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FAIRBANKS ENVIRONMENTAL SERVICES

DATE: December 17, 2015

TO: Mr. Russell Grandel, Alaska Railroad Corporation

FROM: Mr. Mike Boese, Fairbanks Environmental Services

RE: 2015 Well Installation and Groundwater Monitoring Report
Former Mammoth Trucking Site
Anchorage, Alaska
ADEC Hazard ID – 23887 / File ID – 2100.26.202

## EXECUTIVE SUMMARY

In September 2015, Fairbanks Environmental Services (FES) advanced and sampled two soil borings at the Alaska Railroad Corporation (ARRC) former Mammoth Trucking site. Both soil borings were completed as wells, and groundwater samples were collected from the two new monitoring wells (MW-6 and MW-7) and four existing wells (CHMWE1, CHMWE2, EMCONMW-4, and CHMWE5) in October 2015. The new borings/wells were installed on the southern edge of the property in the presumed direction of groundwater flow. The former Mammoth Trucking site is located at 1048 East Whitney Road in Anchorage, Alaska (Figure 1).

Soil samples from the groundwater interface were submitted for laboratory analysis. Due to the presence of a mild petroleum odor, one additional soil sample was submitted from below the water table in boring SB-1. Soil samples were analyzed for volatile organic compounds (VOC), gasoline range organics (GRO), diesel range organics (DRO), and residual range organics (RRO). Laboratory results from soil samples, including the sample exhibiting petroleum odor, were either not detected or were below Alaska Department of Environmental Conservation (ADEC) Method Two Migration to Groundwater (Under 40-Inch Zone) soil cleanup levels.

Groundwater samples were analyzed for VOC, GRO, DRO, and RRO using the same analytical methods. Laboratory results exceeded ADEC Table C groundwater cleanup levels in four of the six wells that were sampled. Compounds that were detected above ADEC groundwater cleanup levels included tetrachloroethene (PCE) in CHMWE1; DRO, trichloroethene (TCE), and vinyl chloride in CHMWE2; and vinyl chloride in CHMWE5 and MW-6. No compounds were detected above ADEC cleanup levels in EMCONMW-4 or MW-7. DRO concentrations just below the cleanup level were noted in groundwater samples collected from new wells MW-6 and MW-7.

Groundwater data indicate a southerly groundwater flow and that at least two plumes are present at the site, a petroleum plume (consisting of DRO and diesel constituents) and a chlorinated plume (consisting

of PCE and breakdown products). The petroleum plume emanates from residual petroleum contamination presumably associated with the former USTs in the vicinity of CHMWE2 (the sample from CHMWE2 exceeded the ADEC cleanup level for DRO). Since PCE is present only in the furthest upgradient well (CHMWE1), the well is either near a PCE source in the northern portion of the site or there is an upgradient PCE source that is migrating onto the site. Samples from well CHMWE2, located downgradient of CHMWE1, exceeded ADEC groundwater cleanup levels for both petroleum (DRO) and chlorinated (TCE and vinyl chloride) contaminants indicating a co-mingled plume at that location.

The reduced groundwater conditions (dissolved oxygen <2 milligrams per liter [mg/L]) noted in several wells across the site is presumably the result of anaerobic biodegradation of residual petroleum hydrocarbons. A reduced environment allows for faster dechlorination of PCE to vinyl chloride. PCE breakdown products including TCE, dichloroethene isomers, and/or vinyl chloride were detected in all wells except EMCONMW-4 and MW-7. Vinyl chloride at concentrations above the groundwater cleanup level was detected in sample from two wells (CHMWE5 and MW-6) located at the southern edge of the site.

# 1.0 INTRODUCTION

## 1.1 Site Description

The former Mammoth Trucking site is located at 1048 East Whitney Road in Anchorage, Alaska (Figures 1 and 2). The subject property is currently leased to Alaska West Express by the ARRC. Site improvements include a building surrounded by a large, paved yard. The site is underlain by a shallow, unconfined aquifer.

## 1.2 Previous Investigations

In 1990, one 500-gallon gasoline underground storage tank (UST), one 2,000-gallon diesel UST, one 12,000-gallon diesel UST, and two used oil USTs were removed from the northwest corner of the former Mammoth Trucking property. After removal of the tanks and approximately 140 cubic yards of contaminated soil, obvious soil contamination remained (Northern Test Lab, 1991).

In 1994, Laidlaw Transit, Inc. (Laidlaw), assumed the lease for the property. As part of the lease agreement, Laidlaw contracted with EMCON Alaska, Inc. (EMCON) to perform a baseline site assessment, including the installation of four monitoring wells. Groundwater analysis results revealed DRO, GRO, and VOCs (including vinyl chloride and PCE) above the ADEC groundwater cleanup levels (EMCON, 1994).

Site characterization activities conducted between 1994 and 2012 indicate that soil and groundwater exceed ADEC cleanup levels for petroleum and chlorinated solvents. The source of chlorinated solvent contamination has not been identified, and based on PCE detections in wells located upgradient of the tanks, the chlorinated solvent contamination does not appear to be from the former USTs. Groundwater flow direction at the former Mammoth Trucking site is generally to the south-southwest toward Ship Creek (CH2MHill, 1999b).

The following table illustrates the highest groundwater concentration from any one monitoring well located at the former Mammoth Trucking site for contaminants of potential concern (COPC) through 2012.

**Historic High Concentrations for Contaminants of Potential Concern through 2012[1]**

| Contaminant of Potential Concern | Historic Highest Concentration (mg/L) | Reference | ADEC Table C Cleanup Level (mg/L) |
|---|---|---|---|
| **Petroleum Hydrocarbons** | | | |
| GRO | 3.1 | EMCON, 1994 | 2.2 |
| DRO | 26.6 | CH2MHill, 1999a | 1.5 |
| RRO | 11.9 | CH2MHill, 1999b | 1.1 |
| **Volatile Organic Compounds** | | | |
| Benzene | 0.010 | CH2MHill, 1999b | 0.005 |
| PCE | 0.044[2] | CH2MHill, 1999b | 0.005 |
| TCE | 0.030 | CH2MHill, 1999b | 0.005 |
| Vinyl Chloride | 0.0258 | Restoration Science & Engineering, 2012 | 0.002 |

[1] Table is from Clarus, 2010 and was updated using data from Restoration Science & Engineering, 2012.
[2] The historic high PCE concentration listed in the table was exceeded in 2015.
mg/L – milligrams per liter

In 2013, a passive soil gas survey was performed on the west and northwest sides of the existing building. While some of the petroleum and chlorinated contaminants detected by the soil gas survey have been detected in soil and groundwater at the site, there was not a strong correlation in the detection locations (FES, 2013). The results did indicate a hot spot located 50 feet west of the building near the location of the former USTs.

A follow-up soil gas survey was performed in 2014 and included the installation and sampling of three soil gas wells. While the survey confirmed that deep soil gas from the hot spot exceeded ADEC target levels, the soil gas samples from the two well points installed nearest the existing building were below target levels for deep soil gas (FES, 2015b).

## 2.0 WORK PERFORMED

Field work was performed in accordance with the approved work plan (FES, 2015a) with the deviations described in Section 2.6. FES, in conjunction with drilling contractor GeoTek Alaska, advanced two soil borings and installed two monitoring wells on the subject property. ADEC-qualified person Mike Boese provided oversight for soil boring advancement and well installation, and provided environmental sampling services. Soil and groundwater samples are summarized in Table 1. Site photographs are included in Appendix A.

### 2.1 Soil Sample Collection

On September 25, 2015, two soil borings (SB-1 and SB-2) were advanced in the locations shown on Figure 2. Initially, the asphalt was cored to allow for access to the soil. Drilling was performed using a Geoprobe 6620DT drill rig using direct push dual tube tooling. The soil cores were collected in clear plastic liners of five foot length, and samples were obtained by retrieving and splitting the liners. The soil borings were advanced into the saturated zone to a total depth of 15 feet below ground surface (bgs). Detailed descriptions of the soil cores (primarily silts, clays, and sands) were logged in the field and are included on the boring logs in Appendix B.

Screening samples were collected by transferring soil from select intervals into a sealable plastic bag using a stainless steel spoon. Two screening samples were collected from each five-foot core interval. Screening samples were heated for approximately 10 minutes and agitated prior to screening with a photo-ionization detector instrument (PID). The highest PID reading was recorded from each sample and is shown on the boring logs.

One laboratory sample was collected from each boring. The soil samples were collected from the groundwater interface which was encountered at approximately 8 and 8.5 feet bgs, respectively. An additional soil sample was collected from boring SB-1 at a depth of 12 feet bgs from an interval with a mild petroleum odor and a slightly elevated PID result. A field duplicate was collected from SB-2.

Laboratory samples were collected by transferring soil from the select intervals into sample jars. Volatile soil samples were collected in pre-weighted jars and samples were immediately covered with methanol. Non-volatile samples were collected by packing the jar full as to reduce headspace. Material greater than 0.25-inch was discarded. Soil samples were placed in a cooler containing frozen gel ice and maintained at 4 degrees Celsius and submitted to SGS North America (SGS) in Anchorage, Alaska. Soil samples were analyzed for VOC, GRO, DRO, and RRO using SW8260B, AK101, AK102, and AK103, respectively. A methanol trip blank accompanied project soil samples to the laboratory and was analyzed for VOCs and GRO. Soil cuttings were placed in a 55 gallon drum.

## 2.2 Monitoring Well Installation and Development

Soil borings SB-1 and SB-2 were completed as monitoring wells MW-6 and MW-7, respectively, on September 25, 2014. Monitoring well locations are shown on Figure 3 and well logs are included in Appendix B.

Wells MW-6 and MW-7 were developed, and existing well CHMWE5 was redeveloped, on October 1, 2015. The 2-inch diameter wells were initially surged with a steel surge block, and then surged and purged repeatedly with a peristaltic pump to remove fines and provide clear, representative groundwater samples. Approximately 6.5, 35, and 50 gallons of water were removed from wells CHMWE5, MW-6, and MW-7, respectively. Approximately 1.5 gallons of distilled water was added during the initial development of MW-6. The wells were considered to be developed when turbidity measurements were below 100 nephelometric turbidity units (NTUs). All purge water was containerized in 55-gallon open top drums. Following development, the wells were subsequently purged and sampled as described in Section 2.5.

## 2.3 Well Survey and Condition

The horizontal coordinates of existing and new monitoring wells were collected with a global positioning system (GPS) on October 1, 2015. In addition, the elevations of the top of the monitoring well casings were surveyed with a rod and level to an arbitrary benchmark given the elevation of 100.00 feet. The well elevation survey was performed after sample collection on October 23, 2015. Survey information is provided in Table 1.

Wells EMCONMW-4 and CHMWE5 had jacked upward so the well casings were cut down below grade. Surface water infiltration was identified in CHMWE5 so it was redeveloped on October 1, 2015. In addition, wells CHMWE3 and CHMWE4 were discovered to be damaged and do not appear to be operable. The casing of well CHMWE3 was found completely filled with silt and the casing of well

CHMWE4 was found half filled with silt. Well CHMWE4 was cut down below grade and plugged to eliminate additional surface water infiltration.

## 2.4 Water Level Measurements

Immediately prior to purging and sampling, the depth to water was measured in each of the wells. The depths were measured to within 0.01-foot from the top of the well casings using an oil/water interface probe. Groundwater elevations are shown on Figure 3 and depths to water and elevations are listed in Table 3.

## 2.5 Groundwater Sample Collection

Three existing monitoring wells (CHMWE1, CHMWE2, and EMCONMW-4) and the two new monitoring wells (MW-6 and MW-7) shown on Figure 4 were sampled by ADEC-qualified person Mike Boese on October 5, 2015 using low-flow techniques. Samples were collected after a period of heavy precipitation. EMCONMW-4 was sampled in lieu of well CHMWE4 because well CHMWE4 was plugged and could not be sampled. EMCONMW-4 was located approximately 20 feet south of CHMWE-4; both wells are shown on Figure 4. The wells were purged and sampled with disposable tubing and a peristaltic pump. Tubing intake was set at approximately 2 feet below the top of the water column.

Groundwater parameters were collected with a YSI Model 556 multi-parameter instrument equipped with a flow through cell. Turbidity readings were measured with an Oakton T-100 turbidimeter. Analytical samples were collected after the temperature, pH, dissolved oxygen (DO), oxidation-reduction (redox) potential, and conductivity parameters had stabilized per the requirements in ADEC's field sampling guidance (ADEC, 2010). Groundwater samples were collected by disconnecting the flow through cell and pumping directly into sample containers at a low flow rate to minimize sample aeration.

One groundwater sample was collected from each well. In addition, a field duplicate sample (denoted MWX) was collected from well CHMWE1. Water samples were placed in a cooler containing frozen gel ice and maintained at 4 degrees Celsius and submitted to SGS in Anchorage, Alaska. Groundwater samples were also analyzed for VOC, GRO, DRO, and RRO by methods SW8260B, AK101, AK102, and AK103, respectively, and a water trip blank accompanied project groundwater samples to the laboratory and was analyzed for VOC and GRO.

## 2.6 Work Plan Deviations

Work was performed according to the approved Work Plan (FES, 2015a) with the following exceptions.

- One additional soil sample was collected from boring SB-1 due to the presence of a mild petroleum odor; sample SB-1B was collected approximately 4 feet below the groundwater interface at a depth of 12 feet bgs.
- Existing well EMCONMW-4 was sampled in lieu of well CHMWE4. Well CHMWE4 was damaged with several feet of sediment in the casing and there was evidence of surface water entering the well. Well EMCONMW-4 was discovered approximately 20 feet south of CHMWE4 (well identification was found in CH2M Hill, 1999b); it was sealed and in good condition.

## 3.0 SOIL RESULTS

Field screening results are shown on the boring logs in Appendix B and are summarized below:

- SB-1: PID readings ranged from 0.9 parts per million (ppm) to 10.3 ppm. A faint petroleum odor was identified at approximately 12 feet bgs.
- SB-2: PID readings ranged from 0.8 ppm to 15.5 ppm. No visual or olfactory indication of hydrocarbon contamination was noted.

Soil samples relinquished to the laboratory for analysis are summarized in Table 1 and soil sample results are summarized in Table 2. Soil sample results were compared to the most stringent cleanup levels listed in Tables B1 and B2 of Title 18 of the Alaska Administrative Code chapter 75 (18 AAC 75) for the under 40 inch zone. All results from laboratory soil samples were below applicable ADEC soil cleanup levels. A copy of the laboratory report is included as Appendix C.

## 4.0 GROUNDWATER RESULTS

Groundwater samples submitted to the laboratory for analysis are summarized in Table 1; results are summarized in Table 5 and shown on Figure 4. Well survey data are included in Table 3. Field groundwater parameters, including groundwater depths, are summarized in Table 4. Historical soil and groundwater cleanup level exceedances are shown for comparison in Figure 5.

Groundwater depths varied between approximately 4 to 9 feet bgs. The groundwater measurements were used to calculate relative groundwater elevations. Groundwater elevation contours for October 5, 2015 are displayed on Figure 3; inferred groundwater flow is to the south with a gradient of approximately 0.02 foot per foot.

No sheen or hydrocarbon odor was observed during purging or sampling any of the five monitoring wells sampled during the monitoring event. However, a decomposition odor was noted on the purge water removed from CHMWE2. A reduced groundwater environment (DO below 2 milligrams per liter [mg/L]) was noted in most of the wells.

Groundwater sample results were compared to cleanup levels listed in Table C of 18 AAC 75. Concentrations of DRO, PCE, TCE, and vinyl chloride above the ADEC groundwater cleanup levels were detected in the samples collected.

- DRO exceeded the ADEC groundwater cleanup level in the sample well CHMWE2. DRO was detected at 2.45 mg/L in the sample from this well, exceeding the ADEC cleanup level of 1.5 mg/L.
- PCE exceeded the groundwater cleanup level in the sample from well CHMWE1. The groundwater sample from CHMWE1 exhibited a PCE concentration of 0.0521 mg/L, which was above the groundwater cleanup level of 0.005 mg/L.
- TCE exceeded the groundwater cleanup level in the sample from well CHMWE2. TCE was detected in sample CHMWE2 at a concentration of 0.00579 mg/L exceeding the groundwater cleanup level of 0.005 mg/L.

- Vinyl chloride concentrations exceeded the groundwater cleanup level (0.002 mg/L) in samples from three wells. The vinyl chloride concentrations in CHMWE2, CHMWE5, and MW-6 were 0.00467, 0.00585, and 0.0076 mg/L, respectively.

The DRO exceedance in sample CHMWE2 is likely associated with residual petroleum contamination documented during the 1990 UST removal since CHMWE2 was installed in the former UST excavation footprint. Elevated DRO concentrations (below the ADEC groundwater cleanup level) were also noted in groundwater samples collected from new downgradient wells MW-6 and MW-7. The source of DRO in the samples from these wells is unknown.

PCE was only detected in samples (primary and field duplicate) from upgradient well CHMWE1. PCE breakdown products including TCE, dichloroethenes, and/or vinyl chloride were detected in all wells except EMCONMW-4 and MW-7. Since no chlorinated compounds were detected in those wells, EMCONMW-4 and MW-7 may represent the western and eastern extents, respectively, of the chlorinated contaminant plume. Vinyl chloride was detected in two of the three wells at the southern edge of the property at concentrations above the groundwater cleanup level.

## 5.0 INVESTIGATION DERIVED WASTE

Soil cuttings are stored onsite in a labeled drum. Since laboratory data showed that all soil samples were below ADEC cleanup levels, the soil cuttings will be spread on site in an unpaved area in spring 2016.

Water from monitoring well development and well purging was disposed of through the National Response Corporation (NRC). NRC removed two full drums of water (approximately 100 gallons total) from the site following the completion of groundwater sampling on October 5, 2015. The waste manifest and certificate of disposal are included in Appendix E.

Sample gloves and tubing were placed in a dumpster and disposed of at the Anchorage Municipal Landfill

## 6.0 DATA QUALITY SUMMARY

Soil and groundwater samples were collected and analyzed in accordance with the approved Work Plan (FES, 2015a) with the exceptions noted in Section 2.6. The deviations did not adversely impact project data quality.

All project samples were analyzed by SGS of Anchorage, Alaska. The laboratory is approved by the State of Alaska through the Contaminated Sites Program for the contaminant methods employed. All soil samples were shipped in a single sample data group (SDG) and assigned the SGS report number 1155621; a copy of the laboratory report and ADEC checklist is included in Appendix C. All groundwater samples were shipped in a single SDG and assigned the SGS report number 1155864; a copy of the laboratory report and ADEC checklist is included in Appendix D.

The chemical data were evaluated in order to assess whether they met data quality objectives and were acceptable for project use. The findings of the review are documented in ADEC Checklists. Overall, the review process deemed the soil and groundwater data acceptable for project use. No data were rejected

pursuant to FES's data quality review, and all analytical data may be used for project purposes. Notable data quality issues are summarized below:

- Three soil analytes (1,2-dibromoethane, 1,2,3-trichloropropane, and methylene chloride) and two groundwater analytes (1,2-dibromoethane and 1,2,3-trichloropropane) were reported with inadequate sensitivity. Although the analytes were not detected in project samples, the analytes were reported with limits of detection in excess of associated ADEC groundwater cleanup levels. Therefore, the 1,2-dibromoethane, 1,2,3-trichloropropane, and methylene chloride results in soil samples and the 1,2-dibromoethane and 1,2,3-trichloropropane results in groundwater samples have limited usefulness; the absence of these analytes at concentrations above cleanup levels cannot be verified. However, the aforementioned analytes do not appear to be COPCs for the site.
- Detected GRO concentrations in several groundwater samples were determined to be artifacts attributable to laboratory contamination.

## 7.0 CONCLUSIONS

Soil sample results associated with the two borings installed on the southern edge of the property were below ADEC soil cleanup levels.

The groundwater flow direction was determined to be towards the south based upon the October 2015 groundwater level measurements. The flow direction determined during this sampling event was more southerly than previous groundwater measurements have shown. The change in groundwater flow direction may be attributed to the heavy precipitation prior to the groundwater measurements. Groundwater was approximately 1 foot higher than water levels measured in October 2010 and 0.5 foot higher than water levels measured during the September 2012 monitoring event.

Various compound concentrations exceeded ADEC Table C groundwater cleanup levels in samples from four of the six wells. Compounds that were detected above ADEC groundwater cleanup levels included PCE in CHMWE1; DRO, TCE, and vinyl chloride in CHMWE2; and vinyl chloride in CHMWE5 and MW-6. No contaminants were detected above ADEC cleanup levels in EMCONMW-4 or MW-7.

Since PCE has only been detected in groundwater samples collected from the furthest upgradient well (CHMWE1), the PCE source is either near the location of CHMWE1 or PCE has migrated from an upgradient offsite source. PCE was detected above ADEC cleanup levels in three soil samples collected from the boring associated with CHMWE1 during 1998; PCE was detected in soils above and below the water table, although the highest concentration was detected below the water table (CH2MHill, 1999a).

The reduced groundwater environment at the site is likely the result of anaerobic biodegradation of residual petroleum hydrocarbons. The reduced environment is likely the facilitator for the rapid dechlorination of PCE to TCE to dichloroethenes to vinyl chloride. The range of PCE breakdown products detected in site monitoring wells in the direction of groundwater flow is consistent with the dechlorination process. Vinyl chloride was detected in two wells (CHMWE5 and MW6) at the southern edge of the property at concentrations above the groundwater cleanup level.

DRO, RRO, TCE, and vinyl chloride concentrations detected during the 2015 sampling event were all lower than the maximum historic concentrations observed at this site. However, the PCE level observed in CHMWE1 (0.0521 mg/L) was the highest PCE concentration that has been measured in groundwater at the site. The source of the PCE contamination remains unknown. In addition the downgradient extent of vinyl chloride exceeding ADEC cleanup levels has not been determined.

## 8.0 REFERENCES

Alaska Department of Environmental Conservation (ADEC), 2015. *Oil and Other Hazardous Substances Pollution Control, 18 AAC 75.* June 17.

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Restoration Science & Engineering, LLC, 2012. *Groundwater Monitoring Report, Former Mammoth Trucking Facility, 1048 Whitney Road, Anchorage, Alaska, ADEC File No. 2100.26.202*. October.

**Attachments:**

Table 1 – Soil and Groundwater Sample Summary
Table 2 – Soil Sample Results
Table 3 – Well Survey Data
Table 4 – Groundwater Parameters
Table 5 – Groundwater Sample Results

Figure 1 – Vicinity Map
Figure 2 – Site Map
Figure 3 – 2015 Groundwater Elevation Contours
Figure 4 – DRO, PCE, TCE, and Vinyl Chloride Concentrations in Groundwater Samples
Figure 5 – Previous Groundwater and Soil Cleanup Level Exceedances

Appendix A – Photolog
Appendix B – Boring and Well Completion Logs
Appendix C – Laboratory Report 1155621 and Checklist
Appendix D – Laboratory Report 1155864 and Checklist
Appendix E – Waste Manifest and Disposal Certificate

**Table 1 - Soil and Groundwater Sample Summary**
**Former Mammoth Trucking**

| Sample Number | Location | Sample Type | Date | Time | Sampler | VOC (8260B) | GRO (AK101) | DRO (AK102) | RRO (AK103) | Laboratory Report |
|---|---|---|---|---|---|---|---|---|---|---|
| **Soil Samples** | | | | | | | | | | |
| SB-1A | SB1 - 8' | Primary | 9/25/2015 | 1000 | MB | x | x | x | x | 1155621 |
| SB-1B | SB1 - 12' | Primary | 9/25/2015 | 1020 | MB | x | x | x | x | 1155621 |
| SB-2A | SB2 - 8.5' | Primary | 9/25/2015 | 1205 | MB | x | x | x | x | 1155621 |
| SB-2B | SB2 - 8.5' | Field Duplicate | 9/25/2015 | 1220 | MB | x | x | x | x | 1155621 |
| **Groundwater Samples** | | | | | | | | | | |
| CHMWE1 | CHMWE1 | Primary | 10/5/2015 | 950 | MB | x | x | x | x | 1155864 |
| CHMWE2 | CHMWE2 | Primary | 10/5/2015 | 1030 | MB | x | x | x | x | 1155864 |
| EMCONMW-4 | EMCONMW-4 | Primary | 10/5/2015 | 1140 | MB | x | x | x | x | 1155864 |
| CHMWE5 | CHMWE5 | Primary | 10/5/2015 | 1345 | MB | x | x | x | x | 1155864 |
| MW6 | MW-6 | Primary | 10/5/2015 | 1305 | MB | x | x | x | x | 1155864 |
| MW7 | MW-7 | Primary | 10/5/2015 | 1220 | MB | x | x | x | x | 1155864 |
| MWX | CHMWE1 | Field Duplicate | 10/5/2015 | 900 | MB | x | x | x | x | 1155864 |
| **Quality Control Samples** | | | | | | | | | | |
| Trip Blank | Soil | Trip Blank | 9/25/2015 | 800 | - | x | x | - | - | 1155621 |
| Trip Blank | Water | Trip Blank | 10/5/2015 | 800 | - | x | x | - | - | 1155864 |

X - Indicates that the sample was analyzed for the method listed at the top of the column.

**Table 2 - Soil Sample Results**
**Former Mammoth Trucking**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | **Boring** | **SB-1** | **SB-1** | **SB-2** | | **Trip Blank** |
| | | | **Sample ID** | **SB-1A** | **SB-1B** | **SB-2A** | **SB-2B** | **Trip Blank** |
| | | | **Sample Depth** | **8 feet** | **12 feet** | **8.5 feet** | | **-** |
| | | | **Laboratory ID** | **1155621001** | **1155621002** | **1155621003** | **1155621004** | **1155621005** |
| | | | **Collection Date** | **9/25/2015** | **9/25/2015** | **9/25/2015** | **9/25/2015** | **9/25/2015** |
| | | | **Dry Weight (% by Weight)** | **83.8** | **86.7** | **84.6** | **85.6** | **-** |
| | | | **Sample Type** | **Primary** | **Primary** | **Primary** | **Field Duplicate** | **Trip Blank** |
| **Analyte** | **Method** | **Units** | **ADEC Soil Cleanup Level[1]** | **Result (LOD)** | **Result (LOD)** | **Result (LOD)** | **Result (LOD)** | **Result (LOD)** |
| Gasoline Range Organics | AK101 | mg/kg | *300* | 1.88 J,B | 1.92 J | 4.11 J | 5.92 | ND(1.23) |
| Diesel Range Organics | AK102 | mg/kg | *250* | 16.3 J | 35.9 | ND(11.7) | ND(11.6) | - |
| Residual Range Organics | AK103 | mg/kg | *10000* | 56.9 | 18.1 J | 21.1 J | 19.0 J | - |
| | | | | | | | | |
| Benzene | SW8260B | µg/kg | *25* | ND(9.30) | 4.54 J | 8.25 J | 8.30 J | ND(6.15) |
| Toluene | SW8260B | µg/kg | *6500* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Ethylbenzene | SW8260B | µg/kg | *6900* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| n-Butylbenzene | SW8260B | µg/kg | *15000* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Carbon disulfide | SW8260B | µg/kg | *12000* | ND(74.5) | ND(43.3) | ND(82.5) | ND(66.5) | ND (49.0) |
| 1,4-Dichlorobenzene | SW8260B | µg/kg | *640* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,2-Dichloroethane | SW8260B | µg/kg | *16* | ND(7.45) | ND(4.33) | ND(8.25) | ND(6.65) | ND(4.90) |
| 1,3,5-Trimethylbenzene | SW8260B | µg/kg | *23000* | ND(18.6) | 7.79 J | ND(20.6) | ND(16.6) | ND(12.3) |
| 4-Chlorotoluene | SW8260B | µg/kg | *NE* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Chlorobenzene | SW8260B | µg/kg | *630* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 4-Methyl-2-pentanone (MIBK) | SW8260B | µg/kg | *8100* | ND(186) | ND(108) | ND(207) | ND(166) | ND(123) |
| cis-1,2-Dichloroethene | SW8260B | µg/kg | *240* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 4-Isopropyltoluene | SW8260B | µg/kg | *NE* | 14.1 J | 13.2 J | ND(20.6) | ND(16.6) | ND(12.3) |
| Methyl-t-butyl ether | SW8260B | µg/kg | *1300* | ND(74.5) | ND(43.3) | ND(82.5) | ND(66.5) | ND(49.0) |
| cis-1,3-Dichloropropene | SW8260B | µg/kg | *33 (Total)* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| n-Propylbenzene | SW8260B | µg/kg | *15000* | 19.7 J | 16.0 J | 20.2 J | 22.6 J | ND(12.3) |
| Styrene | SW8260B | µg/kg | *960* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Dibromomethane | SW8260B | µg/kg | *1100* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| trans-1,3-Dichloropropene | SW8260B | µg/kg | *33 (Total)* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,2,4-Trichlorobenzene | SW8260B | µg/kg | *850* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,1,2,2-Tetrachloroethane | SW8260B | µg/kg | *17* | ND(9.30) | ND(5.40) | ND(10.3) | ND(8.30) | ND(6.15) |
| 1,2-Dibromo-3-chloropropane | SW8260B | µg/kg | *NE* | ND(74.5) | ND(43.3) | ND(82.5) | ND(66.5) | ND(49.0) |
| Tetrachloroethene | SW8260B | µg/kg | *24* | ND(9.30) | ND(5.40) | ND(10.3) | ND(8.30) | ND(6.15) |
| Dibromochloromethane | SW8260B | µg/kg | *32* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,3-Dichloropropane | SW8260B | µg/kg | *33* | ND(7.45) | ND(4.33) | ND(8.25) | ND(6.65) | ND(4.90) |
| 1,2-Dibromoethane | SW8260B | µg/kg | *0.16* | ND(7.45) | ND(4.33) | ND(8.25) | ND(6.65) | ND(4.90) |
| Carbon tetrachloride | SW8260B | µg/kg | *23* | ND(9.30) | ND(5.40) | ND(10.3) | ND(8.30) | ND(6.15) |
| 1,1,1,2-Tetrachloroethane | SW8260B | µg/kg | *NE* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Chloroform | SW8260B | µg/kg | *460* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Bromobenzene | SW8260B | µg/kg | *NE* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,2,3-Trichloropropane | SW8260B | µg/kg | *0.53* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Chloromethane | SW8260B | µg/kg | *210* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Bromomethane | SW8260B | µg/kg | *160* | ND(149) | ND(86.5) | ND(165) | ND(133) | ND(98.0) |
| Bromochloromethane | SW8260B | µg/kg | *NE* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Vinyl chloride | SW8260B | µg/kg | *8.5* | ND(7.45) | ND(4.33) | ND(8.25) | ND(6.65) | ND(4.90) |
| Dichlorodifluoromethane | SW8260B | µg/kg | *140000* | ND(37.2) | ND(21.6) | ND(41.3) | ND(33.2) | ND(24.5) |
| Chloroethane | SW8260B | µg/kg | *23000* | ND(149) | ND(86.5) | ND(165) | ND(133) | ND(98.0) |
| sec-Butylbenzene | SW8260B | µg/kg | *12000* | 17.5 J | 19.0 J | ND(20.6) | ND(16.6) | ND(12.3) |
| Bromodichloromethane | SW8260B | µg/kg | *44* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,1-Dichloroethene | SW8260B | µg/kg | *30* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 2-Butanone (MEK) | SW8260B | µg/kg | *59000* | ND(186) | ND(108) | ND(207) | ND(166) | ND(123) |
| Methylene chloride | SW8260B | µg/kg | *16* | ND(74.5) | ND(43.3) | ND(82.5) | ND(66.5) | ND(49.0) |
| Trichlorofluoromethane | SW8260B | µg/kg | *86000* | ND(37.2) | ND(21.6) | ND(41.3) | ND(33.2) | ND(24.5) |
| P & M -Xylene | SW8260B | µg/kg | *63000* | ND(37.2) | ND(21.6) | 28.5 J | 33.9 J | ND(24.5) |
| Naphthalene | SW8260B | µg/kg | *20000* | ND(37.2) | 32.0 J | ND(41.3) | ND(33.2) | ND(24.5) |
| o-Xylene | SW8260B | µg/kg | *63000* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Bromoform | SW8260B | µg/kg | *340* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Xylenes (total) | SW8260B | µg/kg | *63000* | ND(56.0) | ND(32.5) | 28.5 J | 33.9 J | ND(36.8) |
| 1,2,4-Trimethylbenzene | SW8260B | µg/kg | *23000* | 49.5 J | 45.0 | ND(41.3) | ND(33.2) | ND(24.5) |
| tert-Butylbenzene | SW8260B | µg/kg | *12000* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,1,1-Trichloroethane | SW8260B | µg/kg | *820* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,1-Dichloroethane | SW8260B | µg/kg | *25* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 2-Chlorotoluene | SW8260B | µg/kg | *NE* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Trichloroethene | SW8260B | µg/kg | *20* | ND(9.30) | ND(5.40) | ND(10.3) | ND(8.30) | ND(6.15) |

**Table 2 - Soil Sample Results**
**Former Mammoth Trucking**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | **Boring** | **ADEC Soil Cleanup Level[1]** | **SB-1** | **SB-1** | **SB-2** | | **Trip Blank** |
| | | | **Sample ID** | | **SB-1A** | **SB-1B** | **SB-2A** | **SB-2B** | **Trip Blank** |
| | | | **Sample Depth** | | **8 feet** | **12 feet** | **8.5 feet** | | **-** |
| | | | **Laboratory ID** | | **1155621001** | **1155621002** | **1155621003** | **1155621004** | **1155621005** |
| | | | **Collection Date** | | **9/25/2015** | **9/25/2015** | **9/25/2015** | **9/25/2015** | **9/25/2015** |
| | | | **Dry Weight (% by Weight)** | | **83.8** | **86.7** | **84.6** | **85.6** | **-** |
| | | | **Sample Type** | | **Primary** | **Primary** | **Primary** | **Field Duplicate** | **Trip Blank** |
| **Analyte** | **Method** | **Units** | | | **Result (LOD)** | **Result (LOD)** | **Result (LOD)** | **Result (LOD)** | **Result (LOD)** |
| trans-1,2-Dichloroethene | SW8260B | µg/kg | | *370* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,2-Dichlorobenzene | SW8260B | µg/kg | | *5100* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 2,2-Dichloropropane | SW8260B | µg/kg | | *NE* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| Hexachlorobutadiene | SW8260B | µg/kg | | *120* | ND(37.2) | ND(21.6) | ND(41.3) | ND(33.2) | ND(24.5) |
| Isopropylbenzene (Cumene) | SW8260B | µg/kg | | *51000* | ND(18.6) | ND(10.8) | 14.0 J | 19.6 J | ND(12.3) |
| 2-Hexanone | SW8260B | µg/kg | | *NE* | ND(186) | ND(108) | ND(207) | ND(166) | ND(123) |
| 1,2-Dichloropropane | SW8260B | µg/kg | | *18* | ND(7.45) | ND(4.33) | ND(8.25) | ND(6.65) | ND(4.90) |
| 1,1-Dichloropropene | SW8260B | µg/kg | | *NE* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,1,2-Trichloroethane | SW8260B | µg/kg | | *18* | ND(7.45) | ND(4.33) | ND(8.25) | ND(6.65) | ND(4.90) |
| 1,3-Dichlorobenzene | SW8260B | µg/kg | | *28000* | ND(18.6) | ND(10.8) | ND(20.6) | ND(16.6) | ND(12.3) |
| 1,2,3-Trichlorobenzene | SW8260B | µg/kg | | *NE* | ND(37.2) | ND(21.6) | ND(41.3) | ND(33.2) | ND(24.5) |
| Freon-113 | SW8260B | µg/kg | | *750000* | ND(74.5) | ND(43.3) | ND(82.5) | ND(66.5) | ND(49.0) |
| Vinyl acetate | SW8260B | µg/kg | | *100000* | ND(74.5) | ND(43.3) | ND(82.5) | ND(66.5) | ND(49.0) |

[1] - ADEC soil cleanup level is the most stringent level in Tables B1 and B2 of 18AAC75.

