above ground storage tank
air quality
asbestos/lead-based paint
baseline environmental assessment
brownfield redevelopment
building/infrastructure restoration
caisson/piles
coatings
concrete
construction materials services
corrosion
dewatering
drilling
due care analysis
earth retention system
environmental compliance
environmental site assessment
facility asset management
failure analyses
forensic engineering
foundation engineering
geodynamic/vibration
geophysical survey
geosynthetic
greyfield redevelopment
ground modification
hydrogeologic evaluation
industrial hygiene
indoor air quality/mold
instrumentation
masonry/stone
metals
nondestructive testing
pavement evaluation/design
property condition assessment
regulatory compliance
remediation
risk assessment
roof system management
sealants/waterproofing
settlement analysis
slope stability
storm water management
structural steel/welding
underground storage tank

# REPORT OF PHASE II ENVIRONMENTAL SITE ASSESSMENT

## 603 WEST APPLE STREET HASTINGS, MICHIGAN

**SME Project Number 061192.01.011**
**April 27, 2012**

**City of Hastings Hazardous Substances Assessment Grant**
**Cooperative Agreement Number: BF-00E95401**

**Prepared for:**

Mr. John Hart
Community Development Director
City of Hastings
201 E. State Street
Hastings, Michigan 49058

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**Soil and Materials Engineers, Inc.**

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# 1.0 INTRODUCTION

Soil and Materials Engineers, Inc. (SME) prepared this report to present the results of a Phase II Environmental Site Assessment (ESA) of 603 West Apple Street, Hastings, Barry County, Michigan (Property). The Property location is shown on Figure 1. The assessment activities were funded by the City of Hastings' United States Environmental Protection Agency (U.S. EPA) Brownfields Assessment Grant for hazardous substances. SME conducted the assessment in general accordance with SME's Sampling and Analysis Plan (SAP), dated April 5, 2012, and Quality Assurance Project Plan (QAPP), approved May 11, 2010. The SAP was approved by U.S. EPA Region 5 prior to implementation, and is included in Appendix A.

## 1.1 Site Description and Background

SME completed a Phase I Environmental Site Assessment (ESA) of the Property in March 2012. At the time of SME's Property reconnaissance, the Property consisted of approximately 0.35 acres of paved parking and grass-covered land. The current Property features are shown on Figure 2. Based on SME's review of historical information, it appears that the Property was vacant land from at least 1929 until the 1950s, when it was developed with a residence. The residence remained on the Property until the late 1990s. The Property was then redeveloped for use as a parking lot.

Based on the results of the Phase I ESA, SME identified the potential for migration of impacted groundwater from the southwest-adjoining site as a recognized environmental condition (REC) associated with the Property. The southwest-adjoining site was historically occupied by a furniture manufacturing operation and was previously identified as a site of environmental contamination through submission of a Baseline Environmental Assessment (BEA). Reported contaminants included benzo(a)pyrene, barium, lead, and mercury in soil and trichloroethene (TCE) and tetrachloroethene (PCE) in groundwater.

## 1.2 Purpose

SME designed the scope of this assessment to assess soil and groundwater on the Property for the potential presence of contamination migrating from the adjoining off-site source to support environmental liability management and safe use planning associated with acquisition and redevelopment of the Property. SME prepared this report to document sampling and analysis procedures, and present assessment results and findings.

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## 2.0 SCOPE OF ASSESSMENT

SME monitored Fibertec Environmental Services (FES) as they advanced three direct-push soil borings, identified as SB1 through SB3, to evaluate current soil and groundwater conditions at the Property. The locations of the direct-push boring locations are shown on Figure 2. One groundwater sample was collected from each boring to evaluate the potential for migration of impacted groundwater onto the Property from the southwest-adjoining site. In addition, one soil sample was collected from each boring from the area directly above the saturated zone to evaluate potential soil impact associated with the migration of impacted groundwater from the southwest-adjoining site.

The soil and groundwater samples were submitted for laboratory analyses of volatile organic compounds (VOCs), which are common constituents in the adhesives, glues, paints, varnishes, lacquers, and solvents likely used during furniture manufacturing and finishing operations on the adjoining site. The soil and groundwater samples were also submitted for laboratory analyses of the following metals, which are common constituents in paints, oils, and other lubricants likely used on the adjoining site and/or were previously identified as contaminants on the site: barium, cadmium, chromium, cobalt, copper, lead, mercury, and zinc. The soil and groundwater samples were collected and analyzed as described in the SAP.

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## 3.0 PROCEDURES

Procedures for the direct-push soil boring and sampling activities, temporary groundwater monitoring well installation and sampling, equipment decontamination, and chemical analyses are summarized in the following subsections. SME completed the borings and collected soil and groundwater samples at the Property on March 13, 2012.

### 3.1 Soil Boring Soil Sampling

Each direct-push soil boring was advanced by FES using hydraulically driven, direct-push coring equipment mounted on an all-terrain vehicle. Each soil sample was collected using a five-foot long, two-inch outside-diameter GeoProbe® Macro Sampler fitted with a single-use, disposable, acetate liner. The soil column in the samples was visually evaluated, and representative samples were collected from each soil unit for visual classification. SME visually classified the soil samples from the soil borings in general accordance with the Unified Soil Classification System (USCS).

A portion of each soil sample was used for field screening of ionizable VOCs using a calibrated photoionization detector (PID) equipped with a 10.6 eV lamp. Field screening consisted of placing a portion of the sample in a sealed plastic bag and allowing the sample to warm and release ionizable VOCs. The tip of the PID was inserted in the headspace of the bag, and PID readings were recorded on SME's field activity report.

The amount of soil collected at each sampling location was dependent on chemical analyses requirements. First, soil samples intended for VOC laboratory analyses were removed from the boring liner or hand auger bucket and were placed in methanol-preserved, 40-milliliter (mL) glass vials following U.S. Environmental Protection Agency (U.S. EPA) Method 5035A. Soil volumes sufficient for analyses of additional parameters were then removed from the boring liner and homogenized prior to transfer to pre-cleaned, eight-ounce glass jars provided by the analytical laboratory.

### 3.2 Soil Boring Groundwater Sampling

Groundwater was encountered at depths ranging from approximately 8 feet to 18 feet below-grade at each boring location. FES installed temporary groundwater monitoring wells at each of the soil borings. The temporary groundwater monitoring wells at SB2 and SB3 were constructed of five-foot long, one-inch diameter, sand pre-packed 0.010-inch slotted PVC screen attached to a one-inch diameter PVC riser. The wells were installed such that the screen intersected the water table. At soil boring SB1, FES initially installed a temporary monitoring

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well screen from 16 feet to 21 feet below-grade. SME was unable to collect sufficient groundwater from this depth. FES removed the initial well screen and advanced to a deeper saturated sand layer. FES then installed a four-foot long, one-inch diameter, 0.010-inch metal screen from 31 feet to 35 feet below-grade. SME was able to collect enough groundwater from this depth to fill the required sample containers.

After gauging the depth to water and total well depth, SME purged the wells using a variable flow rate, portable peristaltic pump fitted with clean, 3/8-inch ID silicone tubing at a low flow pumping rate of 100 milliliters/minute (mL/min) to 400 mL/min. During purging, SME periodically monitored the pH, temperature, and conductivity of the effluent groundwater using field instrumentation to determine groundwater being removed from the well was representative of actual conditions. Purging was continued until pH, temperature, and conductivity values were judged stable, as defined in the project QAPP.

After well purging, SME collected a groundwater sample from the temporary groundwater monitoring wells using the portable peristaltic pump fitted with 3/8-inch ID polyethylene/silicone tubing, operated at the low flow pumping rate. The groundwater samples intended for laboratory analyses were transferred directly into one or more of the following laboratory-supplied containers: 40-mL glass vials preserved with hydrochloric acid (VOC analyses) and 250-mL plastic bottles preserved with nitric acid (metals analyses).

After purging and groundwater sampling, SME removed the temporary well screens, placed the development water back into the borings, and filled the borings to the ground surface with soil cuttings and bentonite chips. The surface disturbance at each boring location was repaired with asphalt concrete.

### 3.3 Soil Boring Sampling Quality Assurance and Quality Control (QA/QC)

In order to minimize cross-contamination, a new pair of disposable nitrile sampling gloves was used for collection of each sample. Soil sampling equipment was decontaminated before each use with a laboratory grade detergent and rinsed with distilled water. Clean, un-used polyethylene/silicone tubing was used for groundwater purging and sampling at the temporary groundwater monitoring wells.

SME collected QA/QC samples in conformance with the requirements and specifications of the project SAP and QAPP. SME collected field duplicate samples (soil and groundwater) to evaluate the precision of sampling activities. SME collected trip blank, methanol blank, field blank, and equipment blank samples to evaluate the potential impacts of cross-contamination

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associated with sample collection, storage, and transport. SME collected matrix spike/matrix spike duplicate (MS/MSD) samples (soil and groundwater) to evaluate potential sample matrix interferences on laboratory accuracy and precision.

Field instrument calibration, sample handling and custody requirements, laboratory analytical methods, analysis reporting limits (RLs), QA/QC procedures, and reporting protocols were consistent with those described in the project QAPP.

## 3.4 Chemical Analyses

SME collected and submitted three soil, three groundwater, and eight QA/QC samples to FES for analyses of volatile organic compounds (VOCs), which are common constituents in adhesives, glues, paints, varnishes, lacquers, and solvents likely used during furniture manufacturing and finishing operations on the adjoining site. The soil and groundwater samples were also submitted for laboratory analyses of the following metals, which are common constituents in paints, oils, and other lubricants likely used on the adjoining site and/or were previously identified as contaminants on the site: barium, cadmium, chromium, cobalt, copper, lead, mercury, and zinc. FES analyzed the samples using the reference methods listed below:

- VOCs – U.S. EPA Method 8260B; and
- Metals – U.S. EPA Methods 6020A and 7470A (mercury).

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# 4.0 RESULTS

Results of the assessment activities, surface and subsurface conditions, and chemical analyses results are described in the following subsections.

## 4.1 Surface and Subsurface Conditions

Soil samples were visually classified in general accordance with the USCS. Detailed information regarding the soil conditions encountered at each boring is documented in the Direct-Push Boring Logs in Appendix B. The boring locations are shown on Figure 2. The surface and subsurface conditions encountered are summarized below.

The surface materials encountered at each of the borings consisted of approximately four inches of asphalt concrete. The surface materials were underlain by approximately two feet to nine feet of sand fill materials. The fill material was underlain by layers of native fine to medium sand with varying amounts of silt and gravel; clayey sand; and sandy clay. Groundwater was encountered at depths ranging from approximately 8 feet to 18 feet below-grade at each boring location. At SB1, groundwater was also encountered at a depth of 26 feet to 32 feet below-grade. No odors, staining, or elevated PID readings (greater than five parts per million (ppm)) were noted during the field screening.

## 4.2 Chemical Analyses Results

Results of chemical analyses performed on soil and groundwater samples are summarized in the following subsections. The results were compared to Part 201 Generic Residential Cleanup Criteria to determine if the site qualifies as a Part 201 "facility." The soil analytical results are presented on Table 1, and the groundwater analytical results are presented on Table 2. The laboratory analytical reports are included in Appendix C.

### 4.2.1 Soil Boring Soil Sample Analyses

No target analytes were measured in the soil samples at concentrations above Part 201 Generic Residential Cleanup Criteria.

### 4.2.2 Groundwater Sample Analyses

Various metals (copper, lead, and/or zinc) were measured at concentrations exceeding Part 201 Generic Residential Cleanup Criteria in each of the groundwater samples collected on the Property. No other target analytes were measured in the groundwater samples at concentrations above Part 201 Generic Residential Cleanup Criteria. The groundwater results

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exceeded groundwater protection criteria although none of the soil results exceeded the soil based groundwater protection criteria. These results strongly indicate the groundwater impact is from an off-Property source. The spatial distribution of the groundwater results support this conclusion.

## 4.3 Data Verification/Validation and Usability

SME evaluated the precision, accuracy, representativeness, completeness, comparability, and sensitivity parameters for the data collected during this Phase II ESA to determine if the data set was valid and of usable quality. Except as described below, results of quality control samples indicated that sample reproducibility and sampling and laboratory analysis functions were within acceptable limits. The soil QA/QC analytical results are included on Table 1, and the groundwater QA/AC analytical results are included on Table 2. The laboratory QA/QC results are detailed in the Case Narrative included in Appendix C.

### 4.3.1 Field QA/QC

With the exception of barium, copper, and zinc, the concentrations of target analytes in field duplicate soil samples were within the field duplicate precision limits specified in the project QAPP. The relative percent difference (RPD) for barium, copper, and zinc in the duplicate soil sample collected from SB2-S1 (Duplicate) exceeded the project QC limits. The concentrations of barium, copper, and zinc were within the range of concentrations measured in other soil samples and were substantially below the lowest applicable generic cleanup criteria. Therefore, the lower precision indicated by this measurement does not pose a material risk of a false negative and does not materially affect achievement of project objectives. Furthermore, duplicate soil samples often have a large disparity of results.

With the exception of copper, the concentrations of target analytes in field duplicate groundwater samples were within the precision limits specified in the project QAPP. The relative percent difference (RPD) for copper in the duplicate groundwater sample collected from SB7 (Duplicate) exceeded the project QC limits. Copper was measured in one groundwater sample at a concentration above Part 201 Generic Residential Cleanup Criteria, making the Property a "facility" with respect to copper. Therefore, the uncertainty in these findings is acceptable because project objectives are to conservatively identify environmental impact.

