BGES, INC.

ENVIRONMENTAL CONSULTANTS

ALASKA SALES & SERVICE
1300 EAST 5TH AVENUE
ANCHORAGE, ALASKA

2017 & 2018 FREE PRODUCT MONITORING AND GROUNDWATER MONITORING REPORT

November 2018

Submitted to:

Diana Pfeiffer
Alaska Sales & Service Inc.

Submitted by:

BGES, INC.
1042 East 6th Avenue
Anchorage, Alaska 99501
Ph: (907) 644-2900
Fax: (907) 644-2901
WWW.BGESINC.COM

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ACRONYMS

AAC	-	Alaska Administrative Code
ADEC	-	Alaska Department of Environmental Conservation
AK	-	Alaska
AKS&S	-	Alaska Sales & Service
BGES	-	Braunstein Geological and Environmental Services
C	-	Celsius
DRO	-	Diesel Range Organics
GRO	-	Gasoline Range Organics
LOQ	-	Limit of Quantitation
LUST	-	Leaking Underground Storage Tank
mg/Kg	-	Milligrams per Kilogram
µg/L	-	Micrograms per Liter
PCE	-	Tetrachloroethene
QC	-	Quality Control
QEP	-	Qualified Environmental Professional
RPD	-	Relative Percent Difference
RRO	-	Residual Range Organics
SGS	-	SGS North America, Inc.
TCE	-	Trichloroethene
USTs	-	Underground Storage Tanks
VOCs	-	Volatile Organic Compounds

1.0 INTRODUCTION

BGES, Inc. (BGES) was retained by Diana Pfeiffer of Alaska Sales & Service Inc., (AKS&S) to monitor for the presence of free product in all monitoring wells on site, address the former presence of free product in Monitoring Well MW4 utilizing a Well Boom, and perform groundwater sampling of Monitoring Well MW4 at the AKS&S Showroom Facility, located at 1300 East 5th Avenue in Anchorage, Alaska (Figure 1). Groundwater monitoring has been ongoing at this site since the removal of five underground storage tanks (USTs) in 1990. At the time of tank removals, the site was listed by the Alaska Department of Environmental Conservation (ADEC) as an "active" leaking underground storage tank (LUST) site. The site is currently listed as an "active" contaminated site by the ADEC (File Number 2100.26.227 and Hazard Identification Number 23886).

2.0 SITE BACKGROUND

In 1990, four gasoline USTs and one used oil UST were excavated and removed from the property. Approximately 60 cubic yards of impacted soils were also excavated and transported offsite for disposal. During the excavation activities, lead-impacted soils were discovered in association with a 1,500-gallon used oil tank (Tank 5) previously located south of, and adjacent to the property's main structure; these soils were excavated and transported to an out-of-state permitted hazardous waste disposal facility. Additional impacted soils in the vicinity of Tank 5 were left in place because of their proximity to the southern face of the structure located on the property.

Previous site reports have indicated that the excavation of Tank 5 extended to approximately 15 feet below grade, and that no confirmation soil samples were collected because soil contamination was observed throughout the excavation. In 1991, during the advancement of a soil boring completed as Monitoring Well MW4 in the vicinity of Tank 5, soil samples exhibited concentrations of lead, total petroleum hydrocarbons, tetrachloroethene (PCE), 1,1,1-trichloroethane, and benzene at 2,380 milligrams per kilogram (mg/Kg), 27,800 mg/Kg, 483 mg/Kg, 161 mg/Kg, and 104 mg/Kg, respectively; all of which exceeded the applicable ADEC cleanup criteria. That same year, three additional soil borings were completed as monitoring wells on the property to evaluate the lateral extent of the groundwater contamination at the site. Monitoring Well MW2 was placed east of, and adjacent to, the property's main structure; Monitoring Well MW3 was placed west of, and adjacent to the property's main structure; and Monitoring Well MW1 was placed south of the structure's southeastern corner (Figure 2).

Subsequent groundwater monitoring events performed at the site have shown MW4 to be the only monitoring

well in which groundwater samples have exhibited concentrations of contaminants that have exceeded ADEC cleanup criteria; with the exception of a concentration of chloroform that exceeded the ADEC cleanup criterion detected in a water sample collected from Monitoring Well MW3 in 2003. The report issued for the 2003 groundwater monitoring event states that the concentration of chloroform detected in the water sample collected from Monitoring Well MW3 was caused by biogenic interference, or a naturally occurring compound in such low levels that the concentration detected was of no concern.

The contaminant concentrations for groundwater samples collected from Monitoring Well MW4 have fluctuated since 1991. During the March 2003 groundwater monitoring event, Monitoring Well MW4 was found to contain approximately 0.55 foot of free product. After removing free product using a bailer, groundwater samples were collected. These samples exhibited concentrations of gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), toluene, ethylbenzene, and total xylene(s); all of which had increased from the previous sampling event. Concentrations of GRO, DRO, RRO, benzene, and toluene exceeded the ADEC cleanup criteria.

During the groundwater monitoring event performed on February 23, 2010, Monitoring Well MW4 was found to contain approximately 0.50 foot of free product; therefore, a groundwater sample was not collected from Monitoring Well MW4. The groundwater samples collected from Monitoring Wells MW2 and MW3 did not exhibit any contaminant concentrations in excess of ADEC cleanup criteria.