Gray highlighted results indicate that the LOD was greater than the cleanup level.

LOD - limit of detection
µg/kg - micrograms per kilogram
mg/kg - milligrams per kilogram
NE - not established

Data Qualifiers:
B - Analyte was also detected in a blank; result may be due to cross-contamination.
J - Result is considered an estimate because it is less than the limit of quantitation.

**Table 3 - Well Survey Data**
**Former Mammoth Trucking**

| Well Number | Measuring Point Elevation[1] (feet) | Depth[2] to Groundwater (feet BTOC) | Elevation of Groundwater (feet) | Elevation Survey Date | Longitude | Latitude |
|---|---|---|---|---|---|---|
| CHMWE1 | 106.78 | 9.03 | 97.75 | 10/23/2015 | -149.863834 | 61.224934 |
| CHMWE2 | 104.32 | 6.66 | 97.66 | 10/23/2015 | -149.864110 | 61.224793 |
| CHMWE3 | - | - | - | - | -149.864412 | 61.224718 |
| CHMWE4 | - | - | - | - | -149.864420 | 61.224447 |
| CHMWE5 | 99.32 | 7.39 | 91.93 | 10/23/2015 | -149.863909 | 61.223995 |
| MW-1 | - | - | - | - | -149.863030 | 61.225024 |
| EMCONMW-4 | 100.18[3] | 3.80 | 96.38 | 10/23/2015 | -149.864374 | 61.224387 |
| MW-6 | 98.36 | 6.53 | 91.83 | 10/23/2015 | -149.864185 | 61.223841 |
| MW-7 | 99.86 | 7.88 | 91.98 | 10/23/2015 | -149.863519 | 61.223959 |

[1] Based on an arbitrary benchmark of 100.00 feet.

[2] Water levels were recorded on 10/5/15 immediately prior to sample collection.

[3] A total of 0.18 feet was cut off of well EMCONMW-4 casing; an elevation of 100.00 feet should be used for this well in the future.

Longitude and Latitude are shown in decimal degrees, and were measured with a Trimble GeoXH on October 1, 2015.

BTOC - Below top of casing

**Table 4 - Groundwater Parameters**
**Former Mammoth Trucking**

| Well | Date | Sheen or Odor? | Depth to Groundwater (feet BTOC) | Temperature (Degrees Celsius) | Specific Conductivity (mS/cm) | Dissolved Oxygen (mg/L) | pH | Oxidation Reduction Potential (mV) | Turbidity (NTU) |
|---|---|---|---|---|---|---|---|---|---|
| CHMWE1 | 10/5/2015 | None | 9.03 | 7.92 | 0.598 | 2.37 | 6.31 | 231.7 | 18.2 |
| CHMWE2 | 10/5/2015 | Decomposition Odor | 6.66 | 7.97 | 0.929 | 1.59 | 6.38 | -1.3 | 16.7 |
| EMCONMW-4 | 10/5/2015 | None | 3.80 | 6.10 | 0.068 | 1.23 | 5.94 | 44.8 | 57.4 |
| CHMWE5 | 10/5/2015 | None | 7.39 | 4.28 | 0.309 | 4.91 | 6.40 | 17.7 | 19.0 |
| MW-6 | 10/5/2015 | None | 6.53 | 4.97 | 0.968 | 1.37 | 6.42 | -22.1 | 18.3 |
| MW-7 | 10/5/2015 | None | 7.88 | 5.49 | 0.853 | 1.18 | 6.50 | -23.8 | 78.3 |

BTOC - below top of casing.
mg/L - milligrams per liter.
mS/cm - milliSiemens per centimeter.
mV - millivolts.
NTU - nephelometric turbidity units.

**Table 5 - Groundwater Sample Results**
**Former Mammoth Trucking**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location | ADEC Cleanup Level[1] | CHMWE1 | | CHMWE2 | EMCONMW-4 | CHMWE5 | MW-6 | MW-7 | Trip Blank |
| | | | Sample ID | | CHMWE1 | MWX | CHMWE2 | EMCONMW-4 | CHMWE5 | MW6 | MW7 | Trip Blank |
| | | | Laboratory ID | | 1155864001 | 1155864007 | 1155864002 | 1155864003 | 1155864004 | 1155864005 | 1155864006 | 1155864008 |
| | | | Collection Date | | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 |
| | | | Sample Type | | Primary | Field Duplicate | Primary | Primary | Primary | Primary | Primary | Trip Blank |
| **Analyte** | **Method** | **Units** | | | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** |
| Gasoline Range Organics | AK101 | mg/L | *2.2* | | 0.0411 J,B | 0.0399 J,B | 0.0407 J,B | ND(0.0500) | ND(0.0500) | 0.114 B | 0.287 B | ND(0.0500) |
| Diesel Range Organics | AK102 | mg/L | *1.5* | | ND(0.306) | 0.332 J | **2.45** | 0.276 J | 0.521 J | 1.30 | 1.42 | - |
| Residual Range Organics | AK103 | mg/L | *1.1* | | ND(0.255) | 0.218 J | 0.832 | ND(0.256) | 0.333 J | 0.637 | 0.447 J | - |
| | | | | | | | | | | | | |
| Benzene | SW8260B | µg/L | *5* | | ND(0.200) | ND(0.200) | 0.770 | ND(0.200) | 0.530 | 2.51 | 1.28 | ND (0.200) |
| Toluene | SW8260B | µg/L | *1000* | | ND(0.500) | ND(0.500) | ND(0.500) | 0.390 J | 1.41 | ND(0.500) | ND(0.500) | ND(0.500) |
| Ethylbenzene | SW8260B | µg/L | *700* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | 1.05 | 2.54 | ND(0.500) |
| n-Butylbenzene | SW8260B | µg/L | *370* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Carbon disulfide | SW8260B | µg/L | *3700* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| 1,4-Dichlorobenzene | SW8260B | µg/L | *75* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| 1,2-Dichloroethane | SW8260B | µg/L | *5* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| 1,3,5-Trimethylbenzene | SW8260B | µg/L | *1850* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | 5.95 | 0.420J | ND(0.500) |
| 4-Chlorotoluene | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Chlorobenzene | SW8260B | µg/L | *100* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| 4-Methyl-2-pentanone (MIBK) | SW8260B | µg/L | *2900* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| cis-1,2-Dichloroethene | SW8260B | µg/L | *70* | | ND(0.500) | ND(0.500) | 7.74 | ND(0.500) | ND(0.500) | 0.640 J | ND(0.500) | ND(0.500) |
| 4-Isopropyltoluene | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | 4.51 | ND(0.500) | ND(0.500) |
| cis-1,3-Dichloropropene | SW8260B | µg/L | *8.5* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| n-Propylbenzene | SW8260B | µg/L | *370* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | 2.47 | 0.410 J | ND(0.500) |
| Styrene | SW8260B | µg/L | *100* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Dibromomethane | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| trans-1,3-Dichloropropene | SW8260B | µg/L | *8.5* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,2,4-Trichlorobenzene | SW8260B | µg/L | *70* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,1,2,2-Tetrachloroethane | SW8260B | µg/L | *4.3* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| 1,2-Dibromo-3-chloropropane | SW8260B | µg/L | *NE* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| Methyl-t-butyl ether | SW8260B | µg/L | *470* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| Tetrachloroethene | SW8260B | µg/L | *5* | | **49.6** | **52.1** | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Dibromochloromethane | SW8260B | µg/L | *10* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| 1,3-Dichloropropane | SW8260B | µg/L | *NE* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| 1,2-Dibromoethane | SW8260B | µg/L | *0.05* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Carbon tetrachloride | SW8260B | µg/L | *5* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,1,1,2-Tetrachloroethane | SW8260B | µg/L | *4.3* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| Chloroform | SW8260B | µg/L | *140* | | 0.390J | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Vinyl acetate | SW8260B | µg/L | *37* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| Bromobenzene | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,2,3-Trichloropropane | SW8260B | µg/L | *0.12* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Chloromethane | SW8260B | µg/L | *66* | | ND(0.500) | ND(0.500) | 0.460J | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Bromomethane | SW8260B | µg/L | *51* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| Bromochloromethane | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Vinyl chloride | SW8260B | µg/L | *2* | | ND(0.500) | ND(0.500) | **4.67** | ND(0.500) | **5.85** | **7.60** | ND(0.500) | ND(0.500) |

**Table 5 - Groundwater Sample Results**
**Former Mammoth Trucking**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location | ADEC Cleanup Level[1] | CHMWE1 | | CHMWE2 | EMCONMW-4 | CHMWE5 | MW-6 | MW-7 | Trip Blank |
| | | | Sample ID | | CHMWE1 | MWX | CHMWE2 | EMCONMW-4 | CHMWE5 | MW6 | MW7 | Trip Blank |
| | | | Laboratory ID | | 1155864001 | 1155864007 | 1155864002 | 1155864003 | 1155864004 | 1155864005 | 1155864006 | 1155864008 |
| | | | Collection Date | | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 | 10/5/2015 |
| | | | Sample Type | | Primary | Field Duplicate | Primary | Primary | Primary | Primary | Primary | Trip Blank |
| **Analyte** | **Method** | **Units** | | | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** | **Result(LOD)** |
| Dichlorodifluoromethane | SW8260B | µg/L | *7300* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Chloroethane | SW8260B | µg/L | *290* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| sec-Butylbenzene | SW8260B | µg/L | *370* | | ND(0.500) | ND(0.500) | 0.390J | ND(0.500) | ND(0.500) | 2.39 | 0.350J | ND(0.500) |
| Bromodichloromethane | SW8260B | µg/L | *NE* | | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) | ND(0.250) |
| 1,1-Dichloroethene | SW8260B | µg/L | *7* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 2-Butanone (MEK) | SW8260B | µg/L | *22* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| Methylene chloride | SW8260B | µg/L | *5* | | ND(2.50) | ND(2.50) | ND(2.50) | ND(2.50) | ND(2.50) | ND(2.50) | ND(2.50) | ND(2.50) |
| Trichlorofluoromethane | SW8260B | µg/L | *11000* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| P & M -Xylene | SW8260B | µg/L | *10000 (total)* | | ND(1.00) | ND(1.00) | ND(1.00) | ND(1.00) | ND(1.00) | 4.63 | 2.08 | ND(1.00) |
| Naphthalene | SW8260B | µg/L | *730* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | 19.0 | ND(5.00) | ND(5.00) |
| o-Xylene | SW8260B | µg/L | *10000 (total)* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Bromoform | SW8260B | µg/L | *110* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Freon-113 | SW8260B | µg/L | *1100* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| Xylenes (total) | SW8260B | µg/L | *10000 (total)* | | ND(1.50) | ND(1.50) | ND(1.50) | ND(1.50) | ND(1.50) | 4.90 | 2.08 J | ND(1.500) |
| 1,2,4-Trimethylbenzene | SW8260B | µg/L | *1850* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | 21.6 | 0.310 J | ND(0.500) |
| tert-Butylbenzene | SW8260B | µg/L | *370* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | 0.320J | ND(0.500) | ND(0.500) |
| 1,1,1-Trichloroethane | SW8260B | µg/L | *200* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,1-Dichloroethane | SW8260B | µg/L | *7300* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 2-Chlorotoluene | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Trichloroethene | SW8260B | µg/L | *5* | | 1.42 | 1.40 | **5.79** | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| trans-1,2-Dichloroethene | SW8260B | µg/L | *100* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,2-Dichlorobenzene | SW8260B | µg/L | *600* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 2,2-Dichloropropane | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Hexachlorobutadiene | SW8260B | µg/L | *7.3* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| Isopropylbenzene (Cumene) | SW8260B | µg/L | *3700* | | ND(0.500) | ND(0.500) | 0.450 J | ND(0.500) | ND(0.500) | 2.43 | 1.35 | ND(0.500) |
| 2-Hexanone | SW8260B | µg/L | *NE* | | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) | ND(5.00) |
| 1,2-Dichloropropane | SW8260B | µg/L | *5* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,1-Dichloropropene | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,1,2-Trichloroethane | SW8260B | µg/L | *5* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,3-Dichlorobenzene | SW8260B | µg/L | *3300* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |
| 1,2,3-Trichlorobenzene | SW8260B | µg/L | *NE* | | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) | ND(0.500) |

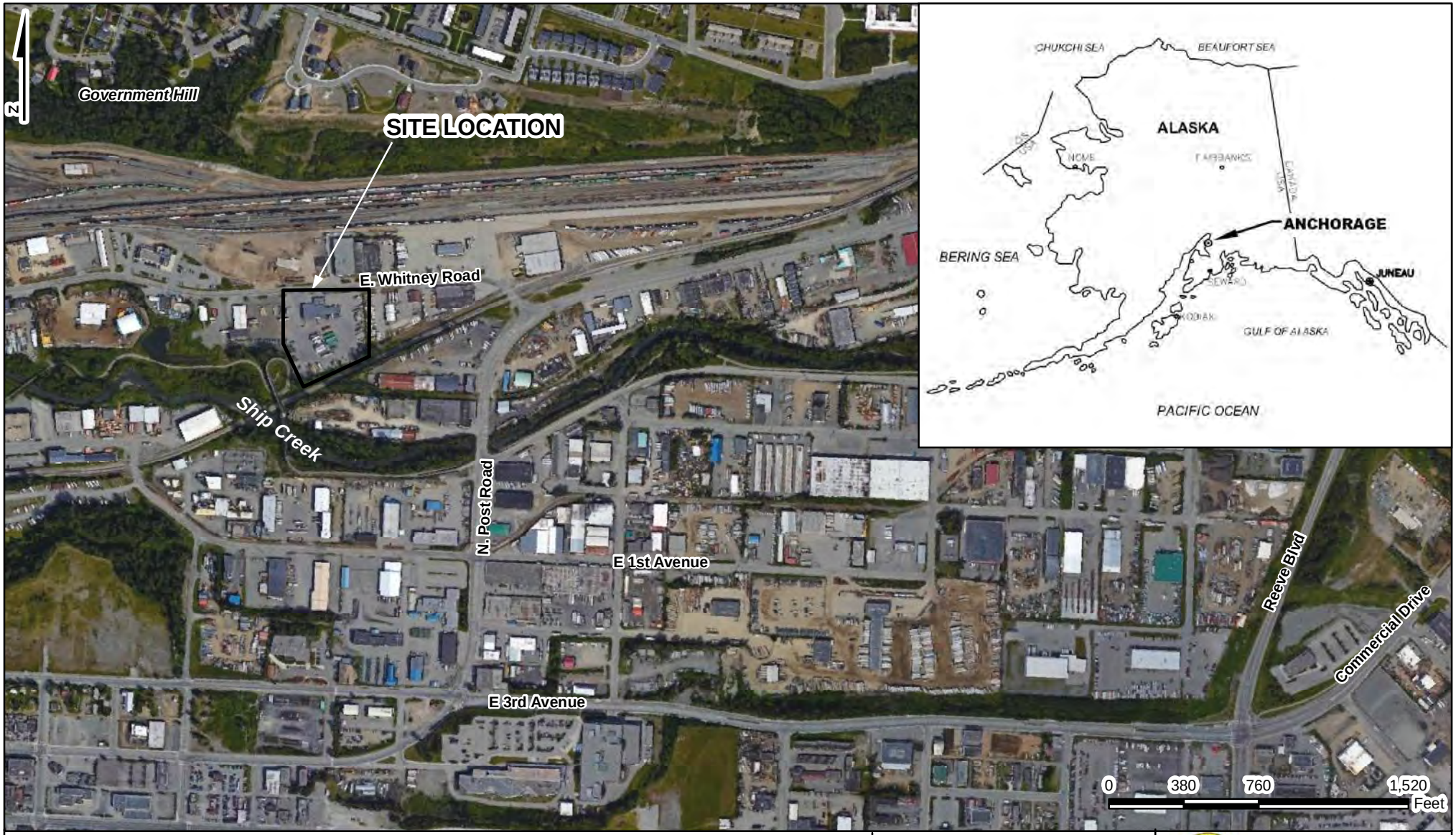
[1] - ADEC Groundwater cleanup level from Table C of 18AAC75.

Results in yellow highlight indicate that they are greater than the cleanup level

Gray highlighted results indicate that the LOD was greater than the cleanup level

LOD - limit of detection
µg/L - micrograms per liter
mg/L - milligrams per liter
NE - not established

Data Qualifiers:
B - Analyte was also detected in a blank; result may be due to cross-contamination.
J - Result is considered an estimate because it is less than the limit of quantitation.




NOTES:

Source: Aerial Imagery was georeferenced from Google Earth, 2015.

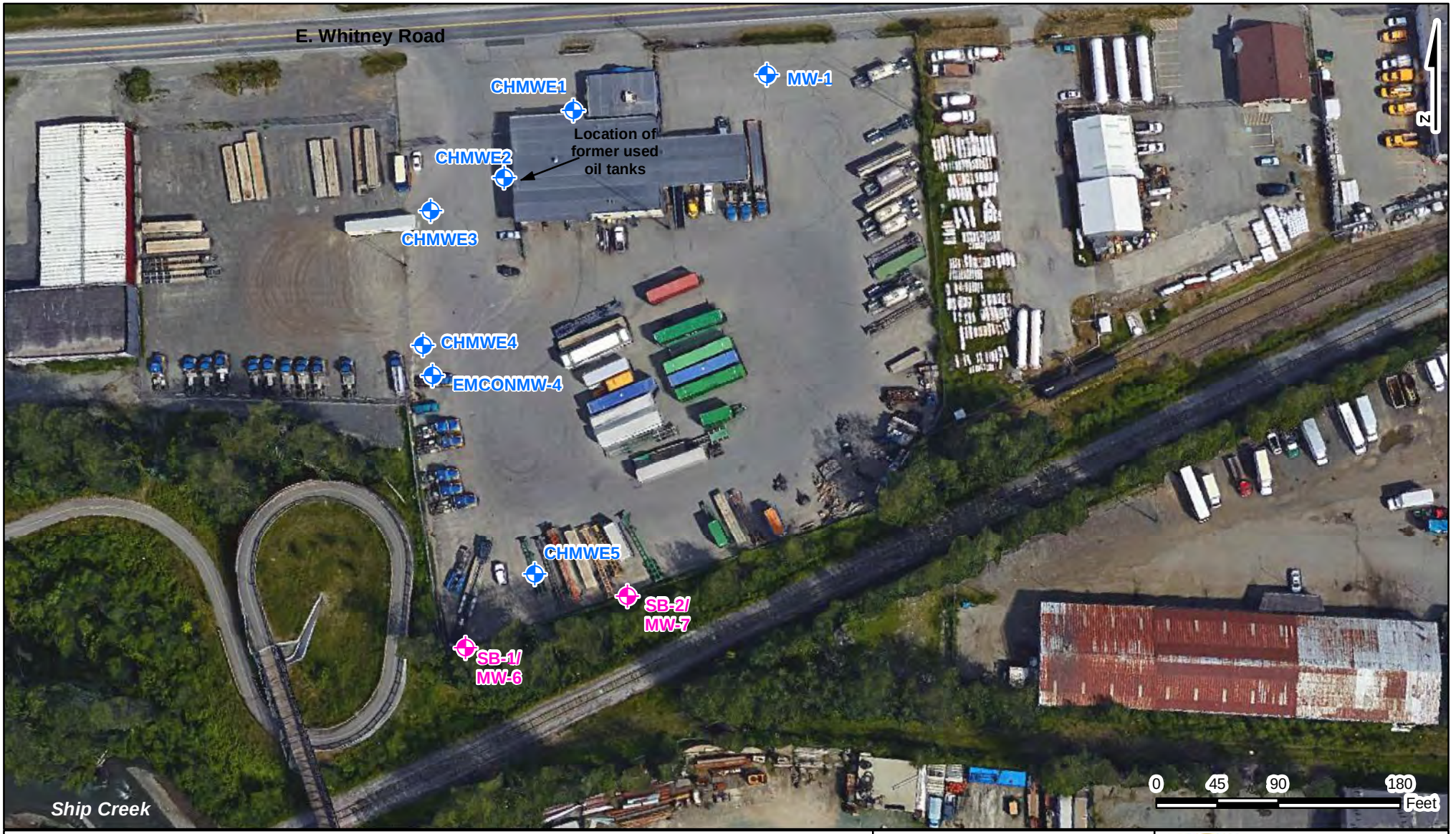
The Former Mammoth Trucking Site is located at 1048 E. Whitney Road in Anchorage, Alaska.

Fairbanks Environmental Services
3538 International Street
Fairbanks, Alaska 99701

ALASKA RAILROAD CORPORATION

**Vicinity Map**
2015 Report
Former Mammoth Trucking Site
Anchorage, Alaska

| CONTRACT: | FIGURE: | DATE: |
|---|---|---|
| 85304 | 1 | 12/15 |




Existsing Monitoring Well

Soil Boring/New Monitoring Well

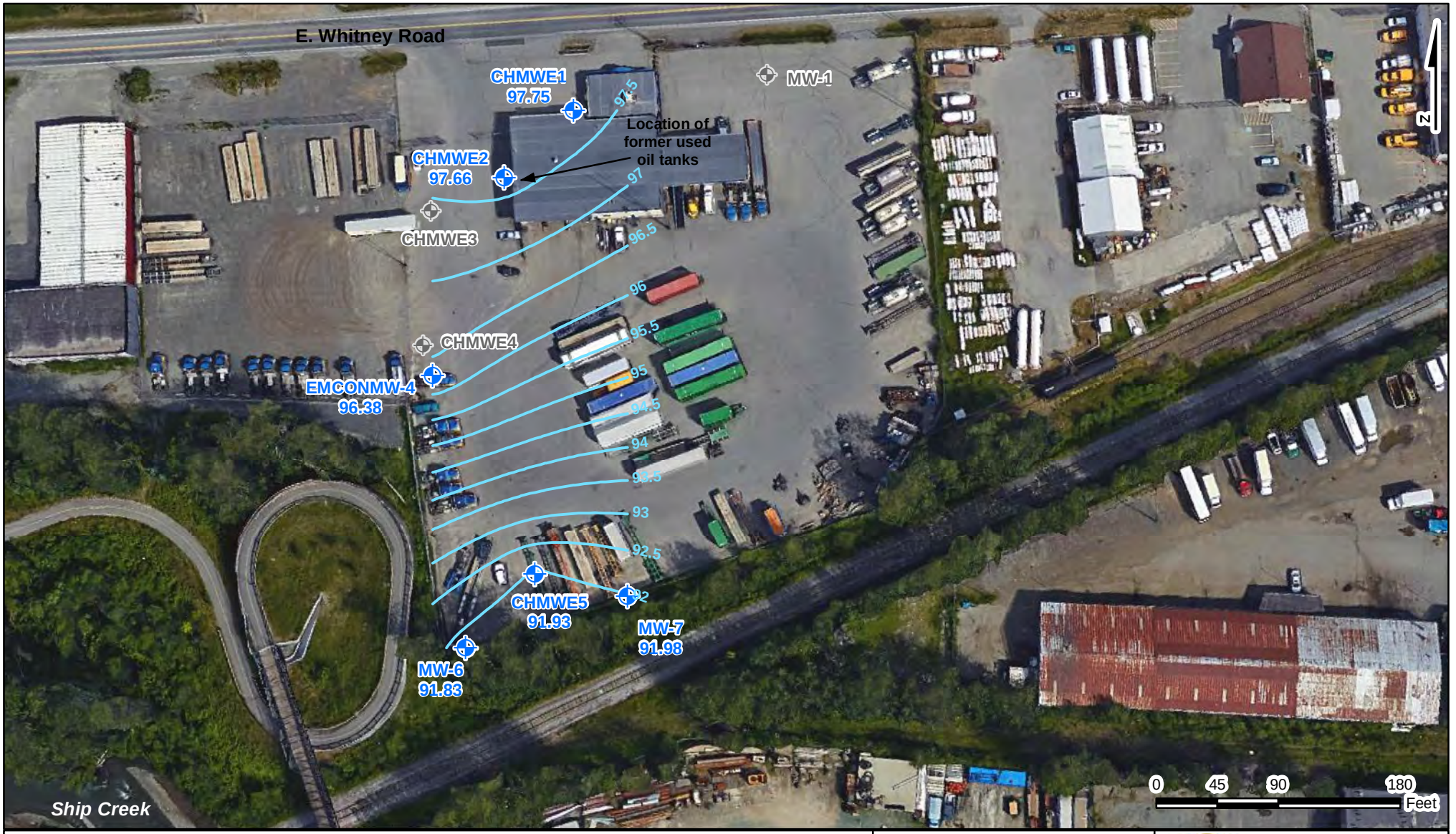
The Former Mammoth Trucking Site is located at 1048 E. Whitney Road in Anchorage, Alaska.

Fairbanks Environmental Services
3538 International Street
Fairbanks, Alaska 99701

ALASKA RAILROAD CORPORATION

**Site Map and Well Locations**
2015 Report
Former Mammoth Trucking Site
Anchorage, Alaska

| CONTRACT: | FIGURE: | DATE: |
|---|---|---|
| 85304 | 2 | 12/15 |




- Monitoring Well used in Contours
- Monitoring Well not used in Contours
- Groundwater Elevation Contour (0.5-foot)

The Former Mammoth Trucking Site is located at 1048 E. Whitney Road in Anchorage, Alaska.

Contours were generated in Surfer v.10 using water level measurements from 10/5/2015.