No VOCs were detected at concentrations greater than reporting limits (RLs) in the trip blank or the methanol blank, indicating that VOC contamination was not introduced during sample storage and shipment. No VOCs, SVOCs, or metals, except for barium, were detected at concentrations greater than RLs in either the equipment blank or field blank, indicating that

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contamination was not introduced during sample collection, storage, and transport. Barium was measured at a concentration of 130 µg/L in the equipment blank (prepared by running distilled water through a piece of disposable groundwater sampling tubing). Barium was not detected at a concentration above the RL in the field blank, indicating that the barium may have been associated with the tubing. Barium was measured in each of the groundwater samples at concentrations ranging from 110 µg/L to 220 µg/L (below Part 201 Generic Residential Cleanup Criteria). Because the groundwater sample barium concentrations are very similar to the barium concentration in the equipment blank, it is possible that the groundwater sample results may be associated with the groundwater sampling tubing and may not be representative of groundwater conditions on the Property. The groundwater sample concentrations, whether associated with the tubing or actual groundwater conditions, were below Part 201 Generic Residential Cleanup Criteria. Therefore, the potential contamination of the groundwater samples did not impair the project objectives of identifying environmental impact above cleanup criteria.

#### 4.3.2 Laboratory QA/QC

Except as discussed in the following paragraph, Fibertec reported that laboratory control spike/laboratory control spike duplicate (LCS/LCSD) analyses and continuing calibration verification (CCV) analyses were within acceptance limits.

The laboratory reported that the CCV analyses for methyl iodide and trichlorofluoromethane in the soil MS/MSD samples and dichlorofluoromethane in the groundwater MS/MSD samples were above the maximum. The laboratory reported the results for these compounds might be biased high. This bias would potentially result in higher reported concentrations of methyl iodide, dichlorofluoromethane, and trichlorofluoromethane than are actually present in the samples. This would result in a conservative finding of these compounds in the samples, which is acceptable and does not impair the project objectives.

#### 4.3.3 Project Objectives and Data Usability

The data set generated is of usable quality and meets the Property-specific objectives.

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## 5.0 FINDINGS AND RECOMMENDATIONS

Various metals (copper, lead, and zinc) were measured at concentrations exceeding Part 201 Generic Residential Cleanup Criteria in one or more groundwater samples collected on the Property. The concentrations of these metals in soil samples collected on the Property were substantially lower than Statewide Default Background Levels. Because the down-gradient southwest adjoining site was historically used for furniture manufacturing, and metals and VOC-impacted soil and groundwater were identified on the site, the data indicates that the impacted groundwater migrated onto the Property from the adjoining site. Based on these results, the Property can be considered a "facility" as defined by Section 20101(1)(o) of Part 201 of the Michigan Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended (Part 201). It should be noted that, as per Section 20126(4)(C) of Part 201, the owner or operator of property onto which contamination has migrated is not liable under Part 201 unless that person is responsible for an activity causing the release that is the source of the contamination. Because the impacted groundwater is most likely associated with historical off-site operations, the owner of the Property is likely not liable under Part 201.

The owner of a property onto which contamination has migrated also has "Due Care" obligations under Part 201. Specifically, the owner shall: 1) provide reasonable cooperation, assistance, and access to persons authorized to conduct response actions on the Property, 2) comply with any land use or resource use restrictions established or relied on in connection with response activities at the Property, and 3) not impede the effectiveness or integrity of any land use or resource use restriction employed at the Property in connection with response activities.

The conclusions in this report are based on information obtained from the area of investigation only. The subsurface assessment was based on visual observations and chemical results. Should additional surface, subsurface, or chemical data become available after the date of issue of this report, the conclusions contained in this report may require modification after SME has reviewed the additional information. This review by SME of additional information would be conducted upon receipt of a request from the client.

In the process of obtaining information in preparation of this report, procedures were followed that represent reasonable practices and principles in a manner consistent with that level of care and skill ordinarily exercised by members of this profession currently practicing under similar conditions.

**Report prepared by: Sara I. Bals, EIT**

**Report reviewed by: Keith Egan, Ohio CP #259**

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# FIGURES

**Figure 1 – Property Location Diagram**

**Figure 2 – Property Features and Soil Boring Location Diagram**

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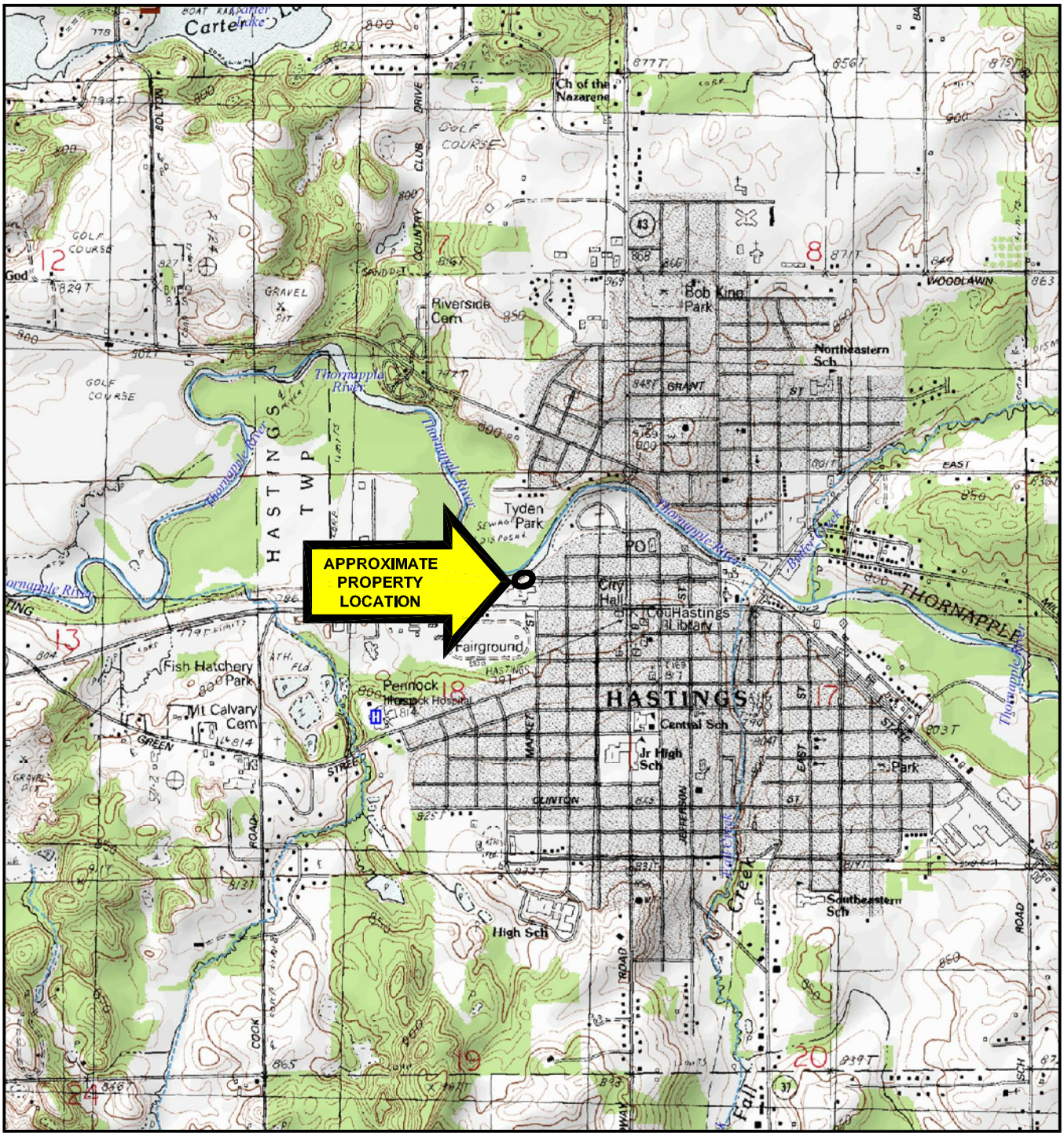


Base map obtained from © DeLorme Topo North America ™ 9.

USGS QUADRANGLE(s) REFERENCED

HASTINGS (MI) TOPO QUAD - 1982

0' 2000'

SCALE: 1" = 2000'

NORTH

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Indiana
Michigan
Ohio

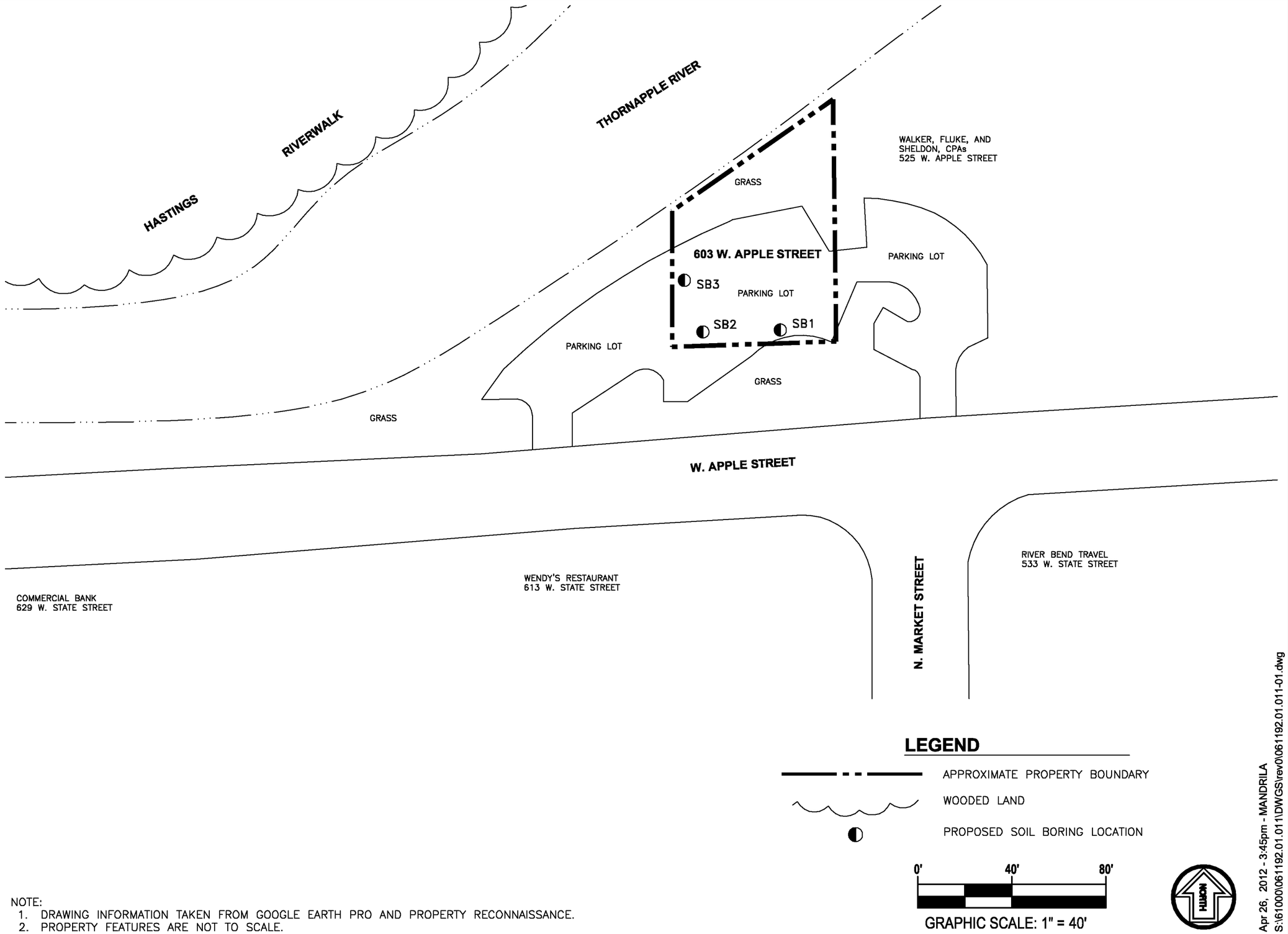
| | |
|---|---|
| Date | 02-20-12 |
| Drawn By | GM |
| Scale | 1" = 2000' |
| Project | 061192.01.011 |

**USGS 7.5 MINUTE TOPOGRAPHIC MAP**

**603 W. APPLE STREET**

**HASTINGS, MICHIGAN**

**Figure No. 1**




NOTE:
1. DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO AND PROPERTY RECONNAISSANCE.
2. PROPERTY FEATURES ARE NOT TO SCALE.

| No. | Revision Date |
|---|---|
| | |

**PROPERTY FEATURES AND SOIL BORING LOCATION DIAGRAM**
**603 W. APPLE STREET**
**HASTINGS, MICHIGAN**

| | |
|---|---|
| Date | 04-26-12 |
| Drawn By | GM |
| Designed By | LA |
| Scale | 1" = 40' |
| Project | 061192.01.011 |

Indiana
Michigan
Ohio

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**Figure No. 2**

# TABLES

**Table 1 – Soil Analytical Results**

**Table 2 – Groundwater Analytical Results**

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**TABLE 1**
**SOIL ANALYTICAL RESULTS**
**603 WEST APPLE STREET, HASTINGS, MICHIGAN**