Groundwater samples were collected from Monitoring Well MW2 on September 5, 2014 utilizing both a no-purge sampling methodology and a low-flow sampling methodology. Monitoring Well MW4 was found to contain approximately 0.13 foot of free product; therefore, a groundwater sample was not collected from Monitoring Well MW4. The groundwater samples from Monitoring Well MW2, collected utilizing both sampling methodologies described above, did not exhibit any detectible contaminant concentrations.

Groundwater samples were collected from Monitoring Wells MW2 and MW4 on December 14, 2015. The samples were analyzed for GRO, DRO, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons, and total lead. The groundwater samples from Monitoring Well MW2 did not exhibit any detectible contaminant concentrations. The groundwater sample from Monitoring Well MW4 exhibited a concentration of trichloroethene (TCE) of 6.52 micrograms per liter (µg/L), which exceeded the ADEC cleanup criterion for this analyte.

Monitoring Wells MW1 through MW4 were evaluated for the presence of free product on July 13, 2016. Only

Monitoring Well MW4 exhibited free product, which was measured at 0.01 foot. The Well Boom in Monitoring Well MW4 was replaced with a new one at that time, and Monitoring Well MW4 did not exhibit measurable amounts of free product for the two successive monitoring events. Groundwater samples were collected from Monitoring Well MW4 on September 22, 2016 to evaluate the potential presence of dissolved-phase contamination. Groundwater Sample MW4 and its duplicate Sample MW5 exhibited concentrations of TCE up to 2.97 µg/L (greatest concentration is presented), which exceeds the applicable ADEC cleanup criterion for this analyte of 2.8 µg/L.

Most recently, BGES conducted semi-annual free product monitoring from Monitoring Wells MW1 through MW4, and groundwater sampling from Monitoring Well MW4 on August 25, 2017; and February 19, 2018. The results of these sampling events are the subject of this report. Graphs showing historical trends of 1,2,4-trimethylbenzene, DRO, TCE, RRO, and naphthalene concentrations within Monitoring Well MW4 are included in Appendix A

Free Product Remediation. Between June 10, 2010 to August 19, 2010 approximately 6.3 ounces of product were recovered from Monitoring Well MW4 by employees of AKS&S, utilizing an oleophilic absorbent pad, which was placed within the uppermost portion of the water column. During these activities, the thickness of the free product was reduced to immeasurable levels; however, trace amounts of product were observed coating portions of the tape and electronic interface probe that were lowered into Monitoring Well MW4.

Numerous attempts were made to recover free product between September 5, 2014 and December 12, 2014 from Monitoring Well MW4 after it was noted that it had returned to measurable levels following the 2010 recovery efforts. Several methodologies, including bailers and passive free product recovery systems, were utilized in these attempts, all of which were either unsuccessful or inefficient. Because free product had been observed intermittently in Monitoring Well MW4 since 2003, and it returned after the 2010 free product recovery efforts, were not successful, a Well Boom containing petroleum remediation powder was deployed on August 21, 2015. The Well Boom contains an oleophilic (attracts oils) and hydrophobic (repels water) nutrient base which absorbs the free product within Monitoring Well MW4 as well as releases nutrients to support bioremediation of free product and the dissolved-phase contamination within groundwater, in Monitoring Well MW4. Free product was reduced from 0.05 foot on August 21, 2015 to unmeasurable levels (less than 0.01 foot) as measured using an electronic interface probe by November 9, 2015. As mentioned above, a groundwater sample was collected from Monitoring Well MW4 in December of 2015. The Well Boom was removed from Monitoring Well MW4 one week prior to collection of the groundwater samples, and reinstalled

after the sampling event.

Vapor Intrusion Evaluation. A building survey was completed by BGES personnel on September 5, 2014 to identify building characteristics, potential vapor entry points into the building, and potential background sources of petroleum. Indoor and outdoor air samples were subsequently collected on September 8, 2014. The results of the building survey were presented in the Revised Work Plan, dated May 21, 2014. No potential vapor entry points were identified in the eastern portion of the building, which is located over the contaminated soil and groundwater plumes located near Monitoring Well MW4. The results of the first round of indoor air sampling indicated that all analytes were either detected below the ADEC target levels for commercial sites, or below the laboratory's reporting limits (which were below the ADEC target levels for commercial sites). Additional indoor air samples were collected during December of 2015 to evaluate the potential for vapor intrusion into the building during frozen ground conditions. All detectable analytes were less than the ADEC prescribed target levels for commercial facilities.

3.0 FIELD ACTIVITIES

All field work was performed by a Qualified Environmental Professional (QEP) as defined by the ADEC; and in accordance with ADEC's Field Sampling Guidance (May 2010 and August 2017). Groundwater monitoring activities were conducted in accordance with the *Revised Work Plan for Groundwater Monitoring and Evaluation of Vapor Intrusion at 1300 East 5th Avenue*, dated July 22, 2014, and with emailed ADEC approval to conduct continued groundwater monitoring, dated July 13, 2017.

Free product monitoring activities were conducted in accordance with a letter from the ADEC dated May 18, 2016, which requested that all monitoring wells on site be evaluated for the presence of free product on a semi-annual basis.

