samples have internal standard area counts that are outside the primary lower limit criteria but greater than the expanded lower limit (20% of 12-Hr Std) on a closing CCV. There are currently no guidelines on qualifying sample results for this deficiency; therefore, no sample results were qualified.

SSTD02017 – Chrysene-d12, Perylene-d12
E51H3, E51H3MS, E51H3MSD, E51J0, E51J0RE, E51J0RX, E51J1, E51J1RE, E51J1RX, E51J6, E51J6RE

The following semivolatile sample had a semivolatile target analyte reported as a LCSV Tentatively Identified Compound (TIC) using one of its alternative names. A detect for this compound in the affected samples is qualified "J".

CAS No. 205-99-2, Benz[e]acephenanthrylene i.e. Benzo(b)fluoranthene
E51J1

The following semivolatile samples had a semivolatile target analyte reported as a LCSV Tentatively Identified Compound (TIC). Detects for these compounds in the affected samples are qualified "J" and non-detects qualified "UJ".

E51H4, E51J0RE, E51J1RX, E51J3DL, E51J8DL
CAS No. 91-57-6 – Naphthalene, 2-methyl-

E51J0RX, E51J1RE, E51J6
CAS No. 129-00-0 – Pyrene

E51J1RX, E51J3, E51J6, E51J6RE
CAS No. 86-73-7 – Fluorene

E51J4
CAS No. 50-32-8 – Benzo(a)pyrene

The following semivolatile samples have a TIC compound incorrectly reported on the laboratory Form I and the TIC report. The TICs were reported as "unknown" when a library search indicated a match at or above 85%. The TICs were renamed and flagged "NJ" by the reviewer. Raw data for these samples is included with the hard copy data package.

E51J6

Unknown @ 13.77	CAS No. 86-73-7 – Fluorene	Library Match 93%
Unknown @ 13.87	CAS No. 86-73-7 – Fluorene	Library Match 87%

The following semivolatile samples had alkanes improperly listed on the laboratory Form Is and TIC report. The TICs were removed by the Reviewer.

E51H3, E51J8
CAS No. 629-50-5 – Tridecane

E51J0
CAS No. 54105-67-8 – Heptadecane, 2,6-dimethyl-

E51J1
CAS No. 638-36-8 – Hexadecane, 2,6,10,14-tetramethyl-

E51J1RE
CAS No. 544-76-3 – Hexadecane
CAS No. 629-50-5 – Tridecane

E51J1RX
CAS No. 1560-97-0 – Dodecane, 2-methyl-

E51J3
CAS No. 629-50-5 – Tridecane
CAS No. 3892-00-0 –Pentadecane, 2,6,10-trimethyl-
CAS No. 54105-67-8 – Heptadecane, 2,6-dimethyl-

E51J4
CAS No. 92-52-4 – Biphenyl

E51J6
CAS No. 643-93-6 – 1,1'-Biphenyl, 3-methyl-

E51J9
CAS No. 3892-00-0 –Pentadecane, 2,6,10-trimethyl
CAS No. 5911-04-6 – Nonane, 3-methyl-
CAS No. 55045-11-9 – Tridecane, 5-propyl-

The CADRE and EDD spreadsheets did not include the following pesticide LCS samples. Form Is for these samples are included with the hard copy data package.

PLCS42

The following pesticide samples had a compound incorrectly flagged with a “P” flag by the laboratory on the Form I. The qualification flag was removed by the reviewer.

E51H3MSD
gamma-BHC (Lindane), Dieldrin, Endrin

The following pesticide samples had a compound not properly flagged with a “P” flag by the laboratory on the Form I. The qualification flag was added by the reviewer.

E51H3MS
gamma-BHC (Lindane), Dieldrin, Endrin, 4,4’-DDT

The CADRE and EDD spreadsheets did not include the following aroclor LCS samples. Form Is for these samples are included with the hard copy data package.

ALCS42

Case Number: 40702 SDG Number: E51H3
Site Name: Ironwood MGP (MI) Laboratory: KAP Technologies

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE Number of Soil Samples : 0
Lab. : KAP Number of Water Samples : 19
Reviewer : Number of Sediment Samples : 0
Date :

Sample Number :	E51E9		E51F1		E51F2		E51F3		E51F4	
Sampling Location :	MW2		FB1		FB2		PB1		PB2	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/19/2010		10/20/2010		10/19/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Vinyl chloride	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromomethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichlorofluoromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetone	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl acetate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylene chloride	5.0	U	5.0	U	5.0	U	5.0	U	3.4	J
trans-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl tert-butyl ether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Butanone	10	U	10	U	10	U	10	U	10	U
Bromochloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroform	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,1-Trichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Cyclohexane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbon tetrachloride	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dioxane	100	U	100	U	100	U	100	U	100	U
Trichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylcyclohexane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloropropane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromodichloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U	10	U
Toluene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51E9		E51F1		E51F2		E51F3		E51F4	
Sampling Location :	MW2		FB1		FB2		PB1		PB2	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/19/2010		10/20/2010		10/19/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Tetrachloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Hexanone	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromoethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Ethylbenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
o-Xylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
m,p-Xylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Styrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromoform	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Isopropylbenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,3-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromo-3-chloropropane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,4-Trichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,3-Trichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F5		E51F6		E51F7		E51F7MS		E51F7MSD	
Sampling Location :	TMW1		TMW2		TMW3		TMW3		TMW3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010		10/20/2010		10/20/2010					
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Vinyl chloride	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromomethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichlorofluoromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethene	5.0	U	5.0	U	5.0	U	36		38	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetone	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl acetate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylene chloride	50	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl tert-butyl ether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Butanone	10	U	10	U	10	U	10	U	10	U
Bromochloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroform	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,1-Trichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Cyclohexane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbon tetrachloride	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	5.0	U	5.0	U	5.0	U	38		40	
1,2-Dichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dioxane	100	UJ	100	U	100	UJ	100	UJ	100	UJ
Trichloroethene	5.0	U	5.0	U	5.0	U	39		40	
Methylcyclohexane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloropropane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromodichloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U	10	U
Toluene	5.0	U	5.0	U	5.0	U	40		42	
trans-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F5		E51F6		E51F7		E51F7MS		E51F7MSD	
Sampling Location :	TMW1		TMW2		TMW3		TMW3		TMW3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010		10/20/2010		10/20/2010					
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Tetrachloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Hexanone	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromoethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chlorobenzene	5.0	U	5.0	U	5.0	U	44		45	
Ethylbenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
o-Xylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
m,p-Xylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Styrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromoform	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Isopropylbenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,3-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromo-3-chloropropane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,4-Trichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,3-Trichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F8		E51F8DL		E51G0		E51G0DL		E51G1	
Sampling Location :	TMW4		TMW4		TMW5		TMW5		TMW6	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010				10/20/2010				10/20/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	2.0		20.0		10.0		40.0		5.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	10	U	100	U	50	U	200	U	25	U
Chloromethane	10	U	100	U	50	U	200	U	25	U
Vinyl chloride	10	U	100	U	50	U	200	U	25	U
Bromomethane	10	U	100	U	50	U	200	U	25	U
Chloroethane	10	U	100	U	50	U	200	U	25	U
Trichlorofluoromethane	10	U	100	U	50	U	200	U	25	U
1,1-Dichloroethene	10	U	100	U	50	U	200	U	25	U
1,1,2-Trichloro-1,2,2-trifluoroethane	10	U	100	U	50	U	200	U	25	U
Acetone	20	U	200	U	100	U	400	U	50	U
Carbon disulfide	10	U	100	U	50	U	200	U	25	U
Methyl acetate	10	U	100	U	50	U	200	U	25	U
Methylene chloride	9.6	J	100	U	41	J	150	J	25	U
trans-1,2-Dichloroethene	10	U	100	U	50	U	200	U	25	U
Methyl tert-butyl ether	10	U	100	U	50	U	200	U	25	U
1,1-Dichloroethane	10	U	100	U	50	U	200	U	25	U
cis-1,2-Dichloroethene	10	U	100	U	50	U	200	U	25	U
2-Butanone	20	U	200	U	100	U	400	U	50	U
Bromochloromethane	10	U	100	U	50	U	200	U	25	U
Chloroform	10	U	100	U	50	U	200	U	25	U
1,1,1-Trichloroethane	10	U	100	U	50	U	200	U	25	U
Cyclohexane	10	U	100	U	50	U	200	U	25	U
Carbon tetrachloride	10	U	100	U	50	U	200	U	25	U
Benzene	990	J	1100		4900	J	3200		320	
1,2-Dichloroethane	10	U	100	U	50	U	200	U	25	U
1,4-Dioxane	200	U	2000	U	1000	U	4000	UJ	500	U
Trichloroethene	10	U	100	U	50	U	200	U	25	U
Methylcyclohexane	10	U	100	U	50	U	200	U	25	U
1,2-Dichloropropane	10	U	100	U	50	U	200	U	25	U
Bromodichloromethane	10	U	100	U	50	U	200	U	25	U
cis-1,3-Dichloropropene	10	U	100	U	50	U	200	U	25	U
4-Methyl-2-pentanone	20	U	200	U	100	U	400	U	50	U
Toluene	400	J	420		1400		1000		260	
trans-1,3-Dichloropropene	10	U	100	U	50	U	200	U	25	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F8		E51F8DL		E51G0		E51G0DL		E51G1	
Sampling Location :	TMW4		TMW4		TMW5		TMW5		TMW6	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010				10/20/2010				10/20/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	2.0		20.0		10.0		40.0		5.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	10	U	100	U	50	U	200	U	25	U
Tetrachloroethene	10	U	100	U	50	U	200	U	25	U
2-Hexanone	20	U	200	U	100	U	400	U	50	U
Dibromochloromethane	10	U	100	U	50	U	200	U	25	U
1,2-Dibromoethane	10	U	100	U	50	U	200	U	25	U
Chlorobenzene	10	U	100	U	50	U	200	U	25	U
Ethylbenzene	1300	J	1500		1300		1100		2000	J
o-Xylene	660	J	550		500		420		1100	J
m,p-Xylene	870	J	720		720		580		1600	J
Styrene	10	U	100	U	120		120	J	25	U
Bromoform	10	U	100	U	50	U	200	U	25	U
Isopropylbenzene	55		57	J	55		200	U	33	
1,1,2,2-Tetrachloroethane	10	U	100	U	50	U	200	U	25	U
1,3-Dichlorobenzene	10	U	100	U	50	U	200	U	25	U
1,4-Dichlorobenzene	10	U	100	U	50	U	200	U	25	U
1,2-Dichlorobenzene	10	U	100	U	50	U	200	U	25	U
1,2-Dibromo-3-chloropropane	10	U	100	U	50	U	200	U	25	U
1,2,4-Trichlorobenzene	10	U	100	U	50	U	200	U	25	U
1,2,3-Trichlorobenzene	10	U	100	U	50	U	200	U	25	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G1DL		E51G2		E51G2DL		E51G3		E51G4	
Sampling Location :	TMW6		TMW7		TMW7		TMW8		SW1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			10/20/2010				10/20/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	20.0		1.0		5.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Chloromethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Vinyl chloride	100	U	5.0	U	25	U	5.0	U	5.0	U
Bromomethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Chloroethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Trichlorofluoromethane	100	U	5.0	U	25	U	5.0	U	5.0	U
1,1-Dichloroethene	100	U	5.0	U	25	U	5.0	U	5.0	U
1,1,2-Trichloro-1,2,2-trifluoroethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Acetone	200	U	10	U	50	U	7.9	J	10	U
Carbon disulfide	100	U	5.0	U	25	U	5.0	U	5.0	U
Methyl acetate	100	U	5.0	U	25	U	5.0	U	5.0	U
Methylene chloride	70	J	5.0	U	50	U	5.0	U	10	U
trans-1,2-Dichloroethene	100	U	5.0	U	25	U	5.0	U	5.0	U
Methyl tert-butyl ether	100	U	5.0	U	25	U	5.0	U	5.0	U
1,1-Dichloroethane	100	U	5.0	U	25	U	5.0	U	5.0	U
cis-1,2-Dichloroethene	100	U	5.0	U	25	U	5.0	U	5.0	U
2-Butanone	200	U	10	U	50	U	10	U	10	U
Bromochloromethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Chloroform	100	U	5.0	U	25	U	5.0	U	5.0	U
1,1,1-Trichloroethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Cyclohexane	100	U	5.0	U	25	U	5.0	U	5.0	U
Carbon tetrachloride	100	U	5.0	U	25	U	5.0	U	5.0	U
Benzene	250		210	J	180		25		5.0	U
1,2-Dichloroethane	100	U	5.0	U	25	U	5.0	U	5.0	U
1,4-Dioxane	2000	UJ	100	U	500	U	100	U	100	U
Trichloroethene	100	U	5.0	U	25	U	5.0	U	5.0	U
Methylcyclohexane	100	U	5.0	U	25	U	5.0	U	5.0	U
1,2-Dichloropropane	100	U	5.0	U	25	U	5.0	U	5.0	U
Bromodichloromethane	100	U	5.0	U	25	U	5.0	U	5.0	U
cis-1,3-Dichloropropene	100	U	5.0	U	25	U	5.0	U	5.0	U
4-Methyl-2-pentanone	200	U	10	U	50	U	10	U	10	U
Toluene	220		190		180		3.6	J	5.0	U
trans-1,3-Dichloropropene	100	U	5.0	U	25	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G1DL		E51G2		E51G2DL		E51G3		E51G4	
Sampling Location :	TMW6		TMW7		TMW7		TMW8		SW1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			10/20/2010				10/20/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	20.0		1.0		5.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Tetrachloroethene	100	U	5.0	U	25	U	5.0	U	5.0	U
2-Hexanone	200	U	10	U	50	U	10	U	10	U
Dibromochloromethane	100	U	5.0	U	25	U	5.0	U	5.0	U
1,2-Dibromoethane	100	U	5.0	U	25	U	5.0	U	5.0	U
Chlorobenzene	100	U	5.0	U	25	U	5.0	U	5.0	U
Ethylbenzene	1300		250	J	590		46		5.0	U
o-Xylene	720		390	J	370		19		5.0	U
m,p-Xylene	1000		380	J	340		6.2		5.0	U
Styrene	100	U	210	J	150		5.0	U	5.0	U
Bromoform	100	U	5.0	U	25	U	5.0	U	5.0	U
Isopropylbenzene	100	U	44		18	J	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	100	U	5.0	U	25	U	5.0	U	5.0	U
1,3-Dichlorobenzene	100	U	5.0	U	25	U	5.0	U	5.0	U
1,4-Dichlorobenzene	100	U	5.0	U	25	U	5.0	U	5.0	U
1,2-Dichlorobenzene	100	U	5.0	U	25	U	5.0	U	5.0	U
1,2-Dibromo-3-chloropropane	100	U	5.0	U	25	U	5.0	U	5.0	U
1,2,4-Trichlorobenzene	100	U	5.0	U	25	U	5.0	U	5.0	U
1,2,3-Trichlorobenzene	100	U	5.0	U	25	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G5		E51G6		E51G7		E51G8		E51G9	
Sampling Location :	SW2		SW2D		SW3		SW4		SW5	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/21/2010		10/21/2010		10/21/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Vinyl chloride	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromomethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichlorofluoromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetone	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl acetate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylene chloride	10	U	10	U	5.0	U	5.0	U	10	U
trans-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl tert-butyl ether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Butanone	10	U	10	U	10	U	10	U	10	U
Bromochloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroform	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,1-Trichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Cyclohexane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbon tetrachloride	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dioxane	100	U	100	U	100	UJ	100	U	100	U
Trichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylcyclohexane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloropropane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromodichloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U	10	U
Toluene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G5		E51G6		E51G7		E51G8		E51G9	
Sampling Location :	SW2		SW2D		SW3		SW4		SW5	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/21/2010		10/21/2010		10/21/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	2		2		2		2		2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Tetrachloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Hexanone	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromoethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Ethylbenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
o-Xylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
m,p-Xylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Styrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromoform	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Isopropylbenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,3-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromo-3-chloropropane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,4-Trichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,3-Trichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	VBLK20		VBLK22		VBLK38		VBLK41		VHBLK01	
Sampling Location :										
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :										
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Vinyl chloride	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromomethane	1.8	J	5.0	U	5.0	U	5.0	U	5.0	U
Chloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichlorofluoromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetone	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl acetate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylene chloride	9.5		5.0	U	3.8	J	5.0	U	10	U
trans-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl tert-butyl ether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,2-Dichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Butanone	10	U	10	U	10	U	10	U	10	U
Bromochloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroform	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,1-Trichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Cyclohexane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbon tetrachloride	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dioxane	100	U	100	U	100	U	100	U	100	UJ
Trichloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylcyclohexane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloropropane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromodichloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U	10	U
Toluene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,3-Dichloropropene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	VBLK20		VBLK22		VBLK38		VBLK41		VHBLK01	
Sampling Location :										
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :										
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Tetrachloroethene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Hexanone	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromoethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Ethylbenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
o-Xylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
m,p-Xylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Styrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromoform	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Isopropylbenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,3-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromo-3-chloropropane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,4-Trichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,3-Trichlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE Number of Soil Samples : 0
Lab. : KAP Number of Water Samples : 19
Reviewer : Number of Sediment Samples : 0
Date :