**SME Project No. 061192.01.011**


| Analyte (see laboratory report for analysis methods) | CAS Number | PART 201 GENERIC RESIDENTIAL CLEANUP CRITERIA (µg/kg) | | | | | | CHEMICAL ANALYSES RESULTS (µg/kg) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Statewide Default Background Levels | Drinking Water Protection Criteria | Groundwater Surface Water Interface Protection Criteria | Groundwater Contact Protection Criteria | Soil Volatilization to Indoor Air Inhalation Criteria | Direct Contact Criteria | Sample Identification<br>Sample Depth (ft. below grade)<br>Date Collected | SB1-S1<br>11.25-12<br>4/13/2012 | SB2-S1<br>6.25-7.25<br>4/13/2012 | DUPLICATE<br>SB2 (6.25-7.25)<br>4/13/2012 | SB3-S1<br>7-8<br>4/13/2012 | QC BLANKS<br>Methanol Blank (µg/L)<br>4/13/2012 |
| | | | | | | | | Area / REC | Off-site Operations | | | | |
| **VOCs** | | | | | | | | | | | | | |
| VOCs | CS | CS | CS | CS | CS | CS | CS | | <RL | <RL | <RL | <RL | <RL |
| **Metals** | | | | | | | | | | | | | |
| Barium | 7440-39-3 | 75,000 | 1,300,000 | 440,000* | 1,000,000,000 | NLV | 37000000 | | **19,000** | **18,000** | **10,000** | **20,000** | NA |
| Cadmium | 7440-43-9 | 1,200 | 6,000 | 3,000 * | 230,000,000 | NLV | 550,000 | | **54** | **63** | **67** | **78** | NA |
| Chromium, total ** | 7440-47-3 | 18,000 (total) | 1,000,000,000 | 3,000,000,000* | 1,000,000,000 | NLV | 790,000,000 | | **13,000** | **9,000** | **9,000** | **5,600** | NA |
| Cobalt | 7440-48-4 | 6,800 | *6,800* | *6,800* | 48,000,000 | NLV | 2,600,000 | | **2,800** | **3,000** | **2,000** | **1,800** | NA |
| Copper | 7440-50-8 | 32,000 | 5,800,000 | 73,000 * | 1,000,000,000 | NLV | 20,000,000 | | **7,300** | **6,600** | **3,500** | **6,200** | NA |
| Lead, total | 7439-92-1 | 21,000 | 700,000 | 2,500,000 * | ID | NLV | 400,000 | | **6,800** | **3,200** | **2,500** | **9,100** | NA |
| Mercury, Total | 7439-97-6 | 130 | 1,700 | *130* | 47,000 | 48,000 | 160,000 | | <50 | <50 | <50 | <50 | NA |
| Zinc | 7440-66-6 | 47,000 | 2,400,000 | 170,000* | 1,000,000,000 | NLV | 170,000,000 | | **20,000** | **16,000** | **9,200** | **32,000** | NA |

Notes:
1. Only analytes measured at concentrations above their respective Method Reporting Limit in at least one sample are listed.
2. Cleanup Criteria taken from MDEQ-RRD Operational Memorandum No. 1, Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening levels, dated March 25, 2011.
3. Detected results shown in **BOLD**. Results exceeding one or more criteria are shaded yellow.
4. VOCs -Volatile Organic Compounds. Refer to the analytical report for the full list of VOC analytes.
5. CS - Criterion is specific to individual constituent.
6. <RL - concentrations of all non-listed constituents were below their respective Method Reporting Limits.
7. ID - Insufficient data to develop criteria.
8. NLV - Not likely to volatilize.
9. NA - Not analyzed (not in assessment scope).
10. * - GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardess value of 150 mg/kg as $CaCO_3$ was used to calculate GSI. Results are presented for surface water receiving bodies protected as a drinking water source.
11. ** - Total chromium results compared to trivalent chromium criteria.
12. *Italicized* - the respective criterion was below the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.

**TABLE 2**
**GROUNDWATER ANALYTICAL RESULTS**
**603 WEST APPLE STREET, HASTINGS, MICHIGAN**

**SME Project No. 061192.0.011**


| Analyte (see laboratory report for analysis methods) | CAS Number | PART 201 GENERIC RESIDENTIAL CLEANUP CRITERIA (µg/L) | | | | CHEMICAL ANALYSES RESULTS (µg/L) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Drinking Water Protection Criteria | Groundwater Surface Water Interface Criteria | Groundwater Volatilization to Indoor Air Inhalation Criteria | Groundwater Contact Criteria | Sample Identification | SB1-GW | SB2-GW | DUPLICATE | SB3-GW | QC BLANKS | | |
| | | | | | | Screen Interval (ft. below grade) | 31-35 | 10-15 | SB2 (10-15) | 9-14 | TRIP BLANK | FIELD BLANK | EQUIPMENT BLANK |
| | | | | | | Date Collected | 4/13/2012 | 4/13/2012 | 4/13/2012 | 4/13/2012 | 4/13/2012 | 4/13/2012 | 4/13/2012 |
| | | | | | | Area / REC | Off-site Operations | | | | | | |
| **VOCs** | | | | | | | | | | | | | |
| VOCs | CS | CS | CS | CS | CS | | <RL | <RL | <RL | <RL | <RL | <RL | <RL |
| **Metals** | | | | | | | | | | | | | |
| Barium | 7440-39-3 | 2,000 | 670* | NLV | 14,000,000 | | **190** | **110** | **130** | **220** | NA | <100 | **130** |
| Cadmium | 7440-43-9 | 5 | 2.5* | NLV | 190,000 | | <1 | <1 | <1 | <1 | NA | <1 | <1 |
| Chromium, total** | 7440-47-3 | 100 | 100* | NLV | 290,000,000 | | **45** | <10 | <10 | <10 | NA | <10 | <10 |
| Cobalt | 7440-48-4 | 40 | 100 | NLV | 2,400,000 | | <20 | <20 | <20 | <20 | NA | <20 | <20 |
| Copper | 7440-50-8 | 1,000 | **13*** | NLV | 7,400,000 | | **39** | **7.6** | **11** | **5** | NA | <4 | <4 |
| Lead | 7439-92-1 | **4** | **14*** | NLV | ID | | **20** | **5.7** | **7.5** | **6.3** | NA | <3 | <3 |
| Mercury, total | 7439-97-6 | 2 | 0.0013 | 56 | 56 | | <0.19 | <0.19 | <0.19 | <0.19 | NA | <0.19 | <0.19 |
| Zinc | 7440-66-6 | 2,400 | **170*** | NLV | 110,000,000 | | **440** | <50 | <50 | <50 | NA | <50 | <50 |

Notes:
1. Only analytes measured at concentrations above their respective Method Reporting Limit in at least on sample are listed.
2. Cleanup Criteria taken from MDEQ-RRD Operational Memorandum No. 1, Table 1. Groundwater Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening levels, dated March 25, 2011.
3. Detected results shown in **BOLD**. Results exceeding one or more criteria are shaded yellow.
4. VOCs - Volatile Organic Compounds. Refer to the analytical report for the ful list of VOC analytes.
5. CS - Criterion is specific to individual constituent.
6. <RL - concentrations of all non-listed constituents were below their respective Method Reporting Limits.
7. ID - Insufficient data to develop criteria.
8. NLV - Not likely to volatilize.
9. NA - Not analyzed (not in assessment scope).
10. * - GSI Criteria were calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardess value of 150 mg/kg as $CaCO_3$ was used to calculate GSI. Criteria presented are for surface water receiving bodies protected as a drinking water source.
11. ** - Total chromium value is compared to trivalent chromium criteria.

# APPENDIX A

## Sampling and Analysis Plan

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above ground storage tank
air quality
asbestos/lead-based paint
baseline environmental assessment
brownfield redevelopment
building/infrastructure restoration
caisson/piles
coatings
concrete
construction materials services
corrosion
dewatering
drilling
due care analysis
earth retention system
environmental compliance
environmental site assessment
facility asset management
failure analyses
forensic engineering
foundation engineering
geodynamic/vibration
geophysical survey
geosynthetic
greyfield redevelopment
ground modification
hydrogeologic evaluation
industrial hygiene
indoor air quality/mold
instrumentation
masonry/stone
metals
nondestructive testing
pavement evaluation/design
property condition assessment
regulatory compliance
remediation
risk assessment
roof system management
sealants/waterproofing
settlement analysis
slope stability
storm water management
structural steel/welding
underground storage tank

# SAMPLING AND ANALYSIS PLAN

## 603 WEST APPLE STREET
## HASTINGS, MICHIGAN

**SME Project Number: 061192.01.000**
**April 5, 2012**

**City of Hastings**
**Hazardous Substances Assessment Grant**
**Cooperative Agreement Number: BF-00E95401**

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**Soil and Materials Engineers, Inc.**

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- 2.3 Planned Property Assessment ..... 2

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**4.0 ANALYSIS PLAN** ..... 5

**5.0 DATA EVALUATION AND REPORTING** ..... 6

**6.0 ESTIMATED SCHEDULE** ..... 7

**ATTACHMENTS:**

**Figures:** **Figure 1 – Property Location Map**
**Figure 2 – Property Features and Proposed Soil Boring Location Diagram**

**Table:** **Analyses Summary Table**

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# 1.0 INTRODUCTION

The City of Hastings (City), Michigan, has received a United States Environmental Protection Agency (U.S. EPA) Brownfields Assessment Grant for hazardous substances in the amount of $200,000. The City intends to support the redevelopment of a parcel located 603 West Apple Street in the City of Hastings, Barry County, Michigan (the Property) through the use of funds from this grant. The Property location is shown on Figure 1. The Property consists of approximately 0.35 acres of paved parking and grass-covered land.

Soil and Materials Engineers, Inc. (SME), environmental consultant for the City, prepared this Sampling and Analysis Plan (SAP) as a requirement of the U.S. EPA brownfields grant program to use assessment grant funds to conduct an environmental assessment of the Property. The objective of the Property assessment is to evaluate current site environmental conditions for the purpose of supporting environmental due diligence and potential due care obligation management for the potential redevelopment of the Property. Descriptions of the Property history and known current environmental conditions; strategies and procedures for soil sampling, chemical analyses of collected soil samples, data evaluation, and reporting; and the estimated project schedule are presented in the following sections. The City's Quality Assurance Project Plan (QAPP) was approved on May 11, 2010.

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# 2.0 PROPERTY HISTORY, CURRENT CONDITIONS, AND PLANNED PROPERTY ASSESSMENT

## 2.1 Property History

Based on SME's review of historical information, it appears that the Property was vacant land from at least 1929 until the 1950s, when it was developed with a residence. The residence remained on the Property until the late 1990s. The Property was then redeveloped for use as a parking lot. The current general Property features are depicted on Figure 2.

## 2.2 Current Conditions

SME's knowledge of suspected/potential environmental impacts on the Property was developed through completion of a Phase I Environmental Site Assessment (ESA) in February 2012. SME identified the potential for migration of impacted groundwater from the southwest-adjoining site as a recognized environmental condition associated with the Property. The southwest-adjoining site was historically occupied by a furniture manufacturing operation and was previously identified as a site of environmental contamination through submission of a Baseline Environmental Assessment (BEA). Reported contaminants included benzo(a)pyrene, barium, lead, and mercury in soil and trichloroethene (TCE) and tetrachloroethene (PCE) in groundwater.

## 2.3 Planned Property Assessment

The assessment activities described in this SAP are designed to assess groundwater on the Property for the potential presence of contamination migrating from the adjoining off-site source. Results of this assessment will be used to support environmental liability management and safe use planning associated with acquisition and redevelopment of the Property.

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# 3.0 SAMPLING PLAN

The sampling plan for the assessment activities is presented in this section. The sampling plan includes discussions of the following: 1) summary of soil sampling locations and rationales, and 2) descriptions of procedures and methods for field sampling.

## 3.1 Summary of Sampling Locations

SME will collect soil and groundwater samples from the three locations (SB1 through SB3) shown on Figure 2 to evaluate the potential for migration of impacted groundwater onto the Property from the southwest-adjoining site. A summary of the soil and groundwater samples to be collected for this assessment is presented in Table 1. Specific soil sample depths are described in Section 3.2.1.

## 3.2 Sampling Procedures and Methods

Soil samples will be collected from each boring for visual classification, field screening, and laboratory analyses. Soil and groundwater sampling, project quality assurance/quality control (QA/QC), and waste management procedures and methods are summarized in this subsection.

### 3.2.1 Soil and Groundwater Sampling

Soil borings will be advanced using hydraulically driven, direct-push coring equipment. SME field personnel will screen soil cores visually and with a photo-ionization detector (PID) for evidence of contamination. Soil and groundwater samples will be collected according to the methods described in SOP 1, Soil and Groundwater Sampling Using Direct-Push Methods, included in the project QAPP.

Soil samples will be collected from discreet sampling intervals for chemical analyses as described below:

- One soil sample will be collected from each boring from the area directly above the saturated zone to evaluate potential soil impact associated with the migration of impacted groundwater from the southwest adjoining site.
- If visual observations, PID readings, staining, or odors in the sampled soil column indicate one or more separate areas of impact at depth intervals different from those described above, one additional soil sample will be collected from the area of highest indicated impact.

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Temporary groundwater monitoring wells will be installed in each boring, and one groundwater sample will be collected from each well.

### 3.2.2 Sampling Quality Control/Quality Assurance

QA/QC samples will be collected as described in SOP 6, Field Quality Control Samples, included in the project QAPP. A summary of the QA/QC samples to be collected is presented in Table 1.

### 3.2.3 Waste Management

Investigation-derived wastes will be handled as described in SOP 12, Investigated Derived Wastes, included in the project QAPP.

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## 4.0 ANALYSIS PLAN

The soil and groundwater samples collected from the three soil borings will be analyzed for volatile organic compounds (VOCs), which are common constituents in the adhesives, glues, paints, varnishes, lacquers, and solvents likely used during furniture manufacturing and finishing operations on the adjoining site. The soil and groundwater samples will also be analyzed for the following metals, which are common constituents in paints, oils, and other lubricants likely used on the adjoining site and/or were previously identified as contaminants on the site: barium, cadmium, chromium, cobalt, copper, lead, mercury, and zinc. A summary of the proposed laboratory analyses for the soil and groundwater samples is presented in Table 1.

Laboratory testing, analysis method reporting limits (MRLs), QA/QC procedures, and reporting protocols used or performed by Fibertec will be consistent with those described in the project QAPP. In accordance with Michigan Department of Environmental Quality (MDEQ), guidance document *Threshold Concentration for Total Soil Lead Analysis*, dated March 6, 2006, if total lead is measured in a soil sample at a concentration above 75,000 µg/kg, the soil sample also will be analyzed for fine/coarse lead fractions. If total chromium is measured in a soil sample at a concentration above the Statewide Default Background Level for total chromium, the soil sample will also be analyzed for hexavalent chromium.

Fibertec Environmental Services of Holt, Michigan, will analyze the samples for the following constituents using the referenced methods:

- VOCs – EPA Method 8260
- Metals - EPA Methods 6020 and 7196A (hexavalent chromium)

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## 5.0 DATA EVALUATION AND REPORTING

Data collected during this Property assessment will be evaluated as described in Section 4.0 - Data Verification/Validation and Usability of the project QAPP. Following data review, verification, and validation, SME will prepare a Phase II ESA report. The report will include details of the activities performed, procedures followed, and results. The report will include a sampling location diagram, tabulated analytical results, soil boring logs, a copy of the laboratory analytical report for all samples collected, and a copy of the chain-of-custody (COC) records.