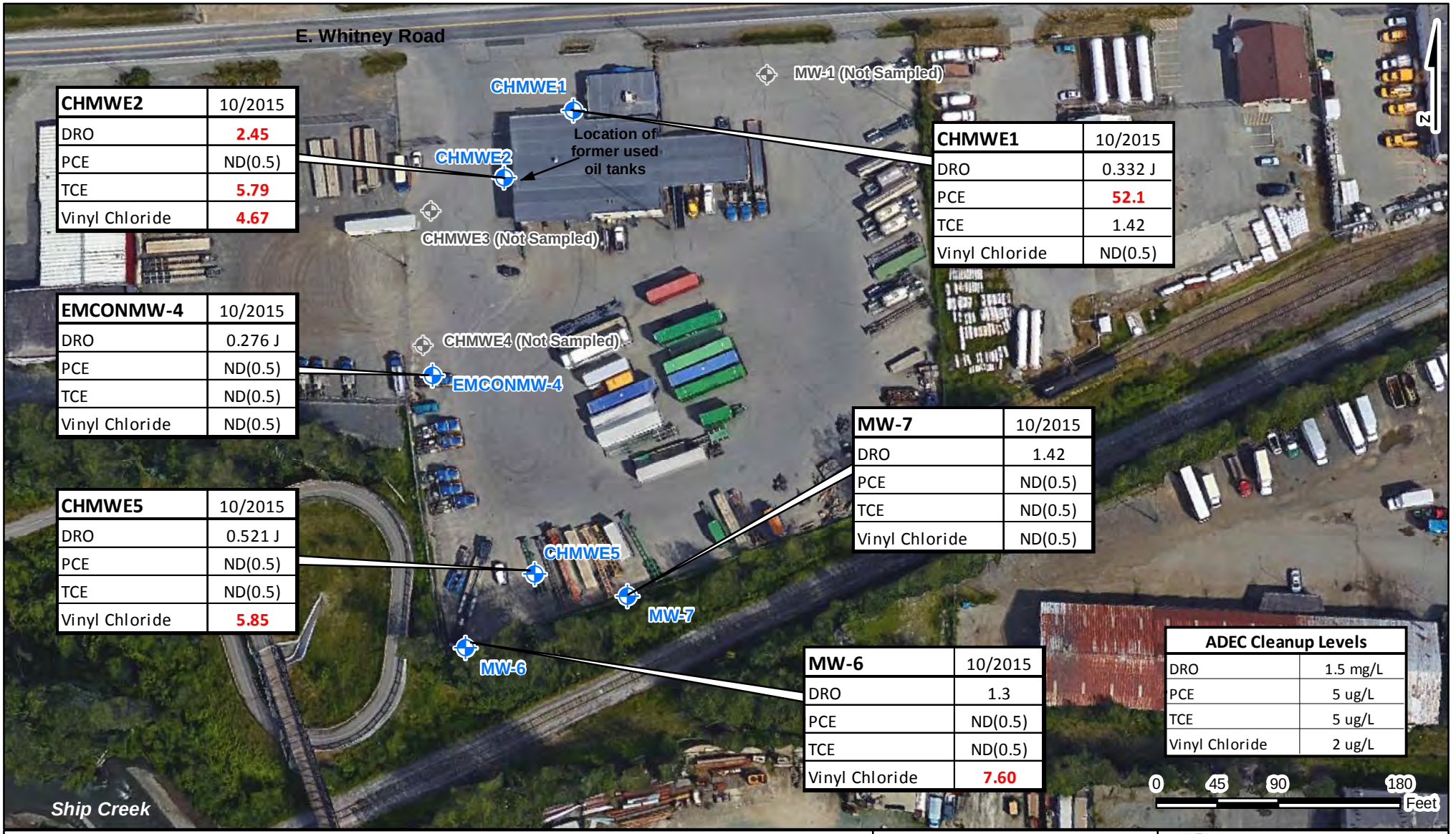

Fairbanks Environmental Services
3538 International Street
Fairbanks, Alaska 99701


ALASKA RAILROAD CORPORATION

**2015 Groundwater Elevation Contours**

2015 Report
Former Mammoth Trucking Site
Anchorage, Alaska

| CONTRACT: | FIGURE: | DATE: |
|---|---|---|
| 85304 | 3 | 12/15 |




| CHMWE2 | 10/2015 |
|---|---|
| DRO | 2.45 |
| PCE | ND(0.5) |
| TCE | 5.79 |
| Vinyl Chloride | 4.67 |

| CHMWE1 | 10/2015 |
|---|---|
| DRO | 0.332 J |
| PCE | 52.1 |
| TCE | 1.42 |
| Vinyl Chloride | ND(0.5) |

| EMCONMW-4 | 10/2015 |
|---|---|
| DRO | 0.276 J |
| PCE | ND(0.5) |
| TCE | ND(0.5) |
| Vinyl Chloride | ND(0.5) |

| MW-7 | 10/2015 |
|---|---|
| DRO | 1.42 |
| PCE | ND(0.5) |
| TCE | ND(0.5) |
| Vinyl Chloride | ND(0.5) |

| CHMWE5 | 10/2015 |
|---|---|
| DRO | 0.521 J |
| PCE | ND(0.5) |
| TCE | ND(0.5) |
| Vinyl Chloride | 5.85 |

| MW-6 | 10/2015 |
|---|---|
| DRO | 1.3 |
| PCE | ND(0.5) |
| TCE | ND(0.5) |
| Vinyl Chloride | 7.60 |

| ADEC Cleanup Levels | |
|---|---|
| DRO | 1.5 mg/L |
| PCE | 5 ug/L |
| TCE | 5 ug/L |
| Vinyl Chloride | 2 ug/L |

Monitoring Well (Sampled in 2015)

Monitoring Well (Not Sampled in 2015)

DRO results are displayed in milligrams per liter (mg/L). PCE, TCE, and Vinyl Chloride results are displayed in micrograms per liter (ug/L). Results in **red** exceed ADEC groundwater cleanup levels.

ND indicates that the analyte was not detected at the limit of detection shown in parenthesis.

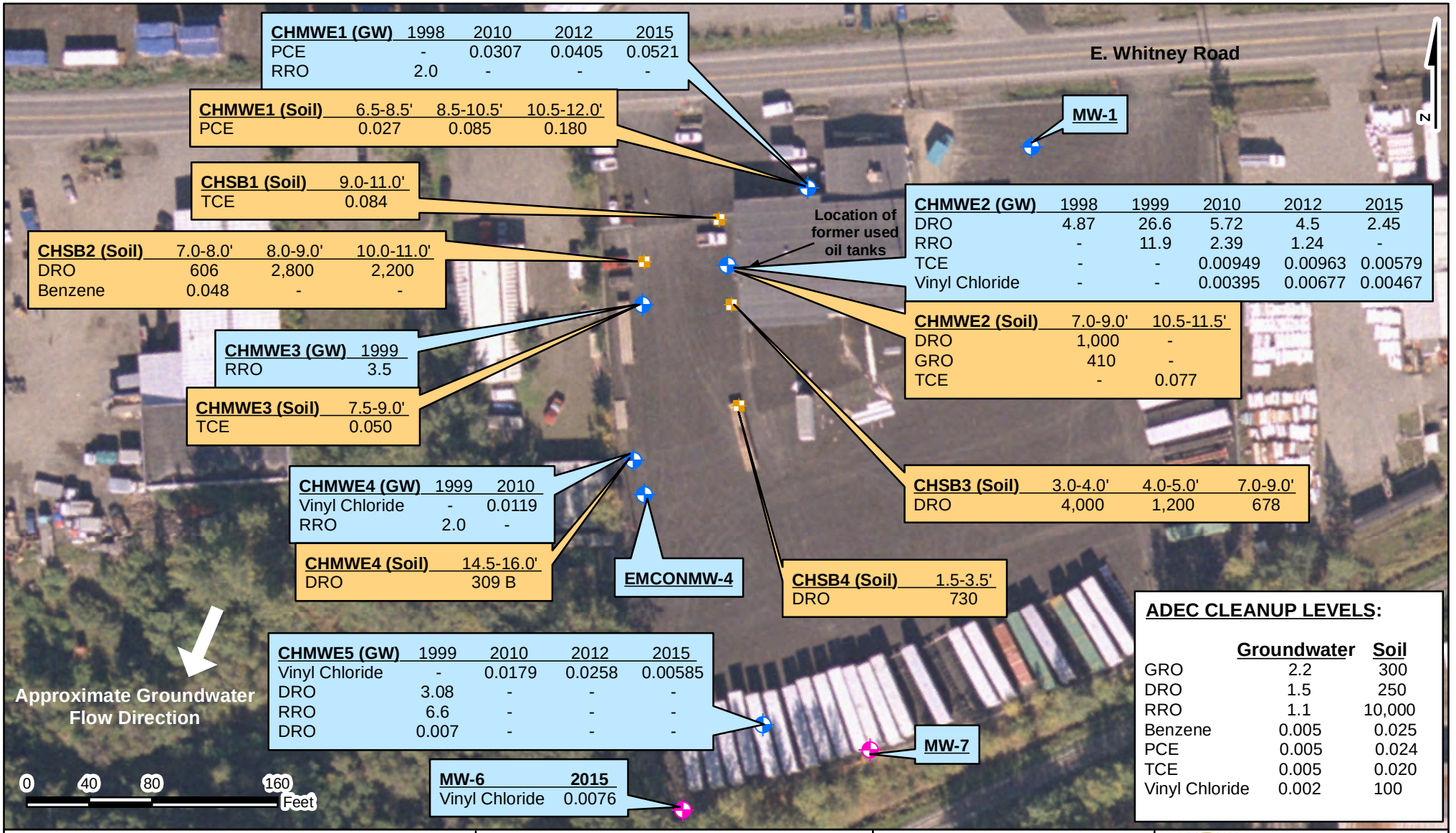
J indicates that the result is reported below the limit of quantitation.

Fairbanks Environmental Services
3538 International Street
Fairbanks, Alaska 99701

ALASKA RAILROAD CORPORATION

**DRO, PCE, TCE, and Vinyl Chloride Concentrations in Groundwater Samples**
2015 Report
Former Mammoth Trucking Site
Anchorage, Alaska

| CONTRACT: | FIGURE: | DATE: |
|---|---|---|
| 85304 | 4 | 11/15 |




| CHMWE1 (GW) | 1998 | 2010 | 2012 | 2015 |
|---|---|---|---|---|
| PCE | - | 0.0307 | 0.0405 | 0.0521 |
| RRO | 2.0 | - | - | - |

| CHMWE1 (Soil) | 6.5-8.5' | 8.5-10.5' | 10.5-12.0' |
|---|---|---|---|
| PCE | 0.027 | 0.085 | 0.180 |

| CHSB1 (Soil) | 9.0-11.0' |
|---|---|
| TCE | 0.084 |

| CHSB2 (Soil) | 7.0-8.0' | 8.0-9.0' | 10.0-11.0' |
|---|---|---|---|
| DRO | 606 | 2,800 | 2,200 |
| Benzene | 0.048 | - | - |

| CHMWE2 (GW) | 1998 | 1999 | 2010 | 2012 | 2015 |
|---|---|---|---|---|---|
| DRO | 4.87 | 26.6 | 5.72 | 4.5 | 2.45 |
| RRO | - | 11.9 | 2.39 | 1.24 | - |
| TCE | - | - | 0.00949 | 0.00963 | 0.00579 |
| Vinyl Chloride | - | - | 0.00395 | 0.00677 | 0.00467 |

| CHMWE2 (Soil) | 7.0-9.0' | 10.5-11.5' |
|---|---|---|
| DRO | 1,000 | - |
| GRO | 410 | - |
| TCE | - | 0.077 |

| CHMWE3 (GW) | 1999 |
|---|---|
| RRO | 3.5 |

| CHMWE3 (Soil) | 7.5-9.0' |
|---|---|
| TCE | 0.050 |

| CHMWE4 (GW) | 1999 | 2010 |
|---|---|---|
| Vinyl Chloride | - | 0.0119 |
| RRO | 2.0 | - |

| CHMWE4 (Soil) | 14.5-16.0' |
|---|---|
| DRO | 309 B |

| CHSB3 (Soil) | 3.0-4.0' | 4.0-5.0' | 7.0-9.0' |
|---|---|---|---|
| DRO | 4,000 | 1,200 | 678 |

| CHSB4 (Soil) | 1.5-3.5' |
|---|---|
| DRO | 730 |

| CHMWE5 (GW) | 1999 | 2010 | 2012 | 2015 |
|---|---|---|---|---|
| Vinyl Chloride | - | 0.0179 | 0.0258 | 0.00585 |
| DRO | 3.08 | - | - | - |
| RRO | 6.6 | - | - | - |
| DRO | 0.007 | - | - | - |

| MW-6 | 2015 |
|---|---|
| Vinyl Chloride | 0.0076 |

**ADEC CLEANUP LEVELS:**

| | Groundwater | Soil |
|---|---|---|
| GRO | 2.2 | 300 |
| DRO | 1.5 | 250 |
| RRO | 1.1 | 10,000 |
| Benzene | 0.005 | 0.025 |
| PCE | 0.005 | 0.024 |
| TCE | 0.005 | 0.020 |
| Vinyl Chloride | 0.002 | 100 |

NOTES:

Only results in excess of ADEC groundwater and Method Two soil cleanup levels are displayed. Groundwater results are displayed in milligrams per liter (mg/L). Soil results are displayed in milligrams per kilogram (mg/Kg). "-" indicates that the result did not exceed the ADEC cleanup level.

Historical groundwater results from CH2MHill, 1999b, Clarus, 2010, and Restoration Science & Engineering, 2012. Historical soil results from CH2M Hill, 1999a.

GRO - gasoline range organics
DRO - diesel range organics
RRO - residual range organics
PCE - tetrachloroethene
TCE - trichloroethene
bgs - below ground surface

KEY:

CHMWE3 (GW) 1999 RRO 3.5 — Year Groundwater Sample Collected

CHMWE3 (Soil) 7.5-9.0' TCE 0.050 — Sample Depth (feet bgs)

1998 Soil Boring Location

1998 Soil Boring Completed as a Monitoring Well

2015 Monitoring Well

Fairbanks Environmental Services
3538 International Street
Fairbanks, Alaska 99701

ALASKA RAILROAD CORPORATION

**Groundwater and Soil Cleanup Level Exceedances since 1998**
2015 Report
Former Mammoth Trucking Site
Anchorage, Alaska

| CONTRACT: | FIGURE: | DATE: |
|---|---|---|
| 85304 | 5 | 12/15 |

**APPENDIX A**

**PHOTOLOG**

# Soil Boring and Well Installation at the Former Mammoth Trucking Site


Photograph 1 – Removing soil core from SB-1/MW-6. Soil borings were installed using a Geoprobe 6610 drill rig. View to Northeast.


Photograph 2 – Soil cores were logged, screened, and sampled. Cuttings were placed in drum to right of photograph.

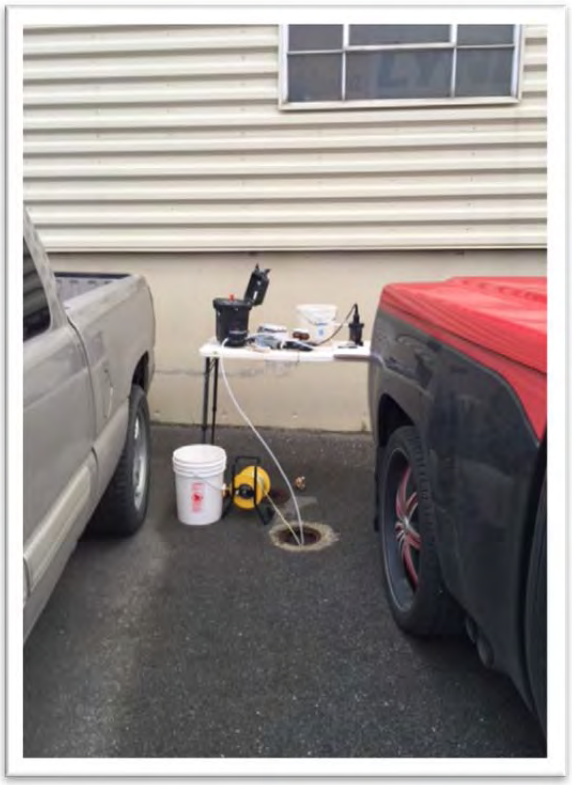
Soil Boring and Well Installation at the Former Mammoth Trucking Site


Photograph 3 – Soil borings were completed as 2-inch-diameter wells; sand was placed around pre-packed well screens, and the wells were then sealed with hydrated bentonite chips.


Photograph 4 – Photograph of well MW-7 with flush mount completion in concrete. View to west.


Photograph 5 – View of well MW-6 during well development. Purge water was containerized in 55-gallon drums and disposed of through the National Response Corporation. View to south.


Photograph 6 – Turbidity reading logged during development of well MW-7.



Photograph 7 – Sampling existing well CHMWE2 with building in background. View to west.

Photograph 8 – Sampling new well MW-7 with fence and railroad tracks in background. View to southeast.

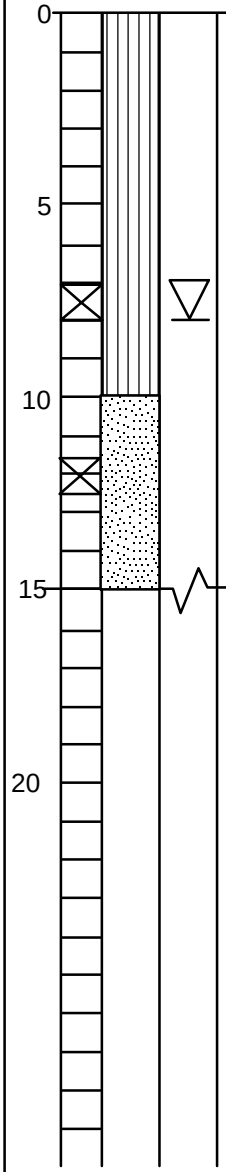
**APPENDIX B**

**BORING AND WELL COMPLETION LOGS**

# LOG OF BORING: **SB-1 (MW-6)**

Location: Former Mammoth Trucking
Date Completed: 9/25/15 @ 10:20
Longitude (Decimal Degrees): -149.8642
Latitude (Decimal Degrees): 61.2238

FES Representative: Mike Boese
Drilling Contractor: Geotek Alaska
Drilling Method: Direct Push
Sampling Method: Continuous Core



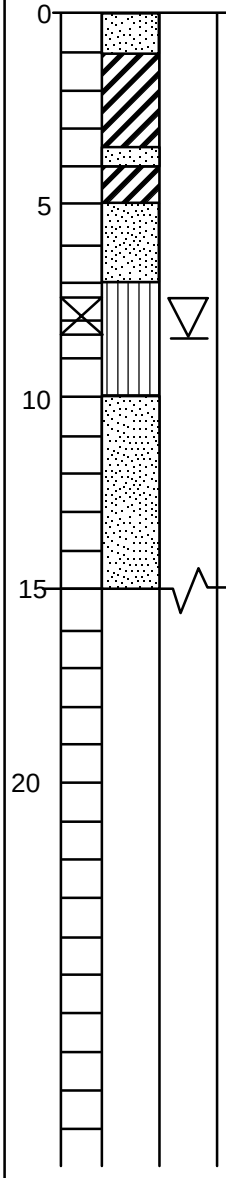

| Depth (ft.) | Lab Sample | Graphic | Water Level | Sample Description | PID (ppm) | Sample Number | Benzene | DRO | RRO |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 0-1' Gray organic SILT. Moist, no hydrocarbon odor. | | | | | |
| | | | | 1-5' Gray sandy SILT with gravels. Moist, no hydrocarbon odor. | 4.6 | | | | |
| | | | | | 2.8 | | | | |
| | | | | 5-10' Gray sandy SILT and intermittent PEAT layers. Moist, no hydrocarbon odor. | 10.1 | | | | |
| | | | | Saturated from 8-15' | 7.1 | SB-1A | ND | 16.3 J | 56.9 |
| | | | | 10-15' Coarse gray SAND with gravel and silt. Mild hydrocarbon odor at 12'. | | | | | |
| | | | | | 10.3 | SB-1B | 4.54 J | 35.9 | 18.1 J |
| | | | | | 0.9 | | | | |

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

# LOG OF BORING: **SB-2 (MW-7)**

Location: Former Mammoth Trucking
Date Completed: 9/25/15 @ 12:20
Longitude (Decimal Degrees): -149.8635
Latitude (Decimal Degrees): 61.2240

FES Representative: Mike Boese
Drilling Contractor: Geotek Alaska
Drilling Method: Direct Push
Sampling Method: Continuous Core




| Depth (ft.) | Lab Sample | Graphic | Water Level | Sample Description | PID (ppm) | Sample Number | Benzene | DRO | RRO |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | 0-1' Gray gravelly SAND. Moist, no hydrocarbon odor. | | | | | |
| | | | | 1-3.5' Gray silty CLAY. Moist, no hydrocarbon odor. | 8.9 | | | | |
| | | | | 3.5-4' Gray SAND. Moist, no hydrocarbon odor. | | | | | |
| | | | | 4-5' Gray CLAY with sand. Moist, no hydrocarbon odor. | 15.3 | | | | |
| 5 | | | | 5-7' Gravelly gray SAND (coarse). Moist, no hydrocarbon odor. | | | | | |
| | | | | | 11.4 | | | | |
| | | | | 7-10' Gray gravelly sandy SILT. No hydrocarbon odor. | | | | | |
| | | | | Saturated from 8.5-15' | 15.5 | SB-2A<br>SB-2B (field dup) | 8.25 J<br>8.30 J | ND<br>ND | 21,1 J<br>19.0 J |
| 10 | | | | 10-15' Gravelly gray SAND (coarse). No hydrocarbon odor. | | | | | |
| | | | | | 3.0 | | | | |
| | | | | | 0.8 | | | | |
| 15 | | | | | | | | | |
| 20 | | | | | | | | | |

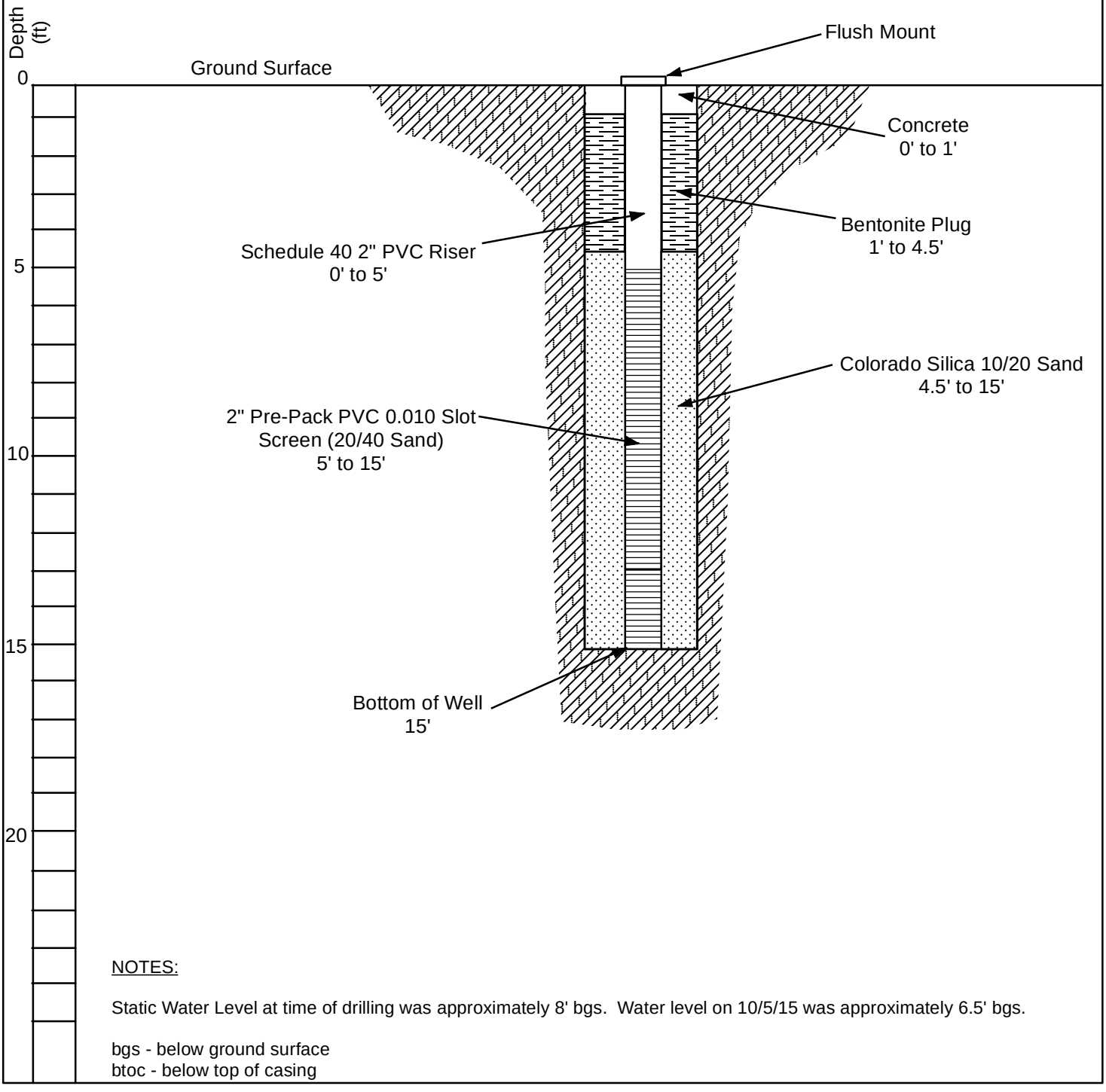
FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

# WELL COMPLETION OF **MW-6** (SB-1)

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

Location: Former Mammoth Trucking
Date Completed: 9/25/15
Longitude (Decimal Degrees): -149.8642
Latitude (Decimal Degrees): 61.2238

FES Representative: Mike Boese
Drilling Contractor: Geotek Alaska
Drilling Method: Continuous Core




NOTES:

Static Water Level at time of drilling was approximately 8' bgs. Water level on 10/5/15 was approximately 6.5' bgs.

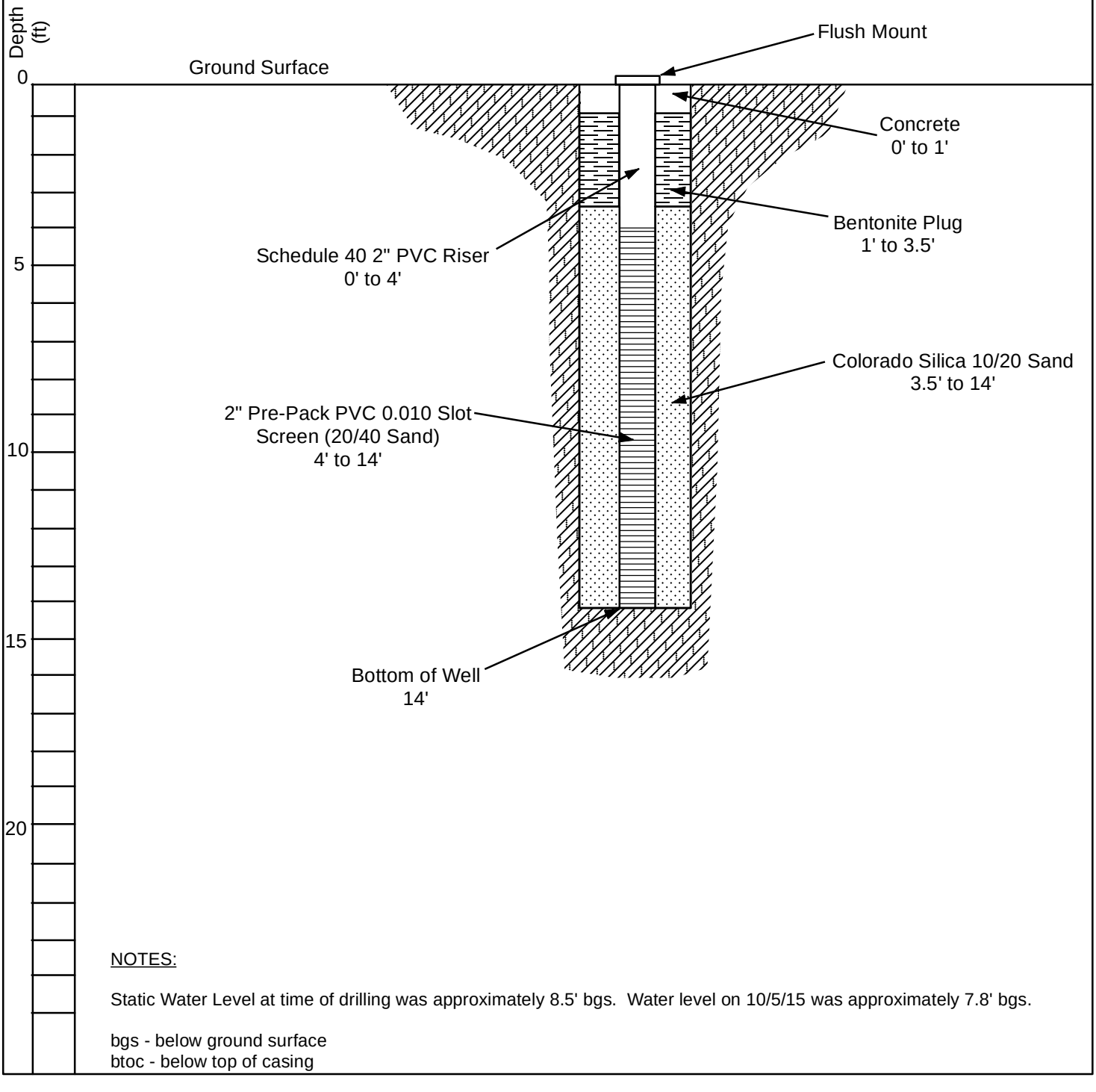
bgs - below ground surface
btoc - below top of casing

# WELL COMPLETION OF **MW-7** (SB-2)

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

Location: Former Mammoth Trucking
Date Completed: 9/25/15
Longitude (Decimal Degrees): -149.8635
Latitude (Decimal Degrees): 61.2240

FES Representative: Mike Boese
Drilling Contractor: Geotek Alaska
Drilling Method: Continuous Core




NOTES:

Static Water Level at time of drilling was approximately 8.5' bgs. Water level on 10/5/15 was approximately 7.8' bgs.

bgs - below ground surface
btoc - below top of casing

**APPENDIX C**

**LABORATORY REPORT 1155621 AND CHECKLIST**

**Laboratory Report of Analysis**

To: AK Railroad Corp
2400 Spenard Road, Suite 300
Anchorage, AK 99503
(907)277-7111

Report Number: **1155621**

Client Project: **ARRC Mammoth Trucking**

Dear Mike Boese,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Justin Nelson
2015.10.13
13:08:06 -08'00'

SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

Print Date: 10/13/2015 8:43:05AM

## Case Narrative

SGS Client: **AK Railroad Corp**
SGS Project: **1155621**
Project Name/Site: **ARRC Mammoth Trucking**
Project Contact: **Mike Boese**

Refer to sample receipt form for information on sample condition.

**LCSD for HBN 1722176 [VXX/2802 (1296111) LCSD**

8260B –LCSD recovery for Trichlorofluoromethane does not meet QC criteria (142%). This analyte was not detected above the LOQ in the associated samples.

**1155621004MS (1296109) MS**

8260B –-MS/MSD recovery for 1,1,2-Trichloroethane does not meet QC criteria. Refer to LCS for accuracy.

**1155621004MSD (1296110) MSD**

8260B –-MS/MSD recovery for 1,1,2-Trichloroethane does not meet QC criteria. Refer to LCS for accuracy.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.



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## Report of Manual Integrations

| Laboratory ID | Client Sample ID | Analytical Batch | Analyte | Reason |
|---|---|---|---|---|
| **SW8260B** | | | | |
| 1155621001 | SB-1A | VMS15318 | 4-Isopropyltoluene | SP |
| 1155621002 | SB-1B | VMS15318 | 4-Isopropyltoluene | SP |

Manual Integration Reason Code Descriptions

| Code | Description |
|---|---|
| O | Original Chromatogram |
| M | Modified Chromatogram |
| SS | Skimmed surrogate |
| BLG | Closed baseline gap |
| RP | Reassign peak name |
| PIR | Pattern integration required |
| IT | Included tail |
| SP | Split peak |
| RSP | Removed split peak |
| FPS | Forced peak start/stop |
| BLC | Baseline correction |
| PNF | Peak not found by software |

All DRO/RRO analysis are integrated per SOP.



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## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

| | |
|---|---|
| * | The analyte has exceeded allowable regulatory or control limits. |
| ! | Surrogate out of control limits. |
| B | Indicates the analyte is found in a blank associated with the sample. |
| CCV/CVA/CVB | Continuing Calibration Verification |
| CCCV/CVC/CVCA/CVCB | Closing Continuing Calibration Verification |
| CL | Control Limit |
| D | The analyte concentration is the result of a dilution. |
| DF | Dilution Factor |
| DL | Detection Limit (i.e., maximum method detection limit) |
| E | The analyte result is above the calibrated range. |
| F | Indicates value that is greater than or equal to the DL |
| GT | Greater Than |
| IB | Instrument Blank |
| ICV | Initial Calibration Verification |
| J | The quantitation is an estimation. |
| JL | The analyte was positively identified, but the quantitation is a low estimation. |
| LCS(D) | Laboratory Control Spike (Duplicate) |
| LOD | Limit of Detection (i.e., 1/2 of the LOQ) |
| LOQ | Limit of Quantitation (i.e., reporting or practical quantitation limit) |
| LT | Less Than |
| M | A matrix effect was present. |
| MB | Method Blank |
| MS(D) | Matrix Spike (Duplicate) |
| ND | Indicates the analyte is not detected. |
| Q | QC parameter out of acceptance range. |
| R | Rejected |
| RPD | Relative Percent Difference |
| U | Indicates the analyte was analyzed for but not detected. |

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.



