

BGES, INC.

ENVIRONMENTAL CONSULTANTS

10560 OLD SEWARD HIGHWAY
ANCHORAGE, ALASKA

ADEC FILE NUMBER 2100.26.463

GROUNDWATER MONITORING REPORT (MARCH 2018)

June 2018

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ACRONYMS

| | | |
|--------|---|--|
| AAC | - | Alaska Administrative Code |
| ADEC | - | Alaska Department of Environmental Conservation |
| AK | - | Alaska Method |
| bg | - | Below Grade |
| BGES | - | Braunstein Geological and Environmental Services |
| C | - | Celsius |
| CSM | - | Conceptual Site Model |
| CY | - | Cubic Yards |
| DRO | - | Diesel Range Organics |
| EPA | - | Environmental Protection Agency |
| ESA | - | Environmental Site Assessment |
| GRO | - | Gasoline Range Organics |
| IDW | - | Investigation-Derived Waste |
| LOQ | - | Limit of Quantitation |
| LV | - | Low Volume |
| mL/min | - | Milliliters per Minute |
| µg/L | - | Micrograms per Liter |
| QC | - | Quality Control |
| QEP | - | Qualified Environmental Professional |
| PAHs | - | Polynuclear Aromatic Hydrocarbons |
| PCE | - | Tetrachloroethene |
| RPD | - | Relative Percent Difference |
| RRO | - | Residual Range Organics |
| SGS | - | SGS North America, Inc. |
| TCE | - | Trichloroethene |
| UST | - | Underground Storage Tank |
| VOA | - | Volatile Organic Analysis |
| VOCs | - | Volatile Organic Compounds |

1.0 INTRODUCTION

BGES, Inc. (BGES) was retained by Frank Martin of BM Old Seward LLC. to conduct seasonal groundwater monitoring activities for the former Parker Drilling Company property located at 10560 Old Seward Highway in Anchorage, Alaska (Figure 1); hereafter referred to as the subject property. The groundwater monitoring activities described below were performed as requested by the Alaska Department of Environmental Conservation (ADEC). Field activities were accomplished in March of 2018 at the subject property. All groundwater monitoring activities were performed in accordance with BGES' Work Plan *Addendum Number 2 for Additional Site Characterization and Remediation Activities* (published on June 20, 2016). Robert Weimer, ADEC Project Manager, provided approval of BGES' Work Plan Addendum on June 23, 2016 via email. In a letter dated June 12, 2017 Robert Weimer requested additional groundwater monitoring to assess seasonal contamination concentration fluctuations. The contaminants of concern for the subject property include gasoline range organics (GRO), volatile organic compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs).

2.0 SITE BACKGROUND

The subject property is a Contaminated Site with a status of "Active" as listed in the ADEC Contaminated Sites Database (File Number 2100.26.463 and Hazard Identification Number 23848). The subject property has historically been used as an oilfield services yard, and is currently occupied by a school bus storage yard and maintenance shop for Reliant Transportation.

In 1989, six underground storage tanks (USTs), associated piping, and contaminated soil were removed at three locations on the subject property. Soil samples collected from the excavation sidewalls met ADEC cleanup levels and a "No Further Action" letter was issued by the ADEC in December of 1989.

In April of 2008, a Phase II Environmental Site Assessment (ESA), conducted by BGES, discovered stained soils with diesel range organics (DRO) and tetrachloroethene (PCE) concentrations exceeding ADEC cleanup criteria at a depth of 15 feet below grade (bg) at the former UST location.

In addition, stained areas of surface soils associated with the buses parked at the subject property were discovered at five locations on the western portion of the property. Four of the five stained areas were excavated in August of 2008, and 19.8 cubic yards (CY) of contaminated soil were removed and thermally treated offsite. However, Stained Soil Area SS4 could not be located at that time because of an apparent addition of 3 to 4 inches of fill material placed over the area.

In July of 2016, additional site characterization and remediation activities were conducted by BGES to determine the extent of the soil and groundwater contamination, if any, associated with the former used oil tank located on the subject property. One soil boring, which was completed as a groundwater monitoring well, was advanced within the approximate location of the former excavation of the former used oil tank on the subject property. The reported concentrations of trichloroethene (TCE), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, and naphthalene in several of the soil samples collected from Soil Boring SB7 exceeded the applicable ADEC cleanup criteria from depths between 19 and 31 feet bg. These soil samples also exhibited concentrations of GRO, DRO, residual range organics (RRO), PCE and numerous other VOCs, and several PAH parameters that were below the applicable ADEC cleanup criteria.

Soils in the vicinity of the former Stained Soil Area SS4 were removed from the ground on October 10, 2016 and transported offsite for thermal treatment and disposal on February 1, 2017. Confirmation soil samples collected from the excavation exhibited concentrations of DRO, RRO, and numerous PAHs that were below the applicable ADEC cleanup criteria.

Soil Boring SB7 was completed as Monitoring Well BGESMW1. The groundwater sample collected from this well, exhibited concentrations of GRO, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, isopropylbenzene, n-propylbenzene, sec-butylbenzene, PCE, TCE, and total xylenes below applicable ADEC cleanup criteria.

Correspondence from the ADEC Project Manager, Robert Weimer, dated June 12, 2017, indicated that further characterization and remediation activities associated with the Surface Stained Soil Area SS4 were not anticipated. As mentioned above, this letter also indicated that seasonal groundwater monitoring would be required on a quarterly basis. It is important to note that via a phone conversation with Mr. Weimer on June 16, 2017, Mr. Weimer agreed that the water sample collected on August 17, 2016 would count as one of the quarterly sampling events if we collected a groundwater sample during June of 2017 and the results were submitted to the ADEC before early August of 2017.

The third quarterly groundwater monitoring activities were conducted in November of 2017. The groundwater sample collected from Monitoring Well BGESMW1 exhibited concentrations of chloroform and TCE exceeding the applicable ADEC cleanup criteria. Additionally, PCE was detected at concentrations below the applicable ADEC cleanup criteria.

The fourth quarterly groundwater monitoring activities conducted in March of 2018 are the subject of this groundwater monitoring report.

3.0 FIELD ACTIVITIES

Field work for this groundwater monitoring event was performed by Evan Tyler, Environmental Engineer of BGES; under the direct supervision of William Schmaltz and Jayne Martin, Qualified Environmental Professionals (QEPs), as defined by the ADEC. The onsite groundwater monitoring activities were performed on March 22, 2018 in accordance with the approved work plan addendum mentioned above and the ADEC Field Sampling Guidance (August 2017). The following paragraphs present a description of the field activities. Photographs of onsite conditions are included in Appendix A.

3.1 Collection of Groundwater Samples

BGES personnel mobilized to the site on March 22, 2018 to collect groundwater samples from Monitoring Well BGESMW1. Prior to sampling, the total depth of the monitoring well was measured using an electronic water level indicator (Table 1). The depth to water (from the top of casing) was also measured for the well prior to sampling. Using this information and the diameter of the well casing, the volume of water in the well was calculated. The low-flow purging and sampling activities were completed utilizing a submersible pump (positive-displacement bladder pump), a new polyethylene bladder, and new polyethylene bonded tubing.

Monitoring Well BGESMW1 was purged prior to sampling. Throughout the purging activities, groundwater quality parameters, including pH, conductivity, temperature, and oxidation reduction potential, were measured utilizing a YSI Professional Plus water quality meter and flow-through cell. The measurements recorded during purging are listed in Table 1. Monitoring Well BGESMW1 was purged at a rate of approximately 100-230 milliliters per minute (mL/min). The pump intake was initially positioned at approximately 24.31 feet below grade (bg), which was approximately six inches below the top of the original water column elevation. During purging, the water level lowered approximately six inches because of insufficient recharge; thus, the pump was lowered another six inches bg to a depth of approximately 24.81 feet bg and the purge rate was decreased. Approximately three well volumes were removed from Monitoring Well BGESMW1 before water quality parameters stabilized. The groundwater sample was collected with a sampling rate of approximately 150 mL/min.

The groundwater samples were collected with the submersible bladder pump utilizing low-flow sampling techniques. Prior to collection of the groundwater samples, the YSI Professional Plus water quality meter and flow-through cell were removed from the sampling chain. Groundwater was pumped directly into the laboratory-supplied sample jars, in which case the containers for volatile analyses were filled first. Care was taken during the sampling process to minimize the potential that headspace was created within the

sample containers, and that none of the preservative was spilled from the vials destined for volatile analyses. As a quality control measure, a duplicate groundwater sample was collected and “blindly” identified as BGESMW2-0322 and was submitted to the laboratory for analysis. The samples were stored and transported in a chilled cooler and were delivered under chain of custody protocol to SGS North America, Inc. (SGS) for analysis. Copies of the field notes and the water monitoring log are included in Appendix B.

3.2 Investigation-Derived Waste

Investigation-derived waste (IDW), including purge and decontamination water generated during the sampling event, was containerized in a 5-gallon bucket. The bucket was clearly labeled with contact information and a description of the contents, potentially contaminated water, and is temporarily stored on site pending disposal. The bucket of IDW was placed on the north side of the second building from the northeast corner of the subject property (Figure 2). Additionally, purge water from the June and November 2017 sampling events are also onsite; totaling three, 5-gallon buckets. The buckets are in a secure location of the fenced portion of the subject property, with a gate that is locked outside of business hours.

4.0 EVALUATION OF LABORATORY DATA

Laboratory analyses of the water samples collected during these sampling activities were performed by SGS, an ADEC-approved laboratory. Analytical results are presented in Table 2; and a copy of the laboratory data package is provided in Appendix C.

The water sample results are compared to 18 Alaska Administrative Code (AAC) 75.345 – Table C for groundwater, as revised on November 7, 2017. The water samples were submitted to SGS and were analyzed for VOCs by Environmental Protection Agency (EPA) Method 8260, GRO by Alaska Method (AK) 101, and PAHs by EPA 8270 SIM low volume (LV). As a quality control procedure, trip blank samples for water accompanied all of the field samples scheduled for volatile analyses at all times from sample collection until submission to the laboratory. Trip blanks were analyzed for GRO and VOCs by the same methods described above, to determine if cross-contamination of the samples had occurred.

The water samples collected from the subject property were numbered, for example, BGESMW1-0322, where the prefix “BGESMW1” indicates the monitoring well location from which the water sample was collected, and, “-0322” indicates the month and the day the sample was collected.

PCE and TCE were detected in Water Sample BGESMW1-0322 at concentrations of 7.03 micrograms per liter ($\mu\text{g/L}$) and 2.30 $\mu\text{g/L}$, respectively. These concentrations are below their applicable ADEC cleanup criteria of 41 $\mu\text{g/L}$ and 2.8 $\mu\text{g/L}$, respectively.

PCE and TCE were detected in Water Sample BGESMW2-0322 (a duplicate sample for Sample BGESMW1-0322) at concentrations of 6.48 $\mu\text{g/L}$ and 2.10 $\mu\text{g/L}$, respectively. These concentrations of PCE and TCE are below their applicable ADEC cleanup criteria of 41 $\mu\text{g/L}$ and 2.8 $\mu\text{g/L}$, respectively.

For both water samples, the analyte 1,2,3-trichloropropane was non-detectable at the laboratory's LOQ; however, the LOQ exceeds the applicable ADEC cleanup criterion; as such, it cannot be determined if the actual concentration of this analyte is below its applicable cleanup criterion.

All other analytes in these two samples were not detected at the laboratory's Limits of Quantitation (LOQs), which are below the applicable ADEC cleanup criteria. Analytical results for groundwater samples are listed in Table 2; a copy of the laboratory data package is included in Appendix C; and the monitoring well location is shown on Figure 2.