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## 6.0 ESTIMATED SCHEDULE

The environmental activities described in this SAP are to be implemented according to the schedule presented below relative to EPA approval of the final SAP:

- Field sampling..... Week 2
- Laboratory analyses ..... Week 3 through Week 4
- Data evaluation and reporting..... Week 4 through Week 6

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## FIGURES

**Figure 1 – Property Location Map**

**Figure 2 – Property Features and Proposed Soil Boring Location Diagram**

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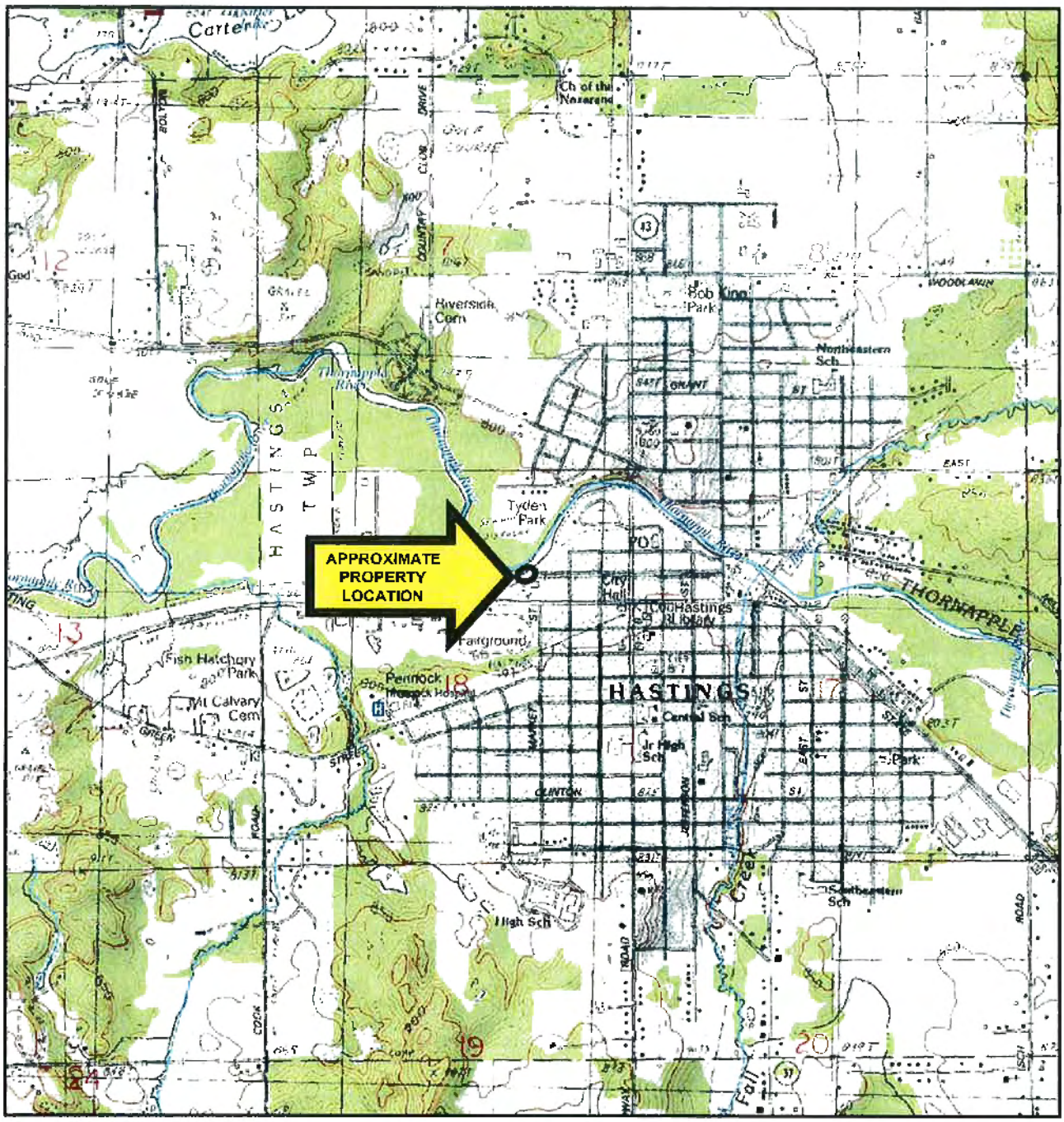



Base map obtained from © DeLorme Topo North America ™ 9.

USGS QUADRANGLE(s) REFERENCED

HASTINGS (MI) TOPO QUAD - 1982

0' 2000'

SCALE: 1" = 2000'

NORTH

Mar 02, 2012 - 10:23am - MANDRILA S:\61000\061192.01\061192.01-08.dwg

sme

www.sme-usa.com

Indiana
Michigan
Ohio

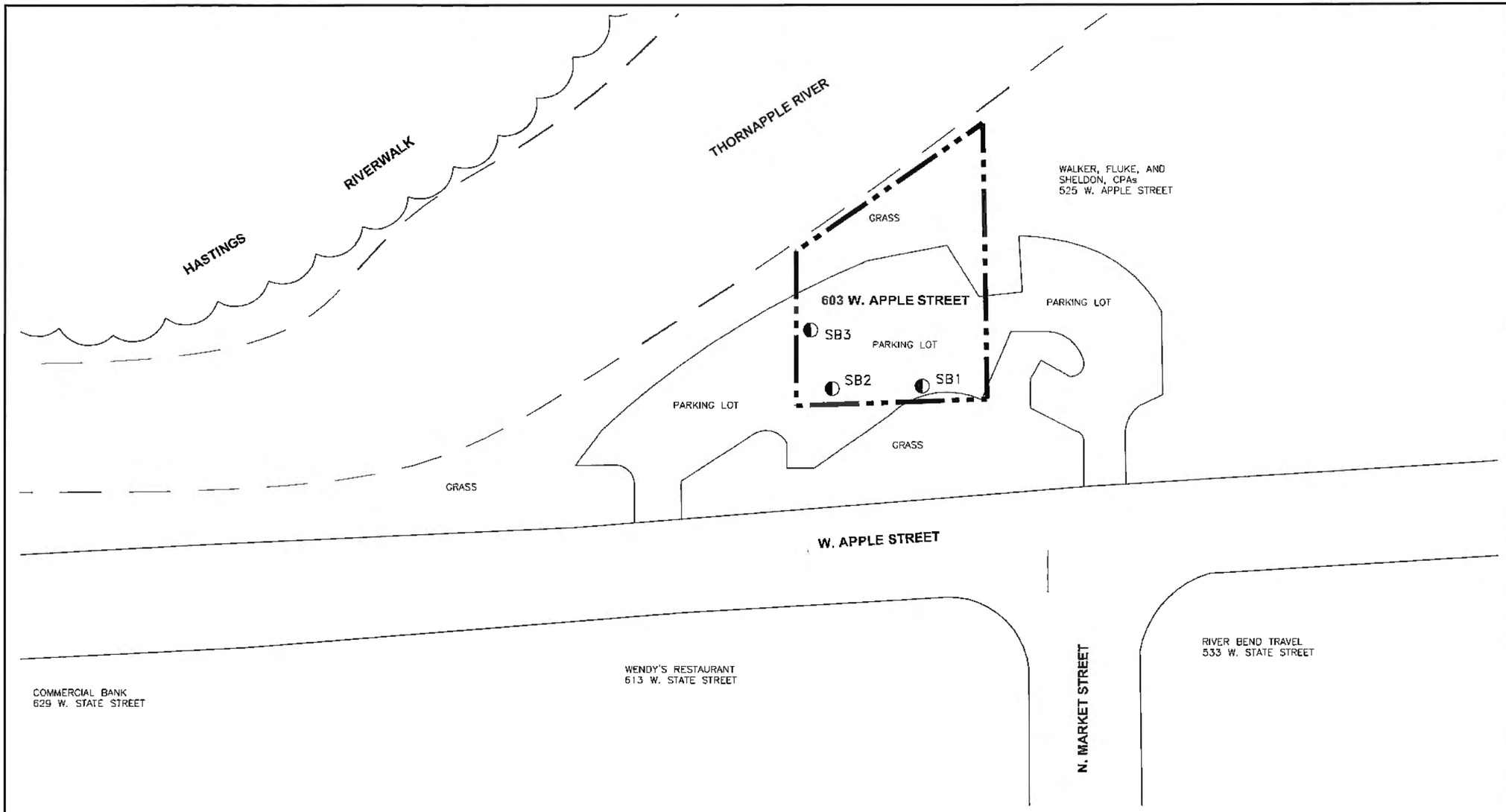
| | |
|---|---|
| Date | 02-20-12 |
| Drawn By | GM |
| Scale | 1" = 2000' |
| Project | 061192.01.011 |

**USGS 7.5 MINUTE TOPOGRAPHIC MAP**

**603 W. APPLE STREET**

**HASTINGS, MICHIGAN**

**Figure No. 1**




## LEGEND

APPROXIMATE PROPERTY BOUNDARY

WOODED LAND

PROPOSED SOIL BORING LOCATION

0' 40' 80'

GRAPHIC SCALE: 1" = 40'

NORTH

NOTE:
1. DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO AND PROPERTY RECONNAISSANCE.
2. PROPERTY FEATURES ARE NOT TO SCALE.

Apr 03, 2012 - 11:16am - MANDRILA
S:\61000\061192.01\061192.01-10.dwg

| No. | Revision Date |
|---|---|
| | |

**PROPERTY FEATURES AND PROPOSED SOIL BORING LOCATION DIAGRAM**
**603 W. APPLE STREET**
**HASTINGS, MICHIGAN**

| | |
|---|---|
| Date | 04-02-12 |
| Drawn By | GM |
| Designed By | LA |
| Scale | 1" = 40' |
| Project | 061192.01.000 |

Indiana
Michigan
Ohio

www.smc-usa.com

**Figure No. 2**

# TABLE

## Analyses Summary Table

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**603 West Apple Street**
**Hastings, MI**
**SME Project No. 061192.01.000**

| Property Assessment Location | | Soil Borings | Sample Matrix | Analytes | |
|---|---|---|---|---|---|
| | | | | VOCs | Ba, Cd, Cr[1], Co, Cu, Pb[2], Hg, Zn |
| Off-site Operations (SB1 through SB3) | | 3 | Soil | 3 | 3 |
| | | | Groundwater | 3 | 3 |
| **TOTAL SOIL BORING SAMPLES** | | 3 | **Soil** | **3** | **3** |
| | | | **Groundwater** | **3** | **3** |
| **QA/QC Samples** | VOC Trip Blank | | Soil | - | - |
| | | | Groundwater | 1 | - |
| | Methanol Blank | | Soil | 1 | - |
| | | | Groundwater | - | - |
| | Field Blank | | Soil | - | - |
| | | | Groundwater | 1 | 1 |
| | Equipment Blank | | Soil | - | - |
| | | | Groundwater | 1 | 1 |
| | Field Duplicate | | Soil | 1 | 1 |
| | | | Groundwater | 1 | 1 |
| | Matrix Spike | | Soil | 1 | 1 |
| | | | Groundwater | 1 | 1 |
| | Matrix Spike Duplicate | | Soil | 1 | 1 |
| | | | Groundwater | 1 | 1 |
| **TOTAL SAMPLES** | | | **Soil** | **7** | **6** |
| | | | **Groundwater** | **9** | **8** |

[1] As discussed in Section 4, soil samples with total chromium measured above the Statewide Default Background Level for tota will also be analyzed for hexavalent chromium.

[2] As discussed in Section 4, soil samples with total lead measured above 75,000 ug/kg will also be analyzed for fine/coarse fracti

# APPENDIX B

## Direct-Push Soil Boring Logs

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# soil and materials engineers, inc.

**PROJECT NAME:** 603 West Apple Street **A/E:** SME **SOIL BORING SB1**
**PROJECT LOCATION:** Hastings, Michigan **BY:** BAB **START:** 4/13/12 **END:** 4/13/12
**CLIENT:** City of Hastings **PROJECT NUMBER:** 061192.01.011 **SHEET:** 1

| DEPTH (FEET) | SYMBOLIC PROFILE | PROFILE DESCRIPTION<br>GROUND SURFACE ELEVATION= | SAMPLE TYPE/NUMBER INTERVAL | SAMPLE RECOVERY | PID (ppm) | ANALYTICAL SAMPLE | FIELD OBSERVATIONS |
|---|---|---|---|---|---|---|---|
| 0 | | 4 inches of Asphalt Concrete | | | | | |
| | | Fine to Medium Sand- Trace to Some Silt- Trace Gravel and Organics- Brown to Dark Brown- Moist (SP-SM/Fill) | LS1 | | <1 | | |
| | | | | | <1 | | |
| | | | | | <1 | | |
| 6 | | | LS2 | | | | |
| | | | | | <1 | | |
| | | Fine to Medium Sand- Trace Silt and Gravel- Brown- Moist (SP) | LS3 | | <1 | | |
| | | | | | <1 | X | |
| 12 | | | | | | | |
| | | | LS4 | | <1 | | |
| | | | | | <1 | | |
| | | Clayey Sand- Some Silt- Trace Gravel- Gray- Moist to Wet (SC) | | | <1 | | |
| 18 | | | LS5 | | | | |
| | | | | | <1 | | |
| | | | | | <1 | | |
| | | | LS6 | | | | |
| | | | | | <1 | | |
| 24 | | Sandy Clay- Some Silt- Trace Gravel- Gray (CL) | | | | | |
| | | | | | <1 | | |
| | | | LS7 | | | | |
| | | Clayey Sand- Some Silt- Gray- Wet (SC) | | | <1 | | |
| | | | | | <1 | | |
| 30 | | | LS8 | | | | |
| | | Fine to Medium Sand- Trace to Some Silt and Gravel- Gray- Brown- Wet (SP/SM) | | | <1 | | |
| | | | | | <1 | | |
| | | Sandy Clay- Some Silt- Trace Gravel- Gray (CL) | LS9 | | | | |
| | | | | | <1 | | |
| 36 | | END OF BORING AT 36 FEET | | | | | |
| 42 | | | | | | | |

WATER LEVEL OBSERVATIONS

GROUNDWATER ENCOUNTERED DURING DRILLING

GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1) THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN-SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2) A TEMPORARY WELL WA INSTALLED FROM 31 FT TO 35 FT BELOW GRADE AND A GROUNDWATER SAMPLE WAS COLLECTED
3) NO ODORS WERE NOTED AND NO STAINING WAS OBSERVED.
4) THE SURFACE OF THE BORING WAS PATCHED WITH ASPHALT COLD PATCH.