Sample Number :	E51E9		E51F1		E51F2		E51F3		E51F4	
Sampling Location :	MW2		FB1		FB2		PB1		PB2	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/19/2010		10/20/2010		10/19/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.5		6.1		6.0		5.9		5.6	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Phenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bis(2-chloroethyl)ether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Chlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Methylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,2'-Oxybis(1-chloropropane)	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetophenone	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
N-Nitroso-di-n-propylamine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Nitrobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Isophorone	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Nitrophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dimethylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bis(2-chloroethoxy)methane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Naphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chloroaniline	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorobutadiene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Caprolactam	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chloro-3-methylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Methylnaphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorocyclopentadiene	5.0	U	5.0	UJ	5.0	UJ	5.0	U	5.0	UJ
2,4,6-Trichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4,5-Trichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1'-Biphenyl	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Chloronaphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Nitroaniline	10	U	10	U	10	U	10	U	10	U
Dimethylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,6-Dinitrotoluene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acenaphthylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
3-Nitroaniline	10	U	10	U	10	U	10	U	10	U
Acenaphthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51E9		E51F1		E51F2		E51F3		E51F4	
Sampling Location :	MW2		FB1		FB2		PB1		PB2	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/19/2010		10/20/2010		10/19/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.5		6.1		6.0		5.9		5.6	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	10	U	10	U	10	U	10	U	10	U
Dibenzofuran	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dinitrotoluene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Diethylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Fluorene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chlorophenyl-phenylether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Nitroaniline	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
N-Nitrosodiphenylamine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,4,5-Tetrachlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Bromophenyl-phenylether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Atrazine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Pentachlorophenol	10	U	10	UJ	10	UJ	10	U	10	UJ
Phenanthrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbazole	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Di-n-butylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Pyrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Butylbenzylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
3,3'-Dichlorobenzidine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(a)anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chrysene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bis(2-ethylhexyl)phthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Di-n-octylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(b)fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(k)fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(a)pyrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Indeno(1,2,3-cd)pyrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Dibenzo(a,h)anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(g,h,i)perylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,3,4,6-Tetrachlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F5		E51F6		E51F7		E51F7MS		E51F7MSD	
Sampling Location :	TMW1		TMW2		TMW3		TMW3		TMW3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010		10/20/2010		10/20/2010					
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.5		7.2		6.3		6.3		6.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Phenol	5.0	U	5.0	U	5.0	U	23		25	
Bis(2-chloroethyl)ether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Chlorophenol	5.0	U	5.0	U	5.0	U	21		22	
2-Methylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,2'-Oxybis(1-chloropropane)	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetophenone	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
N-Nitroso-di-n-propylamine	5.0	U	5.0	U	5.0	U	19		22	
Hexachloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Nitrobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Isophorone	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Nitrophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dimethylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bis(2-chloroethoxy)methane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Naphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chloroaniline	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorobutadiene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Caprolactam	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chloro-3-methylphenol	5.0	U	5.0	U	5.0	U	22		25	
2-Methylnaphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorocyclopentadiene	5.0	UJ	5.0	U	5.0	UJ	5.0	U	5.0	U
2,4,6-Trichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4,5-Trichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1'-Biphenyl	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Chloronaphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Nitroaniline	10	U	10	U	10	U	10	U	10	U
Dimethylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,6-Dinitrotoluene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acenaphthylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
3-Nitroaniline	10	U	10	U	10	U	10	U	10	U
Acenaphthene	5.0	U	5.0	U	5.0	UJ	18		22	

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F5		E51F6		E51F7		E51F7MS		E51F7MSD	
Sampling Location :	TMW1		TMW2		TMW3		TMW3		TMW3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010		10/20/2010		10/20/2010					
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.5		7.2		6.3		6.3		6.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	10	U	10	U	10	U	21		23	
Dibenzofuran	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dinitrotoluene	5.0	U	5.0	U	5.0	U	18		22	
Diethylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Fluorene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chlorophenyl-phenylether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Nitroaniline	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
N-Nitrosodiphenylamine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,4,5-Tetrachlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Bromophenyl-phenylether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Atrazine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Pentachlorophenol	10	UJ	10	U	10	UJ	20		22	
Phenanthrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbazole	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Di-n-butylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Pyrene	5.0	U	5.0	U	5.0	U	18		22	
Butylbenzylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
3,3'-Dichlorobenzidine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(a)anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chrysene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bis(2-ethylhexyl)phthalate	25	U	5.0	U	5.0	U	5.0	U	5.0	U
Di-n-octylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(b)fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(k)fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(a)pyrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Indeno(1,2,3-cd)pyrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Dibenzo(a,h)anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(g,h,i)perylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,3,4,6-Tetrachlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F8		E51F8DL		E51F8DL2		E51G0		E51G0DL	
Sampling Location :	TMW4		TMW4				TMW5		TMW5	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010						10/20/2010			
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	5.7		5.7		5.7		6.0		6.0	
Dilution Factor :	1.0		10.0		50.0		1.0		10.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	5.0	U	50	U	250	U	5.0	U	50	U
Phenol	5.0	U	50	U	250	U	330	J	300	
Bis(2-chloroethyl)ether	5.0	U	50	U	250	U	5.0	U	50	U
2-Chlorophenol	5.0	U	50	U	250	U	5.0	U	50	U
2-Methylphenol	3.0	J	50	U	250	U	250	J	230	
2,2'-Oxybis(1-chloropropane)	5.0	U	50	U	250	U	5.0	U	50	U
Acetophenone	5.0	U	50	U	250	U	24		23	J
4-Methylphenol	8.6		50	U	250	U	430	J	390	
N-Nitroso-di-n-propylamine	5.0	U	50	U	250	U	5.0	U	50	U
Hexachloroethane	5.0	U	50	U	250	U	5.0	U	50	U
Nitrobenzene	5.0	U	50	U	250	U	5.0	U	50	U
Isophorone	5.0	U	50	U	250	U	5.0	U	50	U
2-Nitrophenol	5.0	U	50	U	250	U	5.0	U	50	U
2,4-Dimethylphenol	5.0	U	50	U	250	U	170	J	150	
Bis(2-chloroethoxy)methane	5.0	U	50	U	250	U	5.0	U	50	U
2,4-Dichlorophenol	5.0	U	50	U	250	U	5.0	U	50	U
Naphthalene	1800	J	2200	J	3200		3300	J	8200	J
4-Chloroaniline	5.0	U	50	U	250	U	5.0	U	50	U
Hexachlorobutadiene	5.0	U	50	U	250	U	5.0	U	50	U
Caprolactam	5.0	U	50	U	250	U	5.0	U	50	U
4-Chloro-3-methylphenol	5.0	U	50	U	250	U	5.0	U	50	U
2-Methylnaphthalene	610	J	420		610		660	J	590	
Hexachlorocyclopentadiene	5.0	UJ	50	U	250	U	5.0	UJ	50	U
2,4,6-Trichlorophenol	5.0	U	50	U	250	U	5.0	U	50	U
2,4,5-Trichlorophenol	5.0	U	50	U	250	U	5.0	U	50	U
1,1'-Biphenyl	62		47	J	250	U	46		46	J
2-Chloronaphthalene	5.0	U	50	U	250	U	5.0	U	50	U
2-Nitroaniline	10	U	100	U	500	U	10	U	100	U
Dimethylphthalate	5.0	U	50	U	250	U	5.0	U	50	U
2,6-Dinitrotoluene	5.0	U	50	U	250	U	5.0	U	50	U
Acenaphthylene	64		48	J	250	U	130	J	130	
3-Nitroaniline	10	U	100	U	500	U	10	U	100	U
Acenaphthene	130	J	99		140	J	23		23	J

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F8		E51F8DL		E51F8DL2		E51G0		E51G0DL	
Sampling Location :	TMW4		TMW4				TMW5		TMW5	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010						10/20/2010			
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	5.7		5.7		5.7		6.0		6.0	
Dilution Factor :	1.0		10.0		50.0		1.0		10.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	10	U	100	U	500	U	10	U	100	U
4-Nitrophenol	10	U	100	U	500	U	10	U	100	U
Dibenzofuran	8.7		50	U	250	U	6.7		50	U
2,4-Dinitrotoluene	5.0	U	50	U	250	U	5.0	U	50	U
Diethylphthalate	5.0	U	50	U	250	U	5.0	U	50	U
Fluorene	61		45	J	250	U	28		26	J
4-Chlorophenyl-phenylether	5.0	U	50	U	250	U	5.0	U	50	U
4-Nitroaniline	10	U	100	U	500	U	10	U	100	U
4,6-Dinitro-2-methylphenol	10	U	100	U	500	U	10	U	100	U
N-Nitrosodiphenylamine	5.0	U	50	U	250	U	5.0	U	50	U
1,2,4,5-Tetrachlorobenzene	5.0	U	50	U	250	U	5.0	U	50	U
4-Bromophenyl-phenylether	5.0	U	50	U	250	U	5.0	U	50	U
Hexachlorobenzene	5.0	U	50	U	250	U	5.0	U	50	U
Atrazine	5.0	U	50	U	250	U	5.0	U	50	U
Pentachlorophenol	10	UJ	100	U	500	U	10	UJ	100	U
Phenanthrene	170	J	120		180	J	43		41	J
Anthracene	40		28	J	250	U	7.9		50	U
Carbazole	5.0	U	50	U	250	U	7.8		50	U
Di-n-butylphthalate	5.0	U	50	U	250	U	5.0	U	50	U
Fluoranthene	31		21	J	250	U	5.5		50	U
Pyrene	49		40	J	250	U	6.5		50	U
Butylbenzylphthalate	5.0	U	50	U	250	U	5.0	U	50	U
3,3'-Dichlorobenzidine	5.0	U	50	U	250	U	5.0	U	50	U
Benzo(a)anthracene	14		50	U	250	U	5.0	U	50	U
Chrysene	14		50	U	250	U	5.0	U	50	U
Bis(2-ethylhexyl)phthalate	5.0	U	50	U	250	U	5.0	U	50	U
Di-n-octylphthalate	5.0	U	50	U	250	U	5.0	U	50	U
Benzo(b)fluoranthene	4.6	J	50	U	250	U	5.0	U	50	U
Benzo(k)fluoranthene	7.3		50	U	250	U	5.0	U	50	U
Benzo(a)pyrene	12		50	U	250	U	5.0	U	50	U
Indeno(1,2,3-cd)pyrene	4.2	J	50	U	250	U	5.0	U	50	U
Dibenzo(a,h)anthracene	5.0	U	50	U	250	U	5.0	U	50	U
Benzo(g,h,i)perylene	5.6		50	U	250	U	5.0	U	50	U
2,3,4,6-Tetrachlorophenol	5.0	U	50	U	250	U	5.0	U	50	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G0DL2		E51G1		E51G1DL		E51G1DL2		E51G2	
Sampling Location :			TMW6		TMW6				TMW7	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			10/20/2010						10/20/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.0		6.1		6.1		6.1		5.9	
Dilution Factor :	100.0		1.0		5.0		50.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	500	U	5.0	U	25	U	250	U	5.0	U
Phenol	260	J	8.0		25	U	250	U	5.0	U
Bis(2-chloroethyl)ether	500	U	5.0	U	25	U	250	U	5.0	U
2-Chlorophenol	500	U	5.0	U	25	U	250	U	5.0	U
2-Methylphenol	220	J	5.4		25	U	250	U	5.0	U
2,2'-Oxybis(1-chloropropane)	500	U	5.0	U	25	U	250	U	5.0	U
Acetophenone	500	U	11		25	U	250	U	8.4	
4-Methylphenol	330	J	19		18	J	250	U	5.0	U
N-Nitroso-di-n-propylamine	500	U	5.0	U	25	U	250	U	5.0	U
Hexachloroethane	500	U	5.0	U	25	U	250	U	5.0	U
Nitrobenzene	500	U	5.0	U	25	U	250	U	5.0	U
Isophorone	500	U	5.0	U	25	U	250	U	5.0	U
2-Nitrophenol	500	U	5.0	U	25	U	250	U	5.0	U
2,4-Dimethylphenol	500	U	12		11	J	250	U	4.6	J
Bis(2-chloroethoxy)methane	500	U	5.0	U	25	U	250	U	5.0	U
2,4-Dichlorophenol	500	U	5.0	U	25	U	250	U	5.0	U
Naphthalene	9000	J	2000	J	3200	J	3300		1500	J
4-Chloroaniline	500	U	5.0	U	25	U	250	U	5.0	U
Hexachlorobutadiene	500	U	5.0	U	25	U	250	U	5.0	U
Caprolactam	500	U	5.0	U	25	U	250	U	5.0	U
4-Chloro-3-methylphenol	500	U	5.0	U	25	U	250	U	5.0	U
2-Methylnaphthalene	600		120	J	120		120	J	240	J
Hexachlorocyclopentadiene	500	U	5.0	UJ	25	U	250	U	5.0	UJ
2,4,6-Trichlorophenol	500	U	5.0	U	25	U	250	U	5.0	U
2,4,5-Trichlorophenol	500	U	5.0	U	25	U	250	U	5.0	U
1,1'-Biphenyl	500	U	22		21	J	250	U	27	
2-Chloronaphthalene	500	U	5.0	U	25	U	250	U	5.0	U
2-Nitroaniline	1000	U	10	U	50	U	500	U	10	U
Dimethylphthalate	500	U	5.0	U	25	U	250	U	5.0	U
2,6-Dinitrotoluene	500	U	5.0	U	25	U	250	U	5.0	U
Acenaphthylene	500	U	22		20	J	250	U	76	
3-Nitroaniline	1000	U	10	U	50	U	500	U	10	U
Acenaphthene	500	U	69		66		250	U	66	