3.1 Free Product Monitoring

The Well Boom in Monitoring Well MW4 was removed from the well one week prior to the free product monitoring events as well as the groundwater sampling events in an effort to limit any potential interference with the measurement of free product and analytical results of the groundwater samples. Each of the four monitoring wells on the subject property were evaluated for the presence of free product with the use of an electronic oil-water interface probe on August 18, 2017, and February 12, 2018. None of the monitoring wells exhibited free product during either of these monitoring events. Upon completion of the groundwater sampling

events described in Section 3.2 below, the Well Boom was replaced within Monitoring Well MW4.

3.2 Groundwater Monitoring

Groundwater samples were collected from Monitoring Well MW4 on August 25, 2017, and February 19, 2018 utilizing a low-flow sampling methodology with a positive-displacement bladder pump. Weather conditions were rainy with an ambient temperature of approximately 55 degrees Fahrenheit on August 25, 2017; and clear with an ambient temperature of approximately 30 degrees Fahrenheit on February 19, 2018. One representative from BGES was onsite to perform the sampling. A copy of the field notes and groundwater monitoring logs are provided in Appendix B.

The depth to water was measured in each of the four monitoring wells on site using an electronic oil-water interface probe in order to evaluate for the presence of free product in all of the monitoring wells. The depth to water measurements were utilized to calculate the groundwater elevations; which were used to determine the groundwater flow direction and to calculate the gradient. The electronic oil-water interface probe was decontaminated prior to use and between monitoring wells by washing the cable and sensor in an Alconox (laboratory-grade) detergent solution, followed by a potable water rinse.

Prior to collecting the groundwater samples, the volume of water in Monitoring Well MW4 was calculated based on the depth to water, the total depth of the well, and the diameter of the well casing. After calculating the well volume, the bladder pump was positioned such that the intake was situated 0.5 foot below the top of the water column. The well was then purged at a rate of approximately 150 milliliters per minute (ml/min) on August 25, 2017 and approximately 400 ml/min on February 19, 2018. Groundwater quality parameters for pH, conductivity, temperature, and oxidation reduction potential were measured every 3 to 5 minutes with the use of a YSI Professional Plus water quality monitor, equipped with a flow-through cell, and these measurements were recorded on the groundwater monitoring logs. The water samples (including a duplicate sample) were collected after the parameters described above showed relative stability (in accordance with ADEC Field Sampling Guidance, published in August of 2017) and with an approximate flow rate of 150 ml/min.

Once the groundwater parameters had stabilized, the flow-through cell was removed from the sampling train for the collection of groundwater samples. Groundwater was then pumped directly into the laboratory-supplied sample jars and the samples scheduled for volatile analyses were collected first. In this case, the water was placed in 40 ml vials such that no headspace was present. Care was exercised to avoid spilling the hydrochloric

acid preservative while filling all containers. The sample containers were labeled, placed in a chilled cooler, and transported to SGS North America, Inc. (SGS), an ADEC-approved laboratory for analysis under chain-of-custody protocol. As a quality control measure, a laboratory-supplied trip blank accompanied the samples scheduled for the volatile analyses through the entirety of the sampling process and delivery to the laboratory. The data gathered during purging of Monitoring Well MW4 is listed in Tables 1 and 2, and a copy of the groundwater monitoring logs are included in Appendix B.

4.0 EVALUATION OF LABORATORY DATA

Laboratory analysis of the groundwater samples was performed by SGS, an ADEC-approved laboratory. The analytical results are summarized in Table 3 and a copy of the laboratory data packages are included in Appendix C. The analytical results were compared to the ADEC Method 2 Cleanup Criteria listed in Alaska Administrative Code (AAC) 75.345—Table C for groundwater, effective September 28, 2018.

The groundwater samples collected from Monitoring Well MW4 were analyzed for GRO by Alaska Method (AK) 101, DRO by AK 102, RRO by AK 103, and VOCs by Environmental Protection Agency (EPA) Method 8260C.

The water samples collected from the site were labeled, for example, MW4-0825, where the prefix "MW4" indicates the monitoring well from which the water sample was collected; and "-0825" indicates the month and day the sample was collected.

4.1 August 2017 Groundwater Samples

A duplicate groundwater sample was collected from MW4, which was labeled as MW5-0825, such that it was submitted "blindly" sample to the laboratory.

Sample MW4 and duplicate Sample MW5 exhibited concentrations of DRO and naphthalene up to 3,380 µg/L and 2.21 µg/L; respectively. These concentrations exceed the applicable ADEC cleanup criteria of 1,500 µg/L, and 1.7 µg/L for these analytes, respectively. RRO was also detected in Sample MW5 at a concentration of 1,110 µg/L, which exceeds the ADEC cleanup criterion of 1,100 µg/L for this analyte. All of the remaining analytes were either detected at concentrations below the applicable ADEC cleanup criteria or were not detected above the laboratory's limits of quantitation (LOQs). All of the LOQs were less than the applicable ADEC cleanup criteria, with the exception of 1,2,3-trichloropropane; therefore, it cannot be determined if the samples contain concentrations of this analyte that exceed the ADEC cleanup criterion.