**DRILLER:** FIBERTEC-NOLAN **WATER LEVEL DURING DRILLING:** 18.5

**DRILL METHOD:** DIRECT PUSH **BACKFILL METHOD:** SOIL CUTTINGS/BENTONITE

# soil and materials engineers, inc.

**PROJECT NAME:** 603 West Apple Street **A/E:** SME **SOIL BORING SB2**
**PROJECT LOCATION:** Hastings, Michigan **BY:** BAB **START:** 4/13/12 **END:** 4/13/12
**CLIENT:** City of Hastings **PROJECT NUMBER:** 061192.01.011 **SHEET:** 1

| DEPTH (FEET) | SYMBOLIC PROFILE | PROFILE DESCRIPTION<br>GROUND SURFACE ELEVATION= | SAMPLE TYPE/NUMBER INTERVAL | SAMPLE RECOVERY | PID (ppm) | ANALYTICAL SAMPLE | FIELD OBSERVATIONS |
|---|---|---|---|---|---|---|---|
| 0 | | 4 inches of Asphalt Concrete | | | | | |
| | | Fine to Medium Sand- Trace to Some Silt and Gravel- Brown- Moist (SP-SM/Fill) | LS1 | | <1 | | |
| | | Fine to Medium Sand- Trace Silt and Gravel- Moist (SP) | | | <1 | | |
| 6 | | | LS2 | | <1 | X | |
| | | Fine to Medium Sand- Trace to Some Silt and Gravel- Brown- Moist-Wet (SP-SM) | LS3 | | <1 | | |
| 12 | | Clayey Sand- Some Silt- Trace Gravel- Gray- Wet (SC) | | | <1 | | |
| | | Sandy Clay- Some Silt- Trace Gravel- Gray (CL) | LS4 | | <1 | | |
| | | END OF BORING AT 16 FEET | | | | | |
| 18 | | | | | | | |
| 24 | | | | | | | |
| 30 | | | | | | | |
| 36 | | | | | | | |
| 42 | | | | | | | |

WATER LEVEL OBSERVATIONS
GROUNDWATER ENCOUNTERED DURING DRILLING
GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1) THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN-SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2) A TEMPORARY WELL WAS INSTALLED FROM 10 FT TO 15 FT BELOW GRADE, AND A GROUNDWATER SAMPLE WAS COLLECTED.
3) NO ODORS WERE NOTED AND NO STAINING WAS OBSERVE.
4) THE SURFACE OF THE BORING WAS PATCHED WITH ASPHALT COLD PATCH.

**DRILLER:** FIBERTEC-NOLAN **WATER LEVEL DURING DRILLING:** 8.5
**DRILL METHOD:** DIRECT PUSH **BACKFILL METHOD:** SOIL CUTTINGS/BENTONITE

# soil and materials engineers, inc.

**PROJECT NAME:** 603 West Apple Street **A/E:** SME **SOIL BORING SB3**
**PROJECT LOCATION:** Hastings, Michigan **BY:** BAB **START:** 4/13/12 **END:** 4/13/12
**CLIENT:** City of Hastings **PROJECT NUMBER:** 061192.01.011 **SHEET:** 1

| DEPTH (FEET) | SYMBOLIC PROFILE | PROFILE DESCRIPTION<br>GROUND SURFACE ELEVATION= | SAMPLE TYPE/NUMBER INTERVAL | SAMPLE RECOVERY | PID (ppm) | ANALYTICAL SAMPLE | FIELD OBSERVATIONS |
|---|---|---|---|---|---|---|---|
| 0 | | 4 inches of Asphalt Concrete | | | | | |
| | | Fine to Medium Sand- Trace to Some Silt and Gravel- Brown- Moist to Wet (SP-SM/Fill) | LS1 | | <1 | | |
| | | | | | <1 | | |
| | | | | | <1 | | |
| 6 | | | LS2 | | <1 | X | |
| | | | | | <1 | | |
| | | Sandy Clay- Some Silt- Trace Gravel- Gray (CL) | LS3 | | <1 | | |
| 12 | | Clayey Sand- Some Silt- Trace Gravel- Gray- Wet (SC) | LS4 | | <1 | | |
| | | | | | <1 | | |
| | | END OF BORING AT 16 FEET | | | | | |
| 18 | | | | | | | |
| 24 | | | | | | | |
| 30 | | | | | | | |
| 36 | | | | | | | |
| 42 | | | | | | | |

WATER LEVEL OBSERVATIONS
- GROUNDWATER ENCOUNTERED DURING DRILLING
- GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:**
1) THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN-SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2) A TEMPORARY WELL WAS INSTALLED FROM 9 FT TO 14 FT BELOW GRADE, AND A GROUNDWATER SAMPLE WAS COLLECTED
3) NO ODORS WERE NOTED AND NO STAINING WAS OBSERVED.
4) THE SURFACE OF THE BORING WAS PATCHED WITH ASPHALT COLD PATCH

**DRILLER:** FIBERTEC-NOLAN **WATER LEVEL DURING DRILLING:** 8.5
**DRILL METHOD:** DIRECT PUSH **BACKFILL METHOD:** SOIL CUTTINGS/BENTONITE

# APPENDIX C

## Laboratory Data Reports

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Fibertec
environmental
services

April 20, 2012

Case Narrative

Customer: SME
Project Identification: 61192.01
Fibertec Project Number: 49491

Sample Collection/ Receipt
The following samples were collected on and received by Fibertec on April 13, 2012.
7 Soil Samples (including MS/MSD and a blank)
9 Water Samples (including MS/MSD and blanks)
All samples were received on ice and in good condition.

Analysis
Analyses were conducted in accordance with chain of custody and within hold times. The MS/MSD water samples were received but were not on the chain of custody. Per discussion samples were added and analyzed.

All applicable quality assurance / quality control parameters were within acceptance limits unless otherwise noted.

Volatiles
The MS/MSD soil samples have estimated results for methyl iodide and trichlorofluoromethane, high continuing calibration verification. The MS/MSD water samples have estimated results for dichlorodifluoromethane, high continuing calibration verification. Results may be biased high.

Sample data has been reviewed, and reported results remain valid.

Kylum Crandall
Authorized Signature

4-20-12
Date

1914 Holloway Drive Holt, Michigan 48842 Telephone: (517) 699-0345 Facsimile: (517) 699-0388
11766 Grand River Brighton, Michigan 48116 Telephone: (810) 220-3300 Facsimile: (810) 220-3311

**Fibertec** environmental services


**Analytical Laboratory**
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

**Industrial Hygiene Services, Inc.**
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0382
email: asbestos@fibertec.us

**Geoprobe**
11766 E. Grand River
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311


Chain of Custody # 101753

PAGE 1 of 2

Client Name: SME

Contact Person: Sara Bals

Project Name/ Number: 61192.01

Purchase Order#

| Lab Sample # | Date | Time | Client Sample # | Client Sample Descriptor | MATRIX (SEE RIGHT CORNER FOR CODE) | # OF CONTAINERS | PRESERVED (Y/N) | VOC | Barium, Cadmium | Chromium, cobalt, copper | lead, mercury, zinc | | | | | | | Remarks: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4/13 | 9:10 | | SB1 S1 (11.25'-12) | S | 2 | Y | X | X | X | X | | | | | | | |
| | | 12:37 | | SB2 S1 (6.25-7.25') | S | 2 | Y | X | X | X | X | | | | | | | |
| | | 1:32 | | SB3 S1 (7'-8') | S | 2 | Y | X | X | X | X | | | | | | | |
| | | 11:17 | | SB1 GW (31'-35') | GW | 2 | Y | X | X | X | X | | | | | | | |
| | | 12:37 | | SB2 GW (10-15) | GW | 2 | Y | X | X | X | X | | | | | | | |
| | | 2:05 | | SB3 GW (9-14) | GW | 2 | Y | X | X | X | X | | | | | | | |
| | | | | Duplicate Soil | S | 2 | Y | X | X | X | X | | | | | | | |
| | | | | Duplicate GW | GW | 2 | Y | X | X | X | X | | | | | | | |
| | | | | MS Soil | S | 2 | Y | X | X | X | X | | | | | | | |
| | | | | MSD Soil | S | 2 | Y | X | X | X | X | | | | | | | |

PARAMETERS

Turnaround:
- 24 hour RUSH (surcharge applies)
- 48 hour RUSH (surcharge applies)
- 72 hour RUSH (surcharge applies)
- Standard (5-7 bus. days)
- Other: Specify

Matrix Code:
- S Soil
- W Water
- A Air
- O Oil
- P Wipe
- GW Ground Water
- SW Surface Water
- WW Waste Water
- X Other: Specify

Comments:

| Relinquished By: | Date/ Time | Received By: |
|---|---|---|
| [signature] | 4/13/12 2:53 | [signature] |
| [signature] | 4/13/12 1645 | [signature] |
| | | |

Relinquished By:

Date/ Time

Received By Laboratory:

LAB USE ONLY:
Fibertec project number:
Laboratory Tracking:
Temperature at Receipt: 8°

RCV'D ON ICE

49491

COC Revision: April, 2006

TERMS & CONDITIONS ON BACK

**Fibertec** environmental services


**Analytical Laboratory**
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

**Industrial Hygiene Services, Inc.**
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0382
email: asbestos@fibertec.us

**Geoprobe**
11766 E. Grand River
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311


Chain of Custody # 101754

PAGE 2 of 2

Client Name: SME

Contact Person: Sara Bals

Project Name/ Number: 61192.01

Purchase Order#

| Lab Sample # | Date | Time | Client Sample # | Client Sample Descriptor | MATRIX (SEE RIGHT CORNER FOR CODE) | # OF CONTAINERS | PRESERVED (Y/N) | UDC | Barium, Cadmium | Chromium, cobalt, copper | lead, mercury, zinc | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4/13 | | | Trip Blank | GW | 2 | Y | X | | | | | | | | | |
| | ↓ | | | Methanol Blank | S | 1 | Y | X | | | | | | | | | |
| | | | | Field Blank | GW | 2 | Y | X | X | X | X | | | | | | |
| | ↓ | | | Equipment Blank | GW | 2 | Y | X | X | X | X | | | | | | |

PARAMETERS

Turnaround
- 24 hour RUSH (surcharge applies)
- 48 hour RUSH (surcharge applies)
- 72 hour RUSH (surcharge applies)
- Standard (5-7 bus. days)
- Other: Specify

Matrix Code
- S Soil
- W Water
- A Air
- O Oil
- P Wipe
- GW Ground Water
- SW Surface Water
- WW Waste Water
- X Other: Specify

Remarks:

Comments:

| Relinquished By: | Date/ Time | Received By: |
|---|---|---|
| [signature] | 4/13/12 2:53 | [signature] |
| [signature] | 4/13/12 16:45 | [signature] |
| | | |

Relinquished By:

Date/ Time

Received By Laboratory:

LAB USE ONLY:
Fibertec project number:
Laboratory Tracking:
Temperature at Receipt: 8.0°

RCVD ON ICE

COC Revision: April, 2006

TERMS & CONDITIONS ON BACK

Fibertec
environmental
services

Friday, April 20, 2012

| | |
|---|---|
| Fibertec Project Number: | 49491 |
| Project Identification: | 61192.01 / |
| Submittal Date: | 04/13/2012 |

Ms. Sara Bals
Soil and Materials Engineers, Inc. - Kalamazoo
3301 Tech Circle Drive
Kalamazoo, MI 49008-5611

Dear Ms. Bals,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note samples will be disposed of 30 days after reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Daryl P. Strandbergh
Laboratory Director

DPS/kc

Enclosures

Fibertec environmental services

**Analytical Laboratory Report**
**Laboratory Project Number: 49491**
**Laboratory Sample Number: 49491-001**



| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB1 S1 (11.25'-12')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **1** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **09:10** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Dry Weight Determination (ASTM D 2974-87)** **Aliquot ID: 49491-001A** **Matrix: Soil/Solid** **Analyst: BMG**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Percent Moisture (Water Content) (NN) | **4.4** | | % | 0.1 | 1.0 | 04/17/12 | MC120417 | 04/18/12 | MC120417 |

**Trace Elements by ICP/MS (EPA 0200.2-M/EPA 6020A)** **Aliquot ID: 49491-001A** **Matrix: Soil/Solid** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **19000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 2. Cadmium | **54** | | µg/kg | 50 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 3. Chromium | **13000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 4. Cobalt | **2800** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 5. Copper | **7300** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 6. Lead | **6800** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 7. Zinc | **20000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |

**Mercury by CVAAS (EPA 7471B)** **Aliquot ID: 49491-001A** **Matrix: Soil/Solid** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/kg | 50 | 10 | 04/20/12 | PM12D20A | 04/20/12 | M612D20A |