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G0DL2		E51G1		E51G1DL		E51G1DL2		E51G2	
Sampling Location :			TMW6		TMW6				TMW7	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			10/20/2010						10/20/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.0		6.1		6.1		6.1		5.9	
Dilution Factor :	100.0		1.0		5.0		50.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	1000	U	10	U	50	U	500	U	10	U
4-Nitrophenol	1000	U	10	U	50	U	500	U	10	U
Dibenzofuran	500	U	2.1	J	25	U	250	U	3.1	J
2,4-Dinitrotoluene	500	U	5.0	U	25	U	250	U	5.0	U
Diethylphthalate	500	U	5.0	U	25	U	250	U	5.0	U
Fluorene	500	U	13		13	J	250	U	23	
4-Chlorophenyl-phenylether	500	U	5.0	U	25	U	250	U	5.0	U
4-Nitroaniline	1000	U	10	U	50	U	500	U	10	U
4,6-Dinitro-2-methylphenol	1000	U	10	U	50	U	500	U	10	U
N-Nitrosodiphenylamine	500	U	5.0	U	25	U	250	U	5.0	U
1,2,4,5-Tetrachlorobenzene	500	U	5.0	U	25	U	250	U	5.0	U
4-Bromophenyl-phenylether	500	U	5.0	U	25	U	250	U	5.0	U
Hexachlorobenzene	500	U	5.0	U	25	U	250	U	5.0	U
Atrazine	500	U	5.0	U	25	U	250	U	5.0	U
Pentachlorophenol	1000	U	10	UJ	50	U	500	U	10	UJ
Phenanthrene	500	U	10		25	U	250	U	29	
Anthracene	500	U	5.0	U	25	U	250	U	6.5	
Carbazole	500	U	5.0	U	25	U	250	U	5.0	U
Di-n-butylphthalate	500	U	5.0	U	25	U	250	U	5.0	U
Fluoranthene	500	U	5.0	U	25	U	250	U	3.8	J
Pyrene	500	U	5.0	U	25	U	250	U	6.0	
Butylbenzylphthalate	500	U	5.0	U	25	U	250	U	5.0	U
3,3'-Dichlorobenzidine	500	U	5.0	U	25	U	250	U	5.0	U
Benzo(a)anthracene	500	U	5.0	U	25	U	250	U	5.0	U
Chrysene	500	U	5.0	U	25	U	250	U	5.0	U
Bis(2-ethylhexyl)phthalate	500	U	5.0	U	25	U	250	U	5.0	U
Di-n-octylphthalate	500	U	5.0	U	25	U	250	U	5.0	U
Benzo(b)fluoranthene	500	U	5.0	U	25	U	250	U	5.0	U
Benzo(k)fluoranthene	500	U	5.0	U	25	U	250	U	5.0	U
Benzo(a)pyrene	500	U	5.0	U	25	U	250	U	5.0	U
Indeno(1,2,3-cd)pyrene	500	U	5.0	U	25	U	250	U	5.0	U
Dibenzo(a,h)anthracene	500	U	5.0	U	25	U	250	U	5.0	U
Benzo(g,h,i)perylene	500	U	5.0	U	25	U	250	U	5.0	U
2,3,4,6-Tetrachlorophenol	500	U	5.0	U	25	U	250	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G2DL		E51G2DL2		E51G3		E51G3DL		E51G4	
Sampling Location :	TMW7				TMW8		TMW8		SW1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :					10/20/2010				10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	5.9		5.9		5.9		5.9		6.6	
Dilution Factor :	10.0		50.0		1.0		10.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	50	U	250	U	5.0	U	50	U	5.0	U
Phenol	50	U	250	U	5.0	U	50	U	5.0	U
Bis(2-chloroethyl)ether	50	U	250	U	5.0	U	50	U	5.0	U
2-Chlorophenol	50	U	250	U	5.0	U	50	U	5.0	U
2-Methylphenol	50	U	250	U	5.0	U	50	U	5.0	U
2,2'-Oxybis(1-chloropropane)	50	U	250	U	5.0	U	50	U	5.0	U
Acetophenone	50	U	250	U	4.3	J	50	U	5.0	U
4-Methylphenol	50	U	250	U	5.0	U	50	U	5.0	U
N-Nitroso-di-n-propylamine	50	U	250	U	5.0	U	50	U	5.0	U
Hexachloroethane	50	U	250	U	5.0	U	50	U	5.0	U
Nitrobenzene	50	U	250	U	5.0	U	50	U	5.0	U
Isophorone	50	U	250	U	5.0	U	50	U	5.0	U
2-Nitrophenol	50	U	250	U	5.0	U	50	U	5.0	U
2,4-Dimethylphenol	50	U	250	U	5.0	U	50	U	5.0	U
Bis(2-chloroethoxy)methane	50	U	250	U	5.0	U	50	U	5.0	U
2,4-Dichlorophenol	50	U	250	U	5.0	U	50	U	5.0	U
Naphthalene	2100	J	2200		220	J	190		5.0	U
4-Chloroaniline	50	U	250	U	5.0	U	50	U	5.0	U
Hexachlorobutadiene	50	U	250	U	5.0	U	50	U	5.0	U
Caprolactam	50	U	250	U	5.0	U	50	U	9.2	
4-Chloro-3-methylphenol	50	U	250	U	5.0	U	50	U	5.0	U
2-Methylnaphthalene	210		220	J	6.0		50	U	5.0	U
Hexachlorocyclopentadiene	50	U	250	U	5.0	UJ	50	U	5.0	UJ
2,4,6-Trichlorophenol	50	U	250	U	5.0	U	50	U	5.0	U
2,4,5-Trichlorophenol	50	U	250	U	5.0	U	50	U	5.0	U
1,1'-Biphenyl	26	J	250	U	5.0	U	50	U	5.0	U
2-Chloronaphthalene	50	U	250	U	5.0	U	50	U	5.0	U
2-Nitroaniline	100	U	500	U	10	U	100	U	10	U
Dimethylphthalate	50	U	250	U	5.0	U	50	U	5.0	U
2,6-Dinitrotoluene	50	U	250	U	5.0	U	50	U	5.0	U
Acenaphthylene	71		250	U	15		50	U	5.0	U
3-Nitroaniline	100	U	500	U	10	U	100	U	10	U
Acenaphthene	61		250	U	58		50		5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G2DL		E51G2DL2		E51G3		E51G3DL		E51G4	
Sampling Location :	TMW7				TMW8		TMW8		SW1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :					10/20/2010				10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	5.9		5.9		5.9		5.9		6.6	
Dilution Factor :	10.0		50.0		1.0		10.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	100	U	500	U	10	U	100	U	10	U
4-Nitrophenol	100	U	500	U	10	U	100	U	10	U
Dibenzofuran	50	U	250	U	2.1	J	50	U	5.0	U
2,4-Dinitrotoluene	50	U	250	U	5.0	U	50	U	5.0	U
Diethylphthalate	50	U	250	U	5.0	U	50	U	5.0	U
Fluorene	21	J	250	U	15		50	U	5.0	U
4-Chlorophenyl-phenylether	50	U	250	U	5.0	U	50	U	5.0	U
4-Nitroaniline	100	U	500	U	10	U	100	U	10	U
4,6-Dinitro-2-methylphenol	100	U	500	U	10	U	100	U	10	U
N-Nitrosodiphenylamine	50	U	250	U	5.0	U	50	U	5.0	U
1,2,4,5-Tetrachlorobenzene	50	U	250	U	5.0	U	50	U	5.0	U
4-Bromophenyl-phenylether	50	U	250	U	5.0	U	50	U	5.0	U
Hexachlorobenzene	50	U	250	U	5.0	U	50	U	5.0	U
Atrazine	50	U	250	U	5.0	U	50	U	5.0	U
Pentachlorophenol	100	U	500	U	10	UJ	100	U	10	UJ
Phenanthrene	26	J	250	U	6.1		50	U	5.0	U
Anthracene	50	U	250	U	3.2	J	50	U	5.0	U
Carbazole	50	U	250	U	2.3	J	50	U	5.0	U
Di-n-butylphthalate	50	U	250	U	5.0	U	50	U	5.0	U
Fluoranthene	50	U	250	U	3.2	J	50	U	5.0	U
Pyrene	50	U	250	U	3.9	J	50	U	5.0	U
Butylbenzylphthalate	50	U	250	U	5.0	U	50	U	5.0	U
3,3'-Dichlorobenzidine	50	U	250	U	5.0	U	50	U	5.0	U
Benzo(a)anthracene	50	U	250	U	5.0	U	50	U	5.0	U
Chrysene	50	U	250	U	5.0	U	50	U	5.0	U
Bis(2-ethylhexyl)phthalate	50	U	250	U	5.0	U	50	U	5.0	U
Di-n-octylphthalate	50	U	250	U	5.0	U	50	U	5.0	U
Benzo(b)fluoranthene	50	U	250	U	5.0	U	50	U	5.0	U
Benzo(k)fluoranthene	50	U	250	U	5.0	U	50	U	5.0	U
Benzo(a)pyrene	50	U	250	U	5.0	U	50	U	5.0	U
Indeno(1,2,3-cd)pyrene	50	U	250	U	5.0	U	50	U	5.0	U
Dibenzo(a,h)anthracene	50	U	250	U	5.0	U	50	U	5.0	U
Benzo(g,h,i)perylene	50	U	250	U	5.0	U	50	U	5.0	U
2,3,4,6-Tetrachlorophenol	50	U	250	U	5.0	U	50	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G5		E51G6		E51G7		E51G8		E51G9	
Sampling Location :	SW2		SW2D		SW3		SW4		SW5	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/21/2010		10/21/2010		10/21/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.5		6.4		6.3		6.3		6.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Phenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bis(2-chloroethyl)ether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Chlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Methylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,2'-Oxybis(1-chloropropane)	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetophenone	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
N-Nitroso-di-n-propylamine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachloroethane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Nitrobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Isophorone	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Nitrophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dimethylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bis(2-chloroethoxy)methane	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Naphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chloroaniline	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorobutadiene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Caprolactam	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chloro-3-methylphenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Methylnaphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorocyclopentadiene	5.0	UJ	5.0	UJ	5.0	UJ	5.0	U	5.0	U
2,4,6-Trichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4,5-Trichlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1'-Biphenyl	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Chloronaphthalene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Nitroaniline	10	U	10	U	10	U	10	U	10	U
Dimethylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,6-Dinitrotoluene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acenaphthylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
3-Nitroaniline	10	U	10	U	10	U	10	U	10	U
Acenaphthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G5		E51G6		E51G7		E51G8		E51G9	
Sampling Location :	SW2		SW2D		SW3		SW4		SW5	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/21/2010		10/21/2010		10/21/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.5		6.4		6.3		6.3		6.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	10	U	10	U	10	U	10	U	10	U
Dibenzofuran	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,4-Dinitrotoluene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Diethylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Fluorene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chlorophenyl-phenylether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Nitroaniline	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
N-Nitrosodiphenylamine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,4,5-Tetrachlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Bromophenyl-phenylether	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Hexachlorobenzene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Atrazine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Pentachlorophenol	10	UJ	10	UJ	10	UJ	10	U	10	U
Phenanthrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbazole	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Di-n-butylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Pyrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Butylbenzylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
3,3'-Dichlorobenzidine	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(a)anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chrysene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bis(2-ethylhexyl)phthalate	5.0	U	25	U	25	U	25	U	5.0	U
Di-n-octylphthalate	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(b)fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(k)fluoranthene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(a)pyrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Indeno(1,2,3-cd)pyrene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Dibenzo(a,h)anthracene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzo(g,h,i)perylene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2,3,4,6-Tetrachlorophenol	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	SBLK53									
Sampling Location :										
Matrix :	Water									
Units :	ug/L									
Date Sampled :										
Time Sampled :										
%Moisture :	N/A									
pH :										
Dilution Factor :	1.0									
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	5.0	U								
Phenol	5.0	U								
Bis(2-chloroethyl)ether	5.0	U								
2-Chlorophenol	5.0	U								
2-Methylphenol	5.0	U								
2,2'-Oxybis(1-chloropropane)	5.0	U								
Acetophenone	5.0	U								
4-Methylphenol	5.0	U								
N-Nitroso-di-n-propylamine	5.0	U								
Hexachloroethane	5.0	U								
Nitrobenzene	5.0	U								
Isophorone	5.0	U								
2-Nitrophenol	5.0	U								
2,4-Dimethylphenol	5.0	U								
Bis(2-chloroethoxy)methane	5.0	U								
2,4-Dichlorophenol	5.0	U								
Naphthalene	5.0	U								
4-Chloroaniline	5.0	U								
Hexachlorobutadiene	5.0	U								
Caprolactam	5.0	U								
4-Chloro-3-methylphenol	5.0	U								
2-Methylnaphthalene	5.0	U								
Hexachlorocyclopentadiene	5.0	UJ								
2,4,6-Trichlorophenol	5.0	U								
2,4,5-Trichlorophenol	5.0	U								
1,1'-Biphenyl	5.0	U								
2-Chloronaphthalene	5.0	U								
2-Nitroaniline	10	U								
Dimethylphthalate	5.0	U								
2,6-Dinitrotoluene	5.0	U								
Acenaphthylene	5.0	U								
3-Nitroaniline	10	U								
Acenaphthene	5.0	U								