Monitoring well locations and sample results are shown on Figure 2; the analytical results for the groundwater samples are included in Table 3; and a copy of the laboratory analytical data package is included in Appendix C.

4.2 February 2018 Groundwater Samples

A duplicate groundwater sample was collected from Monitoring Well MW4, which was labeled as MW5-0219, such that it was submitted "blindly" sample to the laboratory.

Sample MW4 exhibited concentrations of DRO and RRO of 1,660 µg/L and 1,150 µg/L; respectively. These concentrations exceed the applicable ADEC cleanup criteria of 1,500 µg/L and 1,100 µg/L, respectively. All of the remaining analytes were either detected at concentrations below the applicable ADEC cleanup criteria or were not detected above the LOQs. All of the LOQs were less than the applicable ADEC cleanup criteria, with the exception of 1,2,3-trichloropropane; therefore, it cannot be determined if the samples contain concentrations of this analyte that exceed the ADEC cleanup criterion.

Monitoring well locations and sample results are shown on Figure 3; the analytical results for the groundwater samples are included in Table 3; and a copy of the laboratory analytical data package is included in Appendix C.

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 each laboratory work order and they are attached in Appendix D. The checklists provide an overview of the quality of the laboratory data. The following are discussions of our evaluation of sample conditions and laboratory procedures.

Groundwater Samples (SGS Work Order 1176061)

The samples were hand-delivered to SGS by BGES personnel under standard chain of custody protocol. The groundwater samples contained the proper preservatives for the requested analyses and no unusual sample conditions were noted by the laboratory. The temperature of the cooler containing the samples was measured at the time of receipt to be 4.2 degrees Celsius (C), which is within the ADEC-prescribed optimal temperature range of 0 to 6 degrees C. A trip blank sample accompanied the samples scheduled for volatile analyses (GRO and VOCs) through the entirety of the sampling process and delivery to the laboratory. A case narrative was

included with the laboratory data. No quality control (QC) failures were noted by SGS within the case narrative for this work order, however BGES identified the following QC failure.

RRO was detected in the Method Blank at an estimated concentration of 178 µg/L, indicating a potential for the reported concentrations of RRO within the groundwater samples to be biased high. For this reason, the reported concentrations of RRO within Samples MW4-0825 and MW5-0825 are flagged with a "J" in Table 3 and should be considered estimates. However, because these samples also exhibited concentrations of DRO and naphthalene that exceed the ADEC cleanup criteria, and because the Method Blank was derived from soils from another project; it is our opinion that this QC failure does not affect the acceptability of the data for their intended use.

The LOQs for 1,2,3-trichloropropane exceeded the applicable ADEC cleanup criterion for Samples MW4-0825 and MW5-0825; as such it cannot be determined if the actual concentrations of this analyte exceed the ADEC cleanup criterion within these samples. Because Samples MW4-0825 and MW5-0825 contained concentrations of three or more analytes that exceeded the ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

Sample MW5-0825 was a duplicate of Sample MW4-0825 and was collected to evaluate sampling precision. The relative percent differences (RPDs) for all analytes that were detected in both samples ranged from 1 to 18 percent, which are below the ADEC prescribed limit of 30 percent for water samples and indicates acceptable field sampling precision. The RPDs between the reported concentrations of several analytes could not be calculated, as they were not detected above the LOQs.

Groundwater Samples (SGS Work Order 1180690)

The samples were hand-delivered to SGS by BGES personnel under standard chain of custody protocol. The groundwater samples contained the proper preservatives for the requested analyses and no unusual sample conditions were noted by the laboratory. The temperature of the cooler containing the samples was measured at the time of receipt to be 2.7 degrees C, which is within the ADEC-prescribed optimal temperature range of 0 to 6 degrees C. A trip blank sample accompanied the samples scheduled for volatile analyses (GRO and VOCs) through the entirety of the sampling process and delivery to the laboratory. A case narrative was included with the laboratory data. No QC failures were noted by SGS within the case narrative for this work order.

The LOQs for 1,2,3-trichloropropane exceeded the applicable ADEC cleanup criterion for Samples MW4-0219 and MW5-0219; as such it cannot be determined if the actual concentrations of this analyte exceed the ADEC

cleanup criterion within these samples. Because Sample MW4-0219 contained concentrations of DRO and RRO that exceeded the ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

Sample MW5-0219 was a duplicate of Sample MW4-0219 and was collected to evaluate sampling precision. The RPDs for 1,1,1-trichloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 4-isopropyltoluene, naphthalene, n-propylbenzene, toluene, and total xylenes ranged from 0 to 7 percent, which are below the ADEC prescribed limit of 30 percent for water samples and indicates acceptable field sampling precision with respect to these analytes. The RPD for DRO was 83 percent, potentially indicating poor field sampling precision. The RPDs between the reported concentrations of several analytes could not be calculated, as they were not detected above the LOQs.

6.0 CONCEPTUAL SITE MODEL

A graphic conceptual site model detailing various potential exposure media, transport mechanisms, exposure pathways, and human receptors for identified contamination at this site was prepared and is included in Appendix E. The media identified at the site to which the contamination may have been directly released are subsurface soils and groundwater. The transport mechanisms through which contamination could have mobilized were identified to be migration to groundwater and volatilization.