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-001** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/kg | 1000 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 2. Acrylonitrile | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 3. Benzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 4. Bromobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 5. Bromochloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 6. Bromodichloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 7. Bromoform | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 8. Bromomethane | U | | µg/kg | 200 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 9. 2-Butanone | U | | µg/kg | 750 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 10. n-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 11. sec-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 12. tert-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 13. Carbon Disulfide | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 14. Carbon Tetrachloride | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 15. Chlorobenzene | U | | µg/kg | 52 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 16. Chloroethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 17. Chloroform | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 18. Chloromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 19. 2-Chlorotoluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB1 S1 (11.25'-12')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **1** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **09:10** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-001** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 20. Dibromochloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/kg | 10 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 22. Dibromomethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 23. 1,2-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 24. 1,3-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 25. 1,4-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 26. Dichlorodifluoromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 27. 1,1-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 28. 1,2-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 29. 1,1-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 30. cis-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 31. trans-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 32. 1,2-Dichloropropane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 33. cis-1,3-Dichloropropene | U | | µg/kg | 52 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 34. trans-1,3-Dichloropropene | U | | µg/kg | 52 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 35. Ethylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 36. Ethylene Dibromide | U | | µg/kg | 20 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 37. 2-Hexanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 38. Isopropylbenzene | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 39. Methyl Iodide | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 40. Methylene Chloride | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 41. 2-Methylnaphthalene (NN) | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 42. 4-Methyl-2-pentanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 43. MTBE | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 44. Naphthalene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 45. n-Propylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 46. Styrene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 49. Tetrachloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 50. Toluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 51. 1,2,4-Trichlorobenzene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 52. 1,1,1-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 53. 1,1,2-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 54. Trichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 55. Trichlorofluoromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 56. 1,2,3-Trichloropropane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 58. 1,2,4-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB1 S1 (11.25'-12')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **1** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **09:10** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-001** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 59. 1,3,5-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 60. Vinyl Chloride | U | | µg/kg | 40 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 61. Xylenes | U | | µg/kg | 150 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB2 S1 (6.25'-7.25')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **2** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **12:37** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Dry Weight Determination (ASTM D 2974-87)** **Aliquot ID: 49491-002A** **Matrix: Soil/Solid** **Analyst: BMG**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Percent Moisture (Water Content) (NN) | **5.6** | | % | 0.1 | 1.0 | 04/17/12 | MC120417 | 04/18/12 | MC120417 |

**Trace Elements by ICP/MS (EPA 0200.2-M/EPA 6020A)** **Aliquot ID: 49491-002A** **Matrix: Soil/Solid** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **18000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 2. Cadmium | **63** | | µg/kg | 50 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 3. Chromium | **9000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 4. Cobalt | **3000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 5. Copper | **6600** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 6. Lead | **3200** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 7. Zinc | **16000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |

**Mercury by CVAAS (EPA 7471B)** **Aliquot ID: 49491-002A** **Matrix: Soil/Solid** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/kg | 50 | 10 | 04/20/12 | PM12D20A | 04/20/12 | M612D20A |

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-002** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/kg | 1000 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 2. Acrylonitrile | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 3. Benzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 4. Bromobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 5. Bromochloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 6. Bromodichloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 7. Bromoform | U | | µg/kg | 110 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 8. Bromomethane | U | | µg/kg | 200 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 9. 2-Butanone | U | | µg/kg | 750 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 10. n-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 11. sec-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 12. tert-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 13. Carbon Disulfide | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 14. Carbon Tetrachloride | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 15. Chlorobenzene | U | | µg/kg | 53 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 16. Chloroethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 17. Chloroform | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 18. Chloromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 19. 2-Chlorotoluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB2 S1 (6.25'-7.25')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **2** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **12:37** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-002** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 20. Dibromochloromethane | U | | µg/kg | 110 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/kg | 10 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 22. Dibromomethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 23. 1,2-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 24. 1,3-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 25. 1,4-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 26. Dichlorodifluoromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 27. 1,1-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 28. 1,2-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 29. 1,1-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 30. cis-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 31. trans-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 32. 1,2-Dichloropropane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 33. cis-1,3-Dichloropropene | U | | µg/kg | 53 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 34. trans-1,3-Dichloropropene | U | | µg/kg | 53 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 35. Ethylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 36. Ethylene Dibromide | U | | µg/kg | 20 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 37. 2-Hexanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 38. Isopropylbenzene | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 39. Methyl Iodide | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 40. Methylene Chloride | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 41. 2-Methylnaphthalene (NN) | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 42. 4-Methyl-2-pentanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 43. MTBE | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 44. Naphthalene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 45. n-Propylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 46. Styrene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 49. Tetrachloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 50. Toluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 51. 1,2,4-Trichlorobenzene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 52. 1,1,1-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 53. 1,1,2-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 54. Trichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 55. Trichlorofluoromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 56. 1,2,3-Trichloropropane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 58. 1,2,4-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB2 S1 (6.25'-7.25')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **2** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **12:37** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-002** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 59. 1,3,5-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 60. Vinyl Chloride | U | | µg/kg | 40 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 61. Xylenes | U | | µg/kg | 150 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB3 S1 (7'-8)** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **3** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **13:32** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Dry Weight Determination (ASTM D 2974-87)** **Aliquot ID: 49491-003A** **Matrix: Soil/Solid** **Analyst: BMG**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Percent Moisture (Water Content) (NN) | **6.6** | | % | 0.1 | 1.0 | 04/17/12 | MC120417 | 04/18/12 | MC120417 |

**Trace Elements by ICP/MS (EPA 0200.2-M/EPA 6020A)** **Aliquot ID: 49491-003A** **Matrix: Soil/Solid** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **20000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 2. Cadmium | **78** | | µg/kg | 50 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 3. Chromium | **5600** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 4. Cobalt | **1800** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 5. Copper | **6200** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 6. Lead | **9100** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 7. Zinc | **32000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |

**Mercury by CVAAS (EPA 7471B)** **Aliquot ID: 49491-003A** **Matrix: Soil/Solid** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/kg | 50 | 10 | 04/20/12 | PM12D20A | 04/20/12 | M612D20A |

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-003** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/kg | 1000 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 2. Acrylonitrile | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 3. Benzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 4. Bromobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 5. Bromochloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 6. Bromodichloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 7. Bromoform | U | | µg/kg | 110 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 8. Bromomethane | U | | µg/kg | 200 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 9. 2-Butanone | U | | µg/kg | 750 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 10. n-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 11. sec-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 12. tert-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 13. Carbon Disulfide | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 14. Carbon Tetrachloride | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 15. Chlorobenzene | U | | µg/kg | 54 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 16. Chloroethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 17. Chloroform | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 18. Chloromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 19. 2-Chlorotoluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB3 S1 (7'-8)** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **3** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **13:32** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-003** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 20. Dibromochloromethane | U | | µg/kg | 110 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/kg | 10 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 22. Dibromomethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 23. 1,2-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 24. 1,3-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 25. 1,4-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 26. Dichlorodifluoromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 27. 1,1-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 28. 1,2-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 29. 1,1-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 30. cis-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 31. trans-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 32. 1,2-Dichloropropane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 33. cis-1,3-Dichloropropene | U | | µg/kg | 54 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 34. trans-1,3-Dichloropropene | U | | µg/kg | 54 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 35. Ethylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 36. Ethylene Dibromide | U | | µg/kg | 20 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 37. 2-Hexanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 38. Isopropylbenzene | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 39. Methyl Iodide | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 40. Methylene Chloride | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 41. 2-Methylnaphthalene (NN) | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 42. 4-Methyl-2-pentanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 43. MTBE | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 44. Naphthalene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 45. n-Propylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 46. Styrene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 49. Tetrachloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 50. Toluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 51. 1,2,4-Trichlorobenzene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 52. 1,1,1-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 53. 1,1,2-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 54. Trichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 55. Trichlorofluoromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 56. 1,2,3-Trichloropropane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 58. 1,2,4-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB3 S1 (7'-8)** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **3** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **13:32** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-003** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 59. 1,3,5-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 60. Vinyl Chloride | U | | µg/kg | 40 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 61. Xylenes | U | | µg/kg | 150 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB1 GW (31-35')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **4** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **11:17** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Trace Elements by ICP/MS, Total Recoverable (EPA 3005A-M/EPA 6020A)** **Aliquot ID: 49491-004A** **Matrix: Ground Water** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **190** | | µg/L | 100 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 2. Cadmium | U | | µg/L | 1.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 3. Chromium | **45** | | µg/L | 10 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 4. Cobalt | U | | µg/L | 20 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 5. Copper | **39** | | µg/L | 4.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 6. Lead | **20** | | µg/L | 3.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 7. Zinc | **440** | | µg/L | 50 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |

**Mercury by CVAAS, Total (EPA 7470A)** **Aliquot ID: 49491-004A** **Matrix: Ground Water** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/L | 0.19 | 1.0 | 04/17/12 | PM12D17C | 04/17/12 | M612D17C |

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-004** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 2. Acrylonitrile | U | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 3. Benzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 4. Bromobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 5. Bromochloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 6. Bromodichloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 7. Bromoform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 8. Bromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 9. 2-Butanone | U | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 10. n-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 11. sec-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 12. tert-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 13. Carbon Disulfide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 14. Carbon Tetrachloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 15. Chlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 16. Chloroethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 17. Chloroform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 18. Chloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 19. 2-Chlorotoluene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 20. Dibromochloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 22. Dibromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB1 GW (31-35')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **4** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **11:17** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-004** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 24. 1,3-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 26. Dichlorodifluoromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 27. 1,1-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 28. 1,2-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 29. 1,1-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 32. 1,2-Dichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 35. Ethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 36. Ethylene Dibromide | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 37. 2-Hexanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 38. Isopropylbenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 39. Methyl Iodide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 40. Methylene Chloride | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 43. MTBE | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 44. Naphthalene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 45. n-Propylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 46. Styrene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 49. Tetrachloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 50. Toluene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 54. Trichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 55. Trichlorofluoromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 60. Vinyl Chloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 61. Xylenes | U | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB2 GW (10-15')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **5** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **12:37** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Trace Elements by ICP/MS, Total Recoverable (EPA 3005A-M/EPA 6020A)** **Aliquot ID: 49491-005A** **Matrix: Ground Water** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **110** | | µg/L | 100 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 2. Cadmium | U | | µg/L | 1.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 3. Chromium | U | | µg/L | 10 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 4. Cobalt | U | | µg/L | 20 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 5. Copper | **7.6** | | µg/L | 4.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 6. Lead | **5.7** | | µg/L | 3.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 7. Zinc | U | | µg/L | 50 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |

**Mercury by CVAAS, Total (EPA 7470A)** **Aliquot ID: 49491-005A** **Matrix: Ground Water** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/L | 0.19 | 1.0 | 04/17/12 | PM12D17C | 04/17/12 | M612D17C |

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-005** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 2. Acrylonitrile | U | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 3. Benzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 4. Bromobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 5. Bromochloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 6. Bromodichloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 7. Bromoform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 8. Bromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 9. 2-Butanone | U | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 10. n-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 11. sec-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 12. tert-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 13. Carbon Disulfide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 14. Carbon Tetrachloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 15. Chlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 16. Chloroethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 17. Chloroform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 18. Chloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 19. 2-Chlorotoluene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 20. Dibromochloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 22. Dibromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB2 GW (10-15')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **5** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **12:37** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-005** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 24. 1,3-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 26. Dichlorodifluoromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 27. 1,1-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 28. 1,2-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 29. 1,1-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 32. 1,2-Dichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 35. Ethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 36. Ethylene Dibromide | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 37. 2-Hexanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 38. Isopropylbenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 39. Methyl Iodide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 40. Methylene Chloride | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 43. MTBE | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 44. Naphthalene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 45. n-Propylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 46. Styrene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 49. Tetrachloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 50. Toluene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 54. Trichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 55. Trichlorofluoromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 60. Vinyl Chloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 61. Xylenes | U | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB3 GW (9-14')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **6** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **14:05** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Trace Elements by ICP/MS, Total Recoverable (EPA 3005A-M/EPA 6020A)** **Aliquot ID: 49491-006A** **Matrix: Ground Water** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **220** | | µg/L | 100 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 2. Cadmium | U | | µg/L | 1.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 3. Chromium | U | | µg/L | 10 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 4. Cobalt | U | | µg/L | 20 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 5. Copper | **5.0** | | µg/L | 4.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 6. Lead | **6.3** | | µg/L | 3.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 7. Zinc | U | | µg/L | 50 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |

**Mercury by CVAAS, Total (EPA 7470A)** **Aliquot ID: 49491-006A** **Matrix: Ground Water** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/L | 0.19 | 1.0 | 04/17/12 | PM12D17C | 04/17/12 | M612D17C |

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-006** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 2. Acrylonitrile | U | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 3. Benzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 4. Bromobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 5. Bromochloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 6. Bromodichloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 7. Bromoform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 8. Bromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 9. 2-Butanone | U | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 10. n-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 11. sec-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 12. tert-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 13. Carbon Disulfide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 14. Carbon Tetrachloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 15. Chlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 16. Chloroethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 17. Chloroform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 18. Chloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 19. 2-Chlorotoluene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 20. Dibromochloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 22. Dibromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **SB3 GW (9-14')** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **6** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **14:05** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-006** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 24. 1,3-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 26. Dichlorodifluoromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 27. 1,1-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 28. 1,2-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 29. 1,1-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 32. 1,2-Dichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 35. Ethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 36. Ethylene Dibromide | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 37. 2-Hexanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 38. Isopropylbenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 39. Methyl Iodide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 40. Methylene Chloride | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 43. MTBE | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 44. Naphthalene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 45. n-Propylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 46. Styrene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 49. Tetrachloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 50. Toluene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 54. Trichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 55. Trichlorofluoromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 60. Vinyl Chloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 61. Xylenes | U | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |

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|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **DUPLICATE SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **7** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Dry Weight Determination (ASTM D 2974-87)** **Aliquot ID: 49491-007A** **Matrix: Soil/Solid** **Analyst: BMG**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Percent Moisture (Water Content) (NN) | **4.9** | | % | 0.1 | 1.0 | 04/17/12 | MC120417 | 04/18/12 | MC120417 |

**Trace Elements by ICP/MS (EPA 0200.2-M/EPA 6020A)** **Aliquot ID: 49491-007A** **Matrix: Soil/Solid** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **10000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 2. Cadmium | **67** | | µg/kg | 50 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 3. Chromium | **9000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 4. Cobalt | **2000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 5. Copper | **3500** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 6. Lead | **2500** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 7. Zinc | **9200** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |

**Mercury by CVAAS (EPA 7471B)** **Aliquot ID: 49491-007A** **Matrix: Soil/Solid** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/kg | 50 | 10 | 04/20/12 | PM12D20A | 04/20/12 | M612D20A |