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## Sample Summary

| Client Sample ID | Lab Sample ID | Collected | Received | Matrix |
|---|---|---|---|---|
| SB-1A | 1155621001 | 09/25/2015 | 09/25/2015 | Soil/Solid (dry weight) |
| SB-1B | 1155621002 | 09/25/2015 | 09/25/2015 | Soil/Solid (dry weight) |
| SB-2A | 1155621003 | 09/25/2015 | 09/25/2015 | Soil/Solid (dry weight) |
| SB-2B | 1155621004 | 09/25/2015 | 09/25/2015 | Soil/Solid (dry weight) |
| Trip Blank | 1155621005 | 09/25/2015 | 09/25/2015 | Soil/Solid (dry weight) |

| Method | Method Description |
|---|---|
| AK102 | Diesel/Residual Range Organics |
| AK103 | Diesel/Residual Range Organics |
| AK101 | Gasoline Range Organics (S) |
| SM21 2540G | Percent Solids SM2540G |
| SW8260B | VOC 8260 (S) Field Extracted |



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## Detectable Results Summary

Client Sample ID: **SB-1A**
Lab Sample ID: 1155621001

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 16.3J | mg/Kg |
| | Residual Range Organics | 56.9 | mg/Kg |
| **Volatile Fuels** | Gasoline Range Organics | 1.88J | mg/Kg |
| **Volatile GC/MS** | 1,2,4-Trimethylbenzene | 49.5J | ug/Kg |
| | 4-Isopropyltoluene | 14.1J | ug/Kg |
| | n-Propylbenzene | 19.7J | ug/Kg |
| | sec-Butylbenzene | 17.5J | ug/Kg |

Client Sample ID: **SB-1B**
Lab Sample ID: 1155621002

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 35.9 | mg/Kg |
| | Residual Range Organics | 18.1J | mg/Kg |
| **Volatile Fuels** | Gasoline Range Organics | 1.92J | mg/Kg |
| **Volatile GC/MS** | 1,2,4-Trimethylbenzene | 45.0 | ug/Kg |
| | 1,3,5-Trimethylbenzene | 7.79J | ug/Kg |
| | 4-Isopropyltoluene | 13.2J | ug/Kg |
| | Benzene | 4.54J | ug/Kg |
| | Naphthalene | 32.0J | ug/Kg |
| | n-Propylbenzene | 16.0J | ug/Kg |
| | sec-Butylbenzene | 19.0J | ug/Kg |

Client Sample ID: **SB-2A**
Lab Sample ID: 1155621003

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Residual Range Organics | 21.1J | mg/Kg |
| **Volatile Fuels** | Gasoline Range Organics | 4.11J | mg/Kg |
| **Volatile GC/MS** | Benzene | 8.25J | ug/Kg |
| | Isopropylbenzene (Cumene) | 14.0J | ug/Kg |
| | n-Propylbenzene | 20.2J | ug/Kg |
| | P & M -Xylene | 28.5J | ug/Kg |

Client Sample ID: **SB-2B**
Lab Sample ID: 1155621004

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Residual Range Organics | 19.0J | mg/Kg |
| **Volatile Fuels** | Gasoline Range Organics | 5.92 | mg/Kg |
| **Volatile GC/MS** | Benzene | 8.30J | ug/Kg |
| | Isopropylbenzene (Cumene) | 19.6J | ug/Kg |
| | n-Propylbenzene | 22.6J | ug/Kg |
| | P & M -Xylene | 33.9J | ug/Kg |
| | Xylenes (total) | 33.9J | ug/Kg |



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## Results of **SB-1A**

Client Sample ID: **SB-1A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621001
Lab Project ID: 1155621

Collection Date: 09/25/15 10:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.8
Location: PW7-C-6

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 16.3 | J | 23.6 | 7.31 | mg/Kg | 1 | | 10/07/15 09:34 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 91.5 | | 50-150 | | % | 1 | | 10/07/15 09:34 |

### Batch Information

Analytical Batch: XFC12137
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 10/07/15 09:34
Container ID: 1155621001-A

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 09/30/15 11:25
Prep Initial Wt./Vol.: 30.368 g
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 56.9 | | 23.6 | 7.31 | mg/Kg | 1 | | 10/07/15 09:34 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 89.4 | | 50-150 | | % | 1 | | 10/07/15 09:34 |

### Batch Information

Analytical Batch: XFC12137
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 10/07/15 09:34
Container ID: 1155621001-A

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 09/30/15 11:25
Prep Initial Wt./Vol.: 30.368 g
Prep Extract Vol: 1 mL

## Results of **SB-1A**

Client Sample ID: **SB-1A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621001
Lab Project ID: 1155621

Collection Date: 09/25/15 10:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.8
Location: PW7-C-6

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 1.88 | J | 3.72 | 1.12 | mg/Kg | 1 | | 10/02/15 00:27 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 92.7 | | 50-150 | | % | 1 | | 10/02/15 00:27 |

## Batch Information

Analytical Batch: VFC12709
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/02/15 00:27
Container ID: 1155621001-B

Prep Batch: VXX27999
Prep Method: SW5035A
Prep Date/Time: 09/25/15 10:00
Prep Initial Wt./Vol.: 54.283 g
Prep Extract Vol: 33.8186 mL

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

Results of **SB-1A**

Client Sample ID: **SB-1A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621001
Lab Project ID: 1155621

Collection Date: 09/25/15 10:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.8
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,1,1-Trichloroethane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,1,2,2-Tetrachloroethane | 9.30 | U | 18.6 | 5.80 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,1,2-Trichloroethane | 7.45 | U | 14.9 | 4.61 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,1-Dichloroethane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,1-Dichloroethene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,1-Dichloropropene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2,3-Trichlorobenzene | 37.2 | U | 74.4 | 22.3 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2,3-Trichloropropane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2,4-Trichlorobenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2,4-Trimethylbenzene | 49.5 | J | 74.4 | 22.3 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2-Dibromo-3-chloropropane | 74.5 | U | 149 | 46.1 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2-Dibromoethane | 7.45 | U | 14.9 | 4.61 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2-Dichlorobenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2-Dichloroethane | 7.45 | U | 14.9 | 4.61 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,2-Dichloropropane | 7.45 | U | 14.9 | 4.61 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,3,5-Trimethylbenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,3-Dichlorobenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,3-Dichloropropane | 7.45 | U | 14.9 | 4.61 | ug/Kg | 1 | | 10/07/15 20:23 |
| 1,4-Dichlorobenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 2,2-Dichloropropane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 2-Butanone (MEK) | 186 | U | 372 | 116 | ug/Kg | 1 | | 10/07/15 20:23 |
| 2-Chlorotoluene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 2-Hexanone | 186 | U | 372 | 116 | ug/Kg | 1 | | 10/07/15 20:23 |
| 4-Chlorotoluene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 4-Isopropyltoluene | 14.1 | J | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| 4-Methyl-2-pentanone (MIBK) | 186 | U | 372 | 116 | ug/Kg | 1 | | 10/07/15 20:23 |
| Benzene | 9.30 | U | 18.6 | 5.80 | ug/Kg | 1 | | 10/07/15 20:23 |
| Bromobenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Bromochloromethane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Bromodichloromethane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Bromoform | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Bromomethane | 149 | U | 298 | 92.2 | ug/Kg | 1 | | 10/07/15 20:23 |
| Carbon disulfide | 74.5 | U | 149 | 46.1 | ug/Kg | 1 | | 10/07/15 20:23 |
| Carbon tetrachloride | 9.30 | U | 18.6 | 5.80 | ug/Kg | 1 | | 10/07/15 20:23 |
| Chlorobenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Chloroethane | 149 | U | 298 | 92.2 | ug/Kg | 1 | | 10/07/15 20:23 |

Results of **SB-1A**

Client Sample ID: **SB-1A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621001
Lab Project ID: 1155621

Collection Date: 09/25/15 10:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.8
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Chloromethane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| cis-1,2-Dichloroethene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| cis-1,3-Dichloropropene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Dibromochloromethane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Dibromomethane | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Dichlorodifluoromethane | 37.2 | U | 74.4 | 22.3 | ug/Kg | 1 | | 10/07/15 20:23 |
| Ethylbenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Freon-113 | 74.5 | U | 149 | 46.1 | ug/Kg | 1 | | 10/07/15 20:23 |
| Hexachlorobutadiene | 37.2 | U | 74.4 | 22.3 | ug/Kg | 1 | | 10/07/15 20:23 |
| Isopropylbenzene (Cumene) | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Methylene chloride | 74.5 | U | 149 | 46.1 | ug/Kg | 1 | | 10/07/15 20:23 |
| Methyl-t-butyl ether | 74.5 | U | 149 | 46.1 | ug/Kg | 1 | | 10/07/15 20:23 |
| Naphthalene | 37.2 | U | 74.4 | 22.3 | ug/Kg | 1 | | 10/07/15 20:23 |
| n-Butylbenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| n-Propylbenzene | 19.7 | J | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| o-Xylene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| P & M -Xylene | 37.2 | U | 74.4 | 22.3 | ug/Kg | 1 | | 10/07/15 20:23 |
| sec-Butylbenzene | 17.5 | J | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Styrene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| tert-Butylbenzene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Tetrachloroethene | 9.30 | U | 18.6 | 5.80 | ug/Kg | 1 | | 10/07/15 20:23 |
| Toluene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| trans-1,2-Dichloroethene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| trans-1,3-Dichloropropene | 18.6 | U | 37.2 | 11.6 | ug/Kg | 1 | | 10/07/15 20:23 |
| Trichloroethene | 9.30 | U | 18.6 | 5.80 | ug/Kg | 1 | | 10/07/15 20:23 |
| Trichlorofluoromethane | 37.2 | U | 74.4 | 22.3 | ug/Kg | 1 | | 10/07/15 20:23 |
| Vinyl acetate | 74.5 | U | 149 | 46.1 | ug/Kg | 1 | | 10/07/15 20:23 |
| Vinyl chloride | 7.45 | U | 14.9 | 4.61 | ug/Kg | 1 | | 10/07/15 20:23 |
| Xylenes (total) | 56.0 | U | 112 | 33.9 | ug/Kg | 1 | | 10/07/15 20:23 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 110 | | 71-136 | | % | 1 | | 10/07/15 20:23 |
| 4-Bromofluorobenzene (surr) | 103 | | 55-151 | | % | 1 | | 10/07/15 20:23 |
| Toluene-d8 (surr) | 102 | | 85-116 | | % | 1 | | 10/07/15 20:23 |

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

Results of **SB-1A**

Client Sample ID: **SB-1A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621001
Lab Project ID: 1155621

Collection Date: 09/25/15 10:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):83.8
Location: PW7-C-6

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15318
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 10/07/15 20:23
Container ID: 1155621001-B

Prep Batch: VXX28024
Prep Method: SW5035A
Prep Date/Time: 09/25/15 10:00
Prep Initial Wt./Vol.: 54.283 g
Prep Extract Vol: 33.8186 mL

## Results of **SB-1B**

Client Sample ID: **SB-1B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621002
Lab Project ID: 1155621

Collection Date: 09/25/15 10:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location: PW7-C-6

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 35.9 | | 22.9 | 7.10 | mg/Kg | 1 | | 10/07/15 09:44 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 91 | | 50-150 | | % | 1 | | 10/07/15 09:44 |

### Batch Information

Analytical Batch: XFC12137
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 10/07/15 09:44
Container ID: 1155621002-A

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 09/30/15 11:25
Prep Initial Wt./Vol.: 30.216 g
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 18.1 | J | 22.9 | 7.10 | mg/Kg | 1 | | 10/07/15 09:44 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 93.7 | | 50-150 | | % | 1 | | 10/07/15 09:44 |

### Batch Information

Analytical Batch: XFC12137
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 10/07/15 09:44
Container ID: 1155621002-A

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 09/30/15 11:25
Prep Initial Wt./Vol.: 30.216 g
Prep Extract Vol: 1 mL

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

## Results of **SB-1B**

Client Sample ID: **SB-1B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621002
Lab Project ID: 1155621

Collection Date: 09/25/15 10:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location: PW7-C-6

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 1.92 | J | 2.16 | 0.649 | mg/Kg | 1 | | 10/09/15 01:03 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 143 | | 50-150 | | % | 1 | | 10/09/15 01:03 |

## Batch Information

Analytical Batch: VFC12722
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/09/15 01:03
Container ID: 1155621002-B

Prep Batch: VXX28039
Prep Method: SW5035A
Prep Date/Time: 09/25/15 10:20
Prep Initial Wt./Vol.: 103.24 g
Prep Extract Vol: 38.7217 mL

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

Results of **SB-1B**

Client Sample ID: **SB-1B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621002
Lab Project ID: 1155621

Collection Date: 09/25/15 10:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,1,1-Trichloroethane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,1,2,2-Tetrachloroethane | 5.40 | U | 10.8 | 3.37 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,1,2-Trichloroethane | 4.33 | U | 8.65 | 2.68 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,1-Dichloroethane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,1-Dichloroethene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,1-Dichloropropene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2,3-Trichlorobenzene | 21.6 | U | 43.3 | 13.0 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2,3-Trichloropropane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2,4-Trichlorobenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2,4-Trimethylbenzene | 45.0 | | 43.3 | 13.0 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2-Dibromo-3-chloropropane | 43.3 | U | 86.5 | 26.8 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2-Dibromoethane | 4.33 | U | 8.65 | 2.68 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2-Dichlorobenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2-Dichloroethane | 4.33 | U | 8.65 | 2.68 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,2-Dichloropropane | 4.33 | U | 8.65 | 2.68 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,3,5-Trimethylbenzene | 7.79 | J | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,3-Dichlorobenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,3-Dichloropropane | 4.33 | U | 8.65 | 2.68 | ug/Kg | 1 | | 10/07/15 20:39 |
| 1,4-Dichlorobenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 2,2-Dichloropropane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 2-Butanone (MEK) | 108 | U | 216 | 67.5 | ug/Kg | 1 | | 10/07/15 20:39 |
| 2-Chlorotoluene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 2-Hexanone | 108 | U | 216 | 67.5 | ug/Kg | 1 | | 10/07/15 20:39 |
| 4-Chlorotoluene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 4-Isopropyltoluene | 13.2 | J | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| 4-Methyl-2-pentanone (MIBK) | 108 | U | 216 | 67.5 | ug/Kg | 1 | | 10/07/15 20:39 |
| Benzene | 4.54 | J | 10.8 | 3.37 | ug/Kg | 1 | | 10/07/15 20:39 |
| Bromobenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Bromochloromethane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Bromodichloromethane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Bromoform | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Bromomethane | 86.5 | U | 173 | 53.6 | ug/Kg | 1 | | 10/07/15 20:39 |
| Carbon disulfide | 43.3 | U | 86.5 | 26.8 | ug/Kg | 1 | | 10/07/15 20:39 |
| Carbon tetrachloride | 5.40 | U | 10.8 | 3.37 | ug/Kg | 1 | | 10/07/15 20:39 |
| Chlorobenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Chloroethane | 86.5 | U | 173 | 53.6 | ug/Kg | 1 | | 10/07/15 20:39 |

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

Results of **SB-1B**

Client Sample ID: **SB-1B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621002
Lab Project ID: 1155621

Collection Date: 09/25/15 10:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Chloromethane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| cis-1,2-Dichloroethene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| cis-1,3-Dichloropropene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Dibromochloromethane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Dibromomethane | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Dichlorodifluoromethane | 21.6 | U | 43.3 | 13.0 | ug/Kg | 1 | | 10/07/15 20:39 |
| Ethylbenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Freon-113 | 43.3 | U | 86.5 | 26.8 | ug/Kg | 1 | | 10/07/15 20:39 |
| Hexachlorobutadiene | 21.6 | U | 43.3 | 13.0 | ug/Kg | 1 | | 10/07/15 20:39 |
| Isopropylbenzene (Cumene) | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Methylene chloride | 43.3 | U | 86.5 | 26.8 | ug/Kg | 1 | | 10/07/15 20:39 |
| Methyl-t-butyl ether | 43.3 | U | 86.5 | 26.8 | ug/Kg | 1 | | 10/07/15 20:39 |
| Naphthalene | 32.0 | J | 43.3 | 13.0 | ug/Kg | 1 | | 10/07/15 20:39 |
| n-Butylbenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| n-Propylbenzene | 16.0 | J | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| o-Xylene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| P & M -Xylene | 21.6 | U | 43.3 | 13.0 | ug/Kg | 1 | | 10/07/15 20:39 |
| sec-Butylbenzene | 19.0 | J | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Styrene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| tert-Butylbenzene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Tetrachloroethene | 5.40 | U | 10.8 | 3.37 | ug/Kg | 1 | | 10/07/15 20:39 |
| Toluene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| trans-1,2-Dichloroethene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| trans-1,3-Dichloropropene | 10.8 | U | 21.6 | 6.75 | ug/Kg | 1 | | 10/07/15 20:39 |
| Trichloroethene | 5.40 | U | 10.8 | 3.37 | ug/Kg | 1 | | 10/07/15 20:39 |
| Trichlorofluoromethane | 21.6 | U | 43.3 | 13.0 | ug/Kg | 1 | | 10/07/15 20:39 |
| Vinyl acetate | 43.3 | U | 86.5 | 26.8 | ug/Kg | 1 | | 10/07/15 20:39 |
| Vinyl chloride | 4.33 | U | 8.65 | 2.68 | ug/Kg | 1 | | 10/07/15 20:39 |
| Xylenes (total) | 32.5 | U | 64.9 | 19.7 | ug/Kg | 1 | | 10/07/15 20:39 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 114 | | 71-136 | | % | 1 | | 10/07/15 20:39 |
| 4-Bromofluorobenzene (surr) | 105 | | 55-151 | | % | 1 | | 10/07/15 20:39 |
| Toluene-d8 (surr) | 105 | | 85-116 | | % | 1 | | 10/07/15 20:39 |

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

Results of **SB-1B**

Client Sample ID: **SB-1B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621002
Lab Project ID: 1155621

Collection Date: 09/25/15 10:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location: PW7-C-6

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15318
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 10/07/15 20:39
Container ID: 1155621002-B

Prep Batch: VXX28024
Prep Method: SW5035A
Prep Date/Time: 09/25/15 10:20
Prep Initial Wt./Vol.: 103.24 g
Prep Extract Vol: 38.7217 mL

## Results of **SB-2A**

Client Sample ID: **SB-2A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621003
Lab Project ID: 1155621

Collection Date: 09/25/15 12:05
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):84.6
Location: PW7-C-6

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 11.7 | U | 23.3 | 7.21 | mg/Kg | 1 | | 10/07/15 09:54 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 76.3 | | 50-150 | | % | 1 | | 10/07/15 09:54 |

### Batch Information

Analytical Batch: XFC12137
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 10/07/15 09:54
Container ID: 1155621003-A

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 09/30/15 11:25
Prep Initial Wt./Vol.: 30.492 g
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 21.1 | J | 23.3 | 7.21 | mg/Kg | 1 | | 10/07/15 09:54 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 76.8 | | 50-150 | | % | 1 | | 10/07/15 09:54 |

### Batch Information

Analytical Batch: XFC12137
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 10/07/15 09:54
Container ID: 1155621003-A

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 09/30/15 11:25
Prep Initial Wt./Vol.: 30.492 g
Prep Extract Vol: 1 mL

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

## Results of **SB-2A**

Client Sample ID: **SB-2A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621003
Lab Project ID: 1155621

Collection Date: 09/25/15 12:05
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):84.6
Location: PW7-C-6

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 4.11 | J | 4.13 | 1.24 | mg/Kg | 1 | | 10/09/15 01:22 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 112 | | 50-150 | | % | 1 | | 10/09/15 01:22 |

## Batch Information

Analytical Batch: VFC12722
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/09/15 01:22
Container ID: 1155621003-B

Prep Batch: VXX28039
Prep Method: SW5035A
Prep Date/Time: 09/25/15 12:05
Prep Initial Wt./Vol.: 45.938 g
Prep Extract Vol: 32.0776 mL

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

Results of **SB-2A**

Client Sample ID: **SB-2A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621003
Lab Project ID: 1155621

Collection Date: 09/25/15 12:05
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):84.6
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,1,1-Trichloroethane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,1,2,2-Tetrachloroethane | 10.3 | U | 20.6 | 6.44 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,1,2-Trichloroethane | 8.25 | U | 16.5 | 5.12 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,1-Dichloroethane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,1-Dichloroethene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,1-Dichloropropene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2,3-Trichlorobenzene | 41.3 | U | 82.5 | 24.8 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2,3-Trichloropropane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2,4-Trichlorobenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2,4-Trimethylbenzene | 41.3 | U | 82.5 | 24.8 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2-Dibromo-3-chloropropane | 82.5 | U | 165 | 51.2 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2-Dibromoethane | 8.25 | U | 16.5 | 5.12 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2-Dichlorobenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2-Dichloroethane | 8.25 | U | 16.5 | 5.12 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,2-Dichloropropane | 8.25 | U | 16.5 | 5.12 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,3,5-Trimethylbenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,3-Dichlorobenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,3-Dichloropropane | 8.25 | U | 16.5 | 5.12 | ug/Kg | 1 | | 10/07/15 20:07 |
| 1,4-Dichlorobenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 2,2-Dichloropropane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 2-Butanone (MEK) | 207 | U | 413 | 129 | ug/Kg | 1 | | 10/07/15 20:07 |
| 2-Chlorotoluene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 2-Hexanone | 207 | U | 413 | 129 | ug/Kg | 1 | | 10/07/15 20:07 |
| 4-Chlorotoluene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 4-Isopropyltoluene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| 4-Methyl-2-pentanone (MIBK) | 207 | U | 413 | 129 | ug/Kg | 1 | | 10/07/15 20:07 |
| Benzene | 8.25 | J | 20.6 | 6.44 | ug/Kg | 1 | | 10/07/15 20:07 |
| Bromobenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Bromochloromethane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Bromodichloromethane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Bromoform | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Bromomethane | 165 | U | 330 | 102 | ug/Kg | 1 | | 10/07/15 20:07 |
| Carbon disulfide | 82.5 | U | 165 | 51.2 | ug/Kg | 1 | | 10/07/15 20:07 |
| Carbon tetrachloride | 10.3 | U | 20.6 | 6.44 | ug/Kg | 1 | | 10/07/15 20:07 |
| Chlorobenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Chloroethane | 165 | U | 330 | 102 | ug/Kg | 1 | | 10/07/15 20:07 |

Results of **SB-2A**

Client Sample ID: **SB-2A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621003
Lab Project ID: 1155621

Collection Date: 09/25/15 12:05
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):84.6
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Chloromethane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| cis-1,2-Dichloroethene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| cis-1,3-Dichloropropene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Dibromochloromethane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Dibromomethane | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Dichlorodifluoromethane | 41.3 | U | 82.5 | 24.8 | ug/Kg | 1 | | 10/07/15 20:07 |
| Ethylbenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Freon-113 | 82.5 | U | 165 | 51.2 | ug/Kg | 1 | | 10/07/15 20:07 |
| Hexachlorobutadiene | 41.3 | U | 82.5 | 24.8 | ug/Kg | 1 | | 10/07/15 20:07 |
| Isopropylbenzene (Cumene) | 14.0 | J | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Methylene chloride | 82.5 | U | 165 | 51.2 | ug/Kg | 1 | | 10/07/15 20:07 |
| Methyl-t-butyl ether | 82.5 | U | 165 | 51.2 | ug/Kg | 1 | | 10/07/15 20:07 |
| Naphthalene | 41.3 | U | 82.5 | 24.8 | ug/Kg | 1 | | 10/07/15 20:07 |
| n-Butylbenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| n-Propylbenzene | 20.2 | J | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| o-Xylene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| P & M -Xylene | 28.5 | J | 82.5 | 24.8 | ug/Kg | 1 | | 10/07/15 20:07 |
| sec-Butylbenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Styrene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| tert-Butylbenzene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Tetrachloroethene | 10.3 | U | 20.6 | 6.44 | ug/Kg | 1 | | 10/07/15 20:07 |
| Toluene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| trans-1,2-Dichloroethene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| trans-1,3-Dichloropropene | 20.6 | U | 41.3 | 12.9 | ug/Kg | 1 | | 10/07/15 20:07 |
| Trichloroethene | 10.3 | U | 20.6 | 6.44 | ug/Kg | 1 | | 10/07/15 20:07 |
| Trichlorofluoromethane | 41.3 | U | 82.5 | 24.8 | ug/Kg | 1 | | 10/07/15 20:07 |
| Vinyl acetate | 82.5 | U | 165 | 51.2 | ug/Kg | 1 | | 10/07/15 20:07 |
| Vinyl chloride | 8.25 | U | 16.5 | 5.12 | ug/Kg | 1 | | 10/07/15 20:07 |
| Xylenes (total) | 62.0 | U | 124 | 37.6 | ug/Kg | 1 | | 10/07/15 20:07 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 116 | | 71-136 | | % | 1 | | 10/07/15 20:07 |
| 4-Bromofluorobenzene (surr) | 110 | | 55-151 | | % | 1 | | 10/07/15 20:07 |
| Toluene-d8 (surr) | 107 | | 85-116 | | % | 1 | | 10/07/15 20:07 |

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J flagging is activated

Results of **SB-2A**

Client Sample ID: **SB-2A**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621003
Lab Project ID: 1155621

Collection Date: 09/25/15 12:05
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):84.6
Location: PW7-C-6

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15318
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 10/07/15 20:07
Container ID: 1155621003-B

Prep Batch: VXX28024
Prep Method: SW5035A
Prep Date/Time: 09/25/15 12:05
Prep Initial Wt./Vol.: 45.938 g
Prep Extract Vol: 32.0776 mL

## Results of **SB-2B**

Client Sample ID: **SB-2B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621004
Lab Project ID: 1155621

Collection Date: 09/25/15 12:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location: PW7-C-6

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 11.6 | U | 23.2 | 7.20 | mg/Kg | 1 | | 10/07/15 10:04 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 73.7 | | 50-150 | | % | 1 | | 10/07/15 10:04 |

### Batch Information

Analytical Batch: XFC12137
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 10/07/15 10:04
Container ID: 1155621004-A

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 09/30/15 11:25
Prep Initial Wt./Vol.: 30.196 g
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 19.0 | J | 23.2 | 7.20 | mg/Kg | 1 | | 10/07/15 10:04 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 76.3 | | 50-150 | | % | 1 | | 10/07/15 10:04 |

### Batch Information

Analytical Batch: XFC12137
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 10/07/15 10:04
Container ID: 1155621004-A

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 09/30/15 11:25
Prep Initial Wt./Vol.: 30.196 g
Prep Extract Vol: 1 mL

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## Results of **SB-2B**

Client Sample ID: **SB-2B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621004
Lab Project ID: 1155621

Collection Date: 09/25/15 12:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location: PW7-C-6

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 5.92 | | 3.32 | 0.996 | mg/Kg | 1 | | 10/09/15 01:41 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 120 | | 50-150 | | % | 1 | | 10/09/15 01:41 |

## Batch Information

Analytical Batch: VFC12722
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/09/15 01:41
Container ID: 1155621004-B

Prep Batch: VXX28039
Prep Method: SW5035A
Prep Date/Time: 09/25/15 12:20
Prep Initial Wt./Vol.: 58.967 g
Prep Extract Vol: 33.5024 mL

Results of **SB-2B**

Client Sample ID: **SB-2B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621004
Lab Project ID: 1155621

Collection Date: 09/25/15 12:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,1,1-Trichloroethane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,1,2,2-Tetrachloroethane | 8.30 | U | 16.6 | 5.18 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,1,2-Trichloroethane | 6.65 | U | 13.3 | 4.12 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,1-Dichloroethane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,1-Dichloroethene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,1-Dichloropropene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2,3-Trichlorobenzene | 33.2 | U | 66.4 | 19.9 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2,3-Trichloropropane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2,4-Trichlorobenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2,4-Trimethylbenzene | 33.2 | U | 66.4 | 19.9 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2-Dibromo-3-chloropropane | 66.5 | U | 133 | 41.2 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2-Dibromoethane | 6.65 | U | 13.3 | 4.12 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2-Dichlorobenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2-Dichloroethane | 6.65 | U | 13.3 | 4.12 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,2-Dichloropropane | 6.65 | U | 13.3 | 4.12 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,3,5-Trimethylbenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,3-Dichlorobenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,3-Dichloropropane | 6.65 | U | 13.3 | 4.12 | ug/Kg | 1 | | 10/07/15 19:51 |
| 1,4-Dichlorobenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 2,2-Dichloropropane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 2-Butanone (MEK) | 166 | U | 332 | 104 | ug/Kg | 1 | | 10/07/15 19:51 |
| 2-Chlorotoluene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 2-Hexanone | 166 | U | 332 | 104 | ug/Kg | 1 | | 10/07/15 19:51 |
| 4-Chlorotoluene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 4-Isopropyltoluene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| 4-Methyl-2-pentanone (MIBK) | 166 | U | 332 | 104 | ug/Kg | 1 | | 10/07/15 19:51 |
| Benzene | 8.30 | J | 16.6 | 5.18 | ug/Kg | 1 | | 10/07/15 19:51 |
| Bromobenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Bromochloromethane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Bromodichloromethane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Bromoform | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Bromomethane | 133 | U | 266 | 82.3 | ug/Kg | 1 | | 10/07/15 19:51 |
| Carbon disulfide | 66.5 | U | 133 | 41.2 | ug/Kg | 1 | | 10/07/15 19:51 |
| Carbon tetrachloride | 8.30 | U | 16.6 | 5.18 | ug/Kg | 1 | | 10/07/15 19:51 |
| Chlorobenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Chloroethane | 133 | U | 266 | 82.3 | ug/Kg | 1 | | 10/07/15 19:51 |

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Results of **SB-2B**

Client Sample ID: **SB-2B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621004
Lab Project ID: 1155621

Collection Date: 09/25/15 12:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Chloromethane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| cis-1,2-Dichloroethene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| cis-1,3-Dichloropropene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Dibromochloromethane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Dibromomethane | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Dichlorodifluoromethane | 33.2 | U | 66.4 | 19.9 | ug/Kg | 1 | | 10/07/15 19:51 |
| Ethylbenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Freon-113 | 66.5 | U | 133 | 41.2 | ug/Kg | 1 | | 10/07/15 19:51 |
| Hexachlorobutadiene | 33.2 | U | 66.4 | 19.9 | ug/Kg | 1 | | 10/07/15 19:51 |
| Isopropylbenzene (Cumene) | 19.6 | J | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Methylene chloride | 66.5 | U | 133 | 41.2 | ug/Kg | 1 | | 10/07/15 19:51 |
| Methyl-t-butyl ether | 66.5 | U | 133 | 41.2 | ug/Kg | 1 | | 10/07/15 19:51 |
| Naphthalene | 33.2 | U | 66.4 | 19.9 | ug/Kg | 1 | | 10/07/15 19:51 |
| n-Butylbenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| n-Propylbenzene | 22.6 | J | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| o-Xylene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| P & M -Xylene | 33.9 | J | 66.4 | 19.9 | ug/Kg | 1 | | 10/07/15 19:51 |
| sec-Butylbenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Styrene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| tert-Butylbenzene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Tetrachloroethene | 8.30 | U | 16.6 | 5.18 | ug/Kg | 1 | | 10/07/15 19:51 |
| Toluene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| trans-1,2-Dichloroethene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| trans-1,3-Dichloropropene | 16.6 | U | 33.2 | 10.4 | ug/Kg | 1 | | 10/07/15 19:51 |
| Trichloroethene | 8.30 | U | 16.6 | 5.18 | ug/Kg | 1 | | 10/07/15 19:51 |
| Trichlorofluoromethane | 33.2 | U | 66.4 | 19.9 | ug/Kg | 1 | | 10/07/15 19:51 |
| Vinyl acetate | 66.5 | U | 133 | 41.2 | ug/Kg | 1 | | 10/07/15 19:51 |
| Vinyl chloride | 6.65 | U | 13.3 | 4.12 | ug/Kg | 1 | | 10/07/15 19:51 |
| Xylenes (total) | 33.9 | J | 99.6 | 30.3 | ug/Kg | 1 | | 10/07/15 19:51 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 114 | | 71-136 | | % | 1 | | 10/07/15 19:51 |
| 4-Bromofluorobenzene (surr) | 111 | | 55-151 | | % | 1 | | 10/07/15 19:51 |
| Toluene-d8 (surr) | 109 | | 85-116 | | % | 1 | | 10/07/15 19:51 |