Potential exposure pathways through which contamination at this site could impact potential current and/or future human receptors were identified to be incidental ingestion of soil and groundwater; dermal absorption of contaminants through contact with soil and groundwater; inhalation of volatile compounds in tap water; and inhalation of indoor and outdoor air. However, because indoor and outdoor air sampling, as discussed in Section 1 above, has not indicated elevated concentrations of these analytes, it is our opinion that this should not be considered a complete pathway.

Potential current and/or future human receptors for this site were identified to be commercial or industrial workers, site visitors and trespassers, and construction workers.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Monitoring Wells MW1 through MW4 were evaluated for the presence of free product on August 18, 2017 and February 12, 2018. None of the monitoring wells exhibited detectable amounts of free product on those dates. It is noted that free product has historically only been observed in Monitoring Well MW4.

Groundwater flow direction was determined to be towards the north-northeast in August 2017 with a calculated hydraulic gradient of approximately 0.022 foot per linear foot (Figure 2). In February 2018, the groundwater flow direction was north-northeast with a calculated hydraulic gradient of approximately 0.022 foot per linear foot (Figure 3). Groundwater samples were collected from Monitoring Well MW4 on August 25, 2017 and February 19, 2018 to evaluate the potential presence of dissolved-phase contamination. Groundwater Sample MW4-0825 and its duplicate Sample MW5-0825 exhibited concentrations of DRO, RRO, and naphthalene of up to 3,380 µg/L, 1,110 µg/L, and 2.21 µg/L, respectively; which exceed the applicable ADEC cleanup criteria for these analytes of 1,500 µg/L, 1,100 µg/L, and 1.7 µg/L, respectively. Groundwater Sample MW4-0219 exhibited 1,660 µg/L DRO and 1,150 µg/L RRO, which exceed the applicable ADEC cleanup criteria for these analytes.

BGES has collected groundwater samples from Monitoring Well MW4 during four sampling events since 2015. Analytes that have been detected at concentrations exceeding the ADEC cleanup criteria over the past four years include DRO, RRO, 1,2,4-trimethylbenzene, naphthalene, and TCE. On average, the concentrations of DRO and RRO have generally increased over time, while the concentrations of 1,2,4-trimethylbenzene, naphthalene, and TCE have generally decreased over time. These trends are represented on graphs in Appendix A.

We recommend continued use of the well boom for remediation of dissolved-phase petroleum hydrocarbons; continued biannual evaluations of free product; and continued biannual groundwater monitoring of Monitoring Well MW4 for DRO, RRO, and VOCs. We also recommend that a copy of this report be submitted to the ADEC Project Manager.

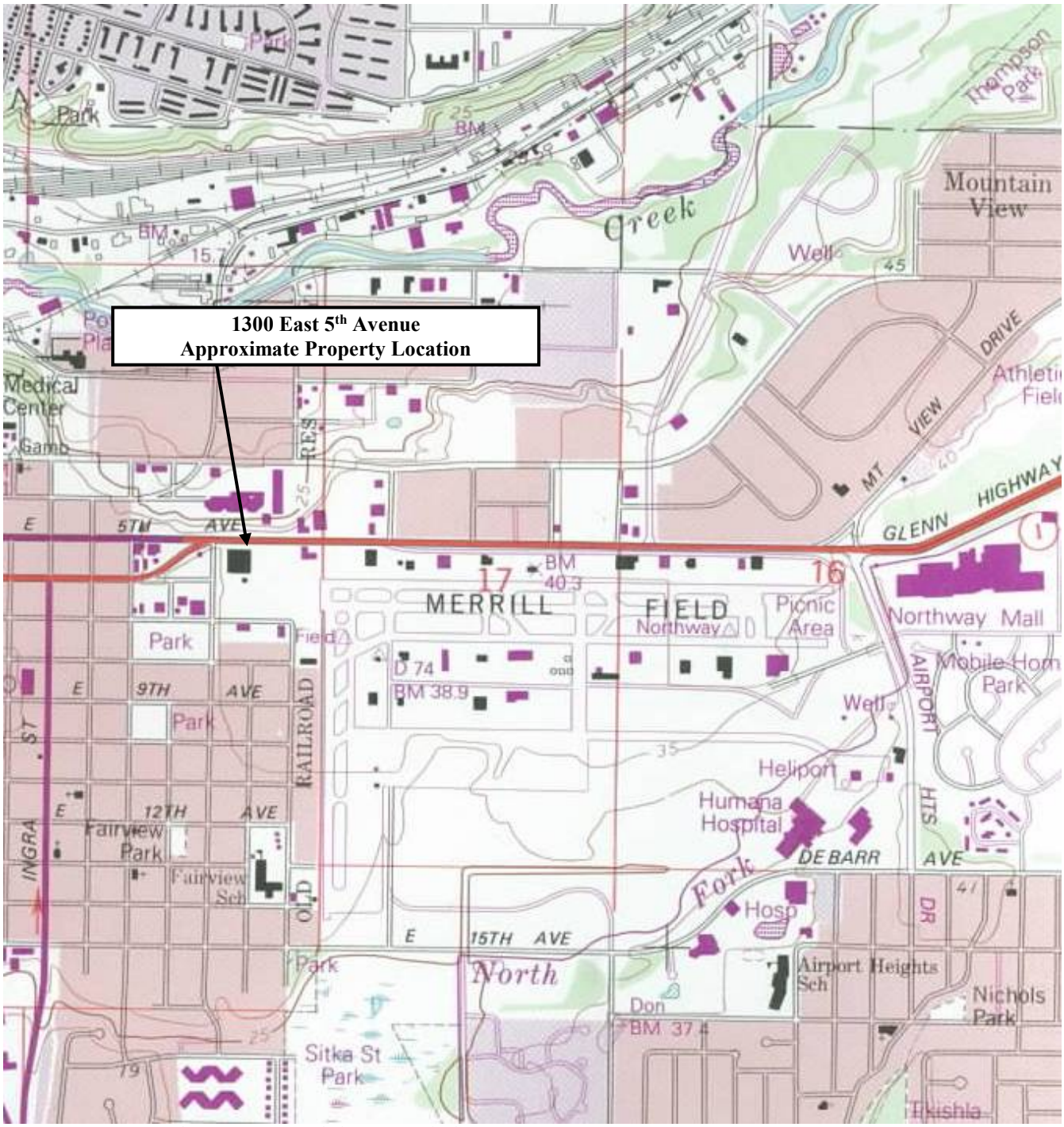
8.0 EXCLUSIONS, CONSIDERATIONS, AND QUALIFICATIONS