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	SBLK53									
Sampling Location :										
Matrix :	Water									
Units :	ug/L									
Date Sampled :										
Time Sampled :										
%Moisture :	N/A									
pH :										
Dilution Factor :	1.0									
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	10	U								
4-Nitrophenol	10	U								
Dibenzofuran	5.0	U								
2,4-Dinitrotoluene	5.0	U								
Diethylphthalate	5.0	U								
Fluorene	5.0	U								
4-Chlorophenyl-phenylether	5.0	U								
4-Nitroaniline	10	U								
4,6-Dinitro-2-methylphenol	10	U								
N-Nitrosodiphenylamine	5.0	U								
1,2,4,5-Tetrachlorobenzene	5.0	U								
4-Bromophenyl-phenylether	5.0	U								
Hexachlorobenzene	5.0	U								
Atrazine	5.0	U								
Pentachlorophenol	10	UJ								
Phenanthrene	5.0	U								
Anthracene	5.0	U								
Carbazole	5.0	U								
Di-n-butylphthalate	5.0	U								
Fluoranthene	5.0	U								
Pyrene	5.0	U								
Butylbenzylphthalate	2.2	J								
3,3'-Dichlorobenzidine	5.0	U								
Benzo(a)anthracene	5.0	U								
Chrysene	5.0	U								
Bis(2-ethylhexyl)phthalate	2.2	J								
Di-n-octylphthalate	5.0	U								
Benzo(b)fluoranthene	5.0	U								
Benzo(k)fluoranthene	5.0	U								
Benzo(a)pyrene	5.0	U								
Indeno(1,2,3-cd)pyrene	5.0	U								
Dibenzo(a,h)anthracene	5.0	U								
Benzo(g,h,i)perylene	5.0	U								
2,3,4,6-Tetrachlorophenol	5.0	U								

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE Number of Soil Samples : 0
Lab. : KAP Number of Water Samples : 19
Reviewer : Number of Sediment Samples : 0
Date :

Sample Number :	E51E9		E51F1		E51F2		E51F3		E51F4	
Sampling Location :	MW2		FB1		FB2		PB1		PB2	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/19/2010		10/20/2010		10/19/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.5		6.1		6.0		5.9		5.6	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
beta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
delta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-BHC (Lindane)	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Aldrin	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor epoxide	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Endosulfan I	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Dieldrin	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDE	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan II	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDD	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan sulfate	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDT	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Methoxychlor	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Endrin ketone	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin aldehyde	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Toxaphene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F5		E51F6		E51F7		E51F8		E51G0	
Sampling Location :	TMW1		TMW2		TMW3		TMW4		TMW5	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010		10/20/2010		10/20/2010		10/20/2010		10/20/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.5		7.2		6.3		5.7		6.0	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
beta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
delta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-BHC (Lindane)	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Aldrin	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor epoxide	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Endosulfan I	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Dieldrin	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDE	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan II	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDD	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan sulfate	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDT	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Methoxychlor	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Endrin ketone	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin aldehyde	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Toxaphene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G1		E51G2		E51G2MS		E51G2MSD		E51G3	
Sampling Location :	TMW6		TMW7		TMW7		TMW7		TMW8	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010		10/20/2010						10/20/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.1		5.9		5.9		5.9		5.9	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
beta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
delta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-BHC (Lindane)	0.050	U	0.050	U	0.78		0.81	J	0.050	U
Heptachlor	0.050	U	0.050	U	0.84	J	0.87	J	0.050	U
Aldrin	0.050	U	0.050	U	0.84	J	0.87	J	0.050	U
Heptachlor epoxide	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Endosulfan I	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Dieldrin	0.10	U	0.10	U	1.7	J	1.7	J	0.10	U
4,4'-DDE	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin	0.10	U	0.10	U	1.6		1.6		0.10	U
Endosulfan II	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDD	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan sulfate	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDT	0.10	U	0.10	U	1.5		1.5		0.10	U
Methoxychlor	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Endrin ketone	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin aldehyde	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Toxaphene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G4		E51G5		E51G6		E51G7		E51G8	
Sampling Location :	SW1		SW2		SW2D		SW3		SW4	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/21/2010		10/21/2010		10/21/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.6		6.5		6.4		6.3		6.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
beta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
delta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-BHC (Lindane)	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Aldrin	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor epoxide	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Endosulfan I	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Dieldrin	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDE	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan II	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDD	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan sulfate	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDT	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Methoxychlor	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Endrin ketone	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin aldehyde	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Toxaphene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G9		PBLK36							
Sampling Location :	SW5									
Matrix :	Water		Water							
Units :	ug/L		ug/L							
Date Sampled :	10/21/2010									
Time Sampled :										
%Moisture :	N/A		0							
pH :	6.3									
Dilution Factor :	1.0		1.0							
Pesticide Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	0.050	U	0.050	U						
beta-BHC	0.050	U	0.050	U						
delta-BHC	0.050	U	0.050	U						
gamma-BHC (Lindane)	0.050	U	0.050	U						
Heptachlor	0.050	U	0.050	U						
Aldrin	0.050	U	0.050	U						
Heptachlor epoxide	0.050	U	0.050	U						
Endosulfan I	0.050	U	0.050	U						
Dieldrin	0.10	U	0.10	U						
4,4'-DDE	0.10	U	0.10	U						
Endrin	0.10	U	0.10	U						
Endosulfan II	0.10	U	0.10	U						
4,4'-DDD	0.10	U	0.10	U						
Endosulfan sulfate	0.10	U	0.10	U						
4,4'-DDT	0.10	U	0.10	U						
Methoxychlor	0.50	U	0.50	U						
Endrin ketone	0.10	U	0.10	U						
Endrin aldehyde	0.10	U	0.10	U						
alpha-Chlordane	0.050	U	0.050	U						
gamma-Chlordane	0.050	U	0.050	U						
Toxaphene	5.0	U	5.0	U						

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE Number of Soil Samples : 0
Lab. : KAP Number of Water Samples : 19
Reviewer : Number of Sediment Samples : 0
Date :

Sample Number :	ABLK35		E51E9		E51F1		E51F2		E51F3	
Sampling Location :			MW2		FB1		FB2		PB1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			10/21/2010		10/19/2010		10/20/2010		10/19/2010	
Time Sampled :										
%Moisture :	0		N/A		N/A		N/A		N/A	
pH :			6.5		6.1		6.0		5.9	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1221	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1232	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1242	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1248	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1254	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1260	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1262	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1268	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F4		E51F5		E51F6		E51F7		E51F7MS	
Sampling Location :	PB2		TMW1		TMW2		TMW3		TMW3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/21/2010		10/20/2010		10/20/2010		10/20/2010			
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	5.6		6.5		7.2		6.3		6.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	1.0	U	1.0	U	1.0	U	1.0	U	1.9	
Aroclor-1221	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1232	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1242	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1248	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1254	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1260	1.0	U	1.0	U	1.0	U	1.0	U	1.8	
Aroclor-1262	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1268	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51F7MSD		E51F8		E51G0		E51G1		E51G2	
Sampling Location :	TMW3		TMW4		TMW5		TMW6		TMW7	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :			10/20/2010		10/20/2010		10/20/2010		10/20/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	6.3		5.7		6.0		6.1		5.9	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	1.8		1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1221	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1232	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1242	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1248	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1254	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1260	1.7		1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1262	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1268	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G3		E51G4		E51G5		E51G6		E51G7	
Sampling Location :	TMW8		SW1		SW2		SW2D		SW3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	10/20/2010		10/21/2010		10/21/2010		10/21/2010		10/21/2010	
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :	5.9		6.6		6.5		6.4		6.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1221	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1232	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1242	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1248	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1254	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1260	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1262	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1268	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Case #: 40702 SDG : E51F5
Site : IRONWOOD MGP SITE
Lab. : KAP
Reviewer :
Date :

Sample Number :	E51G8		E51G9							
Sampling Location :	SW4		SW5							
Matrix :	Water		Water							
Units :	ug/L		ug/L							
Date Sampled :	10/21/2010		10/21/2010							
Time Sampled :										
%Moisture :	N/A		N/A							
pH :	6.3		6.3							
Dilution Factor :	1.0		1.0							
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aroclor-1016	1.0	U	1.0	U						
Aroclor-1221	1.0	U	1.0	U						
Aroclor-1232	1.0	U	1.0	U						
Aroclor-1242	1.0	U	1.0	U						
Aroclor-1248	1.0	U	1.0	U						
Aroclor-1254	1.0	U	1.0	U						
Aroclor-1260	1.0	U	1.0	U						
Aroclor-1262	1.0	U	1.0	U						
Aroclor-1268	1.0	U	1.0	U						

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 10 November 2010

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: MDNRE
Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: Ironwood MGP (MI)

Case Number: 40702 SDG Number: E51F5

Number and Type of Samples: 19 Water Samples (Low/Med VOA, SVOA, Pesticide, Aroclor)

Sample Numbers: E51E9, E51F1-E51F8, E51G0-E51G9

Laboratory: KAP Technologies, Inc. Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 40702 SDG Number: E51F5
Site Name: Ironwood MGP (MI) Laboratory: KAP Technologies, Inc.

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nineteen (19) water samples labeled E51E9, E51F1-E51F8, and E51G0-E51G9, were shipped to KAP Technologies, Inc. located in The Woodlands, TX. All samples were collected between 10/19/10 and 10/21/10 and received between 10/21/10 and 10/22/10 intact and properly cooled.

All samples were analyzed for the Low/Med VOA, SVOA, pesticide, and aroclor list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.4).

Samples E51F7 and E51G7 were designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses. The laboratory chose E51F7 for the Low/Med VOA, SVOA, and aroclor analyses and E51G2 for the pesticide analyses.

Samples E51F1, E51F2, E51F3, and E51F4 were identified as field blanks. Samples E51G5 and E51G6 were identified as field duplicates.

Case Number: 40702 SDG Number: E51F5
Site Name: Ironwood MGP (MI) Laboratory: KAP Technologies, Inc.

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

The Form Vs for the VOA analyses were not provided by the laboratory for the following BFB tunes. All VOA tunes pass and the raw data was provided. No qualifications necessary.

BFB13, BFB20, BFB22, BFB38, BFB41

3. CALIBRATION

The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. The compounds were not detected in the samples. Non-detected compounds are not qualified.

E51F4, E51F8, E51F8DL, E51G0, E51G1, E51G2DL, E51G3, E51G4, VBLK41
1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. The compound was not detected in the samples. Non-detected compounds are not qualified.

E51E9, E51F1, E51F2, E51F3, E51F4, E51F5, E51F6, E51F7, E51F7MS, E51F7MSD, E51F8, E51F8DL, E51F8DL2, E51G0, E51G0DL, E51G0DL2, E51G1, E51G1DL, E51G1DL2, E51G2, E51G2DL, E51G2DL2, E51G3, E51G3DL, E51G4, E51G5, E51G6, E51G7, E51G8, E51G9, SBLK53
2,4-Dinitrophenol

The following semivolatile samples are associated with an opening CCV percent difference (%D) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified “UJ”.

E51F1, E51F2, E51F4, E51F5, E51F7, E51F8, E51G0, E51G1, E51G2, E51G3, E51G4, E51G5, E51G6, E51G7, SBLK53
Pentachlorophenol

The following semivolatile samples are associated with a closing CCV percent difference (%D) outside criteria. Detected compounds are qualified “J”. Non-detected compounds are qualified “UJ”.

E51F1, E51F2, E51F4, E51F5, E51F7, E51F8, E51G0, E51G1, E51G2, E51G3, E51G4, E51G5, E51G6, E51G7, SBLK53
Hexachlorocyclopentadiene

The following pesticide samples are associated with an opening CCV in which a surrogate exceeded %Difference criteria. Detected and non-detected compounds are not qualified.