5.0 LABORATORY DATA QUALITY REVIEW

Data quality was reviewed in accordance with ADEC guidance and standard industry practices. An ADEC laboratory data review checklist was completed for the laboratory work order, and is attached in Appendix D. The checklist provides an overview of the quality of the laboratory data. The following is a discussion of our evaluation of sample conditions and laboratory procedures for the water samples collected during the March 22, 2018 field activities.

Analyses for the groundwater samples associated with Work Order 1181140 were provided by SGS of Anchorage, which is approved to conduct the specified analyses by the ADEC. The groundwater samples were hand-delivered to SGS in Anchorage by BGES personnel under standard chain of custody protocol.

The sample cooler arrived at the laboratory with a measured temperature of 3.2 degrees Celsius (C), which is within the prescribed optimal range of 0 to 6 degrees C. The case narrative for Work Order Number 1181140 (samples collected on March 22, 2018) did not note any QC failures identified by SGS.

The samples contained the proper preservatives for the requested analyses and no unusual sample conditions were noted by the laboratory except for GRO and VOC trip blanks. Three of the vials (Samples 3A-3C), which were prepared by the laboratory and designated as the GRO trip blank, contained large bubbles (greater than 6 millimeters in diameter) according to the sample receipt form.

The presence of headspace indicates a potential for the detected GRO concentration to be biased low as a result of volatilization into the headspace; however, GRO was not detected at the LOQ in either of the project samples. Additionally, the LOQ for GRO was more than one order of magnitude less than the ADEC cleanup criterion. For these reasons, it is our opinion that this QC failure does not affect the usability of the data.

Two of the vials (Samples 4B and 4C), which were prepared by the laboratory and designated as the VOC trip blank, also contained large bubbles (greater than 6 millimeters in diameter), and Sample 4C was damaged in receiving according to the sample receipt form. Sample 4A, however, was in good condition with no bubbles, and was analyzed for VOCs. No VOCs were detected in the trip blank or either of the project samples. For this reason, it is our opinion that this QC failure does not affect the usability of the data.

The LOQ for 1,2,3-trichloropropane exceeded the applicable ADEC cleanup criterion in both water samples under this work order (shown in italics in Table 2). In this instance, where the analyte was not detected above the LOQ, it cannot be determined if the actual concentrations of this analyte exceed the applicable ADEC cleanup criterion.

Sample BGESMW2-0322 was a duplicate of Water Sample BGESMW1-0322 and was collected to evaluate field sampling precision. The relative percent differences (RPDs) for PCE, and TCE were 8 and 9 percent, respectively. These RPDs are below the acceptable limit of 30 percent for water samples; which indicates a good measure of field sampling precision.

A laboratory data quality control review checklist was prepared for the SGS data package, and is included in Appendix D.

6.0 CONCEPTUAL SITE MODEL

A human health conceptual site model (CSM) was developed for this site and was presented in the “*Site Characterization and Remediation Report*” (dated February 2017). It is our opinion that the CSM is still valid for this site, and as such has not been modified based on our results of this sampling event.

7.0 CONCLUSIONS AND RECOMMENDATIONS

As described above, groundwater samples were collected from Monitoring Well BGESMW1 in March of 2018. These activities were performed to assess the seasonal contamination trends in groundwater at the subject property.

PCE and TCE were detected in Water Sample BGESMW1-0322 at concentrations of 7.03 µg/L and 2.30 µg/L, respectively. These concentrations are below their applicable ADEC cleanup criteria of 41 µg/L and 2.8 µg/L, respectively.

PCE and TCE were detected in Water Sample BGESMW2-0322 (a duplicate sample to BGESMW1-0322) at concentrations of 6.48 µg/L and 2.10 µg/L, respectively. These concentrations are below their applicable ADEC cleanup criteria of 41 µg/L and 2.8 µg/L, respectively.

Historically, both PCE and TCE have exhibited a general increasing trend in BGESMW1 through November of 2017, and the concentrations of these parameters have declined during the March 2018 sampling event. Historical groundwater analytical results are included in Table 3 and the trends of PCE and TCE contamination are shown on the graphs in Appendix E.

Based on these results, it is recommended that the IDW generated during these sampling activities (purge water and decontamination water) be spread onsite in a manner that will not cause undue erosion, after receiving permission from the ADEC to do so.

The four quarterly sampling events requested by the ADEC have now been completed. Because of the elevated concentrations of TCE and PCE that were observed in November, it is recommended that an additional sampling event occur during October, November, or December to evaluate groundwater quality during winter conditions; and that the water sample be analyzed for VOCs. At that point, depending upon the analytical results, a request for site closure or a recommendation for continuing groundwater sampling on an annual basis may be appropriate. It is also recommended that a copy of this report be provided to the ADEC for their review.

8.0 EXCLUSIONS AND CONSIDERATIONS

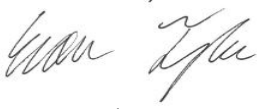
This report presents facts, observations, and inferences based on conditions observed during the period of our project activities, and only those conditions that were evaluated as part of our scope of work. Our conclusions are based solely on our observations made and work conducted, and only apply to the immediate vicinities of the locations where samples were collected. In addition, changes to site conditions may have occurred since the completion of our project activities. These changes may be from the actions of man or nature. Changes in regulations may also impact the interpretation of site conditions. BGES will not disclose our findings to any parties other than our client as listed above, except as directed by our client, or as required by law.

This report was prepared by Evan Tyler, Environmental Engineer of BGES, who was under the direct supervision of William Schmaltz, Environmental Scientist of BGES and Jayne Martin, Senior Environmental Scientist of BGES; both are QEPs as defined by the ADEC. Mr. Tyler and Mr. Schmaltz have conducted numerous site characterization projects throughout Alaska. This report was reviewed by Robert Braunstein, C.P.G. Mr. Braunstein has more than 35 years of geological and environmental consulting experience and has conducted and managed thousands of site characterizations and remediation projects throughout Alaska and the lower 48 states.

Sincerely,

BGES, INC.

Prepared by:



Evan Tyler
Environmental Engineer

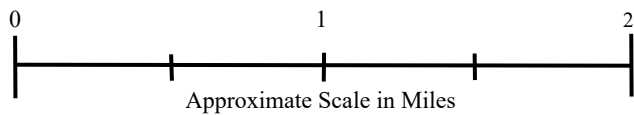
Reviewed by:



Robert N. Braunstein, C.P.G.
Principal Geologist



Source: USGS Map, Anchorage (A-8) NW, Alaska 1979, Revised 1994.



10560 Old Seward Highway
Anchorage, Alaska
Property Vicinity Map


BGES, INC.

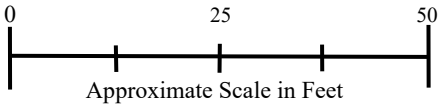
June 2018

Figure 1





BGESMW1-1106 & BGESMW2-0322
(Duplicate of BGESMW1-0322)*
 Tetrachloroethene (PCE) = 7.03 µg/L
 Trichloroethene (TCE) = 2.30 µg/L

Source: Google Earth Pro ©



Legend

-  = Monitoring Well BGESMW1 (Soil Boring SB7)
-  = Investigation Derived Waste (IDW)
- ADEC = Alaska Department of Environmental Conservation

*Greatest concentration of each analyte is reported from the sample/duplicate pair.

10560 Old Seward Highway
 Anchorage, Alaska
Groundwater Sample Results Map
(March 2018)



June 2018

Figure 2

TABLE 1
10560 OLD SEWARD HIGHWAY
ANCHORAGE, ALASKA
MONITORING WELL SAMPLING DATA (MARCH 2018)

BGES, INC.

| Well Number | BGESMW1 |
|---|--|
| Date Sampled | 03/22/18 |
| Date of Depth and Elevation Measurement | 03/22/18 |
| Time of Depth to Water Measurement | 13:25 |
| Time Sample Collected | 15:29 |
| Top of Casing Elevation (feet) | - |
| Depth to Water (feet below top of casing) | 23.81 |
| Water Elevation (feet) | - |
| Total Depth of Well (feet below top of casing) | 28.96 |
| Well Casing Diameter (Inches) | 2 |
| Standing Water Well Volume (gallons) | 0.84 |
| Purge Volume-Actual (gallons) | 2.7 |
| Depth of Bladder Intake (feet below top of casing) | 24.81 |
| Temperature (degrees Celsius) | 6.8/7.1/6.2/6.1/6.0/5.9/5.6/6.7/6.9/7.0/7.1/7.0/7.1 |
| pH (standard units) | 6.10/6.11/6.10/6.11/6.13/6.15/6.29/6.31/6.42/6.43/6.46/6.48/6.46 |
| Conductivity (microsiemens per centimeter) | 1348/1341/1280/1268/1170/1172/813/1220/1195/1150/1136/1124/1117 |
| Oxidation Reduction Potential (millivolts) | 32.8/33.4/34.6/36.5/39.6/40.6/42.8/41.1/39.3/38.1/37.7/37.7/34.2 |
| Notes: | |
| 3/22/2018 Purge rate was ~ 100-230 milliliters/minute | |
| 3/22/2018 Sample rate was ~ 150 milliliters/minute | |
| Sampler: E. Tyler | |
| Field parameters were measured with a YSI Pro Plus water quality meter and flow-through cell. | |
| Weather conditions on March 22, 2018 were clear and sunny with an ambient temperature of approximately 27 degrees Fahrenheit. | |
| Duplicate BGESMW2-1106 collected at 16:00 | |

TABLE 2
10560 OLD SEWARD HIGHWAY
ANCHORAGE, ALASKA
GROUNDWATER ANALYTICAL RESULTS (MARCH 2018)

BGES, INC.

| Sample No. | Parameter | Results (µg/L) | LOQ (µg/L) | ADEC Cleanup Criteria (µg/L) ¹ | Analytical Method |
|--|-------------------------------------|----------------|-------------|---|-------------------|
| BGESMW1-0322 | GRO | ND | 100 | 2,200 | AK 101 |
| | <i>1,2,3-Trichloropropane</i> | <i>ND</i> | <i>1.00</i> | 0.0075 | SW8260C |
| | Benzene | ND | 0.400 | 4.6 | SW8260C |
| | Ethylbenzene | ND | 1.00 | 15 | SW8260C |
| | Tetrachloroethene (PCE) | 7.03 | 1.00 | 41 | SW8260C |
| | Toluene | ND | 1.00 | 1,100 | SW8260C |
| | Trichloroethene (TCE) | 2.30 | 1.00 | 2.8 | SW8260C |
| | Total Xylenes | ND | 3.00 | 190 | SW8260C |
| | All Other VOCs | ND | varies | varies | SW8260C |
| | All PAHs | ND | varies | varies | 8270D SIM LV |
| BGESMW2-0322 Duplicate of BGESMW1-0322 | GRO | ND | 100 | 2,200 | AK 101 |
| | <i>1,2,3-Trichloropropane</i> | <i>ND</i> | <i>1.00</i> | 0.0075 | SW8260C |
| | Benzene | ND | 0.400 | 4.6 | SW8260C |
| | Ethylbenzene | ND | 1.00 | 15 | SW8260C |
| | RPD = 8% Tetrachloroethene (PCE) | 6.48 | 1.00 | 41 | SW8260C |
| | Toluene | ND | 1.00 | 1,100 | SW8260C |
| | RPD = 9% Trichloroethene (TCE) | 2.10 | 1.00 | 2.8 | SW8260C |
| | Total Xylenes | ND | 3.00 | 190 | SW8260C |
| | All Other VOCs | ND | varies | varies | SW8260C |
| | All PAHs | ND | varies | varies | 8270D SIM LV |

¹ Groundwater cleanup criteria are obtained from 18AAC 75.345, Table C (November 7, 2017).
AAC = Alaska Administrative Code; AK = Alaska Method; ADEC = Alaska Department of Environmental Conservation;
µg/L = micrograms per liter; GRO = gasoline range organics; PAH = polynuclear aromatic hydrocarbon;
VOC = volatile organic compound; LOQ = limit of quantitation; ND = not detectable; RPD = relative percent difference;
LV = Low Volume
Italics = The LOQ exceeds the applicable ADEC cleanup criterion.