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 in the local vicinities of the free product monitoring and groundwater sampling locations. In addition, changes to site conditions may have occurred since we completed 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, and the ADEC, as requested by our client, except as directed by our client, or as required by law.

Kris Shippen, Environmental Scientist II of BGES, is a QEP as defined by the ADEC, and he performed the free product monitoring and groundwater sampling activities. This report was also completed by Mr. Shippen; and was reviewed by Jayne Martin, Senior Environmental Scientist of BGES. Ms. Martin is a QEP and has

more than 25 years of environmental consulting experience. She has conducted and managed hundreds of site characterization and remediation efforts throughout Alaska and the lower 48 states.

Prepared by	Reviewed by:
	
Kris Shippen	Jayne Martin
Environmental Scientist II	Senior Environmental Scientist



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

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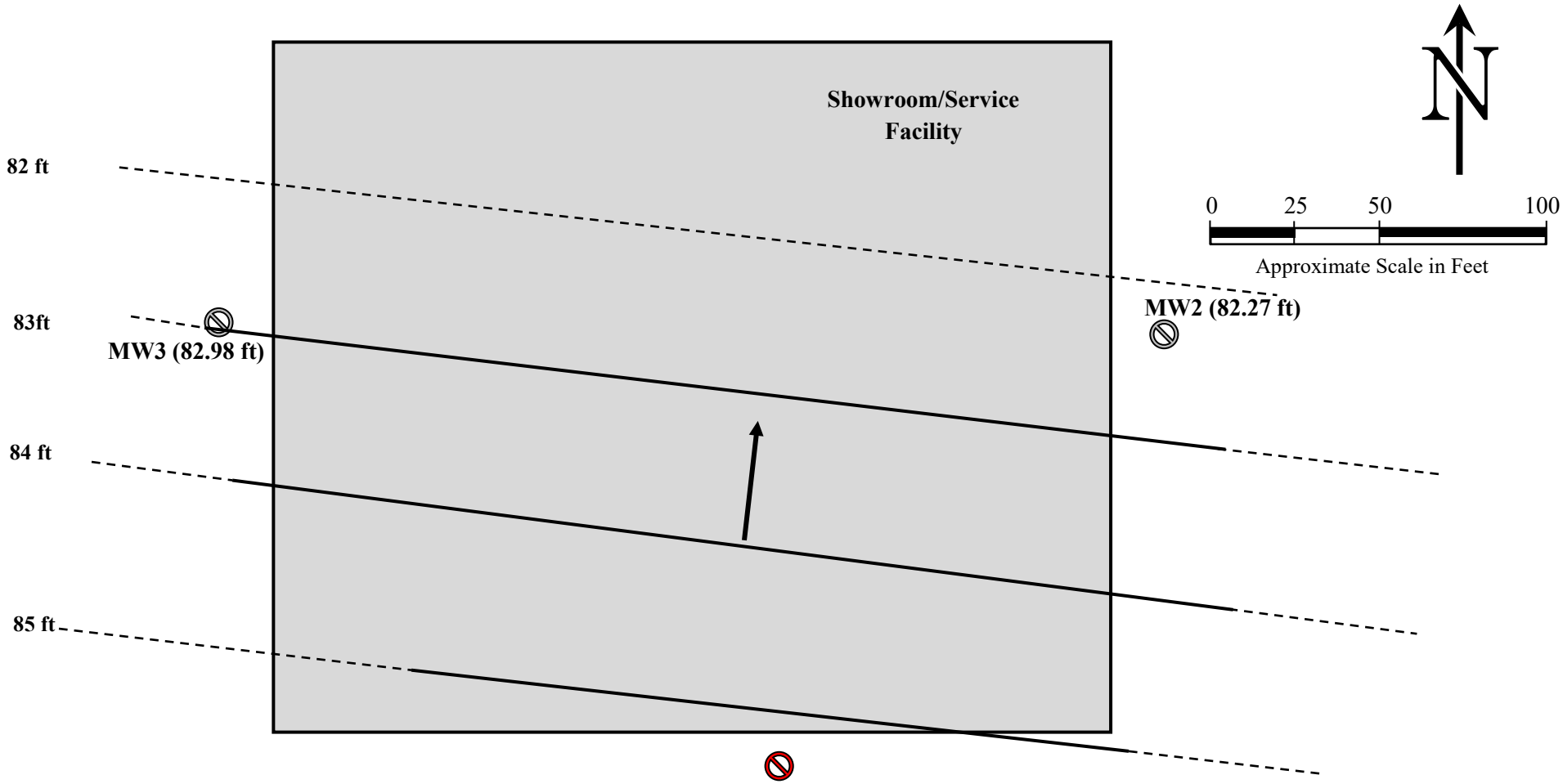
Approximate Scale in Miles