E51G3, E51G4, E51G5, E51G6, E51G7, E51G8, E51G9
Decachlorobiphenyl

The following pesticide samples are associated with a closing CCV in which a surrogate exceeded %Difference criteria. Detected and non-detected compounds are not qualified.

E51E9, E51F1, E51F2, E51F3, E51F4, E51F5, E51F6, E51F7, E51F8, E51G0, E51G1, PBLK36, PLCS36
Decachlorobiphenyl

4. BLANKS

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration less than 2x the concentration criteria. Reported sample concentrations have been elevated to the 2x the CRQL and qualified "U".

E51F6, E51F7, E51F7MS, E51F7MSD, VHBLK01
Methylene chloride

The following volatile samples have common contaminant concentrations reported less than 10x the CRQL and greater than 2x the CRQL. The associated method blank concentration is less than 2x the concentration criteria. Reported sample concentrations have been elevated to the 10x the CRQL and qualified "U".

E51F5
Methylene chloride

The following volatile samples have TIC concentrations reported less than 5X the method blank concentration. Detected compounds are qualified "U" and deleted from the TIC report.

Unknown @ 10.54
E51E9, E51F1, E51F2, E51F3, E51F5, E51F6, E51F7, E51G0DL, E51G1DL, E51G2, E51G5, E51G6, E51G7, E51G8, E51G9, VHBLK01

Unknown @ 11.16
E51F4, E51F8, E51F8DL, E51G0, E51G1, E51G2DL, E51G3, E51G4

CAS No. 541-05-9 Cyclotrisiloxane, hexamethyl-
E51F4, E51F8DL, E51G0, E51G1, E51G2DL, E51G3, E51G4

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated field blank has common contaminant analyte concentration less than 2x the concentration criteria. Reported sample concentrations have been elevated to the 2x the CRQL and qualified "U".

E51G2DL, E51G4, E51G5, E51G6, E51G9
Methylene chloride

The following semivolatile samples have common contaminant concentrations reported less than 5x the CRQL. The associated method blank concentration is less than 5x the concentration criteria. Reported sample concentrations have been elevated to the 5x the CRQL and qualified "U".

E51F5, E51G6, E51G7, E51G8
bis(2-Ethylhexyl)phthalate

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. The compounds were not detected in the sample. Non-detected compounds are not qualified.

E51F1
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide

The following volatile samples have one or more DMC/SMC recovery values 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". Non-detected compounds are qualified "UJ".

E51F5, E51F7, E51F7MS, E51F7MSD, E51G0DL, E51G1DL, E51G7, VHBLK01
1,4-Dioxane

The following diluted semivolatile samples with dilution factors greater than 5 have deuterated monitoring compound recoveries equal to 0%. Detected and non-detected compounds are not qualified for this criteria.

E51F8DL2
2-Nitroaniline, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol

E51G0DL2
2-Chlorophenol, 2-Methylphenol, Acetophenone, 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, 2,4-Dichlorophenol, 4-Chloroaniline, Hexachlorobutadiene, 4-Chloro-3-methylphenol, Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2-Nitroaniline, 2,6-Dinitrotoluene, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 2,4-Dinitrotoluene, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 1,2,4,5-Tetrachlorobenzene, Pentachlorophenol, 3,3'-Dichlorobenzidine, 2,3,4,6-Tetrachlorophenol

E51G1DL2, E51G2DL2
Acetophenone, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dichlorophenol, 4-Chloroaniline, Hexachlorobutadiene, 4-Chloro-3-methylphenol, Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2-Nitroaniline, 2,6-Dinitrotoluene, 3-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, 2,4-Dinitrotoluene, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine, 1,2,4,5-Tetrachlorobenzene, Pentachlorophenol, 3,3'-Dichlorobenzidine, 2,3,4,6-Tetrachlorophenol

The following diluted semivolatile samples with dilution factors greater than 5 have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and non-detected compounds are not qualified for this criteria.

E51F8DL2, E51G0DL2
bis-(2-Chloroethyl)ether, 2,2'-oxybis(1-Chloropropane), bis(2-Chloroethoxy)methane, Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E51G0DL
bis-(2-Chloroethyl)ether, 2,2'-oxybis(1-Chloropropane), bis(2-Chloroethoxy)methane

E51G1DL2, E51G2DL2
Hexachlorobenzene, Atrazine, Phenanthrene, Anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria window. The compounds were not detected in the sample. Non-detected compounds are not qualified.

E51G0
bis-(2-Chloroethyl)ether, 2,2'-oxybis(1-Chloropropane), bis(2-Chloroethoxy)methane

Case Number: 40702 SDG Number: E51F5
Site Name: Ironwood MGP (MI) Laboratory: KAP Technologies, Inc.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Samples E51F7 and E51G7 were designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses. The laboratory chose E51F7 for the Low/Med VOA, SVOA, and aroclor analyses and E51G2 for the pesticide analyses.

The following semivolatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the expanded lower acceptance limit (5%) but less than the primary lower acceptance limit. The compound was not detected in the unspiked sample (E51F7). Non-detected compounds in the unspiked sample (E51F7) are qualified "UJ".

E51F7MS
Acenaphthene

The pesticide Form III –MS/MSD Summary was re-calculated using the lowest obtained value for each compound. The RPDs were re-calculated using these values.

E51G2	Spike ug/L	MS% REC	Spike ug/L	MSD%REC	RPDs	RPD QC	REC QC
Analytes	MS		MSD				
gamma-BHC (lindane)	0.5	156*	0.5	162*	4	15	56-123
Heptachlor	0.5	168*	0.5	174*	3	20	40-131
Aldrin	0.5	169*	0.5	174*	3	22	40-120
Dieldrin	1	172*	1	174*	1	18	52-126
Endrin	1	162*	1	164*	1	21	56-121
4,4'-DDT	1	148*	1	150*	1	27	38-127

The following pesticide matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. The compounds were not detected in the unspiked sample (E51G2). Non-detected compounds in the unspiked sample (E51G2) are not qualified.

E51G2MS, E51G2MSD
gamma-BHC (lindane), Heptachlor, Aldrin, Dieldrin, Endrin, 4,4'-DDT

6B. LABORATORY CONTROL SAMPLE

No Problems Found.

7. FIELD BLANK AND FIELD DUPLICATE

Four (4) samples; E51F1, E51F2, E51F3, and E51F4 were identified as field blanks. Detected results are summarized in the following table:

	E51F1	E51F2	E51F3	E51F4
Volatile analytes:	µg/L	µg/L	µg/L	µg/L
Methylene chloride	ND	ND	ND	3.4
# of VOA TICs	1	1	2	ND

	E51F1
Semivolatile analytes:	µg/L
# of SVOA TICs	1

Samples E51G5 and E51G6 were identified as field duplicates. Detected results are summarized in the following table:

	E51G5	E51G6	%RPDs
Volatile analytes:	µg/L	µg/L	
# of VOA TICs	2	1	67

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all Low/Med VOA, SVOA, pesticide and aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E51F4, E51F8, E51G0, E51G1DL, VBLK38
Methylene chloride

E51F8DL, E51G2DL
Isopropylbenzene

E51G0DL
Methylene chloride, Styrene

E51G3
Acetone, Toluene

VBLK20
Bromomethane

A library search indicates a match below 85% for a TIC compound in the volatile sample. Detected compounds are qualified “J”.

Unknown @ 5.37
E51G4

Unknown @ 10.54
VBLK20, VBLK22, VBLK38

Unknown @ 11.16
VBLK41

Unknown @ 14.92
E51G7

Unknown @ 15.97; Unknown @ 17.11; Unknown @ 18.55
E51G2

Unknown @ 16.16
E51G2DL

Unknown @ 16.38
E51G1DL

Unknown @ 18.47
E51F8, E51G0, E51G1

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified “NJ”.

CAS No. 90-12-0 Naphthalene, 1-methyl-;
CAS No. 873-49-4 Benzene, cyclopropyl-
E51G0DL, E51G2

CAS No. 91-57-6 Naphthalene, 2-methyl-
E51G0DL, E51G1DL, E51G2

CAS No. 95-13-6 Indene;
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-
E51F8, E51F8DL, E51G0, E51G0DL, E51G1, E51G1DL, E51G2, E51G2DL, E51G3

CAS No. 95-15-8 Benzo[b]thiophene
E51F8, E51G1, E51G2DL, E51G3

CAS No. 95-63-6 Benzene, 1,2,4-trimethyl-
E51F8, E51F8DL, E51G0, E51G0DL, E51G1, E51G2, E51G2DL, E51G3

CAS No. 95-93-2 Benzene, 1,2,4,5-tetramethyl-
E51F8, E51G1, E51G1DL, E51G2, E51G2DL

CAS No. 98-83-9 .alpha.-Methylstyrene;
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimethyl-;
CAS No. 27831-13-6 Benzene, 4-ethenyl-1,2-dimethyl-
E51G2DL

CAS No. 99-87-6 Benzene, 1-methyl-4-(1-methylethyl)-
E51F8, E51F8DL

CAS No. 100-80-1 Benzene, 1-ethenyl-3-methyl-
E51F8, E51G0, E51G1, E51G2DL, E51G3

CAS No. 103-09-3 Acetic acid, 2-ethylhexyl ester
E51F3

CAS No. 103-65-1 Benzene, propyl-
E51F8, E51G0, E51G1, E51G2, E51G2DL

CAS No. 108-67-8 Benzene, 1,3,5-trimethyl-
E51F8, E51F8DL, E51G0, E51G0DL, E51G1, E51G1DL, E51G2, E51G2DL, E51G3

CAS No. 110-02-1 Thiophene;
CAS No. 934-80-5 Benzene, 4-ethyl-1,2-dimethyl-;
CAS No. 3333-13-9 Benzene, 1-methyl-4-(2-propenyl)-
E51G0

CAS No. 147-11-2 Benzene,1-propynyl-;
CAS No. 1587-04-8 Benzene, 1-methyl-2-(2-propenyl)-;
CAS No. 3290-53-7 Benzene, (2-methyl-2-propenyl)-
E51G2

CAS No. 270-82-6 2-Benzothiophene #
E51G0, E51G2

CAS No. 275-51-4 Azulene
E51G2, E51G5

CAS No. 300-57-2 Benzene, 2-propenyl-;
CAS No. 527-53-7 Benzene, 1,2,3,5-tetramethyl-;
CAS No. 3454-07-7 Benzene, 1-ethenyl-4-ethyl-
E51G1, E51G2DL

CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethyl-
E51F8, E51G1, E51G2

CAS No. 496-11-7 Indane
E51G0DL, E51G2, E51G2DL, E51G3

CAS No. 525-62-4 Benzene, 1-ethenyl-3-ethyl-;
CAS No. 535-77-3 Benzene, 1-methyl-3-(1-methylethyl)-;
CAS No. 612-17-9 1, 4-Dihydronaphthalene;
CAS No. 768-49-0 Benzene, (2-methyl-1-propenyl)-;
CAS No. 776-90-5 cis-.beta.-Methylstyrene;
CAS No. 824-90-8 1-Phenyl-1-butene
E51F8

CAS No. 527-84-4 Benzene, 1-methyl-2-(1-methylethyl)-
E51F8, E51G1, E51G2, E51G2DL, E51G3

CAS No. 541-05-9 Cyclotrisiloxane, hexamethyl-
VBLK41

CAS No. 556-67-2 Cyclotetrasiloxane, octamethyl-
E51F1, E51F2, E51F3, E51G5, E51G6, E51G9

CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-;
CAS No. 2177-47-1 2-Methylindene
E51F8, E51F8DL, E51G0, E51G1, E51G1DL, E51G2, E51G2DL, E51G3

CAS No. 611-15-4 Benzene, 1-ethenyl-2-methyl-
E51F8DL

CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl-
E51F8, E51G1, E51G1DL, E51G2

CAS No. 622-76-4 Benzene,1-butynyl-;
CAS No. 637-50-3 Benzene, 1-propenyl-
E51G1DL

CAS No. 622-96-8 Benzene, 1-ethyl-4-methyl-
E51G0, E51G3

CAS No. 622-97-9 Benzene, 1-ethenyl-4-methyl-
E51F8DL, E51G2

CAS No. 767-59-9 1H-Indene, 1-methyl-
E51F8DL, E51G0, E51G1, E51G1DL, E51G2, E51G3

CAS No. 767-60-2 1H-Indene, 3-methyl-;
CAS No. 22433-39-2 Benzene,1-methyl-1,2-propadienyl-
E51G0DL

CAS No. 768-00-3 Benzene, (1-methyl-1=-propenyl)-;
CAS No. 874-41-9 Benzene, 1-ethyl-2,4-dimethyl-
E51G3

CAS No. 933-98-2 Benzene, 1-ethyl-2,3-dimethyl-;
CAS No. 2234-20-0 2,4-Dimethylstyrene
E51G1

CAS No. 2039-89-6 Benzene, 2-ethenyl-1,4-dimethyl-
E51F8, E51F8DL, E51G1, E51G2, E51G2DL, E51G3

CAS No. 55337-80-9 Bicyclo[4.2.0]octa-1,3,5-triene, 7-methyl-
E51G0, E51G2DL

CAS No. 65051-83-4 Benzene, (1-methyl-2-cycloprope
E51F8, E51G0, E51G1, E51G2, E51G2DL, E51G3

The following semivolatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E51F8
2-Methylphenol, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene

E51F8DL
1,1'-Biphenyl, Acenaphthylene, Fluorene, Anthracene, Fluoranthene, Pyrene

E51F8DL2
Acenaphthene, Phenanthrene

E51G0DL
Acetophenone, 1,1'-Biphenyl, Acenaphthene, Fluorene, Phenanthrene

E51G0DL2
Phenol, 2-Methylphenol, 4-Methylphenol

E51G1
Dibenzofuran

E51G1DL
4-Methylphenol, 2,4-Dimethylphenol, 1,1'-Biphenyl, Acenaphthylene, Fluorene

E51G1DL2, E51G2DL2
2-Methylnaphthalene

E51G2
2,4-Dimethylphenol, Dibenzofuran, Fluoranthene

E51G2DL
1,1'-Biphenyl, Fluorene, Phenanthrene

E51G3
Acetophenone, Dibenzofuran, Anthracene, Carbazole, Fluoranthene, Pyrene

SBLK53
Butylbenzylphthalate, bis(2-Ethylhexyl)phthalate

A library search indicates a match below 85% for a TIC compound in the semivolatile sample. Detected compounds are qualified "J".