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-007** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/kg | 1000 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 2. Acrylonitrile | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 3. Benzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 4. Bromobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 5. Bromochloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 6. Bromodichloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 7. Bromoform | U | | µg/kg | 110 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 8. Bromomethane | U | | µg/kg | 200 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 9. 2-Butanone | U | | µg/kg | 750 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 10. n-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 11. sec-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 12. tert-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 13. Carbon Disulfide | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 14. Carbon Tetrachloride | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 15. Chlorobenzene | U | | µg/kg | 53 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 16. Chloroethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 17. Chloroform | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 18. Chloromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 19. 2-Chlorotoluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

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|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **DUPLICATE SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **7** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-007** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 20. Dibromochloromethane | U | | µg/kg | 110 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/kg | 10 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 22. Dibromomethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 23. 1,2-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 24. 1,3-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 25. 1,4-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 26. Dichlorodifluoromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 27. 1,1-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 28. 1,2-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 29. 1,1-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 30. cis-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 31. trans-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 32. 1,2-Dichloropropane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 33. cis-1,3-Dichloropropene | U | | µg/kg | 53 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 34. trans-1,3-Dichloropropene | U | | µg/kg | 53 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 35. Ethylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 36. Ethylene Dibromide | U | | µg/kg | 20 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 37. 2-Hexanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 38. Isopropylbenzene | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 39. Methyl Iodide | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 40. Methylene Chloride | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 41. 2-Methylnaphthalene (NN) | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 42. 4-Methyl-2-pentanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 43. MTBE | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 44. Naphthalene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 45. n-Propylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 46. Styrene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 49. Tetrachloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 50. Toluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 51. 1,2,4-Trichlorobenzene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 52. 1,1,1-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 53. 1,1,2-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 54. Trichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 55. Trichlorofluoromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 56. 1,2,3-Trichloropropane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 58. 1,2,4-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

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|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **DUPLICATE SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **7** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-007** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 59. 1,3,5-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 60. Vinyl Chloride | U | | µg/kg | 40 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 61. Xylenes | U | | µg/kg | 150 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **DUPLICATE GW** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **8** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Trace Elements by ICP/MS, Total Recoverable (EPA 3005A-M/EPA 6020A)** **Aliquot ID: 49491-008A** **Matrix: Ground Water** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **130** | | µg/L | 100 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 2. Cadmium | U | | µg/L | 1.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 3. Chromium | U | | µg/L | 10 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 4. Cobalt | U | | µg/L | 20 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 5. Copper | **11** | | µg/L | 4.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 6. Lead | **7.5** | | µg/L | 3.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 7. Zinc | U | | µg/L | 50 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |

**Mercury by CVAAS, Total (EPA 7470A)** **Aliquot ID: 49491-008A** **Matrix: Ground Water** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/L | 0.19 | 1.0 | 04/17/12 | PM12D17C | 04/17/12 | M612D17C |

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-008** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 2. Acrylonitrile | U | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 3. Benzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 4. Bromobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 5. Bromochloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 6. Bromodichloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 7. Bromoform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 8. Bromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 9. 2-Butanone | U | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 10. n-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 11. sec-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 12. tert-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 13. Carbon Disulfide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 14. Carbon Tetrachloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 15. Chlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 16. Chloroethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 17. Chloroform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 18. Chloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 19. 2-Chlorotoluene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 20. Dibromochloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 22. Dibromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **DUPLICATE GW** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **8** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-008** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 24. 1,3-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 26. Dichlorodifluoromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 27. 1,1-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 28. 1,2-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 29. 1,1-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 32. 1,2-Dichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 35. Ethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 36. Ethylene Dibromide | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 37. 2-Hexanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 38. Isopropylbenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 39. Methyl Iodide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 40. Methylene Chloride | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 43. MTBE | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 44. Naphthalene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 45. n-Propylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 46. Styrene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 49. Tetrachloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 50. Toluene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 54. Trichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 55. Trichlorofluoromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 60. Vinyl Chloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 61. Xylenes | U | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MS SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **9** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Dry Weight Determination (ASTM D 2974-87)** **Aliquot ID: 49491-009A** **Matrix: Soil/Solid** **Analyst: BMG**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Percent Moisture (Water Content) (NN) | **5.3** | | % | 0.1 | 1.0 | 04/17/12 | MC120417 | 04/18/12 | MC120417 |

**Trace Elements by ICP/MS (EPA 0200.2-M/EPA 6020A)** **Aliquot ID: 49491-009A** **Matrix: Soil/Solid** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **65000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 2. Cadmium | **10000** | | µg/kg | 50 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 3. Chromium | **26000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 4. Cobalt | **12000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 5. Copper | **26000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 6. Lead | **27000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 7. Zinc | **70000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |

**Mercury by CVAAS (EPA 7471B)** **Aliquot ID: 49491-009A** **Matrix: Soil/Solid** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | **230** | | µg/kg | 50 | 10 | 04/20/12 | PM12D20A | 04/20/12 | M612D20A |

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-009** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | **3800** | | µg/kg | 1000 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 2. Acrylonitrile | **4000** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 3. Benzene | **4300** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 4. Bromobenzene | **3800** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 5. Bromochloromethane | **3700** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 6. Bromodichloromethane | **5300** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 7. Bromoform | **4600** | | µg/kg | 110 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 8. Bromomethane | **4100** | | µg/kg | 200 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 9. 2-Butanone | **3800** | | µg/kg | 750 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 10. n-Butylbenzene | **5200** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 11. sec-Butylbenzene | **4100** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 12. tert-Butylbenzene | **4100** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 13. Carbon Disulfide | **4900** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 14. Carbon Tetrachloride | **5500** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 15. Chlorobenzene | **4500** | | µg/kg | 53 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 16. Chloroethane | **4900** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 17. Chloroform | **4400** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 18. Chloromethane | **3200** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 19. 2-Chlorotoluene | **3900** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |

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|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MS SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **9** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-009** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 20. Dibromochloromethane | **4700** | | µg/kg | 110 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 21. 1,2-Dibromo-3-chloropropane (NN) | **4300** | | µg/kg | 10 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 22. Dibromomethane | **5400** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 23. 1,2-Dichlorobenzene | **4500** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 24. 1,3-Dichlorobenzene | **4200** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 25. 1,4-Dichlorobenzene | **4200** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 26. Dichlorodifluoromethane | **4200** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 27. 1,1-Dichloroethane | **4100** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 28. 1,2-Dichloroethane | **8500** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 29. 1,1-Dichloroethene | **5000** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 30. cis-1,2-Dichloroethene | **4100** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 31. trans-1,2-Dichloroethene | **4200** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 32. 1,2-Dichloropropane | **4200** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 33. cis-1,3-Dichloropropene | **4500** | | µg/kg | 53 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 34. trans-1,3-Dichloropropene | **4500** | | µg/kg | 53 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 35. Ethylbenzene | **4200** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 36. Ethylene Dibromide | **9700** | | µg/kg | 20 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 37. 2-Hexanone | **3800** | | µg/kg | 2500 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 38. Isopropylbenzene | **4400** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 39. Methyl Iodide | **6000** | J,V+ | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 40. Methylene Chloride | **3800** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 41. 2-Methylnaphthalene (NN) | **3400** | | µg/kg | 330 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 42. 4-Methyl-2-pentanone | **4300** | | µg/kg | 2500 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 43. MTBE | **8200** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 44. Naphthalene | **4400** | | µg/kg | 330 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 45. n-Propylbenzene | **4000** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 46. Styrene | **4800** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 47. 1,1,1,2-Tetrachloroethane | **5200** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 48. 1,1,2,2-Tetrachloroethane | **4200** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 49. Tetrachloroethene | **4900** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 50. Toluene | **4400** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 51. 1,2,4-Trichlorobenzene | **4400** | | µg/kg | 330 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 52. 1,1,1-Trichloroethane | **4500** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 53. 1,1,2-Trichloroethane | **4700** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 54. Trichloroethene | **4800** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 55. Trichlorofluoromethane | **5900** | J,V+ | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 56. 1,2,3-Trichloropropane | **4200** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 57. 1,2,3-Trimethylbenzene (NN) | **4200** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 58. 1,2,4-Trimethylbenzene | **3700** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MS SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **9** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-009** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 59. 1,3,5-Trimethylbenzene | **4100** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 60. Vinyl Chloride | **3900** | | µg/kg | 40 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 61. Xylenes | **13000** | | µg/kg | 150 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MSD SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **10** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Dry Weight Determination (ASTM D 2974-87)** **Aliquot ID: 49491-010A** **Matrix: Soil/Solid** **Analyst: BMG**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Percent Moisture (Water Content) (NN) | **5.3** | | % | 0.1 | 1.0 | 04/17/12 | MC120417 | 04/18/12 | MC120417 |

**Trace Elements by ICP/MS (EPA 0200.2-M/EPA 6020A)** **Aliquot ID: 49491-010A** **Matrix: Soil/Solid** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **65000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 2. Cadmium | **10000** | | µg/kg | 50 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 3. Chromium | **26000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 4. Cobalt | **13000** | | µg/kg | 500 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 5. Copper | **25000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 6. Lead | **23000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |
| 7. Zinc | **66000** | | µg/kg | 1000 | 20 | 04/19/12 | PT12D19B | 04/19/12 | T212D19A |

**Mercury by CVAAS (EPA 7471B)** **Aliquot ID: 49491-010A** **Matrix: Soil/Solid** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | **240** | | µg/kg | 50 | 10 | 04/20/12 | PM12D20A | 04/20/12 | M612D20A |

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-010** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | **3900** | | µg/kg | 1000 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 2. Acrylonitrile | **4100** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 3. Benzene | **4600** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 4. Bromobenzene | **4100** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 5. Bromochloromethane | **3900** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 6. Bromodichloromethane | **5800** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 7. Bromoform | **4900** | | µg/kg | 110 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 8. Bromomethane | **4600** | | µg/kg | 200 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 9. 2-Butanone | **3800** | | µg/kg | 750 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 10. n-Butylbenzene | **6000** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 11. sec-Butylbenzene | **4600** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 12. tert-Butylbenzene | **4500** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 13. Carbon Disulfide | **5600** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 14. Carbon Tetrachloride | **6200** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 15. Chlorobenzene | **4800** | | µg/kg | 53 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 16. Chloroethane | **5300** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 17. Chloroform | **4800** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 18. Chloromethane | **3800** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 19. 2-Chlorotoluene | **4300** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MSD SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **10** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-010** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 20. Dibromochloromethane | **5000** | | µg/kg | 110 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 21. 1,2-Dibromo-3-chloropropane (NN) | **4600** | | µg/kg | 10 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 22. Dibromomethane | **5700** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 23. 1,2-Dichlorobenzene | **4900** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 24. 1,3-Dichlorobenzene | **4600** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 25. 1,4-Dichlorobenzene | **4600** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 26. Dichlorodifluoromethane | **4400** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 27. 1,1-Dichloroethane | **4500** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 28. 1,2-Dichloroethane | **8900** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 29. 1,1-Dichloroethene | **5600** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 30. cis-1,2-Dichloroethene | **4400** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 31. trans-1,2-Dichloroethene | **4500** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 32. 1,2-Dichloropropane | **4600** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 33. cis-1,3-Dichloropropene | **4800** | | µg/kg | 53 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 34. trans-1,3-Dichloropropene | **4800** | | µg/kg | 53 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 35. Ethylbenzene | **4600** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 36. Ethylene Dibromide | **10000** | | µg/kg | 20 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 37. 2-Hexanone | **4000** | | µg/kg | 2500 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 38. Isopropylbenzene | **4900** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 39. Methyl Iodide | **7000** | J,V+ | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 40. Methylene Chloride | **4000** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 41. 2-Methylnaphthalene (NN) | **3900** | | µg/kg | 330 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 42. 4-Methyl-2-pentanone | **4500** | | µg/kg | 2500 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 43. MTBE | **8600** | | µg/kg | 250 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 44. Naphthalene | **4800** | | µg/kg | 330 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 45. n-Propylbenzene | **4500** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 46. Styrene | **5300** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 47. 1,1,1,2-Tetrachloroethane | **5700** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 48. 1,1,2,2-Tetrachloroethane | **4400** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 49. Tetrachloroethene | **5400** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 50. Toluene | **4900** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 51. 1,2,4-Trichlorobenzene | **4900** | | µg/kg | 330 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 52. 1,1,1-Trichloroethane | **5100** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 53. 1,1,2-Trichloroethane | **5000** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 54. Trichloroethene | **5300** | | µg/kg | 50 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 55. Trichlorofluoromethane | **6600** | J,V+ | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 56. 1,2,3-Trichloropropane | **4400** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 57. 1,2,3-Trimethylbenzene (NN) | **4600** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 58. 1,2,4-Trimethylbenzene | **4200** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MSD SOIL** | Chain of Custody: | **101753** |
| Client Project Name: | **61192.01** | Sample No: | **10** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-010** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 59. 1,3,5-Trimethylbenzene | **4500** | | µg/kg | 100 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 60. Vinyl Chloride | **4300** | | µg/kg | 40 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |
| 61. Xylenes | **14000** | | µg/kg | 150 | 1.0 | 04/17/12 | V912D17D | 04/17/12 | V912D17D |