TABLE 3
10560 OLD SEWARD HIGHWAY
ANCHORAGE, ALASKA
HISTORICAL GROUNDWATER ANALYTICAL RESULTS

BGES, INC.

| Analyte | Well Number BGESMW1 | | | | ADEC Cleanup Criteria ¹ |
|--|---|-----------|-------------|-----------|---------------------------------------|
| | Date Sampled | | | | |
| | 8/17/2016 | 6/21/2017 | 11/6/2017 | 3/22/2018 | |
| | Units = µg/L | | | | |
| Diesel Range Organics | ND | NA | NA | NA | 1,500 |
| Gasoline Range Organics | 796 | 118 | ND | ND | 2,200 |
| Residual Range Organics | ND | NA | NA | NA | 1,100 |
| Benzene | ND | ND | ND | ND | 4.6 |
| Toluene | ND | ND | ND | ND | 1,100 |
| Ethylbenzene | 2.05 | ND | ND | ND | 15 |
| Total Xylenes | 4.41 | ND | ND | ND | 190 |
| 1,2,4-trimethylbenzene | 7.82 | ND | ND | ND | 15 |
| 1,3,5-trimethylbenzene | 8.05 | ND | ND | ND | 120 |
| Chloroform | ND | 1.15 | 2.62 | ND | 2.2 |
| Isopropylbenzene | 1.55 | ND | ND | ND | 450 |
| n-propylbenzene | 5.22 | ND | ND | ND | 660 |
| sec-butylbenzene | 2.08 | ND | ND | ND | 2,000 |
| Tetrachloroethene (PCE) | 2.34 | 1.57 | 16.2 | 7.03 | 41 |
| Trichloroethene (TCE) | 1.30 | ND | 4.47 | 2.3 | 2.8 |
| Notes: | | | | | |
| ¹ = Groundwater cleanup criteria based on 18 AAC 75.345, Table C (November 7, 2017). | | | | | |
| The concentrations presented in the table reflect the greatest concentration reported for each analyte for each sample/duplicate pair. | | | | | |
| ADEC = Alaska Department of Environmental Conservation; NA = not analyzed; ND = non-detectable; µg/L = micrograms per liter; | | | | | |
| BOLD | = The result exceeds the applicable ADEC cleanup criterion. | | | | |

APPENDIX A
SITE PHOTOGRAPHS



Photo 1. Flush-Grade Cover for BGESMW1



Photo 2. Sampling Equipment Set Up (Facing southeast)



**Photo 3. Investigation-Derived Waste (Facing South)
(June and November 2017 Purge and Decontamination Water covered by snow but location is verified. March 2018 Purge and Decontamination Water shown on right)**



**Photo 4. Investigation-Derived Waste (Facing South)
(June and November 2017 Purge and Decontamination Water covered by snow but location is verified. March 2018 Purge and Decontamination Water shown on right)**

10560 Old Seward Highway
Anchorage, Alaska
Site Photographs

APPENDIX B
WATER SAMPLING LOG AND FIELD NOTES

GROUNDWATER MONITORING LOG

BGES, INC.

BGES, INC.
ENVIRONMENTAL CONSULTANTS

Well Number: BGESMW1
Date of Sampling Event: 3/22/18

Weather Conditions 27°F, Sunny
Time of Depth to Water Measurement: 13:25
Date of Depth to Water Measurement: 3/22/18

Total Depth of Well (feet below TOC): 28.96
Depth to Water (feet below TOC): 23.81
Water Column (feet): 5.15

Type of Sampling Equipment:
MP50 controller, 1.75" bladder pump, poly banded tubing, 12 volt battery, poly bladder, YSC pro w/ slow through cell

Volume of well (gals) 0.84

=0.1632 X Water Column (For 2-inch well)
=0.6528 X Water Column (For 4-inch well)
=1.4688 X Water Column (For 6-inch well)

Time Purging Began: 14:08
Time of Sampling: 15:29
Volume purged 2.7

PURGE A MINIMUM OF THREE WELL VOLUMES

Temperature (°C) 6.8
Conductivity 134.8
pH 6.10
ORP 32.8
Volume Purged 0.6 gal
Depth To Water
Time of Measurement 14:20

Temperature (°C) 6.0
Conductivity 117.0
pH 6.13
ORP 39.6
Volume Purged 1.5 gal
Depth To Water
Time of Measurement 14:33

Depth of Bladder Intake:
~6-12 inches below top of water column. (24.31 - 24.81 ft below TOC)

Temperature (°C) 7.1
Conductivity 134.1
pH 6.11
ORP 33.4
Volume Purged 0.9 gal
Depth To Water
Time of Measurement 14:24

Temperature (°C) 5.9
Conductivity 117.2
pH 6.15
ORP 40.6
Volume Purged 1.7 gal
Depth To Water
Time of Measurement 14:37

Purge Rate:
~100 - 230 ml/min

Temperature (°C) 6.2
Conductivity 128.0
pH 6.10
ORP 34.6
Volume Purged 1.1 gal
Depth To Water
Time of Measurement 14:27

Temperature (°C) 5.6
Conductivity 81.3
pH 6.29
ORP 42.8
Volume Purged 1.7 gal
Depth To Water
Time of Measurement 14:56

Sample Rate:
~150 ml/min

Temperature (°C) 6.1
Conductivity 126.8
pH 6.11
ORP 36.5
Volume Purged 1.2 gal
Depth To Water
Time of Measurement 14:30

Temperature (°C) 6.7
Conductivity 122.0
pH 6.31
ORP 41.1
Volume Purged 1.9 gal
Depth To Water
Time of Measurement 14:59

Sample ID:
BGESMW1-0322
BGESMW2-0322 (Duplicate of BGES MW1-0322)

Additional Notes:
fairly clear color initially, slight amount of suspended sediment. No odor. Slow purging, pump stopped at 14:38. 1448 - purging began again. 1450 - purging stopped due to bubbles. Propped pump from 6" below water table to 12" below water table. 1455 - purging began

Well Number: BGES MW1
Date of Sampling Event: 3/22/18

Weather Conditions 27°F, Sunny
Time of Depth to Water Measurement: 13:25
Date of Depth to Water Measurement: 3/22/18

Total Depth of Well (feet below TOC): 28.96
Depth to Water (feet below TOC): 23.81
Water Column (feet): 5.15

Type of Sampling Equipment:
MPSD controller, 1.75" bladder pump, poly banded tubing, 12 volt battery, poly bladder, VSE pro w/ flow through cell

Volume of well (gals) 0.84

=0.1632 X Water Column (For 2-inch well)
=0.6528 X Water Column (For 4-inch well)
=1.4688 X Water Column (For 6-inch well)

Time Purging Began: 14:08
Time of Sampling: 15:29
Volume purged 2.7

PURGE A MINIMUM OF THREE WELL VOLUMES

Temperature (°C) 6.9
Conductivity 1195
pH 6.42
ORP 39.3
Volume Purged 2.1
Depth To Water _____
Time of Measurement 15:03

Temperature (°C) 7.1
Conductivity 1117
pH 6.46
ORP 34.2
Volume Purged 2.7
Depth To Water _____
Time of Measurement 15:19

Depth of Bladder intake:
~6-12 inches below top of water column.

Temperature (°C) 7.0
Conductivity 1150
pH 6.43
ORP 38.1
Volume Purged 2.3
Depth To Water _____
Time of Measurement 15:07

Temperature (°C) _____
Conductivity _____
pH _____
ORP _____
Volume Purged _____
Depth To Water _____
Time of Measurement _____

Purge Rate:
~100-230 mL/min

Temperature (°C) 7.1
Conductivity 1136
pH 6.46
ORP 37.7
Volume Purged 2.4
Depth To Water _____
Time of Measurement 15:11

Temperature (°C) _____
Conductivity _____
pH _____
ORP _____
Volume Purged _____
Depth To Water _____
Time of Measurement _____

Sample Rate:
~150 mL/min

Temperature (°C) 7.0
Conductivity 1124
pH 6.48
ORP 37.7
Volume Purged 2.5
Depth To Water _____
Time of Measurement 15:15

Temperature (°C) _____
Conductivity _____
pH _____
ORP _____
Volume Purged _____
Depth To Water _____
Time of Measurement _____

Sample ID:
BGES MW1-0322
BGES MW2-0322 (Duplicate of BGES MW1-0322)

Additional Notes:
lump rate for purging decreased at 15:11

3/22/18

12:12 - Check in with front desk (James Luzzick).
not present, reception will let Nick know if on site.

12:20 - IDW not visible in last known location, snowplows adjacent might've covered two 5-gallon buckets.

12:26 - Began cleaning off well cover. Ice above cap.

12:45 - Neimer & SU from ADEC onsite.

13:06 - Well cap off. Ice cleared from above PVC casing. some frost crystals within the PVC casing.

13:13 - Collect Depth to water & total depth of well measurement.

Well ID

~~IDW-ET~~

IDW

BGES MW1
29.96

~~IDW-ET~~

ET

23.81ft

13:39 - Set up purging station.

13:50 - YSI Leaking. Reconfigured YSI

14:08 - Began purging MW1

14:38 - purging stopped due to slow purging.

14:48 - Began purging / stopped due to air bubbles.

14:55 - Began purging after dropping pump ~1

ft below original PTW measurement (~24.81ft)

Neimer & SU off site

15:20 - stop purging, prep for sampling. dig moat around concrete pads put absorbent into MW monument to prohibit surface water flow into PVC well casing.

15:30 - begin sampling.

16:10 - finish sampling, take apart sampling station

16:30 - Sampling station disassembled

16:32 - Find 2, 5-gallon IDW buckets behind 2nd Bldg from NE corner of lot.

16:38 - Partially dug out 2, 5-gallon IDW buckets and added 1, 5-gallon bucket to total waste pile.

Total of 3, 5-gallon buckets of IDW remain onsite.

16:42 - BGES offsite.

ET 4/24/18

APPENDIX C
LABORATORY ANALYTICAL DATA



Laboratory Report of Analysis

To: BGES Inc.
1042 E. 6th Ave.,
Anchorage, AK 99501
(907)644-2900

Report Number: **1181140**

Client Project: **Bus Barn**

Dear Jayne Martin,

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 Jillian 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.

cn=Jillian Vlahovich, o=SGS
North America, Inc.,
ou=Environmental
Division,
email=Jillian.Vlahovich@sg
s.com, c=US
2018.03.28 14:49:28 -08'00'

Jillian Vlahovich
Project Manager
Jillian.Vlahovich@sgs.com

Date

Print Date: 03/28/2018 8:47:35AM

Case Narrative

SGS Client: **BGES Inc.**
SGS Project: **1181140**
Project Name/Site: **Bus Barn**
Project Contact: **Jayne Martin**

Refer to 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 associated field samples.