N

1300 East 5th Avenue
Anchorage, Alaska
Site Vicinity Map

BGES, INC.	**November 2018**	**Figure 1**



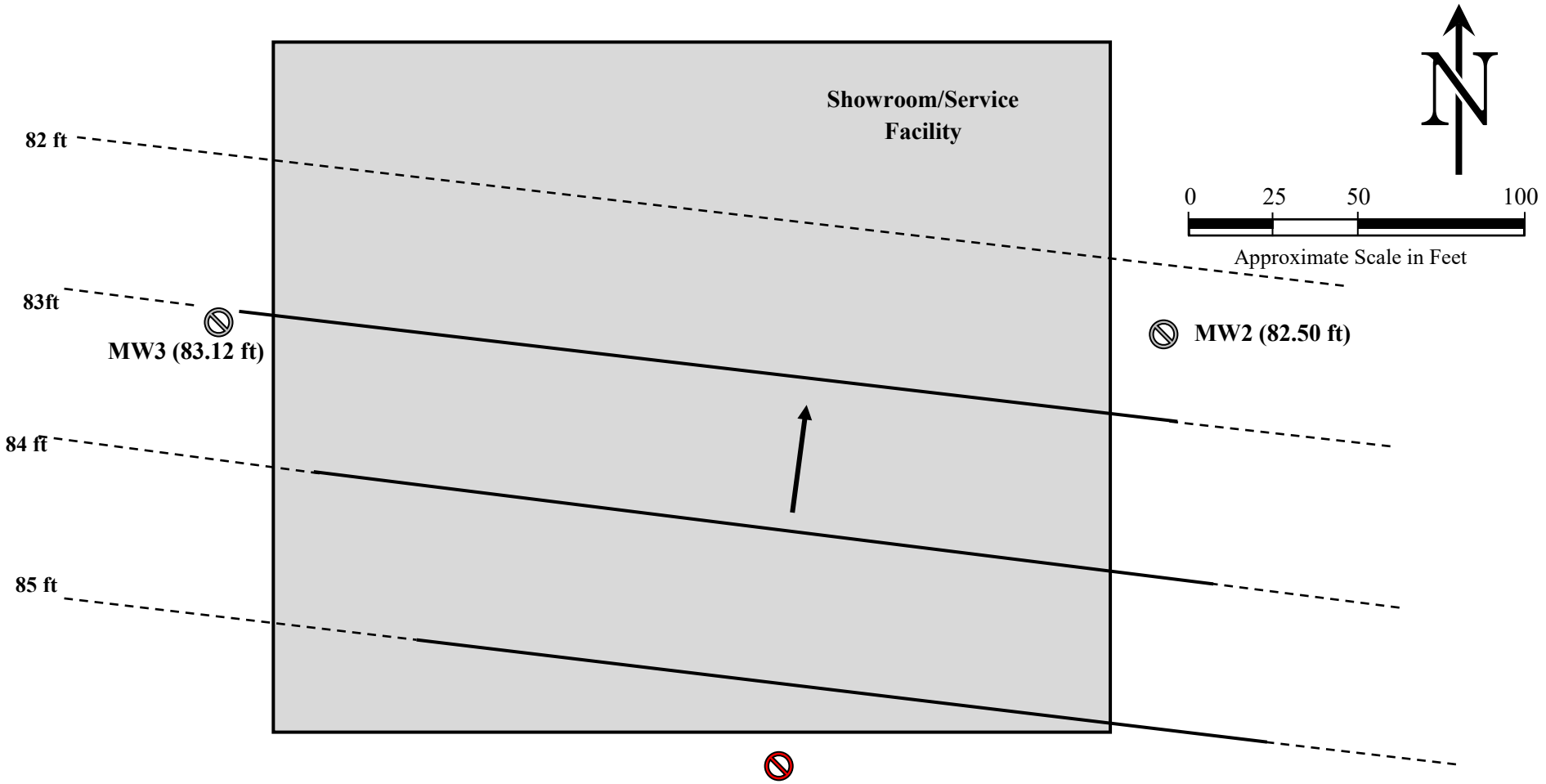
Key

- Monitoring Well Location (Concentration Exceeds ADEC Cleanup Criteria)
- Monitoring Well Location (Not Sampled)
- Groundwater Contour Interval (Dashed Where Inferred)
- Groundwater Flow Direction

Notes:
- ADEC = Alaska Department of Environmental Conservation
- µg/L = micrograms per Liter
- Contour Interval = 1-foot
- Water elevations are noted in **(bold)** next to each monitoring well number.
- The hydraulic gradient is approximately 0.022 foot per linear foot to the north-northwest.