Unknown @ 10.06
E51F8DL, E51F8DL2, E51G0DL, E51G0DL2, E51G1, E51G1DL, E51G1DL2, E51G2DL, E51G3DL

Unknown @ 10.08
E51G1DL2, E51G3DL

Unknown @ 10.12
E51G0, E51G1, E51G2, E51G3, E51G4, E51G8

Unknown @ 10.20
E51F1, E51G2DL2, E51G3

Unknown @ 10.72
E51G1DL

Unknown @ 12.35; Unknown @ 13.54
E51G1

Unknown @ 12.77
E51G0, E51G2, E51G3

Unknown @ 12.81
E51G3

Unknown @ 13.36; Unknown @ 14.98
E51F8

Unknown @ 14.65
E51G0

A library search indicates a match at or above 85% for a TIC compound in the semivolatile sample. Detected compounds are qualified "NJ".

CAS No. 59-31-4 2(1H)-Quinolinone;
CAS No. 120-72-9 Indole;
CAS No. 1195-14-8 Benzo[b]thiophene, 2-methyl-;
CAS No. 35587-60-1 1-Methylindan-2-one;
CAS No. 115754-78-4 2-(1-Cyclopentenyl)furan
E51G0

CAS No. 90-12-0 Naphthalene, 1-methyl-
E51F8, E51F8DL, E51F8DL2, E51G0, E51G0DL, E51G0DL2, E51G1, E51G1DL, E51G1DL2, E51G2, E51G2DL, E51G2DL2, E51G3, E51G3DL

CAS No. 100-80-1 Benzene, 1-ethenyl-3-methyl-
E51G1

CAS No. 518-85-4 2,3-Dihydro-1-oxo-1H-phenalene;
CAS No. 2235-15-6 1(2H)-Acenaphthylenone
E51G3

CAS No. 571-58-4 Naphthalene, 1,4-dimethyl-
E51G2DL

CAS No. 575-37-1 Naphthalene, 1,7-dimethyl-;
CAS No. 575-43-9 Naphthalene, 1,6-dimethyl-;
CAS No. 827-54-3 Naphthalene, 2-ethenyl-
E51G2

CAS No. 581-40-8 Naphthalene, 2,3-dimethyl-
E51F8, E51G0, E51G1, E51G2, E51G3

CAS No. 581-42-0 Naphthalene, 2,6-dimethyl-
E51F8, E51F8DL

CAS No. 582-16-1 Naphthalene, 2,7-dimethyl-
E51F8, E51G2

CAS No. 613-12-7 Anthracene, 2-methyl-;
CAS No. 1730-37-6 9H-Fluorene, 1-methyl-;
CAS No. 2531-84-2 Phenanthrene, 2-methyl-
E51F8

CAS No. 1127-76-0 Naphthalene, 1-ethyl-
E51F8, E51G1

CAS No. 4265-25-2 Benzofuran, 2-methyl-
E51G2, E51G3

CAS No. 14315-14-1 Benzo[b]thiophene, 5-methyl-
E51G0DL

CAS No. 39627-61-7 7-Methylindan-1-one
E51G1, E51G3

The following pesticide samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

PLCS36
gamma-BHC (lindane), Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin, Endosulfan sulfate, gamma-Chlordane

The following aroclor samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

ALCS35
Aroclor-1016, Aroclor-1260

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance. The GC baselines for the pesticide and aroclor analyses were acceptable.

12. ADDITIONAL INFORMATION

The CADRE and EDD spreadsheets did not include the following samples. The laboratory Form Is for these samples are included with the hard copy data package.

PLCS36, ALCS35

Case Number: 40702 SDG Number: E51F5
Site Name: Ironwood MGP (MI) Laboratory: KAP Technologies, Inc.

The following volatile samples have reported concentrations that exceed the instrument's linear calibration range. The results are flagged "E" by the laboratory and are estimated "J". The results from the diluted samples should be used for result validation.

E51F8
Benzene, Toluene, Ethylbenzene, o-Xylene, m,p-Xylene

E51G0
Benzene

E51G1
Ethylbenzene, o-Xylene, m,p-Xylene

E51G2
Benzene, Ethylbenzene, o-Xylene, m,p-Xylene, Styrene

The following semivolatile samples have reported concentrations that exceed the instrument's linear calibration range. The results are flagged "E" by the laboratory and are estimated "J". The results from the diluted samples (DL1 or DL2) should be used for result validation.

E51F8
Naphthalene, 2-Methylnaphthalene, Acenaphthene, Phenanthrene

E51F8DL, E51G0DL, E51G0DL2, E51G1DL, E51G2DL, E51G3
Naphthalene

E51G0
Phenol, 2-Methylphenol, 4-Methylphenol, 2,4-Dimethylphenol, Naphthalene, 2-Methylnaphthalene, Acenaphthylene

E51G1, E51G2
Naphthalene, 2-Methylnaphthalene

The following pesticide samples have reported concentrations that exceeded the instrument's linear calibration range. These results were flagged "E" by the laboratory and are estimated "J". No further diluted analysis was performed since this sample was used for QC purposes only.

E51G2MS
Heptachlor, Aldrin, Dieldrin

E51G2MSD
gamma-BHC (lindane), Heptachlor, Aldrin, Dieldrin

The raw data for the following VOA TIC hits are missing for the following sample.

E51F8
CAS No. 103-65-1 Benzene, propyl-;
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-

The spreadsheets had Methylene chloride as a non-detect for the following VOA samples. Values were corrected by the reviewer.

E51F4, E51G0, E51G0DL, E51G1DL

The Form Vs for the VOA analyses were not provided by the laboratory for the following BFB tunes. All VOA tunes passed and the raw data was provided.

BFB13, BFB20, BFB22, BFB38, BFB41

The Form Is for the aroclor analyses incorrectly stated all the samples were extracted on 10-15-2010, when they were actually extracted 10-25-2010. Dates were corrected by the reviewer.

Case Number: 40702 SDG Number: E51F5
Site Name: Ironwood MGP (MI) Laboratory: KAP Technologies, Inc.

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51K2
Site: IRONWOOD MGP SITE
Lab.: SENTINEL
Reviewer: P. Little
Date: 12/15/2010

Number of Soil Samples: 17
Number of Water Samples: 0
Number of Wipe Samples: 0
Number of Filter Samples: 0

Sample Number:	ME51K2		ME51K3		ME51K4		ME51K5		ME51K6	
Sampling Location:	SS1		SS2		SS2D		SS3		SS4	
Matrix:	Soil		Soil		Soil		Soil		Soil	
Units:	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled:	10/19/2010		10/19/2010		10/19/2010		10/20/2010		10/20/2010	
Time Sampled:	09:10:00		10:10:00		10:10:00		08:45:00		09:45:00	
%Solids:	85.6		86.1		85.7		89.4		70.8	
Dilution Factor:	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	8340	J	10600	J	10400	J	7990	J	9490	J
ANTIMONY	0.71	J	0.36	J	0.55	J	0.59	J	0.96	J
ARSENIC	6.1		4.4		5.5		3.4		23.5	
BARIUM	55.4	J	60.1	J	62.6	J	39.3	J	60.9	J
BERYLLIUM	0.58	U	0.58	U	0.58	U	0.56	U	0.71	U
CADMIUM	0.58	U	0.58	U	0.58	U	0.56	U	0.71	U
CALCIUM	4540	J	5670	J	5190	J	3470	J	4410	J
CHROMIUM	19.9	J	16.8	J	20.0	J	15.9	J	24.3	J
COBALT	10.0	J	11.0	J	10.5	J	9.2	J	10.4	J
COPPER	42.1	J	37.1	J	36.1	J	29.2	J	45.7	J
IRON	27500	J	22400	J	29300	J	20000	J	29600	J
LEAD	126	J	39.8	J	42.1	J	18.4	J	77.7	J
MAGNESIUM	3760	J	4670	J	4150	J	3790	J	4380	J
MANGANESE	273	J	297	J	311	J	299	J	332	J
MERCURY	0.095	J	0.088	J	0.082	J	0.021	J-	0.058	J-
NICKEL	21.1	J	21.2	J	20.6	J	16.8	J	21.4	J
POTASSIUM	584	U	632		667		559	U	723	
SELENIUM	1.7	J	1.3	J	1.4	J	1.2	J	2.0	J
SILVER	1.2	U	1.2	U	1.2	U	1.1	U	1.4	U
SODIUM	358	J	346	J	272	J	250	J	303	J
THALLIUM	2.9	U	2.9	U	2.9	U	2.8	U	3.5	U
VANADIUM	48.4	J	45.7	J	47.4	J	36.3	J	50.3	J
ZINC	68.0	J	72.0	J	76.1	J	41.6	J	70.0	J
CYANIDE	2.6		1.5		1.8		0.56	U	4.7	

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51K2
Site: IRONWOOD MGP SITE
Lab.: SENTINEL
Reviewer: P. Little
Date: 12/15/2010

Sample Number:	ME51K7		ME51K8		ME51K9		ME51L0		ME51L1	
Sampling Location:	SS5		SS6		SS7		SS8		SS9	
Matrix:	Soil		Soil		Soil		Soil		Soil	
Units:	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled:	10/20/2010		10/20/2010		10/19/2010		10/19/2010		10/19/2010	
Time Sampled:	10:10:00		11:00:00		15:30:00		17:15:00		17:45:00	
%Solids:	81.7		93.5		89.8		90.6		72.5	
Dilution Factor:	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	2920	J	4090	J	8720	J	10500	J	9920	J
ANTIMONY	3.2	J	1.5	J	0.42	J	0.53	J	8.3	UJ
ARSENIC	22.3		8.0		2.8		4.1		1.7	
BARIUM	55.8	J	230	J	31.2	J	257	J	32.6	J
BERYLLIUM	0.61	U	0.53	U	0.56	U	0.55	U	0.69	U
CADMIUM	0.61	U	0.53	U	0.56	U	0.85		0.69	U
CALCIUM	3570	J	3200	J	4630	J	3850	J	6430	J
CHROMIUM	20.9	J	24.0	J	15.7	J	70.5	J	19.7	J
COBALT	5.5	J	5.3	J	11.9	J	15.9	J	11.5	J
COPPER	48.7	J	54.2	J	32.3	J	59.2	J	22.5	J
IRON	62500	J	34300	J	16500	J	40000	J	20500	J
LEAD	82.2	J	71.4	J	22.5	J	271	J	11.5	J
MAGNESIUM	1340	J	2160	J	5940	J	5830	J	5500	J
MANGANESE	355	J	209	J	283	J	564	J	342	J
MERCURY	0.082	J	0.069	J	0.020	J-	0.037	J-	0.057	J-
NICKEL	20.2	J	19.3	J	21.3	J	33.2	J	19.1	J
POTASSIUM	612	U	917		557	U	552	U	690	U
SELENIUM	2.9	J	1.9	J	0.73	J	1.7	J	1.2	J
SILVER	0.51	J	2.1	U	1.1	U	0.52	J	1.4	U
SODIUM	235	J	278	J	255	J	371	J	260	J
THALLIUM	3.1	U	2.7	U	2.8	U	2.8	U	3.4	U
VANADIUM	28.7	J	35.8	J	37.1	J	47.6	J	52.9	J
ZINC	75.5	J	124	J	42.8	J	220	J	47.1	J
CYANIDE	24.2		21.9		1.5		3.7		0.69	U

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51K2
Site: IRONWOOD MGP SITE
Lab.: SENTINEL
Reviewer: P. Little
Date: 12/15/2010

Sample Number:	ME51L2		ME51L3		ME51L4		ME51L5		ME51L6	
Sampling Location:	SS10		SS11		SS12		SS12D		SS13	
Matrix:	Soil		Soil		Soil		Soil		Soil	
Units:	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled:	10/20/2010		10/19/2010		10/19/2010		10/19/2010		10/19/2010	
Time Sampled:	08:10:00		15:00:00		14:00:00		14:00:00		11:15:00	
%Solids:	53.2		73.7		60.2		76.4		76.8	
Dilution Factor:	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	7720	J	13900	J	4310	J	2200	J	9650	J
ANTIMONY	0.89	J	8.1	UJ	10.7	J	8.2	J	0.66	J
ARSENIC	2.9		3.0		36.3		24.1		6.8	
BARIUM	40.2	J	48.1	J	102	J	88.5	J	388	J
BERYLLIUM	0.94	U	0.68	U	0.83	U	0.65	U	0.080	J-
CADMIUM	0.94	U	0.68	U	0.83	U	0.65	U	1.1	
CALCIUM	4940	J	7250	J	3200	J	1640	J	12900	J
CHROMIUM	22.3	J	22.6	J	46.0	J	31.5	J	27.4	J
COBALT	8.3	J	16.9	J	6.1	J	2.5	J	8.0	J
COPPER	28.2	J	48.8	J	155	J	104	J	55.0	J
IRON	27700	J	25000	J	59500	J	32600	J	21600	J
LEAD	37.4	J	8.2	J	176	J	151	J	346	J
MAGNESIUM	3320	J	8520	J	2330	J	1050	J	2690	J
MANGANESE	255	J	442	J	321	J	174	J	1710	J
MERCURY	0.19		0.0049	J-	0.41		0.40	J	0.73	
NICKEL	18.1	J	30.8	J	42.9	J	22.6	J	14.5	J
POTASSIUM	940	U	855		831	U	654	U	651	U
SELENIUM	1.4	J	1.4	J	4.1	J	2.9	J	2.5	J
SILVER	1.9	U	1.4	U	1.5	J	1.3	U	1.3	U
SODIUM	383	J	442	J	562	J	460	J	268	J
THALLIUM	4.7	U	3.4	U	4.2	U	3.3	U	3.3	U
VANADIUM	48.5	J	65.8	J	23.3	J	14.2	J	44.2	J
ZINC	43.8	J	50.6	J	73.0	J	47.6	J	377	J
CYANIDE	0.94	U	0.68	U	359		269		0.89	