Print Date: 03/28/2018 8:47:36AM

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, indemnification 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) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 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 |
| DF | Analytical Dilution Factor |
| DL | Detection Limit (i.e., maximum method detection limit) |
| E | The analyte result is above the calibrated range. |
| GT | Greater Than |
| IB | Instrument Blank |
| ICV | Initial Calibration Verification |
| J | The quantitation is an estimation. |
| LCS(D) | Laboratory Control Spike (Duplicate) |
| LLQC/LLIQC | Low Level Quantitation Check |
| 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 |
| MB | Method Blank |
| MS(D) | Matrix Spike (Duplicate) |
| ND | Indicates the analyte is not detected. |
| 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.

Sample Summary

| <u>Client Sample ID</u> | <u>Lab Sample ID</u> | <u>Collected</u> | <u>Received</u> | <u>Matrix</u> |
|-------------------------|----------------------|------------------|-----------------|-------------------------------|
| BGESMW1-0322 | 1181140001 | 03/22/2018 | 03/23/2018 | Water (Surface, Eff., Ground) |
| BGESMW2-0322 | 1181140002 | 03/22/2018 | 03/23/2018 | Water (Surface, Eff., Ground) |
| GRO Trip Blank | 1181140003 | 03/22/2018 | 03/23/2018 | Water (Surface, Eff., Ground) |
| VOC Trip Blank | 1181140004 | 03/22/2018 | 03/23/2018 | Water (Surface, Eff., Ground) |

| <u>Method</u> | <u>Method Description</u> |
|--------------------|-------------------------------------|
| 8270D SIM LV (PAH) | 8270 PAH SIM GC/MS Liq/Liq ext. LV |
| AK101 | Gasoline Range Organics (W) |
| SW8260C | Volatile Organic Compounds (W) FULL |

Print Date: 03/28/2018 8:47:39AM

Detectable Results Summary

Client Sample ID: **BGESMW1-0322**

Lab Sample ID: 1181140001

Volatile GC/MS

| <u>Parameter</u> | <u>Result</u> | <u>Units</u> |
|-------------------|---------------|--------------|
| Tetrachloroethene | 7.03 | ug/L |
| Trichloroethene | 2.30 | ug/L |

Client Sample ID: **BGESMW2-0322**

Lab Sample ID: 1181140002

Volatile GC/MS

| <u>Parameter</u> | <u>Result</u> | <u>Units</u> |
|-------------------|---------------|--------------|
| Tetrachloroethene | 6.48 | ug/L |
| Trichloroethene | 2.10 | ug/L |

Print Date: 03/28/2018 8:47:40AM



Results of BGESMW1-0322

Client Sample ID: **BGESMW1-0322**
 Client Project ID: **Bus Barn**
 Lab Sample ID: 1181140001
 Lab Project ID: 1181140

Collection Date: 03/22/18 15:43
 Received Date: 03/23/18 11:45
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Polynuclear Aromatics GC/MS

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|--------------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| 1-Methylnaphthalene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| 2-Methylnaphthalene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Acenaphthene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Acenaphthylene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Anthracene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Benzo(a)Anthracene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Benzo[a]pyrene | 0.0189 U | 0.0189 | 0.00585 | ug/L | 1 | | 03/26/18 19:59 |
| Benzo[b]Fluoranthene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Benzo[g,h,i]perylene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Benzo[k]fluoranthene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Chrysene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Dibenzo[a,h]anthracene | 0.0189 U | 0.0189 | 0.00585 | ug/L | 1 | | 03/26/18 19:59 |
| Fluoranthene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Fluorene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Indeno[1,2,3-c,d] pyrene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Naphthalene | 0.0943 U | 0.0943 | 0.0292 | ug/L | 1 | | 03/26/18 19:59 |
| Phenanthrene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Pyrene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 19:59 |
| Surrogates | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 58 | 47-106 | | % | 1 | | 03/26/18 19:59 |
| Fluoranthene-d10 (surr) | 56.7 | 24-116 | | % | 1 | | 03/26/18 19:59 |

Batch Information

Analytical Batch: XMS10685
 Analytical Method: 8270D SIM LV (PAH)
 Analyst: DSD
 Analytical Date/Time: 03/26/18 19:59
 Container ID: 1181140001-G

Prep Batch: XXX39208
 Prep Method: SW3520C
 Prep Date/Time: 03/26/18 07:44
 Prep Initial Wt./Vol.: 265 mL
 Prep Extract Vol: 1 mL

Print Date: 03/28/2018 8:47:41AM



Results of **BGESMW1-0322**

Client Sample ID: **BGESMW1-0322**
Client Project ID: **Bus Barn**
Lab Sample ID: 1181140001
Lab Project ID: 1181140

Collection Date: 03/22/18 15:43
Received Date: 03/23/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|-----------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| Gasoline Range Organics | 0.100 U | 0.100 | 0.0310 | mg/L | 1 | | 03/27/18 10:03 |
| Surrogates | | | | | | | |
| 4-Bromofluorobenzene (surr) | 89.6 | 50-150 | | % | 1 | | 03/27/18 10:03 |

Batch Information

Analytical Batch: VFC14077
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 03/27/18 10:03
Container ID: 1181140001-A

Prep Batch: VXX32051
Prep Method: SW5030B
Prep Date/Time: 03/26/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:41AM



Results of **BGESMW1-0322**

Client Sample ID: **BGESMW1-0322**
Client Project ID: **Bus Barn**
Lab Sample ID: 1181140001
Lab Project ID: 1181140

Collection Date: 03/22/18 15:43
Received Date: 03/23/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|-----------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| 1,1,1,2-Tetrachloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| 1,1,1-Trichloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,1,2,2-Tetrachloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| 1,1,2-Trichloroethane | 0.400 U | 0.400 | 0.120 | ug/L | 1 | | 03/23/18 17:08 |
| 1,1-Dichloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,1-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,1-Dichloropropene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2,3-Trichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2,3-Trichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2,4-Trichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2,4-Trimethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2-Dibromo-3-chloropropane | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2-Dibromoethane | 0.0750 U | 0.0750 | 0.0180 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2-Dichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2-Dichloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| 1,2-Dichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,3,5-Trimethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,3-Dichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 1,3-Dichloropropane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| 1,4-Dichlorobenzene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| 2,2-Dichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 2-Butanone (MEK) | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:08 |
| 2-Chlorotoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 2-Hexanone | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:08 |
| 4-Chlorotoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 4-Isopropyltoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| 4-Methyl-2-pentanone (MIBK) | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:08 |
| Benzene | 0.400 U | 0.400 | 0.120 | ug/L | 1 | | 03/23/18 17:08 |
| Bromobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Bromochloromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Bromodichloromethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| Bromoform | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Bromomethane | 5.00 U | 5.00 | 1.50 | ug/L | 1 | | 03/23/18 17:08 |
| Carbon disulfide | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:08 |
| Carbon tetrachloride | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Chlorobenzene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| Chloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |

Print Date: 03/28/2018 8:47:41AM



Results of BGESMW1-0322

Client Sample ID: **BGESMW1-0322**
 Client Project ID: **Bus Barn**
 Lab Sample ID: 1181140001
 Lab Project ID: 1181140

Collection Date: 03/22/18 15:43
 Received Date: 03/23/18 11:45
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|------------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| Chloroform | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Chloromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| cis-1,2-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| cis-1,3-Dichloropropene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| Dibromochloromethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:08 |
| Dibromomethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Dichlorodifluoromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Ethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Freon-113 | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:08 |
| Hexachlorobutadiene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Isopropylbenzene (Cumene) | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Methylene chloride | 5.00 U | 5.00 | 1.00 | ug/L | 1 | | 03/23/18 17:08 |
| Methyl-t-butyl ether | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:08 |
| Naphthalene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| n-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| n-Propylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| o-Xylene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| P & M -Xylene | 2.00 U | 2.00 | 0.620 | ug/L | 1 | | 03/23/18 17:08 |
| sec-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Styrene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| tert-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Tetrachloroethene | 7.03 | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Toluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| trans-1,2-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| trans-1,3-Dichloropropene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Trichloroethene | 2.30 | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Trichlorofluoromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:08 |
| Vinyl acetate | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:08 |
| Vinyl chloride | 0.150 U | 0.150 | 0.0500 | ug/L | 1 | | 03/23/18 17:08 |
| Xylenes (total) | 3.00 U | 3.00 | 1.00 | ug/L | 1 | | 03/23/18 17:08 |
| Surrogates | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 96.9 | 81-118 | | % | 1 | | 03/23/18 17:08 |
| 4-Bromofluorobenzene (surr) | 102 | 85-114 | | % | 1 | | 03/23/18 17:08 |
| Toluene-d8 (surr) | 103 | 89-112 | | % | 1 | | 03/23/18 17:08 |

Print Date: 03/28/2018 8:47:41AM

Results of **BGESMW1-0322**

Client Sample ID: **BGESMW1-0322**
Client Project ID: **Bus Barn**
Lab Sample ID: 1181140001
Lab Project ID: 1181140

Collection Date: 03/22/18 15:43
Received Date: 03/23/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17671
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 03/23/18 17:08
Container ID: 1181140001-D

Prep Batch: VXX32045
Prep Method: SW5030B
Prep Date/Time: 03/23/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:41AM



Results of BGESMW2-0322

Client Sample ID: **BGESMW2-0322**
 Client Project ID: **Bus Barn**
 Lab Sample ID: 1181140002
 Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
 Received Date: 03/23/18 11:45
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Polynuclear Aromatics GC/MS

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|--------------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| 1-Methylnaphthalene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| 2-Methylnaphthalene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Acenaphthene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Acenaphthylene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Anthracene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Benzo(a)Anthracene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Benzo[a]pyrene | 0.0189 U | 0.0189 | 0.00585 | ug/L | 1 | | 03/26/18 20:20 |
| Benzo[b]Fluoranthene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Benzo[g,h,i]perylene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Benzo[k]fluoranthene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Chrysene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Dibenzo[a,h]anthracene | 0.0189 U | 0.0189 | 0.00585 | ug/L | 1 | | 03/26/18 20:20 |
| Fluoranthene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Fluorene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Indeno[1,2,3-c,d] pyrene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Naphthalene | 0.0943 U | 0.0943 | 0.0292 | ug/L | 1 | | 03/26/18 20:20 |
| Phenanthrene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Pyrene | 0.0472 U | 0.0472 | 0.0142 | ug/L | 1 | | 03/26/18 20:20 |
| Surrogates | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 68.9 | 47-106 | | % | 1 | | 03/26/18 20:20 |
| Fluoranthene-d10 (surr) | 67.5 | 24-116 | | % | 1 | | 03/26/18 20:20 |

Batch Information

Analytical Batch: XMS10685
 Analytical Method: 8270D SIM LV (PAH)
 Analyst: DSD
 Analytical Date/Time: 03/26/18 20:20
 Container ID: 1181140002-G

Prep Batch: XXX39208
 Prep Method: SW3520C
 Prep Date/Time: 03/26/18 07:44
 Prep Initial Wt./Vol.: 265 mL
 Prep Extract Vol: 1 mL

Print Date: 03/28/2018 8:47:41AM



Results of **BGESMW2-0322**

Client Sample ID: **BGESMW2-0322**
Client Project ID: **Bus Barn**
Lab Sample ID: 1181140002
Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
Received Date: 03/23/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|-----------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| Gasoline Range Organics | 0.100 U | 0.100 | 0.0310 | mg/L | 1 | | 03/27/18 09:45 |
| Surrogates | | | | | | | |
| 4-Bromofluorobenzene (surr) | 90.6 | 50-150 | | % | 1 | | 03/27/18 09:45 |

Batch Information

Analytical Batch: VFC14077
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 03/27/18 09:45
Container ID: 1181140002-A