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Results of **SB-2B**

Client Sample ID: **SB-2B**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621004
Lab Project ID: 1155621

Collection Date: 09/25/15 12:20
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location: PW7-C-6

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15318
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 10/07/15 19:51
Container ID: 1155621004-B

Prep Batch: VXX28024
Prep Method: SW5035A
Prep Date/Time: 09/25/15 12:20
Prep Initial Wt./Vol.: 58.967 g
Prep Extract Vol: 33.5024 mL

## Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621005
Lab Project ID: 1155621

Collection Date: 09/25/15 08:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):
Location: PW7-C-6

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 1.23 | U | 2.45 | 0.735 | mg/Kg | 1 | | 10/09/15 00:44 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 95.9 | | 50-150 | | % | 1 | | 10/09/15 00:44 |

## Batch Information

Analytical Batch: VFC12722
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/09/15 00:44
Container ID: 1155621005-A

Prep Batch: VXX28039
Prep Method: SW5035A
Prep Date/Time: 09/25/15 08:00
Prep Initial Wt./Vol.: 51.012 g
Prep Extract Vol: 25 mL



SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
**t** 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621005
Lab Project ID: 1155621

Collection Date: 09/25/15 08:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,1,1-Trichloroethane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,1,2,2-Tetrachloroethane | 6.15 | U | 12.3 | 3.82 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,1,2-Trichloroethane | 4.90 | U | 9.80 | 3.04 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,1-Dichloroethane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,1-Dichloroethene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,1-Dichloropropene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2,3-Trichlorobenzene | 24.5 | U | 49.0 | 14.7 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2,3-Trichloropropane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2,4-Trichlorobenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2,4-Trimethylbenzene | 24.5 | U | 49.0 | 14.7 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2-Dibromo-3-chloropropane | 49.0 | U | 98.0 | 30.4 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2-Dibromoethane | 4.90 | U | 9.80 | 3.04 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2-Dichlorobenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2-Dichloroethane | 4.90 | U | 9.80 | 3.04 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,2-Dichloropropane | 4.90 | U | 9.80 | 3.04 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,3,5-Trimethylbenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,3-Dichlorobenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,3-Dichloropropane | 4.90 | U | 9.80 | 3.04 | ug/Kg | 1 | | 10/07/15 19:35 |
| 1,4-Dichlorobenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 2,2-Dichloropropane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 2-Butanone (MEK) | 123 | U | 245 | 76.5 | ug/Kg | 1 | | 10/07/15 19:35 |
| 2-Chlorotoluene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 2-Hexanone | 123 | U | 245 | 76.5 | ug/Kg | 1 | | 10/07/15 19:35 |
| 4-Chlorotoluene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 4-Isopropyltoluene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| 4-Methyl-2-pentanone (MIBK) | 123 | U | 245 | 76.5 | ug/Kg | 1 | | 10/07/15 19:35 |
| Benzene | 6.15 | U | 12.3 | 3.82 | ug/Kg | 1 | | 10/07/15 19:35 |
| Bromobenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Bromochloromethane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Bromodichloromethane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Bromoform | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Bromomethane | 98.0 | U | 196 | 60.8 | ug/Kg | 1 | | 10/07/15 19:35 |
| Carbon disulfide | 49.0 | U | 98.0 | 30.4 | ug/Kg | 1 | | 10/07/15 19:35 |
| Carbon tetrachloride | 6.15 | U | 12.3 | 3.82 | ug/Kg | 1 | | 10/07/15 19:35 |
| Chlorobenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Chloroethane | 98.0 | U | 196 | 60.8 | ug/Kg | 1 | | 10/07/15 19:35 |

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J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621005
Lab Project ID: 1155621

Collection Date: 09/25/15 08:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):
Location: PW7-C-6

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Chloromethane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| cis-1,2-Dichloroethene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| cis-1,3-Dichloropropene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Dibromochloromethane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Dibromomethane | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Dichlorodifluoromethane | 24.5 | U | 49.0 | 14.7 | ug/Kg | 1 | | 10/07/15 19:35 |
| Ethylbenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Freon-113 | 49.0 | U | 98.0 | 30.4 | ug/Kg | 1 | | 10/07/15 19:35 |
| Hexachlorobutadiene | 24.5 | U | 49.0 | 14.7 | ug/Kg | 1 | | 10/07/15 19:35 |
| Isopropylbenzene (Cumene) | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Methylene chloride | 49.0 | U | 98.0 | 30.4 | ug/Kg | 1 | | 10/07/15 19:35 |
| Methyl-t-butyl ether | 49.0 | U | 98.0 | 30.4 | ug/Kg | 1 | | 10/07/15 19:35 |
| Naphthalene | 24.5 | U | 49.0 | 14.7 | ug/Kg | 1 | | 10/07/15 19:35 |
| n-Butylbenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| n-Propylbenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| o-Xylene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| P & M -Xylene | 24.5 | U | 49.0 | 14.7 | ug/Kg | 1 | | 10/07/15 19:35 |
| sec-Butylbenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Styrene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| tert-Butylbenzene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Tetrachloroethene | 6.15 | U | 12.3 | 3.82 | ug/Kg | 1 | | 10/07/15 19:35 |
| Toluene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| trans-1,2-Dichloroethene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| trans-1,3-Dichloropropene | 12.3 | U | 24.5 | 7.65 | ug/Kg | 1 | | 10/07/15 19:35 |
| Trichloroethene | 6.15 | U | 12.3 | 3.82 | ug/Kg | 1 | | 10/07/15 19:35 |
| Trichlorofluoromethane | 24.5 | U | 49.0 | 14.7 | ug/Kg | 1 | | 10/07/15 19:35 |
| Vinyl acetate | 49.0 | U | 98.0 | 30.4 | ug/Kg | 1 | | 10/07/15 19:35 |
| Vinyl chloride | 4.90 | U | 9.80 | 3.04 | ug/Kg | 1 | | 10/07/15 19:35 |
| Xylenes (total) | 36.8 | U | 73.5 | 22.3 | ug/Kg | 1 | | 10/07/15 19:35 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 113 | | 71-136 | | % | 1 | | 10/07/15 19:35 |
| 4-Bromofluorobenzene (surr) | 107 | | 55-151 | | % | 1 | | 10/07/15 19:35 |
| Toluene-d8 (surr) | 105 | | 85-116 | | % | 1 | | 10/07/15 19:35 |

Print Date: 10/13/2015 8:43:11AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **ARRC Mammoth Trucking**
Lab Sample ID: 1155621005
Lab Project ID: 1155621

Collection Date: 09/25/15 08:00
Received Date: 09/25/15 15:41
Matrix: Soil/Solid (dry weight)
Solids (%):
Location: PW7-C-6

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15318
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 10/07/15 19:35
Container ID: 1155621005-A

Prep Batch: VXX28024
Prep Method: SW5035A
Prep Date/Time: 09/25/15 08:00
Prep Initial Wt./Vol.: 51.012 g
Prep Extract Vol: 25 mL

## Method Blank

Blank ID: MB for HBN 1721675 [SPT/9754]
Blank Lab ID: 1294420

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155621001, 1155621002, 1155621003, 1155621004

## Results by **SM21 2540G**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Total Solids | 100 | | | % |

## Batch Information

Analytical Batch: SPT9754
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R
Analytical Date/Time: 9/30/2015 5:22:00PM



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## Duplicate Sample Summary

Original Sample ID: 1155640019
Duplicate Sample ID: 1294421
QC for Samples:
1155621001, 1155621002, 1155621003, 1155621004

Analysis Date: 09/30/2015 17:22
Matrix: Soil/Solid (dry weight)

## Results by **SM21 2540G**

| NAME | Original | Duplicate | Units | RPD (%) | RPD CL |
|---|---|---|---|---|---|
| Total Solids | 96.6 | 96.4 | % | 0.15 | (< 15 ) |

## Batch Information

Analytical Batch: SPT9754
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

Print Date: 10/13/2015 8:43:15AM

## Method Blank

Blank ID: MB for HBN 1721780 [VXX/27999]
Blank Lab ID: 1294859

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155621001

## Results by **AK101**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Gasoline Range Organics | 1.97J | 2.50 | 0.750 | mg/Kg |
| **Surrogates** | | | | |
| 4-Bromofluorobenzene (surr) | 71.6 | 50-150 | | % |

## Batch Information

Analytical Batch: VFC12709
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 10/1/2015 11:10:00AM

Prep Batch: VXX27999
Prep Method: SW5035A
Prep Date/Time: 10/1/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155621 [VXX27999]
Blank Spike Lab ID: 1294862
Date Analyzed: 10/01/2015 16:12

Spike Duplicate ID: LCSD for HBN 1155621 [VXX27999]
Spike Duplicate Lab ID: 1294863
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155621001

## Results by **AK101**

| | Blank Spike (mg/Kg) | | | Spike Duplicate (mg/Kg) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Gasoline Range Organics | 10.0 | 10.3 | 103 | 10.0 | 11.4 | 114 | ( 60-120 ) | 10.80 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 1.25 | 78.9 | 79 | 1.25 | 84.1 | 84 | ( 50-150 ) | 6.40 | |

## Batch Information

Analytical Batch: **VFC12709**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27999**
Prep Method: **SW5035A**
Prep Date/Time: **10/01/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

## Method Blank

Blank ID: MB for HBN 1722176 [VXX/28024]
Blank Lab ID: 1296107

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155621001, 1155621002, 1155621003, 1155621004, 1155621005

## Results by **SW8260B**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,1,1-Trichloroethane | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,1,2,2-Tetrachloroethane | 6.25U | 12.5 | 3.90 | ug/Kg |
| 1,1,2-Trichloroethane | 5.00U | 10.0 | 3.10 | ug/Kg |
| 1,1-Dichloroethane | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,1-Dichloroethene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,1-Dichloropropene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,2,3-Trichlorobenzene | 25.0U | 50.0 | 15.0 | ug/Kg |
| 1,2,3-Trichloropropane | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,2,4-Trichlorobenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,2,4-Trimethylbenzene | 25.0U | 50.0 | 15.0 | ug/Kg |
| 1,2-Dibromo-3-chloropropane | 50.0U | 100 | 31.0 | ug/Kg |
| 1,2-Dibromoethane | 5.00U | 10.0 | 3.10 | ug/Kg |
| 1,2-Dichlorobenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,2-Dichloroethane | 5.00U | 10.0 | 3.10 | ug/Kg |
| 1,2-Dichloropropane | 5.00U | 10.0 | 3.10 | ug/Kg |
| 1,3,5-Trimethylbenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,3-Dichlorobenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 1,3-Dichloropropane | 5.00U | 10.0 | 3.10 | ug/Kg |
| 1,4-Dichlorobenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 2,2-Dichloropropane | 12.5U | 25.0 | 7.80 | ug/Kg |
| 2-Butanone (MEK) | 125U | 250 | 78.0 | ug/Kg |
| 2-Chlorotoluene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 2-Hexanone | 125U | 250 | 78.0 | ug/Kg |
| 4-Chlorotoluene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 4-Isopropyltoluene | 12.5U | 25.0 | 7.80 | ug/Kg |
| 4-Methyl-2-pentanone (MIBK) | 125U | 250 | 78.0 | ug/Kg |
| Benzene | 6.25U | 12.5 | 3.90 | ug/Kg |
| Bromobenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| Bromochloromethane | 12.5U | 25.0 | 7.80 | ug/Kg |
| Bromodichloromethane | 12.5U | 25.0 | 7.80 | ug/Kg |
| Bromoform | 12.5U | 25.0 | 7.80 | ug/Kg |
| Bromomethane | 100U | 200 | 62.0 | ug/Kg |
| Carbon disulfide | 50.0U | 100 | 31.0 | ug/Kg |
| Carbon tetrachloride | 6.25U | 12.5 | 3.90 | ug/Kg |
| Chlorobenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| Chloroethane | 100U | 200 | 62.0 | ug/Kg |
| Chloroform | 12.5U | 25.0 | 7.80 | ug/Kg |

## Method Blank

Blank ID: MB for HBN 1722176 [VXX/28024]
Blank Lab ID: 1296107

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155621001, 1155621002, 1155621003, 1155621004, 1155621005

Results by **SW8260B**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Chloromethane | 12.5U | 25.0 | 7.80 | ug/Kg |
| cis-1,2-Dichloroethene | 12.5U | 25.0 | 7.80 | ug/Kg |
| cis-1,3-Dichloropropene | 12.5U | 25.0 | 7.80 | ug/Kg |
| Dibromochloromethane | 12.5U | 25.0 | 7.80 | ug/Kg |
| Dibromomethane | 12.5U | 25.0 | 7.80 | ug/Kg |
| Dichlorodifluoromethane | 25.0U | 50.0 | 15.0 | ug/Kg |
| Ethylbenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| Freon-113 | 50.0U | 100 | 31.0 | ug/Kg |
| Hexachlorobutadiene | 25.0U | 50.0 | 15.0 | ug/Kg |
| Isopropylbenzene (Cumene) | 12.5U | 25.0 | 7.80 | ug/Kg |
| Methylene chloride | 50.0U | 100 | 31.0 | ug/Kg |
| Methyl-t-butyl ether | 50.0U | 100 | 31.0 | ug/Kg |
| Naphthalene | 25.0U | 50.0 | 15.0 | ug/Kg |
| n-Butylbenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| n-Propylbenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| o-Xylene | 12.5U | 25.0 | 7.80 | ug/Kg |
| P & M -Xylene | 25.0U | 50.0 | 15.0 | ug/Kg |
| sec-Butylbenzene | 12.5U | 25.0 | 7.80 | ug/Kg |
| Styrene | 12.5U | 25.0 | 7.80 | ug/Kg |
| tert-Butylbenzene | 8.50J | 25.0 | 7.80 | ug/Kg |
| Tetrachloroethene | 6.25U | 12.5 | 3.90 | ug/Kg |
| Toluene | 12.5U | 25.0 | 7.80 | ug/Kg |
| trans-1,2-Dichloroethene | 12.5U | 25.0 | 7.80 | ug/Kg |
| trans-1,3-Dichloropropene | 12.5U | 25.0 | 7.80 | ug/Kg |
| Trichloroethene | 6.25U | 12.5 | 3.90 | ug/Kg |
| Trichlorofluoromethane | 25.0U | 50.0 | 15.0 | ug/Kg |
| Vinyl acetate | 50.0U | 100 | 31.0 | ug/Kg |
| Vinyl chloride | 5.00U | 10.0 | 3.10 | ug/Kg |
| Xylenes (total) | 37.5U | 75.0 | 22.8 | ug/Kg |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 118 | 71-136 | | % |
| 4-Bromofluorobenzene (surr) | 104 | 55-151 | | % |
| Toluene-d8 (surr) | 108 | 85-116 | | % |

## Method Blank

Blank ID: MB for HBN 1722176 [VXX/28024]
Blank Lab ID: 1296107

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155621001, 1155621002, 1155621003, 1155621004, 1155621005

## Results by **SW8260B**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|

### Batch Information

Analytical Batch: VMS15318
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: ST
Analytical Date/Time: 10/7/2015 4:08:00PM

Prep Batch: VXX28024
Prep Method: SW5035A
Prep Date/Time: 10/7/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155621 [VXX28024]
Blank Spike Lab ID: 1296108
Date Analyzed: 10/07/2015 16:40

Spike Duplicate ID: LCSD for HBN 1155621 [VXX28024]
Spike Duplicate Lab ID: 1296111
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155621001, 1155621002, 1155621003, 1155621004, 1155621005

## Results by **SW8260B**

| | Blank Spike (ug/Kg) | | | Spike Duplicate (ug/Kg) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,1,1,2-Tetrachloroethane | 750 | 850 | 113 | 750 | 810 | 108 | ( 78-125 ) | 4.80 | (< 20 ) |
| 1,1,1-Trichloroethane | 750 | 914 | 122 | 750 | 916 | 122 | ( 73-130 ) | 0.22 | (< 20 ) |
| 1,1,2,2-Tetrachloroethane | 750 | 743 | 99 | 750 | 709 | 95 | ( 70-124 ) | 4.60 | (< 20 ) |
| 1,1,2-Trichloroethane | 750 | 790 | 105 | 750 | 785 | 105 | ( 78-121 ) | 0.70 | (< 20 ) |
| 1,1-Dichloroethane | 750 | 790 | 105 | 750 | 795 | 106 | ( 76-125 ) | 0.66 | (< 20 ) |
| 1,1-Dichloroethene | 750 | 821 | 110 | 750 | 830 | 111 | ( 70-131 ) | 1.10 | (< 20 ) |
| 1,1-Dichloropropene | 750 | 816 | 109 | 750 | 816 | 109 | ( 76-125 ) | 0.03 | (< 20 ) |
| 1,2,3-Trichlorobenzene | 750 | 786 | 105 | 750 | 793 | 106 | ( 66-130 ) | 0.85 | (< 20 ) |
| 1,2,3-Trichloropropane | 750 | 774 | 103 | 750 | 719 | 96 | ( 73-125 ) | 7.30 | (< 20 ) |
| 1,2,4-Trichlorobenzene | 750 | 838 | 112 | 750 | 818 | 109 | ( 67-129 ) | 2.50 | (< 20 ) |
| 1,2,4-Trimethylbenzene | 750 | 846 | 113 | 750 | 816 | 109 | ( 75-123 ) | 3.60 | (< 20 ) |
| 1,2-Dibromo-3-chloropropane | 750 | 758 | 101 | 750 | 691 | 92 | ( 61-132 ) | 9.20 | (< 20 ) |
| 1,2-Dibromoethane | 750 | 816 | 109 | 750 | 769 | 103 | ( 78-122 ) | 5.90 | (< 20 ) |
| 1,2-Dichlorobenzene | 750 | 766 | 102 | 750 | 739 | 99 | ( 78-121 ) | 3.70 | (< 20 ) |
| 1,2-Dichloroethane | 750 | 819 | 109 | 750 | 788 | 105 | ( 73-128 ) | 3.90 | (< 20 ) |
| 1,2-Dichloropropane | 750 | 762 | 102 | 750 | 757 | 101 | ( 76-123 ) | 0.63 | (< 20 ) |
| 1,3,5-Trimethylbenzene | 750 | 841 | 112 | 750 | 800 | 107 | ( 73-124 ) | 5.00 | (< 20 ) |
| 1,3-Dichlorobenzene | 750 | 766 | 102 | 750 | 730 | 97 | ( 77-121 ) | 4.80 | (< 20 ) |
| 1,3-Dichloropropane | 750 | 803 | 107 | 750 | 772 | 103 | ( 77-121 ) | 4.00 | (< 20 ) |
| 1,4-Dichlorobenzene | 750 | 782 | 104 | 750 | 742 | 99 | ( 75-120 ) | 5.20 | (< 20 ) |
| 2,2-Dichloropropane | 750 | 814 | 109 | 750 | 772 | 103 | ( 67-133 ) | 5.30 | (< 20 ) |
| 2-Butanone (MEK) | 2250 | 2030 | 90 | 2250 | 1890 | 84 | ( 51-148 ) | 7.10 | (< 20 ) |
| 2-Chlorotoluene | 750 | 787 | 105 | 750 | 747 | 100 | ( 75-122 ) | 5.20 | (< 20 ) |
| 2-Hexanone | 2250 | 2190 | 97 | 2250 | 2020 | 90 | ( 53-145 ) | 8.00 | (< 20 ) |
| 4-Chlorotoluene | 750 | 805 | 107 | 750 | 762 | 102 | ( 72-124 ) | 5.60 | (< 20 ) |
| 4-Isopropyltoluene | 750 | 780 | 104 | 750 | 733 | 98 | ( 73-127 ) | 6.20 | (< 20 ) |
| 4-Methyl-2-pentanone (MIBK) | 2250 | 2110 | 94 | 2250 | 2040 | 91 | ( 65-135 ) | 3.60 | (< 20 ) |
| Benzene | 750 | 772 | 103 | 750 | 776 | 103 | ( 77-121 ) | 0.55 | (< 20 ) |
| Bromobenzene | 750 | 770 | 103 | 750 | 745 | 99 | ( 78-121 ) | 3.30 | (< 20 ) |
| Bromochloromethane | 750 | 759 | 101 | 750 | 761 | 101 | ( 78-125 ) | 0.16 | (< 20 ) |
| Bromodichloromethane | 750 | 836 | 111 | 750 | 815 | 109 | ( 75-127 ) | 2.50 | (< 20 ) |
| Bromoform | 750 | 851 | 114 | 750 | 784 | 104 | ( 67-132 ) | 8.30 | (< 20 ) |
| Bromomethane | 750 | 834 | 111 | 750 | 869 | 116 | ( 53-143 ) | 4.10 | (< 20 ) |
| Carbon disulfide | 1130 | 1220 | 108 | 1130 | 1220 | 109 | ( 63-132 ) | 0.43 | (< 20 ) |



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155621 [VXX28024]
Blank Spike Lab ID: 1296108
Date Analyzed: 10/07/2015 16:40

Spike Duplicate ID: LCSD for HBN 1155621 [VXX28024]
Spike Duplicate Lab ID: 1296111
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155621001, 1155621002, 1155621003, 1155621004, 1155621005

## Results by **SW8260B**

| | Blank Spike (ug/Kg) | | | Spike Duplicate (ug/Kg) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Carbon tetrachloride | 750 | 867 | 116 | 750 | 852 | 114 | ( 70-135 ) | 1.70 | (< 20 ) |
| Chlorobenzene | 750 | 761 | 102 | 750 | 746 | 99 | ( 79-120 ) | 2.10 | (< 20 ) |
| Chloroethane | 750 | 819 | 109 | 750 | 830 | 111 | ( 59-139 ) | 1.30 | (< 20 ) |
| Chloroform | 750 | 765 | 102 | 750 | 761 | 101 | ( 78-123 ) | 0.62 | (< 20 ) |
| Chloromethane | 750 | 768 | 102 | 750 | 787 | 105 | ( 50-136 ) | 2.40 | (< 20 ) |
| cis-1,2-Dichloroethene | 750 | 751 | 100 | 750 | 750 | 100 | ( 77-123 ) | 0.07 | (< 20 ) |
| cis-1,3-Dichloropropene | 750 | 831 | 111 | 750 | 811 | 108 | ( 74-126 ) | 2.50 | (< 20 ) |
| Dibromochloromethane | 750 | 867 | 116 | 750 | 809 | 108 | ( 74-126 ) | 6.90 | (< 20 ) |
| Dibromomethane | 750 | 779 | 104 | 750 | 772 | 103 | ( 78-125 ) | 0.84 | (< 20 ) |
| Dichlorodifluoromethane | 750 | 969 | 129 | 750 | 958 | 128 | ( 29-149 ) | 1.10 | (< 20 ) |
| Ethylbenzene | 750 | 779 | 104 | 750 | 742 | 99 | ( 76-122 ) | 4.80 | (< 20 ) |
| Freon-113 | 1130 | 1230 | 109 | 1130 | 1200 | 107 | ( 66-136 ) | 2.20 | (< 20 ) |
| Hexachlorobutadiene | 750 | 953 | 127 | 750 | 913 | 122 | ( 61-135 ) | 4.40 | (< 20 ) |
| Isopropylbenzene (Cumene) | 750 | 843 | 112 | 750 | 808 | 108 | ( 68-134 ) | 4.20 | (< 20 ) |
| Methylene chloride | 750 | 749 | 100 | 750 | 747 | 100 | ( 70-128 ) | 0.30 | (< 20 ) |
| Methyl-t-butyl ether | 1130 | 1250 | 111 | 1130 | 1220 | 108 | ( 73-125 ) | 3.10 | (< 20 ) |
| Naphthalene | 750 | 739 | 99 | 750 | 755 | 101 | ( 62-129 ) | 2.20 | (< 20 ) |
| n-Butylbenzene | 750 | 837 | 112 | 750 | 791 | 105 | ( 70-128 ) | 5.70 | (< 20 ) |
| n-Propylbenzene | 750 | 742 | 99 | 750 | 706 | 94 | ( 73-125 ) | 4.90 | (< 20 ) |
| o-Xylene | 750 | 761 | 101 | 750 | 742 | 99 | ( 77-123 ) | 2.60 | (< 20 ) |
| P & M -Xylene | 1500 | 1540 | 103 | 1500 | 1490 | 99 | ( 77-124 ) | 3.80 | (< 20 ) |
| sec-Butylbenzene | 750 | 812 | 108 | 750 | 744 | 99 | ( 73-126 ) | 8.70 | (< 20 ) |
| Styrene | 750 | 731 | 97 | 750 | 697 | 93 | ( 76-124 ) | 4.70 | (< 20 ) |
| tert-Butylbenzene | 750 | 766 | 102 | 750 | 716 | 96 | ( 73-125 ) | 6.70 | (< 20 ) |
| Tetrachloroethene | 750 | 774 | 103 | 750 | 756 | 101 | ( 73-128 ) | 2.40 | (< 20 ) |
| Toluene | 750 | 780 | 104 | 750 | 771 | 103 | ( 77-121 ) | 1.20 | (< 20 ) |
| trans-1,2-Dichloroethene | 750 | 768 | 102 | 750 | 778 | 104 | ( 74-125 ) | 1.30 | (< 20 ) |
| trans-1,3-Dichloropropene | 750 | 824 | 110 | 750 | 771 | 103 | ( 71-130 ) | 6.60 | (< 20 ) |
| Trichloroethene | 750 | 829 | 111 | 750 | 829 | 111 | ( 77-123 ) | 0.03 | (< 20 ) |
| Trichlorofluoromethane | 750 | 973 | 130 | 750 | 1060 | 142 | * ( 62-140 ) | 8.70 | (< 20 ) |
| Vinyl acetate | 750 | 839 | 112 | 750 | 772 | 103 | ( 50-151 ) | 8.30 | (< 20 ) |
| Vinyl chloride | 750 | 809 | 108 | 750 | 833 | 111 | ( 56-135 ) | 2.90 | (< 20 ) |
| Xylenes (total) | 2250 | 2310 | 102 | 2250 | 2230 | 99 | ( 78-124 ) | 3.40 | (< 20 ) |



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155621 [VXX28024]
Blank Spike Lab ID: 1296108
Date Analyzed: 10/07/2015 16:40

Spike Duplicate ID: LCSD for HBN 1155621 [VXX28024]
Spike Duplicate Lab ID: 1296111
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155621001, 1155621002, 1155621003, 1155621004, 1155621005

## Results by **SW8260B**

| | Blank Spike (%) | | | Spike Duplicate (%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 750 | 113 | 113 | 750 | 107 | 107 | ( 71-136 ) | 5.10 | |
| 4-Bromofluorobenzene (surr) | 750 | 104 | 104 | 750 | 99.8 | 100 | ( 55-151 ) | 4.10 | |
| Toluene-d8 (surr) | 750 | 111 | 111 | 750 | 110 | 110 | ( 85-116 ) | 1.40 | |

## Batch Information

Analytical Batch: **VMS15318**
Analytical Method: **SW8260B**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **ST**

Prep Batch: **VXX28024**
Prep Method: **SW5035A**
Prep Date/Time: **10/07/2015 08:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL

## Matrix Spike Summary

Original Sample ID: 1155621004
MS Sample ID: 1296109 MS
MSD Sample ID: 1296110 MSD

Analysis Date: 10/07/2015 19:51
Analysis Date: 10/07/2015 18:32
Analysis Date: 10/07/2015 18:47
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155621001, 1155621002, 1155621003, 1155621004, 1155621005

## Results by **SW8260B**

| | | Matrix Spike (ug/Kg) | | | | Spike Duplicate (ug/Kg) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Sample | Spike | Result | Rec (%) | | Spike | Result | Rec (%) | | CL | RPD (%) | RPD CL |
| 1,1,1,2-Tetrachloroethane | 16.6U | 743 | 879 | 118 | | 743 | 856 | 115 | | 78-125 | 2.60 | (< 20 ) |
| 1,1,1-Trichloroethane | 16.6U | 743 | 925 | 125 | | 743 | 881 | 119 | | 73-130 | 5.00 | (< 20 ) |
| 1,1,2,2-Tetrachloroethane | 8.30U | 743 | 785 | 106 | | 743 | 785 | 106 | | 70-124 | 0.10 | (< 20 ) |
| 1,1,2-Trichloroethane | 6.65U | 743 | 1034 | 139 | * | 743 | 1020 | 137 | * | 78-121 | 1.30 | (< 20 ) |
| 1,1-Dichloroethane | 16.6U | 743 | 790 | 106 | | 743 | 755 | 102 | | 76-125 | 4.50 | (< 20 ) |
| 1,1-Dichloroethene | 16.6U | 743 | 826 | 111 | | 743 | 783 | 105 | | 70-131 | 5.40 | (< 20 ) |
| 1,1-Dichloropropene | 16.6U | 743 | 820 | 110 | | 743 | 784 | 105 | | 76-125 | 4.60 | (< 20 ) |
| 1,2,3-Trichlorobenzene | 33.2U | 743 | 757 | 102 | | 743 | 859 | 116 | | 66-130 | 12.60 | (< 20 ) |
| 1,2,3-Trichloropropane | 16.6U | 743 | 821 | 110 | | 743 | 804 | 108 | | 73-125 | 2.10 | (< 20 ) |
| 1,2,4-Trichlorobenzene | 16.6U | 743 | 784 | 106 | | 743 | 840 | 113 | | 67-129 | 7.00 | (< 20 ) |
| 1,2,4-Trimethylbenzene | 33.2U | 743 | 863 | 116 | | 743 | 848 | 114 | | 75-123 | 1.70 | (< 20 ) |
| 1,2-Dibromo-3-chloropropane | 66.5U | 743 | 773 | 104 | | 743 | 808 | 109 | | 61-132 | 4.40 | (< 20 ) |
| 1,2-Dibromoethane | 6.65U | 743 | 827 | 111 | | 743 | 810 | 109 | | 78-122 | 2.10 | (< 20 ) |
| 1,2-Dichlorobenzene | 16.6U | 743 | 749 | 101 | | 743 | 758 | 102 | | 78-121 | 1.20 | (< 20 ) |
| 1,2-Dichloroethane | 6.65U | 743 | 811 | 109 | | 743 | 798 | 107 | | 73-128 | 1.50 | (< 20 ) |
| 1,2-Dichloropropane | 6.65U | 743 | 768 | 103 | | 743 | 750 | 101 | | 76-123 | 2.30 | (< 20 ) |
| 1,3,5-Trimethylbenzene | 16.6U | 743 | 861 | 116 | | 743 | 860 | 116 | | 73-124 | 0.12 | (< 20 ) |
| 1,3-Dichlorobenzene | 16.6U | 743 | 773 | 104 | | 743 | 764 | 103 | | 77-121 | 1.20 | (< 20 ) |
| 1,3-Dichloropropane | 6.65U | 743 | 813 | 109 | | 743 | 793 | 107 | | 77-121 | 2.40 | (< 20 ) |
| 1,4-Dichlorobenzene | 16.6U | 743 | 765 | 103 | | 743 | 770 | 104 | | 75-120 | 0.55 | (< 20 ) |
| 2,2-Dichloropropane | 16.6U | 743 | 805 | 108 | | 743 | 773 | 104 | | 67-133 | 4.10 | (< 20 ) |
| 2-Butanone (MEK) | 166U | 2231 | 2138 | 96 | | 2231 | 2173 | 97 | | 51-148 | 1.50 | (< 20 ) |
| 2-Chlorotoluene | 16.6U | 743 | 805 | 108 | | 743 | 794 | 107 | | 75-122 | 1.30 | (< 20 ) |
| 2-Hexanone | 166U | 2231 | 2278 | 102 | | 2231 | 2278 | 102 | | 53-145 | 0.15 | (< 20 ) |
| 4-Chlorotoluene | 16.6U | 743 | 820 | 110 | | 743 | 801 | 108 | | 72-124 | 2.20 | (< 20 ) |
| 4-Isopropyltoluene | 16.6U | 743 | 762 | 103 | | 743 | 745 | 100 | | 73-127 | 2.20 | (< 20 ) |
| 4-Methyl-2-pentanone (MIBK) | 166U | 2231 | 2231 | 100 | | 2231 | 2196 | 98 | | 65-135 | 1.90 | (< 20 ) |
| Benzene | 8.30J | 743 | 784 | 104 | | 743 | 756 | 101 | | 77-121 | 3.70 | (< 20 ) |
| Bromobenzene | 16.6U | 743 | 797 | 107 | | 743 | 784 | 106 | | 78-121 | 1.50 | (< 20 ) |
| Bromochloromethane | 16.6U | 743 | 751 | 101 | | 743 | 720 | 97 | | 78-125 | 4.30 | (< 20 ) |
| Bromodichloromethane | 16.6U | 743 | 838 | 113 | | 743 | 824 | 111 | | 75-127 | 1.60 | (< 20 ) |
| Bromoform | 16.6U | 743 | 855 | 115 | | 743 | 860 | 116 | | 67-132 | 0.55 | (< 20 ) |
| Bromomethane | 133U | 743 | 856 | 115 | | 743 | 810 | 109 | | 53-143 | 5.60 | (< 20 ) |
| Carbon disulfide | 66.5U | 1114 | 1215 | 109 | | 1114 | 1146 | 103 | | 63-132 | 5.50 | (< 20 ) |
| Carbon tetrachloride | 8.30U | 743 | 876 | 118 | | 743 | 832 | 112 | | 70-135 | 5.20 | (< 20 ) |
| Chlorobenzene | 16.6U | 743 | 787 | 106 | | 743 | 748 | 101 | | 79-120 | 5.20 | (< 20 ) |
| Chloroethane | 133U | 743 | 845 | 114 | | 743 | 791 | 106 | | 59-139 | 6.60 | (< 20 ) |