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51K2
Site: IRONWOOD MGP SITE
Lab.: SENTINEL
Reviewer: P. Little
Date: 12/15/2010

Sample Number:	ME51L7		ME51L8							
Sampling Location:	SS14		SS15							
Matrix:	Soil		Soil							
Units:	mg/kg		mg/kg							
Date Sampled:	10/19/2010		10/19/2010							
Time Sampled:	12:00:00		16:30:00							
%Solids:	70.7		84.2							
Dilution Factor:	1.0		1.0							
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	8970	J	9380	J						
ANTIMONY	1.2	J	1.2	J						
ARSENIC	5.3		3.4							
BARIUM	545	J	110	J						
BERYLLIUM	0.71	U	0.59	U						
CADMIUM	1.8		0.59	U						
CALCIUM	25200	J	4240	J						
CHROMIUM	31.9	J	17.6	J						
COBALT	8.2	J	8.8	J						
COPPER	72.3	J	30.9	J						
IRON	26000	J	17900	J						
LEAD	577	J	158	J						
MAGNESIUM	4270	J	3620	J						
MANGANESE	3070	J	364	J						
MERCURY	0.64		0.12	J						
NICKEL	17.2	J	16.5	J						
POTASSIUM	804		594	U						
SELENIUM	2.7	J	1.3	J						
SILVER	1.4	U	1.2	U						
SODIUM	332	J	254	J						
THALLIUM	3.5	U	3.0	U						
VANADIUM	34.5	J	39.3	J						
ZINC	693	J	154	J						
CYANIDE	1.1		0.59	U						

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 12/15/10

SUBJECT: **Review of Data**
Received for review on 11/8/10

FROM: **Timothy Prendiville, Supervisor, Chief (SRT-6J)**
Superfund Contract Management Section

TO: **Data User:** MDNRE
Email address: walczakj@michigan.gov

LEVEL 3 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Ironwood MGP (MI)

CASE NUMBER: 40702 **SDG NUMBER:** ME51K2

Number and Type of Samples: 17 soil samples

Sample Numbers: ME51K2-K9, L0-L8

Laboratory: Sentinel **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Seventeen (17) soil samples, numbered ME51K2-K9, L0-L8, were collected between 10/19/10 – 10/20/10. The lab received the samples on 10/21/10 in good condition. All samples were analyzed for metals and cyanide. All samples were analyzed using the CLP SOW SM01.2 analysis procedures.

Mercury analysis was performed using a Cold Vapor AA Technique. Cyanide analysis was performed using a micro distillation procedure. The remaining inorganic analyses were performed using an Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) procedure.

For samples ME51K7, K8, L0, and L4, silver was reported at a level below the negative CRQL. Dilutions were performed for these samples for other elements. The reported value was changed to the diluted result by this reviewer. EXES does not allow the reviewer to change the dilution for a sample, so EXES does not have the proper dilution factor reported.

The post digestion spike was prepared incorrectly for arsenic. It should have been prepared at 2x CRQL; it was not. Qualification of results is based on the recovery at the concentrations performed by the Laboratory.

ICB/CCBs for cyanide runs were reported as 833 U ug/L on Form 3. The correct values should have been reported 10.0 U ug/L. Also, on Form 13 (Serial Dilution), only cobalt and sodium are listed as being outside CLP limits. Aluminum, barium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, vanadium, and zinc are also outside CLP limits. Sample results are qualified accordingly.

Percent solids values in EXES are shown rounded to whole numbers (2 significant figures). According to ISM01.2 Exhibit B Section 3.4.2.2.2, "Report to … three significant figures if the value is greater than or equal to 10." Sample data were verified by ESAT using the correctly rounded solids values. EXES percent solids is not a field ESAT can edit; percent solids values have not been corrected. Values reported by the Laboratory are correct.

EXES flagged all samples except cyanide J-/R for holding time/preservation. It appears that EXES is flagging the data for water pH requirements. Since soils have no pH requirement, the J-/R flagging was removed from this reviewers report.

1. HOLDING TIME:

No defects were found.

2. CALIBRATIONS:

No defects were found for the calibration standards.

3. BLANKS:

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL). The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified "J+".

Cadmium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L8

Potassium

ME51K2, ME51K5, ME51K7, ME51K9, ME51L0, ME51L1, ME51L2, ME51L4, ME51L5, ME51L6, ME51L8

Cyanide

ME51L1, ME51L2

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL) and with a negative ICB/CCB or preparation blank whose absolute value is greater than the MDL. The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified "J".

Cyanide

ME51L3, ME51L8

The following inorganic samples are associated with a negative ICB/CCB or preparation blank concentration whose absolute value is greater than the method detection limit (MDL). The sample result is also greater than the MDL.

Hits less than 5 times the blank are qualified "J-".

Beryllium

ME51L6

Mercury

ME51K5, ME51K6, ME51K9, ME51L0, ME51L1, ME51L3

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:

The following inorganic samples are associated with a matrix spike recovery which is low (30-74%) indicating that sample results may be biased low. The required post spike was performed and results were greater than or equal to 75%.

Hits are qualified "J" and non-detects are qualified "UJ".

Antimony

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE:

No defects were found for the laboratory duplicate samples.

ME51K3/ME51K4 are field duplicate pairs. No defects were found for the field duplicate samples.

ME51L4/ME51L5 are field duplicate pairs. The following inorganic analytes are associated with field duplicate results which did not meet technical data validation criteria; however, no sample results are qualified for field duplicates.

ME51L4/L5

Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Magnesium, Manganese, Nickel, Zinc, Cyanide

6. ICP ANALYSIS:

The following inorganic samples are associated with an ICP serial dilution percent difference which is not in control.

Hits are qualified "J" and non-detects are qualified "UJ".

Aluminum

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Barium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Calcium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Chromium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Cobalt

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Copper

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Iron

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Lead

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Magnesium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Manganese

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Nickel

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Sodium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Vanadium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Zinc

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

The following inorganic samples are associated with negative sample results whose absolute values are greater than the CRQL, indicating interference. Dilutions performed for other elements were no longer greater than the CRQL. Undiluted results would have been considered rejected “R”; reported results were changed to diluted values by this reviewer. Detection limits for reported results are elevated.

Hits are qualified "J" and non-detects are qualified "U".

Silver

ME51K7, ME51K8, ME51L0, ME51L4

No defects were found for the ICS samples.

7. SAMPLE RESULTS:

The following inorganic samples have analyte concentrations reported above the method detection limit (MDL) but below the quantitation limit (CRQL).

Results are qualified “J”.

Antimony

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L2, ME51L6, ME51L7, ME51L8

Beryllium

ME51L6

Cobalt

ME51K7, ME51K8, ME51L2, ME51L4, ME51L5

Mercury

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L3, ME51L8

Selenium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

Sodium

ME51K2, ME51K3, ME51K4, ME51K5, ME51K6, ME51K7, ME51K8, ME51K9, ME51L0, ME51L1, ME51L2, ME51L3, ME51L4, ME51L5, ME51L6, ME51L7, ME51L8

All data, except those qualified above, are acceptable.

EXES ISM01.2 Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51J1
Site: IRONWOOD MGP SITE
Lab.: SENTIN
Reviewer: L. DAVIS
Date: 12/20/2010

Number of Soil Samples: 11
Number of Water Samples: 0
Number of Wipe Samples: 0
Number of Filter Samples: 0

Sample Number:	ME51J1		ME51J2		ME51J3		ME51J4		ME51J5	
Sampling Location:	SB5		SB6		SB7		SB8		SB9	
Matrix:	Soil		Soil		Soil		Soil		Soil	
Units:	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled:	10/19/2010		10/20/2010		10/20/2010		10/19/2010		10/20/2010	
Time Sampled:	16:05:00		15:00:00		12:15:00		17:18:00		15:35:00	
%Solids:	85.6		92.1		88.1		87.6		92.2	
Dilution Factor:	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	8940		10000		8170		7650		11500	
ANTIMONY	0.91	J	0.53	J	0.34	J	1.2	J	0.54	J
ARSENIC	8.4		1.4	J+	2.2		5.3		3.7	
BARIUM	61.7		23.4		31.7		42.4		40.4	
BERYLLIUM	0.58	U	0.54	U	0.57	U	0.57	U	0.54	U
CADMIUM	0.58	U	0.54	U	0.57	U	0.57	U	0.54	U
CALCIUM	3790		7810		4820		6760		6150	
CHROMIUM	28.1		24.5		21.1		24.0		19.9	
COBALT	9.6	J	11.5	J	9.6	J	8.4	J	15.9	J
COPPER	46.5	J	33.0	J	28.5	J	48.1	J	54.1	J
IRON	48000		17700		20400		27000		30400	
LEAD	238	J	2.0	J	5.3	J	51.3	J	18.4	J
MAGNESIUM	3760		5830		4220		3970		9990	
MANGANESE	255		237		183		284		414	
MERCURY	0.052	J	0.0091	J-	0.017	J-	0.024	J	0.041	J
NICKEL	21.7		26.5		19.1		20.2		30.9	
POTASSIUM	584	UJ	626	J	610	J	571	UJ	542	UJ
SELENIUM	1.5	J	0.60	J	0.57	J	1.1	J	1.0	J
SILVER	1.2	U	1.1	U	1.1	U	1.1	U	1.1	U
SODIUM	374	J	423	J	347	J	490	J	338	J
THALLIUM	2.9	U	2.7	U	2.8	U	2.9	U	2.7	U
VANADIUM	59.5		63.4		53.4		47.5		73.3	
ZINC	59.8		31.6		32.3		70.7		42.0	
CYANIDE	31.5		2.2	U	2.3	U	10.9		2.2	U

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51J1
Site: IRONWOOD MGP SITE
Lab.: SENTIN
Reviewer: L. DAVIS
Date: 12/20/2010

Sample Number:	ME51J6		ME51J7		ME51J8		ME51J9		ME51K0	
Sampling Location:	SB10		SB11		SB12		SB13		SB14	
Matrix:	Soil		Soil		Soil		Soil		Soil	
Units:	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled:	10/20/2010		10/20/2010		10/20/2010		10/19/2010		10/20/2010	
Time Sampled:	15:55:00		16:40:00		17:40:00		14:45:00		18:48:00	
%Solids:	77.4		82.1		85.0		81.1		92.1	
Dilution Factor:	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	14000		3430		12000		14200		10800	
ANTIMONY	1.1	J	7.3	UJ	0.92	J	0.49	J	0.37	J
ARSENIC	13.6		3.2		5.8		4.0		2.0	
BARIUM	97.1		24.8		73.9		55.9		38.7	
BERYLLIUM	0.65	U	0.61	U	0.59	U	0.62	U	0.54	U
CADMIUM	0.65	U	0.61	U	0.59	U	0.62	U	0.54	U
CALCIUM	25900		1670		4330		5480		5110	
CHROMIUM	24.9		8.8		30.6		27.2		17.4	
COBALT	14.3	J	3.0	J-	10.5	J	15.2	J	11.8	J
COPPER	72.7	J	20.2	J	57.9	J	57.6	J	43.3	J
IRON	50300		14200		22300		28700		22000	
LEAD	63.6	J	49.2	J	25.9	J	36.2	J	6.2	J
MAGNESIUM	4760		1120		4140		7900		5510	
MANGANESE	636		154		223		591		302	
MERCURY	0.11	J	0.066	J	0.057	J	0.063	J	0.013	J-
NICKEL	30.7		8.9		26.3		27.0		23.3	
POTASSIUM	915	J	609	UJ	594	J	626	J	543	UJ
SELENIUM	2.1	J	4.3	U	1.2	J	1.2	J	0.62	J
SILVER	1.3	U	1.2	U	1.2	U	1.2	U	1.1	U
SODIUM	812	J	226	J	449	J	323	J	394	J
THALLIUM	3.2	U	3.0	U	2.9	U	3.1	U	2.7	U
VANADIUM	74.2		19.7		65.3		74.5		50.6	
ZINC	98.6		22.4		52.3		87.7		35.6	
CYANIDE	6.1		4.7		2.9		2.5	U	2.2	U

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51J1
Site: IRONWOOD MGP SITE
Lab.: SENTIN
Reviewer: L. DAVIS
Date: 12/20/2010

Sample Number:	ME51K1									
Sampling Location:	SB15									
Matrix:	Soil									
Units:	mg/kg									
Date Sampled:	10/20/2010									
Time Sampled:	18:35:00									
%Solids:	90.6									
Dilution Factor:	1.0									
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	11100									
ANTIMONY	6.6	UJ								
ARSENIC	2.4									
BARIUM	47.3									
BERYLLIUM	0.55	U								
CADMIUM	0.55	U								
CALCIUM	6390									
CHROMIUM	28.0									
COBALT	12.9	J								
COPPER	31.2	J								
IRON	19000									
LEAD	11.0	J								
MAGNESIUM	5930									
MANGANESE	354									
MERCURY	0.027	J								
NICKEL	24.5									
POTASSIUM	753	J								
SELENIUM	0.59	J								
SILVER	1.1	U								
SODIUM	601	J								
THALLIUM	2.8	U								
VANADIUM	67.1									
ZINC	37.5									
CYANIDE	2.2	U								

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 12/20/10

SUBJECT: **Review of Data**
Received for review on 11/8/10

FROM: **Timothy Prendiville, Supervisor, Chief (SRT-6J)**
Superfund Contract Management Section

TO: **Data User:** MDNRE
Email address: walczakj@michigan.gov

LEVEL 3 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Ironwood MGP (MI)

CASE NUMBER: 40702 **SDG NUMBER:** ME51J1

Number and Type of Samples: 11 soils

Sample Numbers: ME51J1-J9, K0-K1

Laboratory: Sentinel **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Eleven (11) soil samples, numbered ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K0, ME51K1 were collected October 19-20, 2010. The lab received the samples on October 22, 2010 in good condition. All samples were analyzed for metals and cyanide. All samples were analyzed using the CLP SOW ISM01.2 analysis procedures.