Prep Batch: VXX32051
Prep Method: SW5030B
Prep Date/Time: 03/26/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:41AM



Results of **BGESMW2-0322**

Client Sample ID: **BGESMW2-0322**
 Client Project ID: **Bus Barn**
 Lab Sample ID: 1181140002
 Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
 Received Date: 03/23/18 11:45
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by **Volatile GC/MS**

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|-----------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| 1,1,1,2-Tetrachloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| 1,1,1-Trichloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,1,2,2-Tetrachloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| 1,1,2-Trichloroethane | 0.400 U | 0.400 | 0.120 | ug/L | 1 | | 03/23/18 17:24 |
| 1,1-Dichloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,1-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,1-Dichloropropene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2,3-Trichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2,3-Trichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2,4-Trichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2,4-Trimethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2-Dibromo-3-chloropropane | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2-Dibromoethane | 0.0750 U | 0.0750 | 0.0180 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2-Dichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2-Dichloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| 1,2-Dichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,3,5-Trimethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,3-Dichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 1,3-Dichloropropane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| 1,4-Dichlorobenzene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| 2,2-Dichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 2-Butanone (MEK) | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:24 |
| 2-Chlorotoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 2-Hexanone | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:24 |
| 4-Chlorotoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 4-Isopropyltoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| 4-Methyl-2-pentanone (MIBK) | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:24 |
| Benzene | 0.400 U | 0.400 | 0.120 | ug/L | 1 | | 03/23/18 17:24 |
| Bromobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Bromochloromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Bromodichloromethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| Bromoform | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Bromomethane | 5.00 U | 5.00 | 1.50 | ug/L | 1 | | 03/23/18 17:24 |
| Carbon disulfide | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:24 |
| Carbon tetrachloride | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Chlorobenzene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| Chloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |

Print Date: 03/28/2018 8:47:41AM



Results of BGESMW2-0322

Client Sample ID: **BGESMW2-0322**
 Client Project ID: **Bus Barn**
 Lab Sample ID: 1181140002
 Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
 Received Date: 03/23/18 11:45
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|------------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| Chloroform | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Chloromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| cis-1,2-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| cis-1,3-Dichloropropene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| Dibromochloromethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 17:24 |
| Dibromomethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Dichlorodifluoromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Ethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Freon-113 | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:24 |
| Hexachlorobutadiene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Isopropylbenzene (Cumene) | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Methylene chloride | 5.00 U | 5.00 | 1.00 | ug/L | 1 | | 03/23/18 17:24 |
| Methyl-t-butyl ether | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:24 |
| Naphthalene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| n-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| n-Propylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| o-Xylene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| P & M -Xylene | 2.00 U | 2.00 | 0.620 | ug/L | 1 | | 03/23/18 17:24 |
| sec-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Styrene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| tert-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Tetrachloroethene | 6.48 | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Toluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| trans-1,2-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| trans-1,3-Dichloropropene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Trichloroethene | 2.10 | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Trichlorofluoromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 17:24 |
| Vinyl acetate | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 17:24 |
| Vinyl chloride | 0.150 U | 0.150 | 0.0500 | ug/L | 1 | | 03/23/18 17:24 |
| Xylenes (total) | 3.00 U | 3.00 | 1.00 | ug/L | 1 | | 03/23/18 17:24 |
| Surrogates | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 96.7 | 81-118 | | % | 1 | | 03/23/18 17:24 |
| 4-Bromofluorobenzene (surr) | 103 | 85-114 | | % | 1 | | 03/23/18 17:24 |
| Toluene-d8 (surr) | 102 | 89-112 | | % | 1 | | 03/23/18 17:24 |

Print Date: 03/28/2018 8:47:41AM

Results of **BGESMW2-0322**

Client Sample ID: **BGESMW2-0322**
Client Project ID: **Bus Barn**
Lab Sample ID: 1181140002
Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
Received Date: 03/23/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17671
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 03/23/18 17:24
Container ID: 1181140002-D

Prep Batch: VXX32045
Prep Method: SW5030B
Prep Date/Time: 03/23/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:41AM



Results of GRO Trip Blank

Client Sample ID: **GRO Trip Blank**
Client Project ID: **Bus Barn**
Lab Sample ID: 1181140003
Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
Received Date: 03/23/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|-----------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| Gasoline Range Organics | 0.100 U | 0.100 | 0.0310 | mg/L | 1 | | 03/27/18 09:08 |
| Surrogates | | | | | | | |
| 4-Bromofluorobenzene (surr) | 89.2 | 50-150 | | % | 1 | | 03/27/18 09:08 |

Batch Information

Analytical Batch: VFC14077
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 03/27/18 09:08
Container ID: 1181140003-A

Prep Batch: VXX32051
Prep Method: SW5030B
Prep Date/Time: 03/26/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:41AM



Results of VOC Trip Blank

Client Sample ID: **VOC Trip Blank**
 Client Project ID: **Bus Barn**
 Lab Sample ID: 1181140004
 Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
 Received Date: 03/23/18 11:45
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|-----------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| 1,1,1,2-Tetrachloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| 1,1,1-Trichloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,1,2,2-Tetrachloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| 1,1,2-Trichloroethane | 0.400 U | 0.400 | 0.120 | ug/L | 1 | | 03/23/18 16:51 |
| 1,1-Dichloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,1-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,1-Dichloropropene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2,3-Trichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2,3-Trichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2,4-Trichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2,4-Trimethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2-Dibromo-3-chloropropane | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2-Dibromoethane | 0.0750 U | 0.0750 | 0.0180 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2-Dichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2-Dichloroethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| 1,2-Dichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,3,5-Trimethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,3-Dichlorobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 1,3-Dichloropropane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| 1,4-Dichlorobenzene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| 2,2-Dichloropropane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 2-Butanone (MEK) | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 16:51 |
| 2-Chlorotoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 2-Hexanone | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 16:51 |
| 4-Chlorotoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 4-Isopropyltoluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| 4-Methyl-2-pentanone (MIBK) | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 16:51 |
| Benzene | 0.400 U | 0.400 | 0.120 | ug/L | 1 | | 03/23/18 16:51 |
| Bromobenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Bromochloromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Bromodichloromethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| Bromoform | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Bromomethane | 5.00 U | 5.00 | 1.50 | ug/L | 1 | | 03/23/18 16:51 |
| Carbon disulfide | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 16:51 |
| Carbon tetrachloride | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Chlorobenzene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| Chloroethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |

Print Date: 03/28/2018 8:47:41AM



Results of VOC Trip Blank

Client Sample ID: **VOC Trip Blank**
 Client Project ID: **Bus Barn**
 Lab Sample ID: 1181140004
 Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
 Received Date: 03/23/18 11:45
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

| <u>Parameter</u> | <u>Result Qual</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> | <u>DF</u> | <u>Allowable Limits</u> | <u>Date Analyzed</u> |
|------------------------------|--------------------|---------------|-----------|--------------|-----------|-------------------------|----------------------|
| Chloroform | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Chloromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| cis-1,2-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| cis-1,3-Dichloropropene | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| Dibromochloromethane | 0.500 U | 0.500 | 0.150 | ug/L | 1 | | 03/23/18 16:51 |
| Dibromomethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Dichlorodifluoromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Ethylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Freon-113 | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 16:51 |
| Hexachlorobutadiene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Isopropylbenzene (Cumene) | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Methylene chloride | 5.00 U | 5.00 | 1.00 | ug/L | 1 | | 03/23/18 16:51 |
| Methyl-t-butyl ether | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 16:51 |
| Naphthalene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| n-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| n-Propylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| o-Xylene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| P & M -Xylene | 2.00 U | 2.00 | 0.620 | ug/L | 1 | | 03/23/18 16:51 |
| sec-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Styrene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| tert-Butylbenzene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Tetrachloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Toluene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| trans-1,2-Dichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| trans-1,3-Dichloropropene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Trichloroethene | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Trichlorofluoromethane | 1.00 U | 1.00 | 0.310 | ug/L | 1 | | 03/23/18 16:51 |
| Vinyl acetate | 10.0 U | 10.0 | 3.10 | ug/L | 1 | | 03/23/18 16:51 |
| Vinyl chloride | 0.150 U | 0.150 | 0.0500 | ug/L | 1 | | 03/23/18 16:51 |
| Xylenes (total) | 3.00 U | 3.00 | 1.00 | ug/L | 1 | | 03/23/18 16:51 |
| Surrogates | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 102 | 81-118 | | % | 1 | | 03/23/18 16:51 |
| 4-Bromofluorobenzene (surr) | 103 | 85-114 | | % | 1 | | 03/23/18 16:51 |
| Toluene-d8 (surr) | 100 | 89-112 | | % | 1 | | 03/23/18 16:51 |

Print Date: 03/28/2018 8:47:41AM

Results of VOC Trip Blank

Client Sample ID: **VOC Trip Blank**
Client Project ID: **Bus Barn**
Lab Sample ID: 1181140004
Lab Project ID: 1181140

Collection Date: 03/22/18 16:00
Received Date: 03/23/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS17671
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 03/23/18 16:51
Container ID: 1181140004-A

Prep Batch: VXX32045
Prep Method: SW5030B
Prep Date/Time: 03/23/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:41AM



Method Blank

Blank ID: MB for HBN 1777722 [VXX/32045]

Blank Lab ID: 1438623

QC for Samples:

1181140001, 1181140002, 1181140004

Matrix: Water (Surface, Eff., Ground)

Results by SW8260C

| <u>Parameter</u> | <u>Results</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> |
|-----------------------------|----------------|---------------|-----------|--------------|
| 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 | 0.200U | 0.400 | 0.120 | 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 | 0.0375U | 0.0750 | 0.0180 | 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 | 2.50U | 5.00 | 1.50 | 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 | 0.310 | ug/L |

Print Date: 03/28/2018 8:47:43AM



Method Blank

Blank ID: MB for HBN 177722 [VXX/32045]

Matrix: Water (Surface, Eff., Ground)

Blank Lab ID: 1438623

QC for Samples:

1181140001, 1181140002, 1181140004

Results by SW8260C

| <u>Parameter</u> | <u>Results</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> |
|------------------------------|----------------|---------------|-----------|--------------|
| 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 | 0.500U | 1.00 | 0.310 | 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 | 0.0750U | 0.150 | 0.0500 | ug/L |
| Xylenes (total) | 1.50U | 3.00 | 1.00 | ug/L |
| Surrogates | | | | |
| 1,2-Dichloroethane-D4 (surr) | 103 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 104 | 85-114 | | % |
| Toluene-d8 (surr) | 97.4 | 89-112 | | % |

Print Date: 03/28/2018 8:47:43AM



Method Blank

Blank ID: MB for HBN 177722 [VXX/32045]
Blank Lab ID: 1438623

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1181140001, 1181140002, 1181140004

Results by SW8260C

| <u>Parameter</u> | <u>Results</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> |
|------------------|----------------|---------------|-----------|--------------|
|------------------|----------------|---------------|-----------|--------------|

Batch Information

Analytical Batch: VMS17671
Analytical Method: SW8260C
Instrument: VSA Agilent GC/MS 7890B/5977A
Analyst: FDR
Analytical Date/Time: 3/23/2018 3:13:00PM

Prep Batch: VXX32045
Prep Method: SW5030B
Prep Date/Time: 3/23/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:43AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1181140 [VXX32045]
 Blank Spike Lab ID: 1438624
 Date Analyzed: 03/23/2018 15:30

Spike Duplicate ID: LCSD for HBN 1181140 [VXX32045]
 Spike Duplicate Lab ID: 1438625
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1181140001, 1181140002, 1181140004