Fibertec environmental services

**Analytical Laboratory Report**
**Laboratory Project Number: 49491**
**Laboratory Sample Number: 49491-011**



| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **TRIP BLANK** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **11** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-011** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 2. Acrylonitrile | U | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 3. Benzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 4. Bromobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 5. Bromochloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 6. Bromodichloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 7. Bromoform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 8. Bromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 9. 2-Butanone | U | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 10. n-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 11. sec-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 12. tert-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 13. Carbon Disulfide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 14. Carbon Tetrachloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 15. Chlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 16. Chloroethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 17. Chloroform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 18. Chloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 19. 2-Chlorotoluene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 20. Dibromochloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 22. Dibromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 24. 1,3-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 26. Dichlorodifluoromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 27. 1,1-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 28. 1,2-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 29. 1,1-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 32. 1,2-Dichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 35. Ethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 36. Ethylene Dibromide | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 37. 2-Hexanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 38. Isopropylbenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 39. Methyl Iodide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **TRIP BLANK** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **11** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-011** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 40. Methylene Chloride | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 43. MTBE | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 44. Naphthalene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 45. n-Propylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 46. Styrene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 49. Tetrachloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 50. Toluene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 54. Trichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 55. Trichlorofluoromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 60. Vinyl Chloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 61. Xylenes | U | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **METHANOL BLANK** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **12** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-012** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/kg | 1000 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 2. Acrylonitrile | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 3. Benzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 4. Bromobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 5. Bromochloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 6. Bromodichloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 7. Bromoform | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 8. Bromomethane | U | | µg/kg | 200 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 9. 2-Butanone | U | | µg/kg | 750 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 10. n-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 11. sec-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 12. tert-Butylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 13. Carbon Disulfide | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 14. Carbon Tetrachloride | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 15. Chlorobenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 16. Chloroethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 17. Chloroform | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 18. Chloromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 19. 2-Chlorotoluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 20. Dibromochloromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/kg | 10 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 22. Dibromomethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 23. 1,2-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 24. 1,3-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 25. 1,4-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 26. Dichlorodifluoromethane | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 27. 1,1-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 28. 1,2-Dichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 29. 1,1-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 30. cis-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 31. trans-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 32. 1,2-Dichloropropane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 33. cis-1,3-Dichloropropene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 34. trans-1,3-Dichloropropene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 35. Ethylbenzene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 36. Ethylene Dibromide | U | | µg/kg | 20 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 37. 2-Hexanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 38. Isopropylbenzene | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 39. Methyl Iodide | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **METHANOL BLANK** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **12** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **NA** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)** **Aliquot ID: 49491-012** **Matrix: Soil/Solid** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 40. Methylene Chloride | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 41. 2-Methylnaphthalene (NN) | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 42. 4-Methyl-2-pentanone | U | | µg/kg | 2500 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 43. MTBE | U | | µg/kg | 250 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 44. Naphthalene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 45. n-Propylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 46. Styrene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 49. Tetrachloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 50. Toluene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 51. 1,2,4-Trichlorobenzene | U | | µg/kg | 330 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 52. 1,1,1-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 53. 1,1,2-Trichloroethane | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 54. Trichloroethene | U | | µg/kg | 50 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 55. Trichlorofluoromethane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 56. 1,2,3-Trichloropropane | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 58. 1,2,4-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 59. 1,3,5-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 60. Vinyl Chloride | U | | µg/kg | 40 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |
| 61. Xylenes | U | | µg/kg | 150 | 1.0 | 04/16/12 | V912D16A | 04/16/12 | V912D16A |

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|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **FIELD BLANK** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **13** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Trace Elements by ICP/MS, Total Recoverable (EPA 3005A-M/EPA 6020A)** **Aliquot ID: 49491-013A** **Matrix: Ground Water** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | U | | µg/L | 100 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 2. Cadmium | U | | µg/L | 1.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 3. Chromium | U | | µg/L | 10 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 4. Cobalt | U | | µg/L | 20 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 5. Copper | U | | µg/L | 4.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 6. Lead | U | | µg/L | 3.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 7. Zinc | U | | µg/L | 50 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |

**Mercury by CVAAS, Total (EPA 7470A)** **Aliquot ID: 49491-013A** **Matrix: Ground Water** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/L | 0.19 | 1.0 | 04/17/12 | PM12D17C | 04/17/12 | M612D17C |

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-013** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 2. Acrylonitrile | U | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 3. Benzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 4. Bromobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 5. Bromochloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 6. Bromodichloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 7. Bromoform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 8. Bromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 9. 2-Butanone | U | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 10. n-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 11. sec-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 12. tert-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 13. Carbon Disulfide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 14. Carbon Tetrachloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 15. Chlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 16. Chloroethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 17. Chloroform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 18. Chloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 19. 2-Chlorotoluene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 20. Dibromochloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 22. Dibromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **FIELD BLANK** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **13** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-013** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 24. 1,3-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 26. Dichlorodifluoromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 27. 1,1-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 28. 1,2-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 29. 1,1-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 32. 1,2-Dichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 35. Ethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 36. Ethylene Dibromide | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 37. 2-Hexanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 38. Isopropylbenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 39. Methyl Iodide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 40. Methylene Chloride | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 43. MTBE | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 44. Naphthalene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 45. n-Propylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 46. Styrene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 49. Tetrachloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 50. Toluene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 54. Trichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 55. Trichlorofluoromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 60. Vinyl Chloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 61. Xylenes | U | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **EQUIPMENT BLANK** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **14** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Trace Elements by ICP/MS, Total Recoverable (EPA 3005A-M/EPA 6020A)** **Aliquot ID: 49491-014A** **Matrix: Ground Water** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **130** | | µg/L | 100 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 2. Cadmium | U | | µg/L | 1.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 3. Chromium | U | | µg/L | 10 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 4. Cobalt | U | | µg/L | 20 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 5. Copper | U | | µg/L | 4.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 6. Lead | U | | µg/L | 3.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 7. Zinc | U | | µg/L | 50 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |

**Mercury by CVAAS, Total (EPA 7470A)** **Aliquot ID: 49491-014A** **Matrix: Ground Water** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/L | 0.19 | 1.0 | 04/17/12 | PM12D17C | 04/17/12 | M612D17C |

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-014** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 2. Acrylonitrile | U | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 3. Benzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 4. Bromobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 5. Bromochloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 6. Bromodichloromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 7. Bromoform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 8. Bromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 9. 2-Butanone | U | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 10. n-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 11. sec-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 12. tert-Butylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 13. Carbon Disulfide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 14. Carbon Tetrachloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 15. Chlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 16. Chloroethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 17. Chloroform | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 18. Chloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 19. 2-Chlorotoluene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 20. Dibromochloromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 22. Dibromomethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |

Fibertec environmental services

**Analytical Laboratory Report**
**Laboratory Project Number: 49491**
**Laboratory Sample Number: 49491-014**



| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **EQUIPMENT BLANK** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **14** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-014** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 24. 1,3-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 26. Dichlorodifluoromethane | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 27. 1,1-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 28. 1,2-Dichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 29. 1,1-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 32. 1,2-Dichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 35. Ethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 36. Ethylene Dibromide | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 37. 2-Hexanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 38. Isopropylbenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 39. Methyl Iodide | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 40. Methylene Chloride | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | U | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 43. MTBE | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 44. Naphthalene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 45. n-Propylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 46. Styrene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 49. Tetrachloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 50. Toluene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | U | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 54. Trichloroethene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 55. Trichlorofluoromethane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 60. Vinyl Chloride | U | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |
| 61. Xylenes | U | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/19/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MS GW** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **15** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Trace Elements by ICP/MS, Total Recoverable (EPA 3005A-M/EPA 6020A)** **Aliquot ID: 49491-015A** **Matrix: Ground Water** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **710** | | µg/L | 100 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 2. Cadmium | **110** | | µg/L | 1.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 3. Chromium | **210** | | µg/L | 10 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 4. Cobalt | **100** | | µg/L | 20 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 5. Copper | **210** | | µg/L | 4.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 6. Lead | **200** | | µg/L | 3.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 7. Zinc | **530** | | µg/L | 50 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |

**Mercury by CVAAS, Total (EPA 7470A)** **Aliquot ID: 49491-015A** **Matrix: Ground Water** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | **0.20** | | µg/L | 0.19 | 1.0 | 04/17/12 | PM12D17C | 04/17/12 | M612D17C |

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-015** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | **110** | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 2. Acrylonitrile | **98** | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 3. Benzene | **99** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 4. Bromobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 5. Bromochloromethane | **92** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 6. Bromodichloromethane | **94** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 7. Bromoform | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 8. Bromomethane | **61** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 9. 2-Butanone | **91** | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 10. n-Butylbenzene | **140** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 11. sec-Butylbenzene | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 12. tert-Butylbenzene | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 13. Carbon Disulfide | **120** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 14. Carbon Tetrachloride | **83** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 15. Chlorobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 16. Chloroethane | **110** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 17. Chloroform | **97** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 18. Chloromethane | **70** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 19. 2-Chlorotoluene | **110** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 20. Dibromochloromethane | **110** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 22. Dibromomethane | **93** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MS GW** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **15** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-015** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 24. 1,3-Dichlorobenzene | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 26. Dichlorodifluoromethane | **140** | J,V+ | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 27. 1,1-Dichloroethane | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 28. 1,2-Dichloroethane | **180** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 29. 1,1-Dichloroethene | **130** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | **99** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 32. 1,2-Dichloropropane | **94** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | **88** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 35. Ethylbenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 36. Ethylene Dibromide | **210** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 37. 2-Hexanone | **120** | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 38. Isopropylbenzene | **110** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 39. Methyl Iodide | **62** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 40. Methylene Chloride | **97** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | **130** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | **110** | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 43. MTBE | **280** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 44. Naphthalene | **130** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 45. n-Propylbenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 46. Styrene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 49. Tetrachloroethene | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 50. Toluene | **94** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | **110** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 54. Trichloroethene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 55. Trichlorofluoromethane | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 60. Vinyl Chloride | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 61. Xylenes | **320** | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MSD GW** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **16** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Trace Elements by ICP/MS, Total Recoverable (EPA 3005A-M/EPA 6020A)** **Aliquot ID: 49491-016A** **Matrix: Ground Water** **Analyst: JLH**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Barium | **700** | | µg/L | 100 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 2. Cadmium | **100** | | µg/L | 1.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 3. Chromium | **210** | | µg/L | 10 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 4. Cobalt | **110** | | µg/L | 20 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 5. Copper | **210** | | µg/L | 4.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 6. Lead | **190** | | µg/L | 3.0 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |
| 7. Zinc | **550** | | µg/L | 50 | 10 | 04/19/12 | PT12D19A | 04/19/12 | T212D19A |

**Mercury by CVAAS, Total (EPA 7470A)** **Aliquot ID: 49491-016A** **Matrix: Ground Water** **Analyst: JLP**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | **0.20** | | µg/L | 0.19 | 1.0 | 04/17/12 | PM12D17C | 04/17/12 | M612D17C |

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-016** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | **110** | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 2. Acrylonitrile | **100** | | µg/L | 2.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 3. Benzene | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 4. Bromobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 5. Bromochloromethane | **96** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 6. Bromodichloromethane | **99** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 7. Bromoform | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 8. Bromomethane | **96** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 9. 2-Butanone | **100** | | µg/L | 25 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 10. n-Butylbenzene | **160** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 11. sec-Butylbenzene | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 12. tert-Butylbenzene | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 13. Carbon Disulfide | **130** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 14. Carbon Tetrachloride | **92** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 15. Chlorobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 16. Chloroethane | **120** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 17. Chloroform | **99** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 18. Chloromethane | **87** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 19. 2-Chlorotoluene | **110** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 20. Dibromochloromethane | **120** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 21. 1,2-Dibromo-3-chloropropane (NN) | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 22. Dibromomethane | **96** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 23. 1,2-Dichlorobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Soil and Materials Engineers, Inc. - Kalamazoo** | Sample Description: | **MSD GW** | Chain of Custody: | **101754** |
| Client Project Name: | **61192.01** | Sample No: | **16** | Collect Date: | **04/13/12** |
| Client Project No: | **NA** | Sample Matrix: | **Ground Water** | Collect Time: | **NA** |

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable NN: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)** **Aliquot ID: 49491-016** **Matrix: Ground Water** **Analyst: JPL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Prep Date | Prep Batch | Analysis Date | Analysis Batch |
|---|---|---|---|---|---|---|---|---|---|
| 24. 1,3-Dichlorobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 25. 1,4-Dichlorobenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 26. Dichlorodifluoromethane | **140** | J,V+ | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 27. 1,1-Dichloroethane | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 28. 1,2-Dichloroethane | **190** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 29. 1,1-Dichloroethene | **130** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 30. cis-1,2-Dichloroethene | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 31. trans-1,2-Dichloroethene | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 32. 1,2-Dichloropropane | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 33. cis-1,3-Dichloropropene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 34. trans-1,3-Dichloropropene | **92** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 35. Ethylbenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 36. Ethylene Dibromide | **210** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 37. 2-Hexanone | **120** | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 38. Isopropylbenzene | **110** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 39. Methyl Iodide | **89** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 40. Methylene Chloride | **99** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 41. 2-Methylnaphthalene (NN) | **140** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 42. 4-Methyl-2-pentanone | **110** | | µg/L | 50 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 43. MTBE | **290** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 44. Naphthalene | **130** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 45. n-Propylbenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 46. Styrene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 47. 1,1,1,2-Tetrachloroethane | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 48. 1,1,2,2-Tetrachloroethane | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 49. Tetrachloroethene | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 50. Toluene | **95** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 51. 1,2,4-Trichlorobenzene | **120** | | µg/L | 5.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 52. 1,1,1-Trichloroethane | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 53. 1,1,2-Trichloroethane | **100** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 54. Trichloroethene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 55. Trichlorofluoromethane | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 56. 1,2,3-Trichloropropane | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 57. 1,2,3-Trimethylbenzene (NN) | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 58. 1,2,4-Trimethylbenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 59. 1,3,5-Trimethylbenzene | **110** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 60. Vinyl Chloride | **120** | | µg/L | 1.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |
| 61. Xylenes | **320** | | µg/L | 3.0 | 1.0 | 04/19/12 | V912D19B | 04/20/12 | V912D19B |

**Definitions/ Qualifiers:**

**A:** Spike recovery or precision unusable due to dilution.
**B:** The analyte was detected in the associated method blank.
**E:** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
**J:** The concentration is an estimated value.
**M:** Modified Method
**U:** The analyte was not detected at or above the reporting limit.
**X:** Matrix Interference has resulted in a raised reporting limit or distorted result.
**W:** Results reported on a wet-weight basis.
***:** Value reported is outside QA limits

**Exception Summary:**

**V+** : Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.

ACCREDITED IN ACCORDANCE WITH nelac

Accreditation Number:

**E-10395**