Print Date: 10/13/2015 8:43:22AM

## Matrix Spike Summary

Original Sample ID: 1155621004
MS Sample ID: 1296109 MS
MSD Sample ID: 1296110 MSD

Analysis Date: 10/07/2015 19:51
Analysis Date: 10/07/2015 18:32
Analysis Date: 10/07/2015 18:47
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155621001, 1155621002, 1155621003, 1155621004, 1155621005

## Results by **SW8260B**

| | | Matrix Spike (ug/Kg) | | | Spike Duplicate (ug/Kg) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Sample | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Chloroform | 16.6U | 743 | 769 | 104 | 743 | 742 | 100 | 78-123 | 3.60 | (< 20 ) |
| Chloromethane | 16.6U | 743 | 772 | 104 | 743 | 731 | 98 | 50-136 | 5.50 | (< 20 ) |
| cis-1,2-Dichloroethene | 16.6U | 743 | 742 | 100 | 743 | 716 | 96 | 77-123 | 3.50 | (< 20 ) |
| cis-1,3-Dichloropropene | 16.6U | 743 | 845 | 114 | 743 | 835 | 112 | 74-126 | 1.10 | (< 20 ) |
| Dibromochloromethane | 16.6U | 743 | 874 | 118 | 743 | 848 | 114 | 74-126 | 3.00 | (< 20 ) |
| Dibromomethane | 16.6U | 743 | 782 | 105 | 743 | 764 | 103 | 78-125 | 2.30 | (< 20 ) |
| Dichlorodifluoromethane | 33.2U | 743 | 970 | 131 | 743 | 911 | 123 | 29-149 | 6.20 | (< 20 ) |
| Ethylbenzene | 16.6U | 743 | 779 | 105 | 743 | 761 | 102 | 76-122 | 2.40 | (< 20 ) |
| Freon-113 | 66.5U | 1114 | 1227 | 110 | 1114 | 1168 | 105 | 66-136 | 4.60 | (< 20 ) |
| Hexachlorobutadiene | 33.2U | 743 | 864 | 116 | 743 | 888 | 120 | 61-135 | 2.70 | (< 20 ) |
| Isopropylbenzene (Cumene) | 19.6J | 743 | 847 | 111 | 743 | 826 | 108 | 68-134 | 2.50 | (< 20 ) |
| Methylene chloride | 66.5U | 743 | 734 | 99 | 743 | 693 | 93 | 70-128 | 5.60 | (< 20 ) |
| Methyl-t-butyl ether | 66.5U | 1114 | 1262 | 113 | 1114 | 1250 | 113 | 73-125 | 0.32 | (< 20 ) |
| Naphthalene | 33.2U | 743 | 735 | 99 | 743 | 825 | 111 | 62-129 | 11.60 | (< 20 ) |
| n-Butylbenzene | 16.6U | 743 | 790 | 106 | 743 | 789 | 106 | 70-128 | 0.16 | (< 20 ) |
| n-Propylbenzene | 22.6J | 743 | 766 | 100 | 743 | 751 | 98 | 73-125 | 1.90 | (< 20 ) |
| o-Xylene | 16.6U | 743 | 769 | 104 | 743 | 748 | 101 | 77-123 | 2.80 | (< 20 ) |
| P & M -Xylene | 33.9J | 1484 | 1589 | 104 | 1484 | 1530 | 101 | 77-124 | 3.30 | (< 20 ) |
| sec-Butylbenzene | 16.6U | 743 | 793 | 107 | 743 | 766 | 103 | 73-126 | 3.60 | (< 20 ) |
| Styrene | 16.6U | 743 | 725 | 98 | 743 | 720 | 97 | 76-124 | 0.89 | (< 20 ) |
| tert-Butylbenzene | 16.6U | 743 | 757 | 102 | 743 | 749 | 101 | 73-125 | 1.20 | (< 20 ) |
| Tetrachloroethene | 8.30U | 743 | 803 | 108 | 743 | 765 | 103 | 73-128 | 4.80 | (< 20 ) |
| Toluene | 16.6U | 743 | 797 | 107 | 743 | 758 | 102 | 77-121 | 4.80 | (< 20 ) |
| trans-1,2-Dichloroethene | 16.6U | 743 | 769 | 103 | 743 | 732 | 99 | 74-125 | 4.80 | (< 20 ) |
| trans-1,3-Dichloropropene | 16.6U | 743 | 819 | 110 | 743 | 806 | 108 | 71-130 | 1.60 | (< 20 ) |
| Trichloroethene | 8.30U | 743 | 849 | 114 | 743 | 818 | 110 | 77-123 | 3.80 | (< 20 ) |
| Trichlorofluoromethane | 33.2U | 743 | 1027 | 138 | 743 | 952 | 128 | 62-140 | 7.50 | (< 20 ) |
| Vinyl acetate | 66.5U | 743 | 828 | 112 | 743 | 838 | 113 | 50-151 | 1.10 | (< 20 ) |
| Vinyl chloride | 6.65U | 743 | 810 | 109 | 743 | 764 | 103 | 56-135 | 5.90 | (< 20 ) |
| Xylenes (total) | 33.9J | 2231 | 2348 | 104 | 2231 | 2278 | 101 | 78-124 | 3.10 | (< 20 ) |
| **Surrogates** | | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | | 743 | 817 | 110 | 743 | 801 | 108 | 71-136 | 1.80 | |
| 4-Bromofluorobenzene (surr) | | 1986 | 1694 | 86 | 1986 | 1671 | 85 | 55-151 | 1.40 | |
| Toluene-d8 (surr) | | 743 | 846 | 114 | 743 | 811 | 109 | 85-116 | 4.20 | |

Print Date: 10/13/2015 8:43:22AM

## Matrix Spike Summary

Original Sample ID: 1155621004
MS Sample ID: 1296109 MS
MSD Sample ID: 1296110 MSD

Analysis Date:
Analysis Date: 10/07/2015 18:32
Analysis Date: 10/07/2015 18:47
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155621001, 1155621002, 1155621003, 1155621004, 1155621005

Results by **SW8260B**

| | | Matrix Spike (%) | | | Spike Duplicate (%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Sample | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |

## Batch Information

Analytical Batch: VMS15318
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: ST
Analytical Date/Time: 10/7/2015 6:32:00PM

Prep Batch: VXX28024
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 10/7/2015 8:00:00AM
Prep Initial Wt./Vol.: 58.97g
Prep Extract Vol: 25.00mL

Print Date: 10/13/2015 8:43:22AM

## Method Blank

Blank ID: MB for HBN 1722270 [VXX/28039]
Blank Lab ID: 1296515

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155621002, 1155621003, 1155621004, 1155621005

## Results by **AK101**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Gasoline Range Organics | 1.25U | 2.50 | 0.750 | mg/Kg |
| **Surrogates** | | | | |
| 4-Bromofluorobenzene (surr) | 103 | 50-150 | | % |

## Batch Information

Analytical Batch: VFC12722
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 10/8/2015 10:48:00PM

Prep Batch: VXX28039
Prep Method: SW5035A
Prep Date/Time: 10/8/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155621 [VXX279] b4
Blank Spike La8 ID: 12b6517
Date Analyzed: 190970 2915 2] :/ 6

Spike Duplicate ID: LCSD for HBN 1155621 [VXX279] b4
Spike Duplicate La8 ID: 12b651b
s atriM Soil0Solid xdry ( eiwgth

KC for SaP pleR 1155621992Q115562199] Q115562199/ Q1155621995

## 3eRultR8y **AK101**

| | Blank Spike xP w0%wh | | | Spike Duplicate xP w0%wh | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ) araP eter | Spike | 3eRult | 3ec xmh | Spike | 3eRult | 3ec xmh | CL | 3) D xmh | 3) D CL |
| GaRoline 3anwe OrwanicR | 12.5 | 1] ./ | 197 | 12.5 | 1] .6 | 19b | x69-129 h | 1.99 | x< 29 h |
| **Surrogates** | | | | | | | | | |
| / -BroP ofluoro8enzene xRurrh | 1.25 | 196 | 196 | 1.25 | 19T | 19T | x59-159 h | 1.19 | |

## Batch Information

Analytical Batcg: **VFC12722**
Analytical s etgod: **AK101**
InRtruP ent: **Agilent 7980 PID/FID**
AnalyRt: **CRD**

) rep Batcg: **VXX290W8**
) rep s etgod: **S5 30W8A**
) rep Date0WP e: **10/09/2013 09:00**
Spike Init E t.0/ol.: 12.5 P w0%w v Mract Vol: 25 P L
Dupe Init E t.0/ol.: 12.5 P w0%w v Mract Vol: 25 P L

) rint Date: 190l] 02915 7:/ ] :2/ As

## Method Blank

Blank ID: MB for HBN 1721577 [XXX/34278]
Blank Lab ID: 1294150

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155621001, 1155621002, 1155621003, 1155621004

## Results by **AK102**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Diesel Range Organics | 10.0U | 20.0 | 6.20 | mg/Kg |
| **Surrogates** | | | | |
| 5a Androstane (surr) | 86.3 | 60-120 | | % |

## Batch Information

Analytical Batch: XFC12137
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 10/7/2015 7:55:00AM

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/Time: 9/30/2015 11:25:56AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155621 [VVVX729] b
Blank Spike La4 ID: 1287151
Date Analyzed: 10/09/2015 0] :05

Spike Duplicate ID: LCSD for HBN 1155621 [VVVX729] b
Spike Duplicate La4 ID: 1287152
s atriM Soil/Solid xdry ( eiwgth

KC for SaP pleR 1155621001Q1155621002Q115562100XQ1155621007

## 3 eRultR4y **AK102**

| | Blank Spike xP w/%wh | | | Spike Duplicate xP w/%wh | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ) araP eter | Spike | 3 eRult | 3 ec xmh | Spike | 3 eRult | 3 ec xmh | CL | 3 ) D xmh | 3 ) D CL |
| DieRel 3 anwe GrwanicR | 169 | 171 | ] 5 | 169 | 1X] | ] X | x95C125 h | 2-10 | x 20 h |
| **Surrogates** | | | | | | | | | |
| 5a AndroRtane xRurrh | X-XX | 81-5 | 82 | X-XX | 80-X | 80 | x60C120 h | 1-X0 | |

## Batch Information

Analytical Batcg: **XFC12137**
Analytical s etgod: **AK102**
InRtruP ent: **HP 6890 Series II FID SV D R**
AnalyRt: **NLL**

) rep Batcg: **XXX34278**
) rep s etgod: **SW3550C**
) rep Date/<iP e: **09/30/2015 11:25**
Spike Init T t-/Wbl-: 169 P w/%w EMract Wbl: 1 P L
Dupe Init T t-/Wbl-: 169 P w/%w EMract Wbl: 1 P L

## Method Blank

Blank ID: MB for HBN 1721577 [XXX/34278]
Blank Lab ID: 1294150

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155621001, 1155621002, 1155621003, 1155621004

## Results by **AK103**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Residual Range Organics | 10.0U | 20.0 | 6.20 | mg/Kg |
| **Surrogates** | | | | |
| nA riacontaneAd62 (surr) | 94.5 | 60A120 | | % |

## Batch Information

Fnalytical Batch: XVC12137
Fnalytical Method: FK103
Instrument: HP 6890 Series II VID ST D R
Fnalyst: NLL
Fnalytical Date/- ime: 10/7/2015 7:55:00FM

Prep Batch: XXX34278
Prep Method: SW3550C
Prep Date/- ime: 9/30/2015 11:25:56FM
Prep Initial Wt./Tol.: 30 g
Prep Extract Tol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155621 [VVVX729] b
Blank Spike La4 ID: 1287151
Date Analyzed: 10/09/2015 0] :05

Spike Duplicate ID: LCSD for HBN 1155621 [VVVX729] b
Spike Duplicate La4 ID: 1287152
s atriM Soil/Solid xdry ( eiwgth

KC for SaP pleR 1155621001Q1155621002Q115562100XQ1155621007

## 3eRultR4y **AK102**

| | Blank Spike xP w/%wh | | | Spike Duplicate xP w/%wh | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ) araP eter | Spike | 3eRult | 3ec xmh | Spike | 3eRult | 3ec xmh | CL | 3) D xmh | 3) D CL |
| 3eRdual 3anwe GrwanicR | 169 | 151 | 80 | 169 | 179 | ] ] | x60C120 h | 2-60 | x 20 h |
| **Surrogates** | | | | | | | | | |
| nGriacontaneQ162 xRurrh | X-XX | ] 7-5 | ] 5 | X-XX | ] 2-1 | ] 2 | x60C120 h | 2-80 | |

## Batch Information

Analytical Batcg: **XFC13127**
Analytical s etgod: **AK102**
InRtruP ent: **HP 6890 Series II FID SV D R**
AnalyRt: **NLL**

) rep Batcg: **XXX24378**
) rep s etgod: **SW2550C**
) rep Date/<iP e: **09/20/3015 11:35**
Spike Init T t-/Wbl-: 169 P w/%w EMract Wbl: 1 P L
Dupe Init T t-/Wbl-: 169 P w/%w EMract Wbl: 1 P L

) rint Date: 10/1X/2015 ] :7X:X0As

SGS

# CHAIN OF CUSTODY RECORD 1155621


**Locations Nationwide**

Alaska Maryland
New Jersey New York
North Carolina Ohio
West Virgina

www.us.sgs.com


CLIENT: Fairbanks Enviromental Services

CONTACT: Mike Boese PHONE NO: 907-277-7111

PROJECT/SITE: **ARRC Mammoth Trucking**

REPORTS TO: Mike Boese E-MAIL: MBoese@FESalaska.com

INVOICE TO: ARRC **Project: ARRC-2015**

**CONTRACT NUMBER: ARRC - 265-2429**

**SGS Reference #:**

page 1 of 1

| LAB NO. | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX/ MATRIX CODE | # CONTAINERS | Preservative: SAMPLE TYPE C = COMP G = GRAB MI = Multi Incremental Samples | None: DRO/RRO (AK 102/103) | MEOH: GRO/VOC (AK101/8260B) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 A,B | SB-1A | 9/25/2015 | 1000 | Soil | 5 | G | x | x | |
| 2 A,B | SB-1B | 9/25/2015 | 1020 | Soil | 5 | G | x | x | |
| 3 A,B | SB-2A | 9/25/2015 | 1205 | Soil | 5 | G | x | x | |
| 4 A,B | SB-2B | 9/25/2015 | 1220 | Soil | 5 | G | x | x | |
| 5 A | Trip Blank | 9/25/2015 | 800 | Soil | 5 | G | | x | PW7-C-6 |

| | | | |
|---|---|---|---|
| Collected/Relinquished By: (1) Michael R. Boese | Date 9/25/15 | Time 1541 | Received By: |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date 9/25/15 | Time 1541 | Received For Laboratory By: |

DOD Project? NO

Cooler ID 9-25-15-01

Cooler Temp °C

Special Deliverable Requirements:

**Level 2 Data Package, EQuIS, and PDF. No hard copy required.**

Requested Turnaround Time and-or Special Instructions:

Quote 12537A, Normal TAT, Bill ARRC directly (265-2429)

Temperature Blank °C: S.1 #241

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT




☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301

☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1

# 1155621

## SAMPLE RECEIPT FORM

| Review Criteria: | Yes | N/A | No | Comments/Action Taken: |
|---|---|---|---|---|
| Were **custody seals** intact? Note # & location, if applicable.<br>COC accompanied samples? | ☑<br>☑ | ☐<br>☐ | ☐<br>☐ | ***Exemption permitted if sampler hand carries/delivers.***<br>1F |
| **Temperature blank** compliant* (i.e., 0-6°C after CF)?<br>*If >6°C, were samples collected <8 hours ago?*<br>*If <0°C, were all sample containers ice free?*<br>Cooler ID: 9-25-15-01 @ 5.1 w/ Therm.ID: 241<br>Cooler ID: _____ @ _____ w/ Therm.ID: _____<br>Cooler ID: _____ @ _____ w/ Therm.ID: _____<br>Cooler ID: _____ @ _____ w/ Therm.ID: _____<br>Cooler ID: _____ @ _____ w/ Therm.ID: _____<br>If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled." | ☑<br>☐<br>☐ | ☐<br>☑<br>☑ | ☐<br>☐<br>☐ | ***Exemption permitted if chilled & collected <8 hrs ago.***<br><br>***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.*** |
| Delivery method (specify all that apply): ☑Client (hand carried)<br>☐USPS ☐Lynden ☐AK Air ☐Alert Courier<br>☐UPS ☐FedEx ☐RAVN ☐C&D Delivery<br>☐Carlile ☐Pen Air ☐Warp Speed ☐Other: _____<br>→ *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?* | ☐ | ☑ | ☐ | |
| | Yes | N/A | No | |
| Were samples received within hold time?<br>Do samples **match COC*** (i.e., sample IDs, dates/times collected)?<br>Were analyses requested unambiguous? | ☑<br>☐<br>☑ | ☐<br>☐<br>☐ | ☐<br>☑<br>☐ | ***Note: Refer to form F-083 "Sample Guide" for hold times.***<br>***Note: If times differ <1hr, record details and login per COC.***<br>* |
| Were samples in **good condition** (no leaks/cracks/breakage)?<br>Packing material used (specify all that apply): ☐Bubble Wrap ☐Separate plastic bags ☐Vermiculite ☐Other: | ☑ | ☐ | ☐ | |
| Were **proper containers** (type/mass/volume/preservative*) used?<br>Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?<br>Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)?<br>Were all soil VOAs **field extracted** with MeOH+BFB? | ☑<br>☑<br>☐<br>☑ | ☐<br>☐<br>☑<br>☐ | ☐<br>☐<br>☐<br>☐ | ☐ ***Exemption permitted for metals (e.g., 200.8/6020A).*** |
| For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**?<br>If pH was adjusted, were bottles flagged (i.e., stickers)? | ☐<br>☐ | ☑<br>☑ | ☐<br>☐ | |
| For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)? | ☐ | ☑ | ☐ | |
| For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable? | ☐ | ☑ | ☐ | |
| For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly? | ☐ | ☑ | ☐ | |
| **For any question answered "No,"** has the PM been notified and the problem resolved (or paperwork put in their bin)? | ☑ | ☐ | ☐ | SRF Completed by: D.C 09/25/2015<br>PM notified: JN |
| Was **PEER REVIEW** of ***sample numbering/labeling completed?*** | ☑ | ☐ | ☐ | Peer Reviewed by: NEG |

Additional notes (if applicable):

The COC denotes 5 containers for each sample. Two containers for each sample were received at the lab.

***Note to Client:*** *Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.*

## Sample Containers and Preservatives

| Container Id | Preservative | Container Condition | Container Id | Preservative | Container Condition |
|---|---|---|---|---|---|
| 1155621001-A | No Preservative Required | OK | | | |
| 1155621001-B | Methanol field pres. 4 C | OK | | | |
| 1155621002-A | No Preservative Required | OK | | | |
| 1155621002-B | Methanol field pres. 4 C | OK | | | |
| 1155621003-A | No Preservative Required | OK | | | |
| 1155621003-B | Methanol field pres. 4 C | OK | | | |
| 1155621004-A | No Preservative Required | OK | | | |
| 1155621004-B | Methanol field pres. 4 C | OK | | | |
| 1155621005-A | Methanol field pres. 4 C | OK | | | |

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
BU - The container was received with headspace greater than 6mm.

# Laboratory Data Review Checklist

Completed by: Mike Boese

Title: Chemist Date: 11/16/2015

CS Report Name: Former Mammoth Trucking Report Report Date: 11/30/2015

Consultant Firm: Fairbanks Environmental Services

Laboratory Name: SGS Laboratory Report Number: 1155621

ADEC File Number: 2100.26.202 ADEC RecKey Number: 23887

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ●Yes No NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      Yes No ●NA (Please explain.) Comments:

      No samples were transferred.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ●Yes No NA (Please explain.) Comments:

   b. Correct analyses requested?
      ●Yes No NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ●Yes No NA (Please explain.) Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
      ●Yes No NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

●Yes No NA (Please explain.) Comments:

| |
|---|
| Samples were reportedly in good condition. |

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

●Yes No NA (Please explain.) Comments:

| |
|---|
| The COC incorrectly indicated that there were 5 jars for each sample; however, there were only 2 jars for each sample. There was ample sample volume for each analysis and there was no impact to data. |

e. Data quality or usability affected? (Please explain.)

Comments:

| |
|---|
| There was no impact to data. See 3d above. |

4. Case Narrative

a. Present and understandable?

●Yes No NA (Please explain.) Comments:

| |
|---|
| |

b. Discrepancies, errors or QC failures identified by the lab?

Yes ● No NA (Please explain.) Comments:

| |
|---|
| There was an elevated recovery (one VOC analyte) in the LCSD, and there was an elevated recovery (one VOC analyte) in the MS and MSD. No corrective action was necessary since the analytes were high biased and not detected in project samples. |

c. Were all corrective actions documented?

Yes ●No NA (Please explain.) Comments:

| |
|---|
| There was no need for corrective actions. |

d. What is the effect on data quality/usability according to the case narrative?

Comments:

| |
|---|
| Case narrative does not discuss data quality, it typically only lists anomalies and outliers. |

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

●Yes No NA (Please explain.) Comments:

| |
|---|
| |

b. All applicable holding times met?

●Yes No NA (Please explain.) Comments:

c. All soils reported on a dry weight basis?

●Yes No NA (Please explain.) Comments:

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes ● No NA (Please explain.) Comments:

Although they were not detected in project samples, the LODs of three VOC analytes (1,2-dibromoethane, 1,2,3-trichloropropane, and methylene chloride) were reported in excess of the soil cleanup levels. Consequently, these data have limited usefulness. The analytes do not appear to be site chemicals of concern, however.

e. Data quality or usability affected?

Comments:

See comments in 5d above.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

●Yes No NA (Please explain.) Comments:

ii. All method blank results less than PQL?

●Yes No NA (Please explain.) Comments:

However, GRO was detected below the LOQ in the MB associated with Method AK101 batch VXX27999 at 1.97 J mg/kg. Consequently, the GRO concentration in sample SB-1A was qualified B since the GRO result was within 10 times the GRO concentration detected in the MB. Impact to the datum was minor as all the affected GRO result was two orders of magnitude below the soil cleanup level.

iii. If above PQL, what samples are affected?

Comments:

See 6aii.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

●Yes No NA (Please explain.) Comments:

v. Data quality or usability affected? (Please explain.)

See 6aii.

Comments:

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

●Yes No NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No ●NA (Please explain.) Comments:

There were no metals/inorganics analyses associated with this sample data group.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ● No NA (Please explain.) Comments:

The recovery of the VOC analyte trichlorofluoromethane was above the acceptable range in the LCSD, and 1,1,2-trichloroethane was above the acceptable range in the MS and MSD performed on sample SB-2B, associated with batch VXX28024. No data were impacted since both analytes were high biased and not detected in project samples.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

●Yes No NA (Please explain.) Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No data were impacted. See discussion in 6biii above.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ●No NA (Please explain.) Comments:

See discussion in 6biii above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No data were impacted. See 6biii for the discussion.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?
●Yes No NA (Please explain.) Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)
●Yes No NA (Please explain.) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?
Yes No ●NA (Please explain.) Comments:

No samples results had failed surrogate recoveries.

iv. Data quality or usability affected? (Use the comment box to explain.)
Comments:

Data were not affected. All surrogates were recovered within control limits.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): <u>Water and Soil</u>

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)
●Yes No NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)
●Yes No NA (Please explain.) Comments:

iii. All results less than PQL?
●Yes No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?
Comments:

Not applicable.

v. Data quality or usability affected? (Please explain.)

Comments:

No data were adversely impacted. No analytes were detected in the trip blank.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

●Yes No NA (Please explain.) Comments:

SOIL: Sample SB-2B was a field duplicate of SB-2A.

ii. Submitted blind to lab?

●Yes No NA (Please explain.) Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where $R_1$ = Sample Concentration

$R_2$ = Field Duplicate Concentration

●Yes No NA (Please explain.) Comments:

The field duplicate RPD met the 50% criterion for all analytes.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The field duplicate results were comparable and no data were affected or qualified.

f. Decontamination or Equipment Blank (If not used explain why).

Yes No ●NA (Please explain.) Comments:

No decontamination blank was needed since new, disposable sample liners and stainless steel spoons were used to collect soil samples.

i. All results less than PQL?

Yes No ●NA (Please explain.) Comments:

No decon blank was needed since disposable sampling equipment was used to collect soil samples.

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? (Please explain.)

Comments:

| |
|---|
| No data were affected. No decontamination blank was needed. |

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      ●Yes No NA (Please explain.) Comments:

| |
|---|
| Results reported below the limit of quantitation (LOQ) were qualified with a J flag to indicate they are estimated values. |

**APPENDIX D**

**LABORATORY REPORT 1155864 AND CHECKLIST**

## Laboratory Report of Analysis

To: AK Railroad Corp
2400 Spenard Road, Suite 300
Anchorage, AK 99503
(907)277-7111

Report Number: **1155864**

Client Project: **Mammoth Trucking (ARRC)**

Dear Mike Boese,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Justin Nelson
2015.10.30
14:21:48 -08'00'

SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

Print Date: 10/30/2015 12:04:29PM

**SGS North America Inc.**

# Case Narrative

**Customer:** AKRRCOP AK Railroad Corp
**Project:** 1155864 Mammoth Trucking (ARRC)
**NPDL WO:**

Revised Report: The original report included QC (HSN 1298015, 1298017, 1298018) which was not associated with samples in this workorder. The batch designations have been corrected and the associated samples are not affected.

Refer to the sample receipt form for information on sample condition.

* QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to the associated field samples.

## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

| | |
|---|---|
| * | The analyte has exceeded allowable regulatory or control limits. |
| ! | Surrogate out of control limits. |
| B | Indicates the analyte is found in a blank associated with the sample. |
| CCV/CVA/CVB | Continuing Calibration Verification |
| CCCV/CVC/CVCA/CVCB | Closing Continuing Calibration Verification |
| CL | Control Limit |
| D | The analyte concentration is the result of a dilution. |
| DF | Dilution Factor |
| DL | Detection Limit (i.e., maximum method detection limit) |
| E | The analyte result is above the calibrated range. |
| F | Indicates value that is greater than or equal to the DL |
| GT | Greater Than |
| IB | Instrument Blank |
| ICV | Initial Calibration Verification |
| J | The quantitation is an estimation. |
| JL | The analyte was positively identified, but the quantitation is a low estimation. |
| LCS(D) | Laboratory Control Spike (Duplicate) |
| LOD | Limit of Detection (i.e., 1/2 of the LOQ) |
| LOQ | Limit of Quantitation (i.e., reporting or practical quantitation limit) |
| LT | Less Than |
| M | A matrix effect was present. |
| MB | Method Blank |
| MS(D) | Matrix Spike (Duplicate) |
| ND | Indicates the analyte is not detected. |
| Q | QC parameter out of acceptance range. |
| R | Rejected |
| RPD | Relative Percent Difference |
| U | Indicates the analyte was analyzed for but not detected. |

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

Print Date: 10/30/2015 12:04:34PM

## Sample Summary

| Client Sample ID | Lab Sample ID | Collected | Received | Matrix |
|---|---|---|---|---|
| CHMWE1 | 1155864001 | 10/05/2015 | 10/05/2015 | Water (Surface, Eff., Ground) |
| CHMWE2 | 1155864002 | 10/05/2015 | 10/05/2015 | Water (Surface, Eff., Ground) |
| EMCONMW-4 | 1155864003 | 10/05/2015 | 10/05/2015 | Water (Surface, Eff., Ground) |
| CHMWE5 | 1155864004 | 10/05/2015 | 10/05/2015 | Water (Surface, Eff., Ground) |
| MW6 | 1155864005 | 10/05/2015 | 10/05/2015 | Water (Surface, Eff., Ground) |
| MW7 | 1155864006 | 10/05/2015 | 10/05/2015 | Water (Surface, Eff., Ground) |
| MWX | 1155864007 | 10/05/2015 | 10/05/2015 | Water (Surface, Eff., Ground) |
| Trip Blank | 1155864008 | 10/05/2015 | 10/05/2015 | Water (Surface, Eff., Ground) |

| Method | Method Description |
|---|---|
| AK102 | DRO/RRO Low Volume Water |
| AK103 | DRO/RRO Low Volume Water |
| AK101 | Gasoline Range Organics (W) |
| SW8260B | Volatile Organic Compounds (W) FULL |



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## Detectable Results Summary

Client Sample ID: **CHMWE1**
Lab Sample ID: 1155864001

| | Parameter | Result | Units |
|---|---|---|---|
| **Volatile Fuels** | Gasoline Range Organics | 0.0411J | mg/L |
| **Volatile GC/MS** | Chloroform | 0.390J | ug/L |
| | Tetrachloroethene | 49.6 | ug/L |
| | Trichloroethene | 1.42 | ug/L |

Client Sample ID: **CHMWE2**
Lab Sample ID: 1155864002

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 2.45 | mg/L |
| | Residual Range Organics | 0.832 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.0407J | mg/L |
| **Volatile GC/MS** | Benzene | 0.770 | ug/L |
| | Chloromethane | 0.460J | ug/L |
| | cis-1,2-Dichloroethene | 7.74 | ug/L |
| | Isopropylbenzene (Cumene) | 0.450J | ug/L |
| | sec-Butylbenzene | 0.390J | ug/L |
| | Trichloroethene | 5.79 | ug/L |
| | Vinyl chloride | 4.67 | ug/L |

Client Sample ID: **EMCONMW-4**
Lab Sample ID: 1155864003

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.276J | mg/L |
| **Volatile GC/MS** | Toluene | 0.390J | ug/L |

Client Sample ID: **CHMWE5**
Lab Sample ID: 1155864004

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.521J | mg/L |
| | Residual Range Organics | 0.333J | mg/L |
| **Volatile GC/MS** | Benzene | 0.530 | ug/L |
| | Toluene | 1.41 | ug/L |
| | Vinyl chloride | 5.85 | ug/L |



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## Detectable Results Summary

Client Sample ID: **MW6**
Lab Sample ID: 1155864005

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 1.30 | mg/L |
| | Residual Range Organics | 0.637 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.114 | mg/L |
| **Volatile GC/MS** | 1,2,4-Trimethylbenzene | 21.6 | ug/L |
| | 1,3,5-Trimethylbenzene | 5.95 | ug/L |
| | 4-Isopropyltoluene | 4.51 | ug/L |
| | Benzene | 2.51 | ug/L |
| | cis-1,2-Dichloroethene | 0.640J | ug/L |
| | Ethylbenzene | 1.05 | ug/L |
| | Isopropylbenzene (Cumene) | 2.43 | ug/L |
| | Naphthalene | 19.0 | ug/L |
| | n-Propylbenzene | 2.47 | ug/L |
| | P & M -Xylene | 4.63 | ug/L |
| | sec-Butylbenzene | 2.39 | ug/L |
| | tert-Butylbenzene | 0.320J | ug/L |
| | Vinyl chloride | 7.60 | ug/L |
| | Xylenes (total) | 4.90 | ug/L |

Client Sample ID: **MW7**
Lab Sample ID: 1155864006

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 1.42 | mg/L |
| | Residual Range Organics | 0.447J | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.287 | mg/L |
| **Volatile GC/MS** | 1,2,4-Trimethylbenzene | 0.310J | ug/L |
| | 1,3,5-Trimethylbenzene | 0.420J | ug/L |
| | Benzene | 1.28 | ug/L |
| | Ethylbenzene | 2.54 | ug/L |
| | Isopropylbenzene (Cumene) | 1.35 | ug/L |
| | n-Propylbenzene | 0.410J | ug/L |
| | P & M -Xylene | 2.08 | ug/L |
| | sec-Butylbenzene | 0.350J | ug/L |
| | Xylenes (total) | 2.08J | ug/L |

Client Sample ID: **MWX**
Lab Sample ID: 1155864007

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.332J | mg/L |
| | Residual Range Organics | 0.218J | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.0399J | mg/L |
| **Volatile GC/MS** | Tetrachloroethene | 52.1 | ug/L |
| | Trichloroethene | 1.40 | ug/L |



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## Results of **CHMWE1**

Client Sample ID: **CHMWE1**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864001
Lab Project ID: 1155864

Collection Date: 10/05/15 09:50
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.306 | U | 0.612 | 0.184 | mg/L | 1 | | 10/20/15 07:23 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 89.3 | | 50-150 | | % | 1 | | 10/20/15 07:23 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/20/15 07:23
Container ID: 1155864001-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.255 | U | 0.510 | 0.153 | mg/L | 1 | | 10/20/15 07:23 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 98.4 | | 50-150 | | % | 1 | | 10/20/15 07:23 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 10/20/15 07:23
Container ID: 1155864001-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 10/30/2015 12:04:40PM

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## Results of **CHMWE1**

Client Sample ID: **CHMWE1**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864001
Lab Project ID: 1155864

Collection Date: 10/05/15 09:50
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0411 | J | 0.100 | 0.0310 | mg/L | 1 | | 10/12/15 13:46 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 97.7 | | 50-150 | | % | 1 | | 10/12/15 13:46 |

## Batch Information

Analytical Batch: VFC12742
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/12/15 13:46
Container ID: 1155864001-C

Prep Batch: VXX28067
Prep Method: SW5030B
Prep Date/Time: 10/12/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **CHMWE1**

Client Sample ID: **CHMWE1**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864001
Lab Project ID: 1155864

Collection Date: 10/05/15 09:50
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| 1,1,2-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 10/13/15 13:01 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Bromomethane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |

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Results of **CHMWE1**

Client Sample ID: **CHMWE1**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864001
Lab Project ID: 1155864

Collection Date: 10/05/15 09:50
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.390 | J | 1.00 | 0.300 | ug/L | 1 | | 10/13/15 13:01 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:01 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 10/13/15 13:01 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| Naphthalene | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 10/13/15 13:01 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Tetrachloroethene | 49.6 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Trichloroethene | 1.42 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:01 |
| Vinyl chloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:01 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 10/13/15 13:01 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 97.4 | | 81-118 | | % | 1 | | 10/13/15 13:01 |
| 4-Bromofluorobenzene (surr) | 101 | | 85-114 | | % | 1 | | 10/13/15 13:01 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 10/13/15 13:01 |

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J flagging is activated

## Results of **CHMWE1**

Client Sample ID: **CHMWE1**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864001
Lab Project ID: 1155864

Collection Date: 10/05/15 09:50
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

### Batch Information

Analytical Batch: VMS15339
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 10/13/15 13:01
Container ID: 1155864001-F

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/15 08:37
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
**t** 907.562.2343 **f** 907.561.5301 www.us.sgs.com

## Results of **CHMWE2**

Client Sample ID: **CHMWE2**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864002
Lab Project ID: 1155864

Collection Date: 10/05/15 10:30
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 2.45 | | 0.556 | 0.167 | mg/L | 1 | | 10/20/15 07:43 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 92.7 | | 50-150 | | % | 1 | | 10/20/15 07:43 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/20/15 07:43
Container ID: 1155864002-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.832 | | 0.463 | 0.139 | mg/L | 1 | | 10/20/15 07:43 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 97.2 | | 50-150 | | % | 1 | | 10/20/15 07:43 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 10/20/15 07:43
Container ID: 1155864002-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **CHMWE2**

Client Sample ID: **CHMWE2**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864002
Lab Project ID: 1155864

Collection Date: 10/05/15 10:30
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0407 | J | 0.100 | 0.0310 | mg/L | 1 | | 10/12/15 14:05 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 96.7 | | 50-150 | | % | 1 | | 10/12/15 14:05 |

## Batch Information

Analytical Batch: VFC12742
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/12/15 14:05
Container ID: 1155864002-C

Prep Batch: VXX28067
Prep Method: SW5030B
Prep Date/Time: 10/12/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **CHMWE2**

Client Sample ID: **CHMWE2**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864002
Lab Project ID: 1155864

Collection Date: 10/05/15 10:30
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| 1,1,2-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| Benzene | 0.770 | | 0.400 | 0.120 | ug/L | 1 | | 10/13/15 17:08 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Bromomethane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |

Print Date: 10/30/2015 12:04:40PM

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Results of **CHMWE2**

Client Sample ID: **CHMWE2**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864002
Lab Project ID: 1155864

Collection Date: 10/05/15 10:30
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.300 | ug/L | 1 | | 10/13/15 17:08 |
| Chloromethane | 0.460 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| cis-1,2-Dichloroethene | 7.74 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:08 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Isopropylbenzene (Cumene) | 0.450 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 10/13/15 17:08 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| Naphthalene | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 10/13/15 17:08 |
| sec-Butylbenzene | 0.390 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Trichloroethene | 5.79 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:08 |
| Vinyl chloride | 4.67 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:08 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 10/13/15 17:08 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 97.4 | | 81-118 | | % | 1 | | 10/13/15 17:08 |
| 4-Bromofluorobenzene (surr) | 104 | | 85-114 | | % | 1 | | 10/13/15 17:08 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 10/13/15 17:08 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

Results of **CHMWE2**

Client Sample ID: **CHMWE2**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864002
Lab Project ID: 1155864

Collection Date: 10/05/15 10:30
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15339
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 10/13/15 17:08
Container ID: 1155864002-F

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/15 15:37
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Results of **EMCONMW-4**

Client Sample ID: **EMCONMW-4**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864003
Lab Project ID: 1155864

Collection Date: 10/05/15 11:40
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.276 | J | 0.615 | 0.184 | mg/L | 1 | | 10/20/15 08:03 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 95.2 | | 50-150 | | % | 1 | | 10/20/15 08:03 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/20/15 08:03
Container ID: 1155864003-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.256 | U | 0.512 | 0.154 | mg/L | 1 | | 10/20/15 08:03 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 99.7 | | 50-150 | | % | 1 | | 10/20/15 08:03 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 10/20/15 08:03
Container ID: 1155864003-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

Print Date: 10/30/2015 12:04:40PM

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## Results of **EMCONMW-4**

Client Sample ID: **EMCONMW-4**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864003
Lab Project ID: 1155864

Collection Date: 10/05/15 11:40
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 10/12/15 14:24 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 93.2 | | 50-150 | | % | 1 | | 10/12/15 14:24 |

## Batch Information

Analytical Batch: VFC12742
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/12/15 14:24
Container ID: 1155864003-C

Prep Batch: VXX28067
Prep Method: SW5030B
Prep Date/Time: 10/12/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **EMCONMW-4**

Client Sample ID: **EMCONMW-4**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864003
Lab Project ID: 1155864

Collection Date: 10/05/15 11:40
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| 1,1,2-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 10/13/15 17:24 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Bromomethane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |

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Results of **EMCONMW-4**

Client Sample ID: **EMCONMW-4**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864003
Lab Project ID: 1155864

Collection Date: 10/05/15 11:40
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.300 | ug/L | 1 | | 10/13/15 17:24 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 17:24 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 10/13/15 17:24 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| Naphthalene | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 10/13/15 17:24 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Toluene | 0.390 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Trichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 17:24 |
| Vinyl chloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 17:24 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 10/13/15 17:24 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 95.7 | | 81-118 | | % | 1 | | 10/13/15 17:24 |
| 4-Bromofluorobenzene (surr) | 101 | | 85-114 | | % | 1 | | 10/13/15 17:24 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 10/13/15 17:24 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

Results of **EMCONMW-4**

Client Sample ID: **EMCONMW-4**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864003
Lab Project ID: 1155864

Collection Date: 10/05/15 11:40
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15339
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 10/13/15 17:24
Container ID: 1155864003-F

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/15 15:37
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Results of **CHMWE5**

Client Sample ID: **CHMWE5**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864004
Lab Project ID: 1155864

Collection Date: 10/05/15 13:45
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.521 | J | 0.612 | 0.184 | mg/L | 1 | | 10/20/15 08:23 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 97.1 | | 50-150 | | % | 1 | | 10/20/15 08:23 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/20/15 08:23
Container ID: 1155864004-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.333 | J | 0.510 | 0.153 | mg/L | 1 | | 10/20/15 08:23 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 101 | | 50-150 | | % | 1 | | 10/20/15 08:23 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 10/20/15 08:23
Container ID: 1155864004-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **CHMWE5**

Client Sample ID: **CHMWE5**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864004
Lab Project ID: 1155864

Collection Date: 10/05/15 13:45
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 10/12/15 14:43 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 93.5 | | 50-150 | | % | 1 | | 10/12/15 14:43 |

## Batch Information

Analytical Batch: VFC12742
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/12/15 14:43
Container ID: 1155864004-C

Prep Batch: VXX28067
Prep Method: SW5030B
Prep Date/Time: 10/12/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **CHMWE5**

Client Sample ID: **CHMWE5**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864004
Lab Project ID: 1155864

Collection Date: 10/05/15 13:45
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| 1,1,2-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| Benzene | 0.530 | | 0.400 | 0.120 | ug/L | 1 | | 10/13/15 13:18 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Bromomethane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |

Print Date: 10/30/2015 12:04:40PM

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Results of **CHMWE5**

Client Sample ID: **CHMWE5**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864004
Lab Project ID: 1155864

Collection Date: 10/05/15 13:45
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.300 | ug/L | 1 | | 10/13/15 13:18 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:18 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 10/13/15 13:18 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| Naphthalene | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 10/13/15 13:18 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Toluene | 1.41 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Trichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:18 |
| Vinyl chloride | 5.85 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:18 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 10/13/15 13:18 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 96.1 | | 81-118 | | % | 1 | | 10/13/15 13:18 |
| 4-Bromofluorobenzene (surr) | 100 | | 85-114 | | % | 1 | | 10/13/15 13:18 |
| Toluene-d8 (surr) | 102 | | 89-112 | | % | 1 | | 10/13/15 13:18 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

Results of **CHMWE5**

Client Sample ID: **CHMWE5**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864004
Lab Project ID: 1155864

Collection Date: 10/05/15 13:45
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15339
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 10/13/15 13:18
Container ID: 1155864004-F

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/15 08:37
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **MW6**

Client Sample ID: **MW6**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864005
Lab Project ID: 1155864

Collection Date: 10/05/15 13:05
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 1.30 | | 0.610 | 0.183 | mg/L | 1 | | 10/20/15 08:43 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 98 | | 50-150 | | % | 1 | | 10/20/15 08:43 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/20/15 08:43
Container ID: 1155864005-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.637 | | 0.508 | 0.152 | mg/L | 1 | | 10/20/15 08:43 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 98.3 | | 50-150 | | % | 1 | | 10/20/15 08:43 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 10/20/15 08:43
Container ID: 1155864005-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MW6**

Client Sample ID: **MW6**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864005
Lab Project ID: 1155864

Collection Date: 10/05/15 13:05
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.114 | | 0.100 | 0.0310 | mg/L | 1 | | 10/12/15 15:02 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 109 | | 50-150 | | % | 1 | | 10/12/15 15:02 |

## Batch Information

Analytical Batch: VFC12742
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/12/15 15:02
Container ID: 1155864005-C

Prep Batch: VXX28067
Prep Method: SW5030B
Prep Date/Time: 10/12/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MW6**

Client Sample ID: **MW6**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864005
Lab Project ID: 1155864

Collection Date: 10/05/15 13:05
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| 1,1,2-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2,4-Trimethylbenzene | 21.6 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,3,5-Trimethylbenzene | 5.95 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 4-Isopropyltoluene | 4.51 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| Benzene | 2.51 | | 0.400 | 0.120 | ug/L | 1 | | 10/13/15 13:34 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Bromomethane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MW6**

Client Sample ID: **MW6**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864005
Lab Project ID: 1155864

Collection Date: 10/05/15 13:05
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.300 | ug/L | 1 | | 10/13/15 13:34 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| cis-1,2-Dichloroethene | 0.640 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:34 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Ethylbenzene | 1.05 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Isopropylbenzene (Cumene) | 2.43 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 10/13/15 13:34 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| Naphthalene | 19.0 | | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| n-Propylbenzene | 2.47 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| P & M -Xylene | 4.63 | | 2.00 | 0.620 | ug/L | 1 | | 10/13/15 13:34 |
| sec-Butylbenzene | 2.39 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| tert-Butylbenzene | 0.320 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Trichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:34 |
| Vinyl chloride | 7.60 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:34 |
| Xylenes (total) | 4.90 | | 3.00 | 1.00 | ug/L | 1 | | 10/13/15 13:34 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 97.9 | | 81-118 | | % | 1 | | 10/13/15 13:34 |
| 4-Bromofluorobenzene (surr) | 102 | | 85-114 | | % | 1 | | 10/13/15 13:34 |
| Toluene-d8 (surr) | 99.9 | | 89-112 | | % | 1 | | 10/13/15 13:34 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MW6**

Client Sample ID: **MW6**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864005
Lab Project ID: 1155864

Collection Date: 10/05/15 13:05
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

### Batch Information

Analytical Batch: VMS15339
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 10/13/15 13:34
Container ID: 1155864005-F

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/15 08:37
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
**t** 907.562.2343 **f** 907.561.5301 www.us.sgs.com

## Results of **MW7**

Client Sample ID: **MW7**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864006
Lab Project ID: 1155864

Collection Date: 10/05/15 12:20
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 1.42 | | 0.636 | 0.191 | mg/L | 1 | | 10/20/15 09:03 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 96.5 | | 50-150 | | % | 1 | | 10/20/15 09:03 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/20/15 09:03
Container ID: 1155864006-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 236 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.447 | J | 0.530 | 0.159 | mg/L | 1 | | 10/20/15 09:03 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 96.7 | | 50-150 | | % | 1 | | 10/20/15 09:03 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 10/20/15 09:03
Container ID: 1155864006-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 236 mL
Prep Extract Vol: 1 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MW7**

Client Sample ID: **MW7**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864006
Lab Project ID: 1155864

Collection Date: 10/05/15 12:20
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.287 | | 0.100 | 0.0310 | mg/L | 1 | | 10/12/15 15:21 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 110 | | 50-150 | | % | 1 | | 10/12/15 15:21 |

## Batch Information

Analytical Batch: VFC12742
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/12/15 15:21
Container ID: 1155864006-C

Prep Batch: VXX28067
Prep Method: SW5030B
Prep Date/Time: 10/12/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MW7**

Client Sample ID: **MW7**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864006
Lab Project ID: 1155864

Collection Date: 10/05/15 12:20
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| 1,1,2-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2,4-Trimethylbenzene | 0.310 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,3,5-Trimethylbenzene | 0.420 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| Benzene | 1.28 | | 0.400 | 0.120 | ug/L | 1 | | 10/13/15 13:51 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Bromomethane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MW7**

Client Sample ID: **MW7**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864006
Lab Project ID: 1155864

Collection Date: 10/05/15 12:20
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.300 | ug/L | 1 | | 10/13/15 13:51 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 13:51 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Ethylbenzene | 2.54 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Isopropylbenzene (Cumene) | 1.35 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 10/13/15 13:51 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| Naphthalene | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| n-Propylbenzene | 0.410 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| P & M -Xylene | 2.08 | | 2.00 | 0.620 | ug/L | 1 | | 10/13/15 13:51 |
| sec-Butylbenzene | 0.350 | J | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Trichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 13:51 |
| Vinyl chloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 13:51 |
| Xylenes (total) | 2.08 | J | 3.00 | 1.00 | ug/L | 1 | | 10/13/15 13:51 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 97 | | 81-118 | | % | 1 | | 10/13/15 13:51 |
| 4-Bromofluorobenzene (surr) | 103 | | 85-114 | | % | 1 | | 10/13/15 13:51 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 10/13/15 13:51 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

Results of **MW7**

Client Sample ID: **MW7**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864006
Lab Project ID: 1155864

Collection Date: 10/05/15 12:20
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS15339
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 10/13/15 13:51
Container ID: 1155864006-F

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/15 08:37
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864007
Lab Project ID: 1155864

Collection Date: 10/05/15 09:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.332 | J | 0.605 | 0.181 | mg/L | 1 | | 10/20/15 10:22 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 97.3 | | 50-150 | | % | 1 | | 10/20/15 10:22 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/20/15 10:22
Container ID: 1155864007-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.218 | J | 0.504 | 0.151 | mg/L | 1 | | 10/20/15 10:22 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 97.8 | | 50-150 | | % | 1 | | 10/20/15 10:22 |

### Batch Information

Analytical Batch: XFC12170
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 10/20/15 10:22
Container ID: 1155864007-A

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/15 11:20
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864007
Lab Project ID: 1155864

Collection Date: 10/05/15 09:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0399 | J | 0.100 | 0.0310 | mg/L | 1 | | 10/12/15 15:40 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 97.9 | | 50-150 | | % | 1 | | 10/12/15 15:40 |

## Batch Information

Analytical Batch: VFC12742
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/12/15 15:40
Container ID: 1155864007-C

Prep Batch: VXX28067
Prep Method: SW5030B
Prep Date/Time: 10/12/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864007
Lab Project ID: 1155864

Collection Date: 10/05/15 09:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| 1,1,2-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 10/13/15 14:07 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Bromomethane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |

Print Date: 10/30/2015 12:04:40PM

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Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864007
Lab Project ID: 1155864

Collection Date: 10/05/15 09:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.300 | ug/L | 1 | | 10/13/15 14:07 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 14:07 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 10/13/15 14:07 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| Naphthalene | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 10/13/15 14:07 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Tetrachloroethene | 52.1 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Trichloroethene | 1.40 | | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 14:07 |
| Vinyl chloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 14:07 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 10/13/15 14:07 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 97.3 | | 81-118 | | % | 1 | | 10/13/15 14:07 |
| 4-Bromofluorobenzene (surr) | 100 | | 85-114 | | % | 1 | | 10/13/15 14:07 |
| Toluene-d8 (surr) | 102 | | 89-112 | | % | 1 | | 10/13/15 14:07 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864007
Lab Project ID: 1155864

Collection Date: 10/05/15 09:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

### Batch Information

Analytical Batch: VMS15339
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 10/13/15 14:07
Container ID: 1155864007-F

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/15 08:37
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
**t** 907.562.2343 **f** 907.561.5301 www.us.sgs.com

## Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864008
Lab Project ID: 1155864

Collection Date: 10/05/15 08:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 10/11/15 21:45 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 103 | | 50-150 | | % | 1 | | 10/11/15 21:45 |

## Batch Information

Analytical Batch: VFC12740
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 10/11/15 21:45
Container ID: 1155864008-A

Prep Batch: VXX28061
Prep Method: SW5030B
Prep Date/Time: 10/11/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864008
Lab Project ID: 1155864

Collection Date: 10/05/15 08:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| 1,1,2-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 10/13/15 11:40 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Bromomethane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864008
Lab Project ID: 1155864

Collection Date: 10/05/15 08:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.300 | ug/L | 1 | | 10/13/15 11:40 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 10/13/15 11:40 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 10/13/15 11:40 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| Naphthalene | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 10/13/15 11:40 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Trichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 10/13/15 11:40 |
| Vinyl chloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 10/13/15 11:40 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 10/13/15 11:40 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 95.5 | | 81-118 | | % | 1 | | 10/13/15 11:40 |
| 4-Bromofluorobenzene (surr) | 104 | | 85-114 | | % | 1 | | 10/13/15 11:40 |
| Toluene-d8 (surr) | 102 | | 89-112 | | % | 1 | | 10/13/15 11:40 |

Print Date: 10/30/2015 12:04:40PM

J flagging is activated

## Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Mammoth Trucking (ARRC)**
Lab Sample ID: 1155864008
Lab Project ID: 1155864

Collection Date: 10/05/15 08:00
Received Date: 10/05/15 14:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

### Batch Information

Analytical Batch: VMS15339
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 10/13/15 11:40
Container ID: 1155864008-D

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/15 08:37
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1722601 [VXX/28061]
Blank Lab ID: 1297228

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1155864008

## Results by **AK101**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Gasoline Range Organics | 0.0326J | 0.100 | 0.0310 | mg/L |
| **Surrogates** | | | | |
| 4-Bromofluorobenzene (surr) | 104 | 50-150 | | % |

## Batch Information

Analytical Batch: VFC12740
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 10/11/2015 1:34:00PM

Prep Batch: VXX28061
Prep Method: SW5030B
Prep Date/Time: 10/11/2015 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155864 [VXX28061]
Blank Spike Lab ID: 1297231
Date Analyzed: 10/11/2015 14:31

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1155864008

## Results by **AK101**

Blank Spike (mg/L)

| Parameter | Spike | Result | Rec (%) | CL |
|---|---|---|---|---|
| Gasoline Range Organics | 1.00 | 1.12 | 112 | ( 60-120 ) |
| **Surrogates** | | | | |
| 4-Bromofluorobenzene (surr) | 0.0500 | 109 | 109 | ( 50-150 ) |

## Batch Information

Analytical Batch: **VFC12740**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **CRD**

Prep Batch: **VXX28061**
Prep Method: **SW5030B**
Prep Date/Time: **10/11/2015 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:



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## Method Blank

Blank ID: MB for HBN 1722627 (VVX2/867]
Blank Lab ID: 1297QC8

Matrix: u ax5r qp, rfaE5i . ffGd ro, n) R

Sm for pae sl54:
11CC/6t 881i 11CC/6t 882i 11CC/6t 88Ql 11CC/6t 88t i 11CC/6t 88Cl 11CC/6t 886i 11CC/6t 887

## y 54, lx4 bU **AK101**

| garae 5x5r | y 54, lx4 | LPSXnL | DL | OnW4 |
|---|---|---|---|---|
| d a4olW5 y an35 Pr3anWE4 | 8G3t 8t J | 8G388 | 8G3QC18 | e 3XL |

**Surrogates**

| | | | | |
|---|---|---|---|---|
| t -Broe ofl, orob5nz5n5 o4, rrR | 181 | C8-1C8 | | % |

## Batch Information

AnalUWEal BaxEh: [ Fm127t 2
AnalUWEal M5xho): AK181
In4xr, e 5nx A3W5nx7/98 gIDXFID
AnalU4x my D
AnalUWEal Dax5XTWe5: 18X12X281C 9:Q7:88AM

gr5s BaxEh: [ VV2/867
gr5s M5xho): pu C8Q8B
gr5s Dax5XTWe5: 18X12X281C /:88:88AM
gr5s InWAM u xQ[ olG Ce L
gr5s . (xraEx[ ol: Ce L

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155864 [VXX28067]
Blank Spike Lab ID: 1297353
Date Analyzed: 10/12/2015 10:34

Spike Duplicate ID: LCSD for HBN 1155864 [VXX28067]
Spike Duplicate Lab ID: 1297354
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007

## Results by **AK101**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Gasoline Range Organics | 1.00 | 1.09 | 109 | 1.00 | 1.03 | 103 | ( 60-120 ) | 5.70 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 0.0500 | 108 | 108 | 0.0500 | 98.7 | 99 | ( 50-150 ) | 8.50 | |

## Batch Information

Analytical Batch: **VFC12742**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **CRD**

Prep Batch: **VXX28067**
Prep Method: **SW5030B**
Prep Date/Time: **10/12/2015 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1722744 [VXX/28078]
Blank Lab ID: 1297946

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007, 1155864008

## Results by **SW8260B**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,1-Trichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1,2,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,2-Trichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dibromo-3-chloropropane | 5.00U | 10.0 | 3.10 | ug/L |
| 1,2-Dibromoethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dichloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3,5-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichloropropane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,4-Dichlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| 2,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Butanone (MEK) | 5.00U | 10.0 | 3.10 | ug/L |
| 2-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Hexanone | 5.00U | 10.0 | 3.10 | ug/L |
| 4-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Isopropyltoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Methyl-2-pentanone (MIBK) | 5.00U | 10.0 | 3.10 | ug/L |
| Benzene | 0.200U | 0.400 | 0.120 | ug/L |
| Bromobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Bromochloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Bromodichloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Bromoform | 0.500U | 1.00 | 0.310 | ug/L |
| Bromomethane | 5.00U | 10.0 | 3.10 | ug/L |
| Carbon disulfide | 5.00U | 10.0 | 3.10 | ug/L |
| Carbon tetrachloride | 0.500U | 1.00 | 0.310 | ug/L |
| Chlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| Chloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| Chloroform | 0.500U | 1.00 | 0.300 | ug/L |

## Method Blank

Blank ID: MB for HBN 1722744 [VXX/28078]
Blank Lab ID: 1297946

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007, 1155864008

## Results by **SW8260B**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Chloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,3-Dichloropropene | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromochloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromomethane | 0.500U | 1.00 | 0.310 | ug/L |
| Dichlorodifluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Ethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Freon-113 | 5.00U | 10.0 | 3.10 | ug/L |
| Hexachlorobutadiene | 0.500U | 1.00 | 0.310 | ug/L |
| Isopropylbenzene (Cumene) | 0.500U | 1.00 | 0.310 | ug/L |
| Methylene chloride | 2.50U | 5.00 | 1.00 | ug/L |
| Methyl-t-butyl ether | 5.00U | 10.0 | 3.10 | ug/L |
| Naphthalene | 5.00U | 10.0 | 3.10 | ug/L |
| n-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Propylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| o-Xylene | 0.500U | 1.00 | 0.310 | ug/L |
| P & M -Xylene | 1.00U | 2.00 | 0.620 | ug/L |
| sec-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Styrene | 0.500U | 1.00 | 0.310 | ug/L |
| tert-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Tetrachloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Toluene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,3-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichlorofluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Vinyl acetate | 5.00U | 10.0 | 3.10 | ug/L |
| Vinyl chloride | 0.500U | 1.00 | 0.310 | ug/L |
| Xylenes (total) | 1.50U | 3.00 | 1.00 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 97.2 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 102 | 85-114 | | % |
| Toluene-d8 (surr) | 99.2 | 89-112 | | % |



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## Method Blank

Blank ID: MB for HBN 1722744 [VXX/28078]
Blank Lab ID: 1297946

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007, 1155864008

## Results by **SW8260B**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|

### Batch Information

Analytical Batch: VMS15339
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: SCL
Analytical Date/Time: 10/13/2015 10:18:00AM

Prep Batch: VXX28078
Prep Method: SW5030B
Prep Date/Time: 10/13/2015 8:37:15AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155864 [VXX28078]
Blank Spike Lab ID: 1297947
Date Analyzed: 10/13/2015 10:34

Spike Duplicate ID: LCSD for HBN 1155864 [VXX28078]
Spike Duplicate Lab ID: 1297948
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007, 1155864008

## Results by **SW8260B**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,1,1,2-Tetrachloroethane | 30 | 32.1 | 107 | 30 | 31.3 | 104 | ( 78-124 ) | 2.50 | (< 20 ) |
| 1,1,1-Trichloroethane | 30 | 32.2 | 107 | 30 | 31.6 | 105 | ( 74-131 ) | 1.80 | (< 20 ) |
| 1,1,2,2-Tetrachloroethane | 30 | 31.7 | 106 | 30 | 30.6 | 102 | ( 71-121 ) | 3.60 | (< 20 ) |
| 1,1,2-Trichloroethane | 30 | 32.6 | 109 | 30 | 31.8 | 106 | ( 80-119 ) | 2.50 | (< 20 ) |
| 1,1-Dichloroethane | 30 | 30.9 | 103 | 30 | 30.5 | 102 | ( 77-125 ) | 1.50 | (< 20 ) |
| 1,1-Dichloroethene | 30 | 32.9 | 110 | 30 | 32.2 | 107 | ( 71-131 ) | 2.20 | (< 20 ) |
| 1,1-Dichloropropene | 30 | 32.7 | 109 | 30 | 32.2 | 107 | ( 79-125 ) | 1.60 | (< 20 ) |
| 1,2,3-Trichlorobenzene | 30 | 31.2 | 104 | 30 | 31.4 | 105 | ( 69-129 ) | 0.64 | (< 20 ) |
| 1,2,3-Trichloropropane | 30 | 31.9 | 106 | 30 | 30.7 | 102 | ( 73-122 ) | 4.10 | (< 20 ) |
| 1,2,4-Trichlorobenzene | 30 | 31.9 | 106 | 30 | 31.8 | 106 | ( 69-130 ) | 0.31 | (< 20 ) |
| 1,2,4-Trimethylbenzene | 30 | 32.9 | 110 | 30 | 32.7 | 109 | ( 79-124 ) | 0.73 | (< 20 ) |
| 1,2-Dibromo-3-chloropropane | 30 | 34.6 | 115 | 30 | 33.5 | 112 | ( 62-128 ) | 3.40 | (< 20 ) |
| 1,2-Dibromoethane | 30 | 33.4 | 111 | 30 | 32.7 | 109 | ( 77-121 ) | 2.20 | (< 20 ) |
| 1,2-Dichlorobenzene | 30 | 30.8 | 103 | 30 | 30.6 | 102 | ( 80-119 ) | 0.55 | (< 20 ) |
| 1,2-Dichloroethane | 30 | 29.1 | 97 | 30 | 28.3 | 94 | ( 73-128 ) | 2.90 | (< 20 ) |
| 1,2-Dichloropropane | 30 | 31.9 | 106 | 30 | 31.4 | 105 | ( 78-122 ) | 1.60 | (< 20 ) |
| 1,3,5-Trimethylbenzene | 30 | 32.7 | 109 | 30 | 31.8 | 106 | ( 75-124 ) | 2.50 | (< 20 ) |
| 1,3-Dichlorobenzene | 30 | 30.9 | 103 | 30 | 30.4 | 101 | ( 80-119 ) | 1.90 | (< 20 ) |
| 1,3-Dichloropropane | 30 | 32.7 | 109 | 30 | 32.1 | 107 | ( 80-119 ) | 1.80 | (< 20 ) |
| 1,4-Dichlorobenzene | 30 | 30.9 | 103 | 30 | 30.0 | 100 | ( 79-118 ) | 2.90 | (< 20 ) |
| 2,2-Dichloropropane | 30 | 37.1 | 124 | 30 | 36.3 | 121 | ( 60-139 ) | 2.10 | (< 20 ) |
| 2-Butanone (MEK) | 90 | 114 | 126 | 90 | 109 | 121 | ( 56-143 ) | 4.30 | (< 20 ) |
| 2-Chlorotoluene | 30 | 32.1 | 107 | 30 | 31.7 | 106 | ( 79-122 ) | 1.30 | (< 20 ) |
| 2-Hexanone | 90 | 101 | 113 | 90 | 97.3 | 108 | ( 57-139 ) | 4.00 | (< 20 ) |
| 4-Chlorotoluene | 30 | 32.4 | 108 | 30 | 31.7 | 106 | ( 78-122 ) | 2.30 | (< 20 ) |
| 4-Isopropyltoluene | 30 | 33.4 | 111 | 30 | 32.6 | 109 | ( 77-127 ) | 2.60 | (< 20 ) |
| 4-Methyl-2-pentanone (MIBK) | 90 | 104 | 115 | 90 | 101 | 112 | ( 67-130 ) | 2.60 | (< 20 ) |
| Benzene | 30 | 32.0 | 107 | 30 | 31.6 | 105 | ( 79-120 ) | 1.30 | (< 20 ) |
| Bromobenzene | 30 | 30.1 | 100 | 30 | 29.5 | 98 | ( 80-120 ) | 1.90 | (< 20 ) |
| Bromochloromethane | 30 | 31.3 | 104 | 30 | 30.3 | 101 | ( 78-123 ) | 3.00 | (< 20 ) |
| Bromodichloromethane | 30 | 31.6 | 105 | 30 | 30.8 | 103 | ( 79-125 ) | 2.50 | (< 20 ) |
| Bromoform | 30 | 32.9 | 110 | 30 | 31.5 | 105 | ( 66-130 ) | 4.30 | (< 20 ) |
| Bromomethane | 30 | 31.4 | 105 | 30 | 30.3 | 101 | ( 53-141 ) | 3.60 | (< 20 ) |
| Carbon disulfide | 45 | 48.8 | 108 | 45 | 48.1 | 107 | ( 64-133 ) | 1.50 | (< 20 ) |