Results by SW8260C

| Parameter | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | CL | RPD (%) | RPD CL |
|-----------------------------|--------------------|--------|---------|------------------------|--------|---------|------------|---------|---------|
| | Spike | Result | Rec (%) | Spike | Result | Rec (%) | | | |
| 1,1,1,2-Tetrachloroethane | 30 | 32.5 | 108 | 30 | 32.6 | 109 | (78-124) | 0.28 | (< 20) |
| 1,1,1-Trichloroethane | 30 | 29.9 | 100 | 30 | 29.8 | 100 | (74-131) | 0.03 | (< 20) |
| 1,1,2,2-Tetrachloroethane | 30 | 32.6 | 109 | 30 | 32.3 | 108 | (71-121) | 0.77 | (< 20) |
| 1,1,2-Trichloroethane | 30 | 33.1 | 110 | 30 | 32.9 | 110 | (80-119) | 0.55 | (< 20) |
| 1,1-Dichloroethane | 30 | 29.4 | 98 | 30 | 29.5 | 98 | (77-125) | 0.14 | (< 20) |
| 1,1-Dichloroethene | 30 | 28.7 | 96 | 30 | 28.7 | 96 | (71-131) | 0.10 | (< 20) |
| 1,1-Dichloropropene | 30 | 31.9 | 106 | 30 | 31.6 | 105 | (79-125) | 0.91 | (< 20) |
| 1,2,3-Trichlorobenzene | 30 | 30.3 | 101 | 30 | 30.2 | 101 | (69-129) | 0.46 | (< 20) |
| 1,2,3-Trichloropropane | 30 | 30.1 | 100 | 30 | 29.4 | 98 | (73-122) | 2.10 | (< 20) |
| 1,2,4-Trichlorobenzene | 30 | 30.6 | 102 | 30 | 30.3 | 101 | (69-130) | 0.99 | (< 20) |
| 1,2,4-Trimethylbenzene | 30 | 31.2 | 104 | 30 | 30.9 | 103 | (79-124) | 1.00 | (< 20) |
| 1,2-Dibromo-3-chloropropane | 30 | 32.4 | 108 | 30 | 31.6 | 105 | (62-128) | 2.40 | (< 20) |
| 1,2-Dibromoethane | 30 | 33.1 | 110 | 30 | 33.6 | 112 | (77-121) | 1.70 | (< 20) |
| 1,2-Dichlorobenzene | 30 | 30.0 | 100 | 30 | 30.0 | 100 | (80-119) | 0.00 | (< 20) |
| 1,2-Dichloroethane | 30 | 28.5 | 95 | 30 | 29.0 | 97 | (73-128) | 1.70 | (< 20) |
| 1,2-Dichloropropane | 30 | 32.1 | 107 | 30 | 32.0 | 107 | (78-122) | 0.37 | (< 20) |
| 1,3,5-Trimethylbenzene | 30 | 31.9 | 106 | 30 | 31.4 | 105 | (75-124) | 1.50 | (< 20) |
| 1,3-Dichlorobenzene | 30 | 31.1 | 104 | 30 | 30.8 | 103 | (80-119) | 0.94 | (< 20) |
| 1,3-Dichloropropane | 30 | 33.6 | 112 | 30 | 34.2 | 114 | (80-119) | 2.00 | (< 20) |
| 1,4-Dichlorobenzene | 30 | 30.6 | 102 | 30 | 30.3 | 101 | (79-118) | 0.85 | (< 20) |
| 2,2-Dichloropropane | 30 | 31.2 | 104 | 30 | 31.5 | 105 | (60-139) | 0.89 | (< 20) |
| 2-Butanone (MEK) | 90 | 91.2 | 101 | 90 | 89.1 | 99 | (56-143) | 2.30 | (< 20) |
| 2-Chlorotoluene | 30 | 32.4 | 108 | 30 | 32.6 | 109 | (79-122) | 0.49 | (< 20) |
| 2-Hexanone | 90 | 98.3 | 109 | 90 | 95.6 | 106 | (57-139) | 2.90 | (< 20) |
| 4-Chlorotoluene | 30 | 31.9 | 106 | 30 | 32.3 | 108 | (78-122) | 1.20 | (< 20) |
| 4-Isopropyltoluene | 30 | 31.3 | 104 | 30 | 31.1 | 104 | (77-127) | 0.51 | (< 20) |
| 4-Methyl-2-pentanone (MIBK) | 90 | 89.8 | 100 | 90 | 86.5 | 96 | (67-130) | 3.70 | (< 20) |
| Benzene | 30 | 31.5 | 105 | 30 | 30.6 | 102 | (79-120) | 2.70 | (< 20) |
| Bromobenzene | 30 | 30.5 | 102 | 30 | 29.9 | 100 | (80-120) | 1.90 | (< 20) |
| Bromochloromethane | 30 | 28.7 | 96 | 30 | 28.7 | 96 | (78-123) | 0.10 | (< 20) |
| Bromodichloromethane | 30 | 30.5 | 102 | 30 | 30.7 | 102 | (79-125) | 0.69 | (< 20) |
| Bromoform | 30 | 30.3 | 101 | 30 | 30.3 | 101 | (66-130) | 0.00 | (< 20) |
| Bromomethane | 30 | 31.9 | 106 | 30 | 32.9 | 110 | (53-141) | 3.10 | (< 20) |
| Carbon disulfide | 45 | 43.2 | 96 | 45 | 43.0 | 96 | (64-133) | 0.51 | (< 20) |

Print Date: 03/28/2018 8:47:45AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1181140 [VXX32045]
 Blank Spike Lab ID: 1438624
 Date Analyzed: 03/23/2018 15:30

Spike Duplicate ID: LCSD for HBN 1181140
 [VXX32045]
 Spike Duplicate Lab ID: 1438625
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1181140001, 1181140002, 1181140004

Results by SW8260C

| Parameter | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | CL | RPD (%) | RPD CL |
|---------------------------|--------------------|--------|---------|------------------------|--------|---------|------------|---------|---------|
| | Spike | Result | Rec (%) | Spike | Result | Rec (%) | | | |
| Carbon tetrachloride | 30 | 30.9 | 103 | 30 | 31.0 | 103 | (72-136) | 0.23 | (< 20) |
| Chlorobenzene | 30 | 30.3 | 101 | 30 | 30.2 | 101 | (82-118) | 0.26 | (< 20) |
| Chloroethane | 30 | 33.0 | 110 | 30 | 32.5 | 108 | (60-138) | 1.60 | (< 20) |
| Chloroform | 30 | 28.9 | 96 | 30 | 29.2 | 97 | (79-124) | 0.96 | (< 20) |
| Chloromethane | 30 | 28.0 | 93 | 30 | 27.9 | 93 | (50-139) | 0.14 | (< 20) |
| cis-1,2-Dichloroethene | 30 | 28.9 | 96 | 30 | 28.7 | 96 | (78-123) | 0.62 | (< 20) |
| cis-1,3-Dichloropropene | 30 | 32.4 | 108 | 30 | 32.3 | 108 | (75-124) | 0.31 | (< 20) |
| Dibromochloromethane | 30 | 32.3 | 108 | 30 | 32.9 | 110 | (74-126) | 1.80 | (< 20) |
| Dibromomethane | 30 | 28.9 | 96 | 30 | 29.1 | 97 | (79-123) | 0.93 | (< 20) |
| Dichlorodifluoromethane | 30 | 27.2 | 91 | 30 | 27.1 | 91 | (32-152) | 0.11 | (< 20) |
| Ethylbenzene | 30 | 31.7 | 106 | 30 | 31.6 | 105 | (79-121) | 0.22 | (< 20) |
| Freon-113 | 45 | 46.6 | 104 | 45 | 46.6 | 104 | (70-136) | 0.06 | (< 20) |
| Hexachlorobutadiene | 30 | 30.1 | 100 | 30 | 30.1 | 100 | (66-134) | 0.00 | (< 20) |
| Isopropylbenzene (Cumene) | 30 | 32.6 | 109 | 30 | 32.9 | 110 | (72-131) | 0.79 | (< 20) |
| Methylene chloride | 30 | 29.2 | 97 | 30 | 29.4 | 98 | (74-124) | 0.58 | (< 20) |
| Methyl-t-butyl ether | 45 | 48.6 | 108 | 45 | 49.4 | 110 | (71-124) | 1.60 | (< 20) |
| Naphthalene | 30 | 32.3 | 108 | 30 | 32.5 | 108 | (61-128) | 0.83 | (< 20) |
| n-Butylbenzene | 30 | 31.5 | 105 | 30 | 31.4 | 105 | (75-128) | 0.32 | (< 20) |
| n-Propylbenzene | 30 | 32.6 | 109 | 30 | 32.8 | 109 | (76-126) | 0.46 | (< 20) |
| o-Xylene | 30 | 31.5 | 105 | 30 | 31.9 | 106 | (78-122) | 1.20 | (< 20) |
| P & M -Xylene | 60 | 64.2 | 107 | 60 | 64.9 | 108 | (80-121) | 1.10 | (< 20) |
| sec-Butylbenzene | 30 | 31.9 | 106 | 30 | 31.8 | 106 | (77-126) | 0.35 | (< 20) |
| Styrene | 30 | 32.2 | 107 | 30 | 32.7 | 109 | (78-123) | 1.50 | (< 20) |
| tert-Butylbenzene | 30 | 32.1 | 107 | 30 | 31.5 | 105 | (78-124) | 1.80 | (< 20) |
| Tetrachloroethene | 30 | 32.8 | 109 | 30 | 32.8 | 109 | (74-129) | 0.03 | (< 20) |
| Toluene | 30 | 30.5 | 102 | 30 | 30.3 | 101 | (80-121) | 0.63 | (< 20) |
| trans-1,2-Dichloroethene | 30 | 29.0 | 97 | 30 | 28.9 | 96 | (75-124) | 0.28 | (< 20) |
| trans-1,3-Dichloropropene | 30 | 33.3 | 111 | 30 | 33.6 | 112 | (73-127) | 0.87 | (< 20) |
| Trichloroethene | 30 | 30.7 | 102 | 30 | 30.7 | 102 | (79-123) | 0.03 | (< 20) |
| Trichlorofluoromethane | 30 | 30.6 | 102 | 30 | 30.5 | 102 | (65-141) | 0.23 | (< 20) |
| Vinyl acetate | 30 | 32.0 | 107 | 30 | 32.7 | 109 | (54-146) | 2.20 | (< 20) |
| Vinyl chloride | 30 | 28.7 | 96 | 30 | 28.4 | 95 | (58-137) | 1.10 | (< 20) |
| Xylenes (total) | 90 | 95.7 | 106 | 90 | 96.8 | 108 | (79-121) | 1.10 | (< 20) |

Print Date: 03/28/2018 8:47:45AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1181140 [VXX32045]
 Blank Spike Lab ID: 1438624
 Date Analyzed: 03/23/2018 15:30

Spike Duplicate ID: LCSD for HBN 1181140 [VXX32045]
 Spike Duplicate Lab ID: 1438625
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1181140001, 1181140002, 1181140004

Results by SW8260C

| Parameter | Blank Spike (%) | | | Spike Duplicate (%) | | | CL | RPD (%) | RPD CL |
|------------------------------|-----------------|--------|---------|---------------------|--------|---------|------------|---------|--------|
| | Spike | Result | Rec (%) | Spike | Result | Rec (%) | | | |
| Surrogates | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 95.6 | 96 | 30 | 96.6 | 97 | (81-118) | 1.00 | |
| 4-Bromofluorobenzene (surr) | 30 | 98.7 | 99 | 30 | 98.7 | 99 | (85-114) | 0.03 | |
| Toluene-d8 (surr) | 30 | 102 | 102 | 30 | 103 | 103 | (89-112) | 0.78 | |