Mercury analysis was performed using a Cold Vapor AA Technique. Cyanide analysis was performed using the MIDI Distillation procedure. The remaining inorganic analyses were performed using an Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) procedure.

Percent solids values are shown rounded to whole numbers (2 significant figures). According to ISM01.2 Exhibit B Section 3.4.2.2.2, "Report to … three significant figures if the value is greater than or equal to 10." Sample data were verified by ESAT using the correctly rounded solids values. EXES percent solids is not a field ESAT can edit; percent solids values have not been corrected.

1. HOLDING TIME:

No defects were found.

2. CALIBRATIONS:

No defects were found for the calibration standards.

3. BLANKS:

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL). The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified "J+".

Arsenic

ME51J2

Cadmium

ME51J1, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K1

Potassium

ME51J1, ME51J4, ME51J5, ME51J7, ME51K0

Cyanide

ME51J2, ME51J3, ME51J5, ME51J9, ME51K0, ME51K1

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL) and with a negative ICB/CCB or preparation blank whose absolute value is greater than the MDL. The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified "J".

Cadmium

ME51J2, ME51J3, ME51K0

The following inorganic samples are associated with a negative ICB/CCB or preparation blank concentration whose absolute value is greater than the method detection limit (MDL). The sample result is also greater than the MDL.

Hits less than 5 times the blank are qualified "J-".

Cobalt

ME51J7

Mercury
ME51J2, ME51J3, ME51K0

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:

The following inorganic samples are associated with a matrix spike recovery which is low (30-74%) indicating that sample results may be biased low. The required post spike was performed and results were greater than or equal to 75%.
Hits are qualified "J" and non-detects are qualified "UJ".

Antimony
ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K0, ME51K1

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE:

No defects were found for the laboratory duplicate samples. No samples were identified as field duplicates.

6. ICP ANALYSIS:

The following inorganic samples are associated with an ICP serial dilution percent difference which is not in control.
Hits are qualified "J" and non-detects are qualified "UJ".

Cobalt
ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K0, ME51K1

Copper
ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K0, ME51K1

Lead
ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K0, ME51K1

Potassium
ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K0, ME51K1

Sodium
ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K0, ME51K1

7. SAMPLE RESULTS:

The following inorganic samples have analyte concentrations reported above the method detection limit (MDL) but below the quantitation limit (CRQL).

Results are qualified "J".

Antimony

ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J8, ME51J9, ME51K0

Cobalt

ME51J7

Mercury

ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J7, ME51J8, ME51J9, ME51K0, ME51K1

Selenium

ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J6, ME51J8, ME51J9, ME51K0, ME51K1

Sodium

ME51J1, ME51J2, ME51J3, ME51J4, ME51J5, ME51J7, ME51J8, ME51J9, ME51K0

All data, except those qualified above, are acceptable.

EXES ISM01.2 Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51H0
Site: IRONWOOD MGP SITE
Lab.: SENTIN
Reviewer: S. CONNET
Date: 12/16/2010

Number of Soil Samples: 11
Number of Water Samples: 0
Number of Wipe Samples: 0
Number of Filter Samples: 0

Sample Number:	ME51H0		ME51H1		ME51H2		ME51H3		ME51H4	
Sampling Location:	SD1		SD2		SD2D		SD3		SD4	
Matrix:	Soil		Soil		Soil		Soil		Soil	
Units:	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled:	10/21/2010		10/21/2010		10/21/2010		10/21/2010		10/21/2010	
Time Sampled:	14:50:00		13:40:00		13:40:00		12:00:00		09:50:00	
%Solids:	87.7		88.2		80.8		78.3		87.3	
Dilution Factor:	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	8450	J	4060	J	4890	J	10600	J	14100	J
ANTIMONY	27.0	J	6.8	UJ	7.4	UJ	0.66	J	0.80	J
ARSENIC	1.1	U	1.3	J+	1.6	J+	3.6	J	1.3	J+
BARIUM	31.1	J-	22.7	UJ	24.8	UJ	33.4	J-	36.8	J-
BERYLLIUM	0.57	U	0.57	U	0.62	U	0.64	U	0.57	U
CADMIUM	0.57	U	0.57	U	0.62	U	0.64	U	0.57	U
CALCIUM	5540	J	2740	J	3260	J	5310	J	8930	J
CHROMIUM	26.0	J	9.8	J	13.6	J	44.6	J	35.1	J
COBALT	12.9	J	5.3	J	6.4	J	12.7	J	20.8	J
COPPER	20.5		11.2		109		27.8		32.1	
IRON	22000		12500		16300		28700		36100	
LEAD	33.1	J	11.9	J	23.5	J	26.0	J	18.2	J
MAGNESIUM	5180	J	2090	J	2720	J	6770	J	10900	J
MANGANESE	364	J	141	J	168	J	311	J	484	J
MERCURY	0.054	J	0.059	J	0.079	J	0.044	J	0.017	J-
NICKEL	22.2	J	9.0	J	12.0	J	36.2	J	35.9	J
POTASSIUM	259	J	224	J	235	J	335	J	403	J
SELENIUM	1.1	J	0.64	J	0.81	J	1.6	J	1.6	J
SILVER	1.1	U	1.1	U	1.2	U	1.3	U	1.1	U
SODIUM	331	J	228	J	221	J	316	J	428	J
THALLIUM	2.9	U	2.8	U	3.1	U	3.2	U	2.9	U
VANADIUM	57.6	J	30.0	J	38.2	J	62.5	J	85.9	J
ZINC	64.0		34.3		44.9		194		87.7	
CYANIDE	0.57	U	0.57	U	0.62	U	1.6		0.57	U

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51H0
Site: IRONWOOD MGP SITE
Lab.: SENTIN
Reviewer: S. CONNET
Date: 12/16/2010

Sample Number:	ME51H5		ME51H6		ME51H7		ME51H8		ME51H9	
Sampling Location:	SD5		SB1		SB2		SB2D		SB3	
Matrix:	Soil		Soil		Soil		Soil		Soil	
Units:	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled:	10/21/2010		10/19/2010		10/19/2010		10/19/2010		10/19/2010	
Time Sampled:	09:30:00		10:05:00		14:10:00		14:10:00		11:30:00	
%Solids:	87.5		87.5		72.7		85.9		75.6	
Dilution Factor:	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	9290	J	11400	J	8950	J	8660	J	11300	J
ANTIMONY	0.55	J	0.74	J	1.1	J	0.80	J	0.39	J
ARSENIC	1.5	J+	8.3	J	2.2	J	2.4	J	5.9	J
BARIUM	36.1	J	77.1	J	49.2	J	45.5	J	80.3	J
BERYLLIUM	0.57	U	0.076	J-	0.69	U	0.58	U	0.66	U
CADMIUM	0.57	U	0.57	U	0.69	U	0.58	U	0.66	U
CALCIUM	4510	J	5890	J	4110	J	3960	J	3120	J
CHROMIUM	21.7	J	24.2	J	23.0	J	21.8	J	23.4	J
COBALT	11.6	J	15.0	J	10.9	J	10.6	J	9.0	J
COPPER	23.7		49.3		22.0		18.7		22.2	
IRON	22500		35200		21900		20500		20700	
LEAD	13.5	J	26.7	J	78.0	J	30.2	J	76.3	J
MAGNESIUM	5070	J	5340	J	3290	J	3080	J	2960	J
MANGANESE	226	J	353	J	353	J	413	J	261	J
MERCURY	0.17		0.034	J	0.013	J-	0.012	J-	0.20	
NICKEL	19.3	J	27.9	J	16.2	J	14.8	J	17.0	J
POTASSIUM	456	J	594		461	J	511	J	532	J
SELENIUM	0.57	J	1.8	J	0.96	J	1.0	J	1.2	J
SILVER	1.1	U	1.1	U	1.4	U	1.2	U	1.3	U
SODIUM	327	J	432	J	287	J	269	J	277	J
THALLIUM	2.9	U	2.9	U	3.4	U	2.9	U	3.3	U
VANADIUM	62.9	J	72.1	J	60.5	J	61.2	J	48.3	J
ZINC	64.5		60.0		35.0		37.4		80.3	
CYANIDE	0.57	U	2.2		0.69	U	0.84		1.7	

Analytical Results (Qualified Data)

Case #:40702 SDG: ME51H0
Site: IRONWOOD MGP SITE
Lab.: SENTIN
Reviewer: S. CONNET
Date: 12/16/2010

Sample Number:	ME51J0									
Sampling Location:	SB4									
Matrix:	Soil									
Units:	mg/kg									
Date Sampled:	10/20/2010									
Time Sampled:	13:50:00									
%Solids:	89.7									
Dilution Factor:	1.0									
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	8400	J								
ANTIMONY	0.68	J								
ARSENIC	5.0	J								
BARIUM	37.2	J								
BERYLLIUM	0.56	U								
CADMIUM	0.56	U								
CALCIUM	3840	J								
CHROMIUM	25.2	J								
COBALT	9.9	J								
COPPER	29.4									
IRON	18100									
LEAD	31.1	J								
MAGNESIUM	5120	J								
MANGANESE	257	J								
MERCURY	0.070	J								
NICKEL	21.1	J								
POTASSIUM	478	J								
SELENIUM	1.8	J								
SILVER	1.1	U								
SODIUM	317	J								
THALLIUM	2.8	U								
VANADIUM	49.6	J								
ZINC	50.1									
CYANIDE	7.3									

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 12/16/10

SUBJECT: **Review of Data**
Received for review on 11/8/10

FROM: **Timothy Prendiville, Supervisor, Chief (SRT-6J)**
Superfund Contract Management Section

TO: **Data User:** MDNRE
Email address: walczakj@michigan.gov

LEVEL 3 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Ironwood MGP (MI)

CASE NUMBER: 400702 **SDG NUMBER:** ME51H0

Number and Type of Samples: 11 soils

Sample Numbers: ME51H0-H9, J0

Laboratory: Sentinel **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Eleven (11) soil samples, numbered ME51H0-H9, J0, were collected on October 19-21, 2010. The lab received the samples on October 22, 2010 in good condition. All samples were analyzed for metals and cyanide. All samples were analyzed using the CLP SOW ISM01.2 analysis procedures.

Mercury analysis was performed using a Cold Vapor AA Technique. Cyanide analysis was performed using the micro Distillation procedure. The remaining inorganic analyses were performed using an Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) procedure.

The post digestion spike was prepared incorrectly for antimony. It should have been prepared at 2x CRQL; it was not. Qualification of results is based on the recovery at the concentrations performed by the Laboratory.

ICB/CCBs for cyanide runs were reported as 833 U ug/L on Form 3. The correct values should have been reported 10.0 U ug/L. Also, on Form 13 (Serial Dilution), only aluminum, chromium, cobalt, magnesium, nickel and sodium are listed as being outside CLP limits. Barium, calcium, lead, manganese and vanadium are also outside CLP limits. Sample results are qualified accordingly.

Percent solids values in EXES are shown rounded to whole numbers (2 significant figures). According to ISM01.2 Exhibit B Section 3.4.2.2.2, "Report to … three significant figures if the value is greater than or equal to 10." Sample data were verified by ESAT using the correctly rounded solids values. EXES percent solids is not a field ESAT can edit; percent solids values have not been corrected. Values reported by the Laboratory are correct.

EXES flagged all samples except cyanide J-/R for holding time/preservation. It appears that EXES is flagging the data for water pH requirements. Since soils have no pH requirement, the J-/R flagging was removed from this reviewers report.

1. HOLDING TIME:

No defects were found.

2. CALIBRATIONS:

No defects were found for the calibration.

3. BLANKS:

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL). The sample result is greater than the MDL.

Hits less than the CRQL are qualified “U”. The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified “J+”.

Arsenic
ME51H0, ME51H1, ME51H2, ME51H4, ME51H5

Barium
ME51H1, ME51H2

Cadmium
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Cyanide
ME51H0, ME51H1, ME51H2, ME51H4, ME51H7

The following inorganic samples are associated with a negative ICB/CCB or preparation blank concentration whose absolute value is greater than the method detection limit (MDL). The sample result is also greater than the MDL.

Hits less than 5 times the blank are qualified “J-”.

Beryllium
ME51H6

Mercury
ME51H4, ME51H7, ME51H8

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:

The following inorganic samples are associated with a matrix spike recovery which is high (>125%) indicating that sample results may be biased high. The required post spike was performed and results were less than or equal to 125%.

Hits are qualified "J"; non-detects are not qualified.

Arsenic

ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

The following inorganic samples are associated with a matrix spike recovery which is low (30-74%) indicating that sample results may be biased low. The required post spike was performed and results were greater than or equal to 75%.

Hits are qualified "J" and non-detects are qualified "UJ".

Antimony

ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE:

No defects were found for the laboratory duplicate samples.

ME51H1/H2 and ME51H7/H8 are field duplicate pairs. The following inorganic analytes are associated with field duplicate results which did not meet technical data validation criteria; however, no sample results are qualified for field duplicates.

ME51H1/H2

Copper, Lead

ME51H7/H8

Lead

6. ICP ANALYSIS:

The following inorganic samples are associated with an ICP serial dilution percent difference which is not in control.

Hits are qualified "J" and non-detects are qualified "UJ".

Aluminum

ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Barium

ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Calcium

ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Chromium
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Cobalt
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Lead
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Magnesium
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Manganese
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Nickel
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Sodium
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Vanadium
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

No defects were found for the ICS samples.

7. SAMPLE RESULTS:

The following inorganic samples have analyte concentrations reported above the method detection limit (MDL) but below the quantitation limit (CRQL).
Results are qualified “J”.

Antimony
ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Beryllium
ME51H6

Cobalt
ME51H1

Mercury
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H6, ME51H7, ME51H8, ME51J0

Potassium
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H7, ME51H8, ME51H9, ME51J0

Selenium
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

Sodium
ME51H0, ME51H1, ME51H2, ME51H3, ME51H4, ME51H5, ME51H6, ME51H7, ME51H8, ME51H9, ME51J0

All data, except those qualified above, are acceptable.

EXES ISM01.2 Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.