Print Date: 10/30/2015 12:05:12PM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155864 [VXX28078]
Blank Spike Lab ID: 1297947
Date Analyzed: 10/13/2015 10:34

Spike Duplicate ID: LCSD for HBN 1155864 [VXX28078]
Spike Duplicate Lab ID: 1297948
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007, 1155864008

Results by **SW8260B**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Carbon tetrachloride | 30 | 32.5 | 108 | 30 | 31.9 | 106 | ( 72-136 ) | 1.90 | (< 20 ) |
| Chlorobenzene | 30 | 31.4 | 105 | 30 | 30.3 | 101 | ( 82-118 ) | 3.70 | (< 20 ) |
| Chloroethane | 30 | 31.3 | 104 | 30 | 30.0 | 100 | ( 60-138 ) | 4.30 | (< 20 ) |
| Chloroform | 30 | 29.8 | 100 | 30 | 29.0 | 97 | ( 79-124 ) | 2.80 | (< 20 ) |
| Chloromethane | 30 | 26.7 | 89 | 30 | 26.3 | 88 | ( 50-139 ) | 1.40 | (< 20 ) |
| cis-1,2-Dichloroethene | 30 | 31.0 | 103 | 30 | 30.6 | 102 | ( 78-123 ) | 1.10 | (< 20 ) |
| cis-1,3-Dichloropropene | 30 | 33.9 | 113 | 30 | 33.8 | 113 | ( 75-124 ) | 0.33 | (< 20 ) |
| Dibromochloromethane | 30 | 32.9 | 110 | 30 | 31.6 | 105 | ( 74-126 ) | 4.20 | (< 20 ) |
| Dibromomethane | 30 | 29.8 | 99 | 30 | 29.9 | 100 | ( 79-123 ) | 0.30 | (< 20 ) |
| Dichlorodifluoromethane | 30 | 25.3 | 84 | 30 | 24.9 | 83 | ( 32-152 ) | 1.70 | (< 20 ) |
| Ethylbenzene | 30 | 32.0 | 107 | 30 | 31.3 | 104 | ( 79-121 ) | 2.30 | (< 20 ) |
| Freon-113 | 45 | 47.7 | 106 | 45 | 47.0 | 105 | ( 70-136 ) | 1.50 | (< 20 ) |
| Hexachlorobutadiene | 30 | 31.1 | 104 | 30 | 31.5 | 105 | ( 66-134 ) | 1.30 | (< 20 ) |
| Isopropylbenzene (Cumene) | 30 | 32.4 | 108 | 30 | 32.0 | 107 | ( 72-131 ) | 1.30 | (< 20 ) |
| Methylene chloride | 30 | 32.6 | 109 | 30 | 31.6 | 105 | ( 74-124 ) | 3.30 | (< 20 ) |
| Methyl-t-butyl ether | 45 | 51.1 | 114 | 45 | 49.3 | 110 | ( 71-124 ) | 3.70 | (< 20 ) |
| Naphthalene | 30 | 33.5 | 112 | 30 | 33.0 | 110 | ( 61-128 ) | 1.50 | (< 20 ) |
| n-Butylbenzene | 30 | 32.8 | 109 | 30 | 32.8 | 109 | ( 75-128 ) | 0.06 | (< 20 ) |
| n-Propylbenzene | 30 | 32.4 | 108 | 30 | 31.7 | 106 | ( 76-126 ) | 2.00 | (< 20 ) |
| o-Xylene | 30 | 30.6 | 102 | 30 | 30.2 | 101 | ( 78-122 ) | 1.50 | (< 20 ) |
| P & M -Xylene | 60 | 62.5 | 104 | 60 | 61.0 | 102 | ( 80-121 ) | 2.50 | (< 20 ) |
| sec-Butylbenzene | 30 | 32.4 | 108 | 30 | 31.8 | 106 | ( 77-126 ) | 1.90 | (< 20 ) |
| Styrene | 30 | 31.6 | 105 | 30 | 31.2 | 104 | ( 78-123 ) | 1.30 | (< 20 ) |
| tert-Butylbenzene | 30 | 32.5 | 108 | 30 | 31.9 | 106 | ( 78-124 ) | 1.90 | (< 20 ) |
| Tetrachloroethene | 30 | 31.7 | 106 | 30 | 30.5 | 102 | ( 74-129 ) | 3.80 | (< 20 ) |
| Toluene | 30 | 30.7 | 102 | 30 | 30.3 | 101 | ( 80-121 ) | 1.50 | (< 20 ) |
| trans-1,2-Dichloroethene | 30 | 30.8 | 103 | 30 | 30.3 | 101 | ( 75-124 ) | 1.40 | (< 20 ) |
| trans-1,3-Dichloropropene | 30 | 34.7 | 116 | 30 | 33.5 | 112 | ( 73-127 ) | 3.50 | (< 20 ) |
| Trichloroethene | 30 | 31.7 | 106 | 30 | 31.3 | 104 | ( 79-123 ) | 1.00 | (< 20 ) |
| Trichlorofluoromethane | 30 | 30.3 | 101 | 30 | 29.6 | 99 | ( 65-141 ) | 2.20 | (< 20 ) |
| Vinyl acetate | 30 | 33.8 | 113 | 30 | 32.7 | 109 | ( 54-146 ) | 3.30 | (< 20 ) |
| Vinyl chloride | 30 | 31.0 | 103 | 30 | 30.5 | 102 | ( 58-137 ) | 1.60 | (< 20 ) |
| Xylenes (total) | 90 | 93.1 | 103 | 90 | 91.2 | 101 | ( 79-121 ) | 2.10 | (< 20 ) |



SGS North America Inc.
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t 907.562.2343 f 907.561.5301 www.us.sgs.com

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155864 [VXX28078]
Blank Spike Lab ID: 1297947
Date Analyzed: 10/13/2015 10:34

Spike Duplicate ID: LCSD for HBN 1155864 [VXX28078]
Spike Duplicate Lab ID: 1297948
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007, 1155864008

## Results by **SW8260B**

| | Blank Spike (%) | | | Spike Duplicate (%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 91.6 | 92 | 30 | 91.4 | 91 | ( 81-118 ) | 0.22 | |
| 4-Bromofluorobenzene (surr) | 30 | 104 | 104 | 30 | 102 | 102 | ( 85-114 ) | 1.60 | |
| Toluene-d8 (surr) | 30 | 99.4 | 99 | 30 | 99.4 | 99 | ( 89-112 ) | 0.00 | |

## Batch Information

Analytical Batch: **VMS15339**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **SCL**

Prep Batch: **VXX28078**
Prep Method: **SW5030B**
Prep Date/Time: **10/13/2015 08:37**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1722929 [XXX/34444]
Blank Lab ID: 1298488

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007

## Results by **AK102**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Diesel Range Organics | 0.300U | 0.600 | 0.180 | mg/L |
| **Surrogates** | | | | |
| 5a Androstane (surr) | 103 | 60-120 | | % |

## Batch Information

Analytical Batch: XFC12170
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: KJO
Analytical Date/Time: 10/20/2015 10:42:00AM

Prep Batch: XXX34444
Prep Method: SW3520C
Prep Date/Time: 10/18/2015 11:20:41AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155864 [VVVX44442
Blank Spike La0 ID: 17] 848]
Dabe 9nal3t eA: 1yz7yz7y15 y7:4X

Spike Ddpli/ abe ID: LCSD for HBN 1155864 [VVVX44442
Spike Ddpli/ abe La0 ID: 17] 84] y
Rabris: Maber xSdrfa/ eW( ff,WErodnA

%C for Sa) plec: 1155864yy1W1155864yy7W1155864yyXW1155864yy4W1155864yy5W1155864yy6W1155864yyg

u ecdlbc 03 **AK102**

| | Blank Spike x) mL. | | | Spike Ddpli/ abe x) mL. | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Gara) eber | Spike | u ecdlb | u e/ xP. | Spike | u ecdlb | u e/ xP. | CL | u GD xP. | u GD CL |
| Diecel u anme Qrmani/ c | 7y | 71,6 | 1y8 | 7y | 71,7 | 1y6 | xg5C175. | 1,8y | x- 7y. |
| **Surrogates** | | | | | | | | | |
| 5a 9nArocbane xcdrr. | y,4 | 1y] | 1y] | y,4 | 1y] | 1y] | x6yC17y. | y,X] | |

## Batch Information

9nal3b/ al Bab/ <: **XFC12170**
9nal3b/ al Reb<oA: **AK102**
Inclord) enb **HP 7890A** **FID SV E R**
9nal3cb **KJO**

Grep Bab/ <: **XXX34444**
Grep Reb<oA: **SW3520C**
Grep Dabezhi) e: **10/18/2015 11:20**
Spike InibMbzTol,: 7y ) mL ( sbra/ bTol: 1 ) L
Ddpe InibMbzTol,: 7y ) mL ( sbra/ bTol: 1 ) L

GrinbDabe: 1yzXyz7y15 17:y5:16GR

## Method Blank

Blank ID: MB for HBN 1722929 [XXX/34444]
Blank Lab ID: 1298488

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1155864001, 1155864002, 1155864003, 1155864004, 1155864005, 1155864006, 1155864007

## Results by **AK103**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Residual Range Organics | 0.250U | 0.500 | 0.150 | mg/L |
| **Surrogates** | | | | |
| nA riacontaneAd62 (surr) | 102 | 60A120 | | % |

## Batch Information

hnalytical BatcF: XKC12170
hnalytical MetFod: hV103
Instrument: HP 7890h KID SJ E R
hnalyst: VTO
hnalytical Date/- ime: 10/20/2015 10:42:00hM

Prep BatcF: XXX34444
Prep MetFod: SW3520C
Prep Date/- ime: 10/18/2015 11:20:41hM
Prep Initial Wt./J ol.: 250 mL
Prep Extract J ol: 1 mL

Print Date: 10/30/2015 12:05:18PM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1155864 [VVVX44442
Blank Spike La0 ID: 17] 848]
Dabe 9nal3t eA: 1yz7yz7y15 y7:4X

Spike Ddpli/ abe ID: LCSD for HBN 1155864 [VVVX44442
Spike Ddpli/ abe La0 ID: 17] 84] y
Rabris: Maber xSdrfa/ eW( ff,WErodnA

%C for Sa) plec: 1155864yy1W1155864yy7W1155864yyXW1155864yy4W1155864yy5W1155864yy6W1155864yyg

## u ecdlbc 03 **AK102**

| | Blank Spike x) mL. | | | Spike Ddpli/ abe x) mL. | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Gara) eber | Spike | u ecdlb | u e/ xP. | Spike | u ecdlb | u e/ xP. | CL | u GD xP. | u GD CL |
| u eciAdal u anme Qrmani/ c | 7y | 1] ,8 | ] ] | 7y | 7y,1 | 1yy | x6yC17y. | 1,5y | x- 7y. |
| **Surrogates** | | | | | | | | | |
| nG>ria/ onbaneOA67 xcdrr. | y,4 | ] 8,8 | ] ] | y,4 | ] ] ,g | 1yy | x6yC17y. | y,] ] | |

## Batch Information

9nal3bi/ al Bab/ h: **XFC171H0**
9nal3bi/ al RebhoA: **AK102**
Inclord) enb **P8 H9D0A FIV SE R J**
9nal3cb **KO8**

Grep Bab/ h: **XXX24444**
Grep RebhoA: **SW2570C**
Grep Dabez<i) e: **10/19/7015 11:70**
Spike InibMbzTol,: 7y ) mL ( sbra/ bTol: 1 ) L
Ddpe InibMbzTol,: 7y ) mL ( sbra/ bTol: 1 ) L

GrinbDabe: 1yzXyz7y15 17:y5:7yGR

SGS 1155864

# SGS North America Inc.
# CHAIN OF CUSTODY RECORD

Locations Nationwide

Alaska Maryland
New Jersey New York
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CLIENT: Fairbanks Enviromental Services
CONTACT: Mike Boese PHONE NO: 907-277-7111
PROJECT/SITE: Mammoth Trucking (ARRC)
REPORTS TO: Mike Boese E-MAIL: MBoese@FESalaska.com
INVOICE TO: ARRC Project: ARRC-2015
CONTRACT NUMBER: ARRC - 265-2429

SGS Reference #:

page 1 of 1

| LAB NO. | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX/ MATRIX CODE | # CONTAINERS | Preservative | HCl | HCl | HCl | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SAMPLE TYPE C = COMP G = GRAB MI = Multi Incremental Samples | GRO (AK101) | DRO/RRO (AK102/103) | VOC (8260B) | | | | | | | |
| (1) A-H | CHMWE1 | 10/5/2015 | 0950 | Water | 8 | G | x | x | x | | | | | | | |
| (2) A-H | CHMWE2 | 10/5/2015 | 1030 | Water | 8 | G | x | x | x | | | | | | | |
| (3) A-H ~~EMCONHW-4 CHMWE4~~ MB | | 10/5/2015 | 1140 | Water | 8 | G | x | x | x | | | | | | | |
| (4) A-H | CHMWE5 | 10/5/2015 | 1345 | Water | 8 | G | x | x | x | | | | | | | |
| (5) A-H | MW6 | 10/5/2015 | 1305 | Water | 8 | G | x | x | x | | | | | | | |
| (6) A-H | MW7 | 10/5/2015 | 1220 | Water | 8 | G | x | x | x | | | | | | | |
| (7) A-H | MWX | 10/5/2015 | 0900 | Water | 8 | G | x | x | x | | | | | | | |
| (8) A-F | Trip Blank | 10/5/2015 | 800 | Water | 6 | G | x | | x | | | | | | | |

| | Date | Time | |
|---|---|---|---|
| Collected/Relinquished By: (1) Michael Boese | 10/5/15 | 1453 | Received By: |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date 10/5/15 | Time 1453 | Received For Laboratory By: |

DOD Project? NO
Cooler ID 10515-01
Cooler Temp °C

Special Deliverable Requirements:
**Level 2 Data Package, EQuiS, and PDF. No hard copy required.**

Requested Turnaround Time and-or Special Instructions:
Quote 10402, Normal TAT, Bill ARRC directly (265-2429)

Temperature Blank °C: 3.4°/241

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
1 FLB

Revised Report - Revision 1



☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1

SGS

# 1155864

1155864

## SAMPLE RECEIPT FORM

| Review Criteria: | Yes | N/A | No | Comments/Action Taken: |
|---|---|---|---|---|
| Were **custody seals** intact? Note # & location, if applicable.<br>COC accompanied samples? | ☑<br>☑ | ☐<br>☐ | ☐<br>☐ | ***Exemption permitted if sampler hand carries/delivers.***<br>2 Side |
| **Temperature blank** compliant* (i.e., 0-6°C after CF)?<br>*If >6°C, were samples collected <8 hours ago?*<br>*If <0°C, were all sample containers ice free?*<br>Cooler ID: [1] _____ @ 3.4 _____ w/ Therm.ID: 241 _____<br>Cooler ID: _____ @ _____ w/ Therm.ID: _____<br>Cooler ID: _____ @ _____ w/ Therm.ID: _____<br>Cooler ID: _____ @ _____ w/ Therm.ID: _____<br>Cooler ID: _____ @ _____ w/ Therm.ID: _____<br>If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled." | ☑<br>☑<br>☐ | ☐<br>☐<br>☑ | ☐<br>☐<br>☐ | ***Exemption permitted if chilled & collected <8 hrs ago.***<br><br>***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.*** |
| Delivery method (specify all that apply): ☑Client (hand carried)<br>☐USPS ☐Lynden ☐AK Air ☐Alert Courier<br>☐UPS ☐FedEx ☐RAVN ☐C&D Delivery<br>☐Carlile ☐Pen Air ☐Warp Speed ☐Other: _____<br>→ *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?* | ☐ | ☑ | ☐ | |
| | Yes | N/A | No | |
| Were samples received within hold time?<br>Do samples **match COC*** (i.e., sample IDs, dates/times collected)?<br>Were analyses requested unambiguous? | ☑<br>☑<br>☑ | ☐<br>☐<br>☐ | ☐<br>☐<br>☐ | ***Note: Refer to form F-083 "Sample Guide" for hold times.***<br>***Note: If times differ <1hr, record details and login per COC.*** |
| Were samples in **good condition** (no leaks/cracks/breakage)?<br>Packing material used (specify all that apply): ☐Bubble Wrap ☐Separate plastic bags ☐Vermiculite ☐Other: | ☑ | ☐ | ☐ | |
| Were **proper containers** (type/mass/volume/preservative*) used?<br>Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?<br>Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)?<br>Were all soil VOAs **field extracted** with MeOH+BFB? | ☑<br>☑<br>☑<br>☐ | ☐<br>☐<br>☐<br>☑ | ☐<br>☐<br>☐<br>☐ | ☐ ***Exemption permitted for metals (e.g., 200.8/6020A).*** |
| For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**?<br>If pH was adjusted, were bottles flagged (i.e., stickers)? | ☑<br>☐ | ☐<br>☑ | ☐<br>☐ | |
| For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)? | ☐ | ☑ | ☐ | |
| For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable? | ☐ | ☑ | ☐ | |
| For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly? | ☐ | ☑ | ☐ | |
| **For any question answered "No,"** has the PM been notified and the problem resolved (or paperwork put in their bin)? | ☐ | ☑ | ☐ | SRF Completed by: EDJ<br>PM notified: |
| Was **PEER REVIEW** of ***sample numbering/labeling completed?*** | ☑ | ☐ | ☐ | Peer Reviewed by: KV |
| Additional notes (if applicable): | | | | |

***Note to Client:*** *Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.*

## Sample Containers and Preservatives

| Container Id | Preservative | Container Condition |
|---|---|---|
| 1155864001-A | HCL to pH < 2 | OK |
| 1155864001-B | HCL to pH < 2 | OK |
| 1155864001-C | HCL to pH < 2 | OK |
| 1155864001-D | HCL to pH < 2 | OK |
| 1155864001-E | HCL to pH < 2 | OK |
| 1155864001-F | HCL to pH < 2 | OK |
| 1155864001-G | HCL to pH < 2 | OK |
| 1155864001-H | HCL to pH < 2 | OK |
| 1155864002-A | HCL to pH < 2 | OK |
| 1155864002-B | HCL to pH < 2 | OK |
| 1155864002-C | HCL to pH < 2 | OK |
| 1155864002-D | HCL to pH < 2 | OK |
| 1155864002-E | HCL to pH < 2 | OK |
| 1155864002-F | HCL to pH < 2 | OK |
| 1155864002-G | HCL to pH < 2 | OK |
| 1155864002-H | HCL to pH < 2 | OK |
| 1155864003-A | HCL to pH < 2 | OK |
| 1155864003-B | HCL to pH < 2 | OK |
| 1155864003-C | HCL to pH < 2 | OK |
| 1155864003-D | HCL to pH < 2 | OK |
| 1155864003-E | HCL to pH < 2 | OK |
| 1155864003-F | HCL to pH < 2 | OK |
| 1155864003-G | HCL to pH < 2 | OK |
| 1155864003-H | HCL to pH < 2 | OK |
| 1155864004-A | HCL to pH < 2 | OK |
| 1155864004-B | HCL to pH < 2 | OK |
| 1155864004-C | HCL to pH < 2 | OK |
| 1155864004-D | HCL to pH < 2 | OK |
| 1155864004-E | HCL to pH < 2 | OK |
| 1155864004-F | HCL to pH < 2 | OK |
| 1155864004-G | HCL to pH < 2 | OK |
| 1155864004-H | HCL to pH < 2 | OK |
| 1155864005-A | HCL to pH < 2 | OK |
| 1155864005-B | HCL to pH < 2 | OK |
| 1155864005-C | HCL to pH < 2 | OK |
| 1155864005-D | HCL to pH < 2 | OK |
| 1155864005-E | HCL to pH < 2 | OK |
| 1155864005-F | HCL to pH < 2 | OK |
| 1155864005-G | HCL to pH < 2 | OK |
| 1155864005-H | HCL to pH < 2 | OK |
| 1155864006-A | HCL to pH < 2 | OK |
| 1155864006-B | HCL to pH < 2 | OK |
| 1155864006-C | HCL to pH < 2 | OK |
| 1155864006-D | HCL to pH < 2 | OK |
| 1155864006-E | HCL to pH < 2 | OK |
| 1155864006-F | HCL to pH < 2 | OK |
| 1155864006-G | HCL to pH < 2 | OK |
| 1155864006-H | HCL to pH < 2 | OK |
| 1155864007-A | HCL to pH < 2 | OK |
| 1155864007-B | HCL to pH < 2 | OK |
| 1155864007-C | HCL to pH < 2 | OK |
| 1155864007-D | HCL to pH < 2 | OK |
| 1155864007-E | HCL to pH < 2 | OK |
| 1155864007-F | HCL to pH < 2 | OK |
| 1155864007-G | HCL to pH < 2 | OK |
| 1155864007-H | HCL to pH < 2 | OK |
| 1155864008-A | HCL to pH < 2 | OK |
| 1155864008-B | HCL to pH < 2 | OK |
| 1155864008-C | HCL to pH < 2 | OK |
| 1155864008-D | HCL to pH < 2 | OK |
| 1155864008-E | HCL to pH < 2 | OK |
| 1155864008-F | HCL to pH < 2 | OK |

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
BU - The container was received with headspace greater than 6mm.

# Laboratory Data Review Checklist

Completed by: Mike Boese

Title: Chemist Date: 11/16/2015

CS Report Name: Former Mammoth Trucking Report Report Date: 11/30/2015

Consultant Firm: Fairbanks Environmental Services

Laboratory Name: SGS Laboratory Report Number: 1155864

ADEC File Number: 2100.26.202 ADEC RecKey Number: 23887

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ●Yes No NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      Yes No ●NA (Please explain.) Comments:

      No samples were transferred.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ●Yes No NA (Please explain.) Comments:

   b. Correct analyses requested?
      ●Yes No NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ●Yes No NA (Please explain.) Comments:

      The temperature blank was 3.4° C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
      ●Yes No NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
●Yes No NA (Please explain.) Comments:

Samples were reportedly in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
Yes No ●NA (Please explain.) Comments:

There were no discrepancies noted and the documentation indicates such.

e. Data quality or usability affected? (Please explain.)
Comments:

There was no impact to data quality.

4. Case Narrative
a. Present and understandable?
●Yes No NA (Please explain.) Comments:

b. Discrepancies, errors or QC failures identified by the lab?
Yes ● No NA (Please explain.) Comments:

No errors associated with this sample data group were identified.

c. Were all corrective actions documented?
Yes No ●NA (Please explain.) Comments:

No errors were identified, so no need for corrective actions.

d. What is the effect on data quality/usability according to the case narrative?
Comments:

Case narrative does not discuss data quality, it typically only lists anomalies and outliers.

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
●Yes No NA (Please explain.) Comments:

b. All applicable holding times met?
●Yes No NA (Please explain.) Comments:

c. All soils reported on a dry weight basis?

Yes No ●NA (Please explain.) Comments:

| |
|---|
| All samples associated with this sample data group were water matrix. |

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes ● No NA (Please explain.) Comments:

| |
|---|
| Although they were not detected in project samples, the LODs of two VOC analytes (1,2-dibromoethane and 1,2,3-trichloropropane) were reported in excess of the groundwater cleanup levels. Consequently, these data have limited usefulness. The analytes do not appear to be site chemicals of concern, however. |

e. Data quality or usability affected?

Comments:

| |
|---|
| Not applicable. See comments above. |

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

●Yes No NA (Please explain.) Comments:

| |
|---|
| |

ii. All method blank results less than PQL?

●Yes No NA (Please explain.) Comments:

| |
|---|
| However, GRO was detected below the LOQ in MBs associated with Method AK101 batches VXX28061 and VXX28067 at 0.0326 J mg/L and 0.0404 J mg/L, respectively. Consequently, the GRO concentration in samples CHMWE1 (and field dup MWX), CHMWE2, MW6, and MW7, were qualified B since the GRO result was within 10 times the GRO concentration detected in the MB samples. Impact to the datum was minor as all the affected GRO result was an order of magnitude below the groundwater cleanup level. |

iii. If above PQL, what samples are affected?

Comments:

| |
|---|
| See 6aii. |

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

●Yes No NA (Please explain.) Comments:

| |
|---|
| |

v. Data quality or usability affected? (Please explain.)

Comments:

| |
|---|
| See 6aii. |

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

●Yes No NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No ●NA (Please explain.) Comments:

There were no metals/inorganics analyses associated with this sample data group.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

●Yes No NA (Please explain.) Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

●Yes No NA (Please explain.) Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

Not applicable.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No ●NA (Please explain.) Comments:

All LCS precision and accuracy criteria were acceptable.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

There was no impact to data quality. All LCS/LCSD recoveries and RPD were acceptable.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

●Yes No NA (Please explain.) Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

●Yes No NA (Please explain.) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No ●NA (Please explain.) Comments:

No samples results had failed surrogate recoveries.

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

Data were not affected. All surrogates were recovered within control limits.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

●Yes No NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

●Yes No NA (Please explain.) Comments:

iii. All results less than PQL?

●Yes No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

Not applicable.

v. Data quality or usability affected? (Please explain.)

Comments:

No analytes were detected in the Trip blank, and data quality was not impacted.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

●Yes No NA (Please explain.) Comments:

WATER: Sample MWX was a field duplicate of CHMWE1.

ii. Submitted blind to lab?

●Yes No NA (Please explain.) Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where $R_1$ = Sample Concentration

$R_2$ = Field Duplicate Concentration

Yes ●No NA (Please explain.) Comments:

The field duplicate RPD met the 30% criterion for all analytes.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The field duplicate results were comparable and no data were affected or qualified.

f. Decontamination or Equipment Blank (If not used explain why).

Yes No ●NA (Please explain.) Comments:

No decontamination blank was needed since new, disposable sampling tubing was used to collect groundwater samples.

i. All results less than PQL?

Yes No ●NA (Please explain.) Comments:

No decon blank was needed since disposable sampling equipment was used to collect samples.

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? (Please explain.)

No data were affected. No decontamination blank was needed.

Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      ●Yes No NA (Please explain.) Comments:

| |
|---|
| Results reported below the limit of quantitation (LOQ) were qualified with a J flag to indicate they are estimated values. |

**APPENDIX E**

**WASTE MANIFEST AND DISPOSAL CERTIFICATE**

*** IN CASE OF EMERGENCY CALL 1-800-899-4672 ***

98597 (LV)

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No.

Manifest Document No. 98597A

2. Page 1 of 1

3. Generator's Name and Mailing Address
FAIRBANKS ENVIRONMENTAL
3538 INTERNATIONAL STREET
FAIRBANKS, AK 99701

4. Generator's Phone ( (907) 277-7111

Site Address
MAMMOTH TRUCKING
1048 E. WHITNEY ROAD
ANCHORAGE, AK 99501

MIKE BOESE

5. Transporter 1 Company Name
NRC ALASKA LLC

6. US EPA ID Number
AKR000004184

A. State Transporter's ID

B. Transporter 1 Phone (907) 258-1558

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
NRC ALASKA LLC
2020 VIKING DRIVE
ANCHORAGE, AK 99501

10. US EPA ID Number
AKR000004184

E. State Facility's ID

F. Facility's Phone (907) 258-1558

| 11. WASTE DESCRIPTION | Containers No. | Containers Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. MATERIAL NOT REGULATED BY D.O.T. | 2 | DM | 600 | P |
| b. | | | | |
| c. | | | | |
| d. | | | | |

G. Additional Descriptions for Materials Listed Above
1)EA0302 IDW DECON WATER

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Shipper's Certification: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

**GENERATOR**

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

| Printed/Typed Name | Signature | Date (Month / Day / Year) |
|---|---|---|
| MICHAEL L. BOESE | Michael L Boese | 10 / 5 / 15 |

**TRANSPORTER**

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date (Month / Day / Year) |
|---|---|---|
| ROY C TRISDALE JR | Roy C Trisdale Jr | 10 / 5 / 15 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date (Month / Day / Year) |
|---|---|---|
| | | |

**FACILITY**

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

| Printed/Typed Name | Signature | Date (Month / Day / Year) |
|---|---|---|
| Patricia L. Beasley | Patricia L Beasley | 10 / 06 / 15 |

NON-HAZARDOUS WASTE



@ 4:02 PM

1 of 1

# Tracking Log

PLB

Date Received 10/06/2015 Manifest 98597A TSDF NRC ALASKA LLC

PO Number 98597 (LV) Generator MAMMOTH TRUCKING Reported by darylg Account Manager

| Page Line | Count | Container | Profile | Sam-pled | Non-Reg | Lab Pack | Container Size/Type | Oil/Fuel | Water | Antifreeze | Sludge | Solid | Storage Location | Incomplete |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | ANC111700 | EA0302 | | Y | | DM55 | - | 55 | - | - | - | PAD1 | |
| 1 | 2 | ANC111701 | EA0302 | | Y | | DM55 | - | 55 | - | - | - | PAD1 | |
| **Total** | **2** | | | | | | | **0** | **110** | **0** | **0** | **0** | | |

**Total Gallons: 110**

# CERTIFICATE OF DISPOSAL/RECYCLE

**GENERATOR:** MAMMOTH TRUCKING
1048 E. WHITNEY ROAD
ANCHORAGE AK 99501

**DISPOSAL FACILITY:** NRC ALASKA LLC
2020 VIKING DRIVE
ANCHORAGE AK 99501

**EPA ID NUMBER:**

**MANIFEST/DOCUMENT #:** 98597A

**DATE OF DISPOSAL/RECYCLE:** 10/06/2015

| LINE | WASTE DESCRIPTION | CONTAINERS | TYPE | QUANTITY | UOM |
|---|---|---|---|---|---|
| 1 | IDW DECON WATER | 2 | DM | 600 | P |

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits, and licenses on the date listed above.

**PREPARED BY:** PATRICIA BEASLEY

**SIGNATURE:** Patricia L Beasley **DATE:** 10/6/2015