Batch Information

Analytical Batch: **VMS17671**
 Analytical Method: **SW8260C**
 Instrument: **VSA Agilent GC/MS 7890B/5977A**
 Analyst: **FDR**

Prep Batch: **VXX32045**
 Prep Method: **SW5030B**
 Prep Date/Time: **03/23/2018 00:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:45AM



Method Blank

Blank ID: MB for HBN 177787 [VXX/32051]
Blank Lab ID: 1438877

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1181140001, 1181140002, 1181140003

Results by AK101

| <u>Parameter</u> | <u>Results</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> |
|-----------------------------|----------------|---------------|-----------|--------------|
| Gasoline Range Organics | 0.0500U | 0.100 | 0.0310 | mg/L |
| Surrogates | | | | |
| 4-Bromofluorobenzene (surr) | 99 | 50-150 | | % |

Batch Information

Analytical Batch: VFC14077
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: NRO
Analytical Date/Time: 3/26/2018 11:59:00AM

Prep Batch: VXX32051
Prep Method: SW5030B
Prep Date/Time: 3/26/2018 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:46AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1181140 [VXX32051]
 Blank Spike Lab ID: 1438880
 Date Analyzed: 03/27/2018 08:30

Spike Duplicate ID: LCSD for HBN 1181140 [VXX32051]
 Spike Duplicate Lab ID: 1438881
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1181140001, 1181140002, 1181140003

Results by AK101

| Parameter | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | CL | RPD (%) | RPD CL |
|-------------------------|--------------------|--------|---------|------------------------|--------|---------|------------|---------|---------|
| | Spike | Result | Rec (%) | Spike | Result | Rec (%) | | | |
| Gasoline Range Organics | 1.00 | 1.03 | 103 | 1.00 | 1.04 | 104 | (60-120) | 1.10 | (< 20) |

Surrogates

| | | | | | | | | | |
|-----------------------------|--------|------|----|--------|------|----|------------|------|--|
| 4-Bromofluorobenzene (surr) | 0.0500 | 95.4 | 95 | 0.0500 | 95.4 | 95 | (50-150) | 0.04 | |
|-----------------------------|--------|------|----|--------|------|----|------------|------|--|

Batch Information

Analytical Batch: **VFC14077**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890A PID/FID**
 Analyst: **NRO**

Prep Batch: **VXX32051**
 Prep Method: **SW5030B**
 Prep Date/Time: **03/26/2018 06:00**
 Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Print Date: 03/28/2018 8:47:49AM



Method Blank

Blank ID: MB for HBN 1777713 [XXX/39208]
Blank Lab ID: 1438592

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1181140001, 1181140002

Results by 8270D SIM LV (PAH)

| <u>Parameter</u> | <u>Results</u> | <u>LOQ/CL</u> | <u>DL</u> | <u>Units</u> |
|--------------------------------|----------------|---------------|-----------|--------------|
| 1-Methylnaphthalene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| 2-Methylnaphthalene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Acenaphthene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Acenaphthylene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Anthracene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Benzo(a)Anthracene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Benzo[a]pyrene | 0.0100U | 0.0200 | 0.00620 | ug/L |
| Benzo[b]Fluoranthene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Benzo[g,h,i]perylene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Benzo[k]fluoranthene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Chrysene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Dibenzo[a,h]anthracene | 0.0100U | 0.0200 | 0.00620 | ug/L |
| Fluoranthene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Fluorene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Indeno[1,2,3-c,d] pyrene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Naphthalene | 0.0500U | 0.100 | 0.0310 | ug/L |
| Phenanthrene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Pyrene | 0.0250U | 0.0500 | 0.0150 | ug/L |
| Surrogates | | | | |
| 2-Methylnaphthalene-d10 (surr) | 65.5 | 47-106 | | % |
| Fluoranthene-d10 (surr) | 66.9 | 24-116 | | % |

Batch Information

Analytical Batch: XMS10685
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 3/26/2018 6:58:00PM

Prep Batch: XXX39208
Prep Method: SW3520C
Prep Date/Time: 3/26/2018 7:44:49AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 03/28/2018 8:47:51AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1181140 [XXX39208]
 Blank Spike Lab ID: 1438593
 Date Analyzed: 03/26/2018 19:18

Spike Duplicate ID: LCSD for HBN 1181140 [XXX39208]
 Spike Duplicate Lab ID: 1438594
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1181140001, 1181140002

Results by 8270D SIM LV (PAH)

| Parameter | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | CL | RPD (%) | RPD CL |
|--------------------------------|--------------------|--------|---------|------------------------|--------|---------|------------|---------|---------|
| | Spike | Result | Rec (%) | Spike | Result | Rec (%) | | | |
| 1-Methylnaphthalene | 2 | 1.94 | 97 | 2 | 1.78 | 89 | (41-115) | 8.50 | (< 20) |
| 2-Methylnaphthalene | 2 | 1.78 | 89 | 2 | 1.66 | 83 | (39-114) | 7.10 | (< 20) |
| Acenaphthene | 2 | 1.88 | 94 | 2 | 1.71 | 86 | (48-114) | 9.10 | (< 20) |
| Acenaphthylene | 2 | 1.85 | 93 | 2 | 1.71 | 86 | (35-121) | 7.80 | (< 20) |
| Anthracene | 2 | 1.84 | 92 | 2 | 1.74 | 87 | (53-119) | 5.50 | (< 20) |
| Benzo(a)Anthracene | 2 | 1.88 | 94 | 2 | 1.77 | 88 | (59-120) | 6.00 | (< 20) |
| Benzo[a]pyrene | 2 | 1.60 | 80 | 2 | 1.59 | 79 | (53-120) | 0.71 | (< 20) |
| Benzo[b]Fluoranthene | 2 | 1.82 | 91 | 2 | 1.71 | 86 | (53-126) | 6.40 | (< 20) |
| Benzo[g,h,i]perylene | 2 | 1.65 | 83 | 2 | 1.53 | 76 | (44-128) | 7.70 | (< 20) |
| Benzo[k]fluoranthene | 2 | 1.85 | 93 | 2 | 1.75 | 88 | (54-125) | 5.50 | (< 20) |
| Chrysene | 2 | 1.94 | 97 | 2 | 1.83 | 91 | (57-120) | 5.80 | (< 20) |
| Dibenzo[a,h]anthracene | 2 | 1.50 | 75 | 2 | 1.37 | 68 | (44-131) | 9.20 | (< 20) |
| Fluoranthene | 2 | 1.96 | 98 | 2 | 1.83 | 91 | (58-120) | 7.00 | (< 20) |
| Fluorene | 2 | 1.87 | 94 | 2 | 1.75 | 87 | (50-118) | 7.00 | (< 20) |
| Indeno[1,2,3-c,d] pyrene | 2 | 1.68 | 84 | 2 | 1.59 | 79 | (48-130) | 5.50 | (< 20) |
| Naphthalene | 2 | 1.91 | 95 | 2 | 1.74 | 87 | (43-114) | 9.40 | (< 20) |
| Phenanthrene | 2 | 1.82 | 91 | 2 | 1.71 | 85 | (53-115) | 6.10 | (< 20) |
| Pyrene | 2 | 2.00 | 100 | 2 | 1.86 | 93 | (53-121) | 7.60 | (< 20) |
| Surrogates | | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 2 | 73.8 | 74 | 2 | 66.7 | 67 | (47-106) | 10.20 | |
| Fluoranthene-d10 (surr) | 2 | 74 | 74 | 2 | 69.6 | 70 | (24-116) | 6.20 | |

Batch Information

Analytical Batch: XMS10685
 Analytical Method: 8270D SIM LV (PAH)
 Instrument: SVA Agilent 780/5975 GC/MS
 Analyst: DSD

Prep Batch: XXX39208
 Prep Method: SW3520C
 Prep Date/Time: 03/26/2018 07:44
 Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 03/28/2018 8:47:53AM



e-Sample Receipt Form

SGS Workorder #:

1181140



1 1 8 1 1 4 0

| Review Criteria | Condition (Yes, No, N/A) | Exceptions Noted below |
|--|---|--|
| Chain of Custody / Temperature Requirements | | <input checked="" type="checkbox"/> Exemption permitted if sampler hand carries/delivers. |
| Were Custody Seals intact? Note # & location | <input type="checkbox"/> n/a | hand-delivered |
| COC accompanied samples? | <input checked="" type="checkbox"/> yes | |
| <input type="checkbox"/> n/a **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required | | |
| Temperature blank compliant* (i.e., 0-6 °C after CF)? | <input checked="" type="checkbox"/> yes | Cooler ID: 1 @ 3.2 °C Therm. ID: D42 |
| | <input type="checkbox"/> n/a | Cooler ID: @ °C Therm. ID: |
| | <input type="checkbox"/> n/a | Cooler ID: @ °C Therm. ID: |
| | <input type="checkbox"/> n/a | Cooler ID: @ °C Therm. ID: |
| | <input type="checkbox"/> n/a | Cooler ID: @ °C Therm. ID: |
| *If >6°C, were samples collected <8 hours ago? | <input type="checkbox"/> n/a | |
| If <0°C, were sample containers ice free? | <input type="checkbox"/> n/a | |
| If samples received <u>without</u> 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". | | |
| Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed. | | |
| Holding Time / Documentation / Sample Condition Requirements | | Note: Refer to form F-083 "Sample Guide" for specific holding times. |
| Were samples received within holding time? | <input checked="" type="checkbox"/> yes | |
| Do samples match COC** (i.e., sample IDs, dates/times collected)? | <input checked="" type="checkbox"/> yes | |
| **Note: If times differ <1hr, record details & login per COC. | | |
| Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis) | <input checked="" type="checkbox"/> yes | |
| Were proper containers (type/mass/volume/preservative***) used? | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> n/a ***Exemption permitted for metals (e.g.200.8/6020A). |
| Volatile / LL-Hg Requirements | | |
| Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? | <input checked="" type="checkbox"/> yes | Sample 3A-3C and 4B-4C all contained large bubbles. (Sample 4C was also damaged in receiving). |
| Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)? | <input type="checkbox"/> no | |
| Were all soil VOAs field extracted with MeOH+BFB? | <input type="checkbox"/> n/a | |
| Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality. | | |
| Additional notes (if applicable): | | |
| | | |



Sample Containers and Preservatives

| <u>Container Id</u> | <u>Preservative</u> | <u>Container Condition</u> | <u>Container Id</u> | <u>Preservative</u> | <u>Container Condition</u> |
|---------------------|--------------------------|----------------------------|---------------------|---------------------|----------------------------|
| 1181140001-A | HCL to pH < 2 | OK | | | |
| 1181140001-B | HCL to pH < 2 | OK | | | |
| 1181140001-C | HCL to pH < 2 | OK | | | |
| 1181140001-D | HCL to pH < 2 | OK | | | |
| 1181140001-E | HCL to pH < 2 | OK | | | |
| 1181140001-F | HCL to pH < 2 | OK | | | |
| 1181140001-G | No Preservative Required | OK | | | |
| 1181140001-H | No Preservative Required | OK | | | |
| 1181140002-A | HCL to pH < 2 | OK | | | |
| 1181140002-B | HCL to pH < 2 | OK | | | |
| 1181140002-C | HCL to pH < 2 | OK | | | |
| 1181140002-D | HCL to pH < 2 | OK | | | |
| 1181140002-E | HCL to pH < 2 | OK | | | |
| 1181140002-F | HCL to pH < 2 | OK | | | |
| 1181140002-G | No Preservative Required | OK | | | |
| 1181140002-H | No Preservative Required | OK | | | |
| 1181140003-A | HCL to pH < 2 | BU | | | |
| 1181140003-B | HCL to pH < 2 | BU | | | |
| 1181140003-C | HCL to pH < 2 | BU | | | |
| 1181140004-A | HCL to pH < 2 | OK | | | |
| 1181140004-B | HCL to pH < 2 | BU | | | |
| 1181140004-C | HCL to pH < 2 | DM | | | |

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.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

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.

APPENDIX D
LABORATORY DATA REVIEW CHECKLIST

Laboratory Data Review Checklist

Completed By:

Evan Tyler

Title:

Environmental Engineer

Date:

April 23, 2018

CS Report Name:

GROUNDWATER MONITORING REPORT (MARCH 2018)

Report Date:

June 2018

Consultant Firm:

BGES, Inc.

Laboratory Name:

SGS North America Inc.

Laboratory Report Number:

1181140

ADEC File Number:

2100.26.463

Hazard Identification Number:

23848

1. Laboratory

- a. Did an ADEC CS approved laboratory receive and
- perform
- all of the submitted sample analyses?

 Yes No

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

Comments:

2. Chain of Custody (CoC)

- a. CoC information completed, signed, and dated (including released/received by)?

 Yes No

Comments:

- b. Correct Analyses requested?

 Yes No

Comments:

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

 Yes No

Comments:

- b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

 Yes No

Comments:

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

Yes No

Comments:

Three of the vials (Samples 3A-3C), which were prepared by the laboratory and designated as the GRO trip blank, contained large bubbles (greater than 6 millimeters in diameter) according to the sample receipt form. The presence of headspace indicates a potential for the detected GRO concentration to be biased low, as a result of volatilization into the headspace; however, GRO was not detected at the LOQ in either of the project samples. Additionally, the LOQ for GRO was more than one order of magnitude less than the ADEC cleanup criterion. For these reasons, it is our opinion that this QC failure does not affect the usability of the data.

Two of the vials (Samples 4B and 4C), which were prepared by the laboratory and designated as the VOC trip blank, also contained large bubbles (greater than 6 millimeters in diameter), and Sample 4C was damaged in receiving according to the sample receipt form. Sample 4A, however, was in good condition with no bubbles, and was analyzed for VOCs. No VOCs were detected in the trip blank or either of the project samples. For this reason, it is our opinion that this QC failure does not affect the usability of the data.

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

Comments:

No irregularities or abnormalities with respect to sample containers were reported.

e. Data quality or usability affected?

Comments:

Not applicable.

4. Case Narrative

a. Present and understandable?

Yes No

Comments:

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

Yes No

Comments:

c. Were all corrective actions documented?

Yes No

Comments:

No corrective actions were identified in case narrative.

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

Comments:

No data QC issues were identified for this work order.

5. Samples Results

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

Yes No

Comments:

b. All applicable holding times met?

Yes No

Comments:

c. All soils reported on a dry weight basis?

Yes No

Comments:

Not applicable because no soil samples were submitted with this work order.

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

Yes No

Comments:

The LOQ for 1,2,3-trichloropropane exceeded the applicable ADEC cleanup criterion in both water samples associated with this work order (shown in italics in Table 2). In this instance, where the analyte was not detected above the LOQ, it cannot be determined if the actual concentrations of this analyte exceed the applicable ADEC cleanup criterion.

e. Data quality or usability affected?

Yes No

Comments:

See 5d above.

6. QC Samples

a. Method Blank

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

Yes No

Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

Yes No

Comments:

iii. If above LOQ, what samples are affected?

Comments:

Not applicable.

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

Yes No

Comments:

Not applicable.

v. Data quality or usability affected?

Comments:

Not applicable.

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

Comments:

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

Yes No

Comments:

Metals analyses were not a part of this work order.

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

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

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

Comments:

There were no data QC issues with the LCS/LCSD samples in this work order.

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

Comments:

Not applicable.

c. Surrogates – Organics Only

- i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

Yes No

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

Comments:

- iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No

Comments:

There were no failed surrogate recoveries in this work order.

- iv. Data quality or usability affected?

Comments:

Not applicable.

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

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

Comments:

Only one cooler was used for storing and transporting the water samples collected and delivered to the laboratory.

- iii. All results less than LOQ?

Yes No

Comments:

- iv. If above LOQ, what samples are affected?

Comments:

Not applicable.

- v. Data quality or usability affected?

Comments:

Not applicable.

e. Field Duplicate

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

Yes No

Comments:

- ii. Submitted blind to lab?

Yes No

Comments:

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

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

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

Yes No

Comments:

Sample BGESMW2-0322 was a duplicate of Water Sample BGESMW1-0322 and was collected to evaluate field sampling precision. The relative percent differences (RPD) for tetrachloroethene and trichloroethene were 8 and 9 percent, respectively; which are below the acceptable limit of 30 percent for water samples; which indicates a good measure of field sampling precision.

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

Comments:

Because there was a good indication of sampling precision, there is no effect on data quality or usability.

- f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below).

Yes No Not Applicable

The collection and analysis of a decontamination or equipment blank was not part of the approved scope of this project.

- i. All results less than LOQ?

Yes No

Comments:

Not applicable.

- ii. If above LOQ, what samples are affected?

Comments:

Not applicable.

- iii. Data quality or usability affected?

Comments:

Not applicable.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

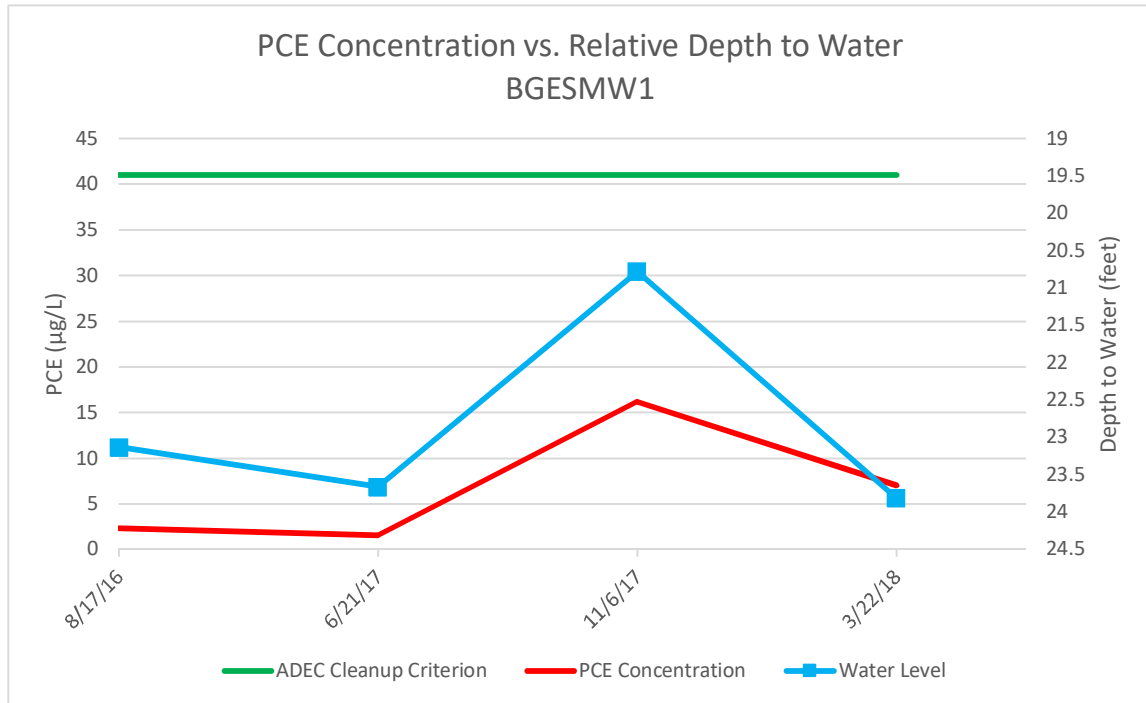
Yes No

Comments:

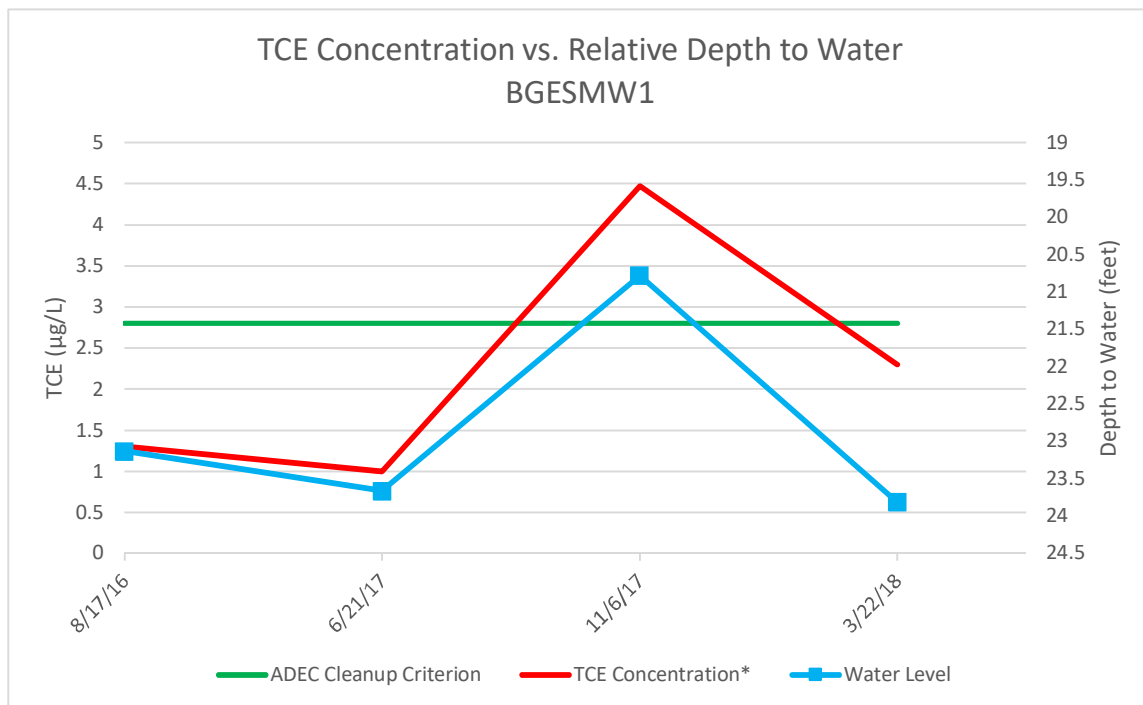
No other data flags are appropriate for this sampling event.

APPENDIX E
GRAPHS OF PCE AND TCE TRENDS

GRAPH 1
10560 OLD SEWARD HIGHWAY
ANCHORAGE, ALASKA
HISTORICAL GROUNDWATER LEVELS AND PCE CONCENTRATIONS
MONITORING WELL BGESMW1 (AUGUST 2016 - MARCH 2018)



GRAPH 2
10560 OLD SEWARD HIGHWAY
ANCHORAGE, ALASKA
HISTORICAL GROUNDWATER LEVELS AND TCE CONCENTRATIONS
MONITORING WELL BGESMW1 (AUGUST 2016 - MARCH 2018)



* TCE was not detected above the laboratory's limit of quantitation (LOQ) during the 6/21/17 sampling event. For this reason, the LOQ of 1.00 microgram per liter (µg/L) is recorded for the TCE concentration on Graph 2.