1300 East 5th Avenue
Anchorage, Alaska
Monitoring Well Locations, Groundwater Flow Direction, and Groundwater Results Map (2017)

BGES, INC. | **November 2018** | **Figure 2**



Key

- Monitoring Well Location (Concentration Exceeds ADEC Cleanup Criteria)
- Monitoring Well Location (Not Sampled)
- Groundwater Contour Interval (Dashed Where Inferred)
- Groundwater Flow Direction

Notes:
- ADEC = Alaska Department of Environmental Conservation
- µg/L = micrograms per Liter
- Contour Interval = 1-foot
- Water elevations are noted in bold next to each monitoring well number.
- The hydraulic gradient is approximately 0.022 foot per linear foot to the north-northeast.

1300 East 5th Avenue
Anchorage, Alaska
Monitoring Well Locations, Groundwater Flow Direction, and Groundwater Results Map (2018)

BGES, INC. | **November 2018** | **Figure 3**

TABLE 1
1300 EAST 5TH AVENUE
ANCHORAGE, ALASKA
MONITORING WELL SAMPLING DATA (August 2017)

BGES, INC.

Well Number	MW1	MW2	MW3	MW4
Date Sampled				08/25/17
Date of Depth and Elevation Measurement	08/25/17	08/25/17	08/25/17	08/25/17
Time of Depth to Water Measurement	9:11	9:29	9:40	9:44
Time Sample Collected				13:10
Top of Casing Elevation (feet)	120.40	120.80	120.70	120.90
Depth to Water (feet below top of casing)	34.75	38.53	37.72	35.42
Groundwater Elevation in feet	85.65	82.27	82.98	85.48
Total Depth of Well (feet below top of casing)	44.20	45.72	42.33	44.52
Well Casing Diameter (inches)	4	4	4	4
Water Column	9.45	7.19	4.61	9.10
Standing Water Well Volume (gallons)	6.17	4.69	3.01	5.94
Purge Volume-Actual (gallons)				7.00
Temperature (degrees Celsius)				8.9/8.6/8.7/8.6/8.6
pH (standard units)				5.65/6.24/6.42/6.37/6.38
Conductivity (millisiemans per centimeter)				550/686/833/838/843
Oxidation Reduction Potential				-113.4/-135/-127.9/-128.3/-128.9
Notes: Values separated by / indicate readings for successive intervals Sampler: K. Shippen Field parameters were measured with a YSI Professional Plus water quality meter. Weather conditions on August 25, 2017 were rainy with an ambient temperature of approximately 55 degrees Fahrenheit.	Not Sampled; well was in good condition.	Not Sampled; well was in good condition.	Not Sampled; well was in good condition.	Well was in good condition, no free product was observed. A flow-through cell was utilized during sampling of this well. The well boom was removed on August 18, 2017.

TABLE 1
1300 EAST 5TH AVENUE
ANCHORAGE, ALASKA
MONITORING WELL SAMPLING DATA (February 2018)

BGES, INC.

Well Number	MW1	MW2	MW3	MW4
Date Sampled				02/19/18
Date of Depth and Elevation Measurement	02/19/18	02/19/18	02/19/18	02/19/18
Time of Depth to Water Measurement	9:35	9:57	9:43	10:03
Time Sample Collected				13:10
Top of Casing Elevation (feet)	120.40	120.80	120.70	120.90
Depth to Water (feet below top of casing)	34.68	38.30	37.58	35.30
Groundwater Elevation in feet	85.72	82.50	83.12	85.60
Total Depth of Well (feet below top of casing)	44.20	45.72	42.30	43.10
Well Casing Diameter (inches)	4	4	4	4
Water Column	9.52	7.42	4.72	7.80
Standing Water Well Volume (gallons)	6.21	4.84	3.08	5.09
Purge Volume-Actual (gallons)				5.50
Temperature (degrees Celsius)				6.65/6.66/6.64
pH (standard units)				5.87/5.91/5.93
Conductivity (millisiemans per centimeter)				261/262/263
Oxidation Reduction Potential				-62.6/-70.2/-70.5
Notes: Values separated by / indicate readings for successive intervals Sampler: K. Shippen Field parameters were measured with a YSI Professional Plus water quality meter. Weather conditions on February 19, 2018 were clear with an ambient temperature of approximately 30 degrees Fahrenheit.	Not Sampled; well was in good condition.	Not Sampled; well was in good condition.	Not Sampled; well was in good condition.	Well was in good condition, no free product was observed. A flow-through cell was utilized during sampling of this well The well boom was removed on February 12, 2018.

TABLE 3
1300 EAST 5TH AVENUE
ANCHORAGE, ALASKA
GROUNDWATER ANALYTICAL RESULTS (AUGUST 2017 & FEBRUARY 2018)

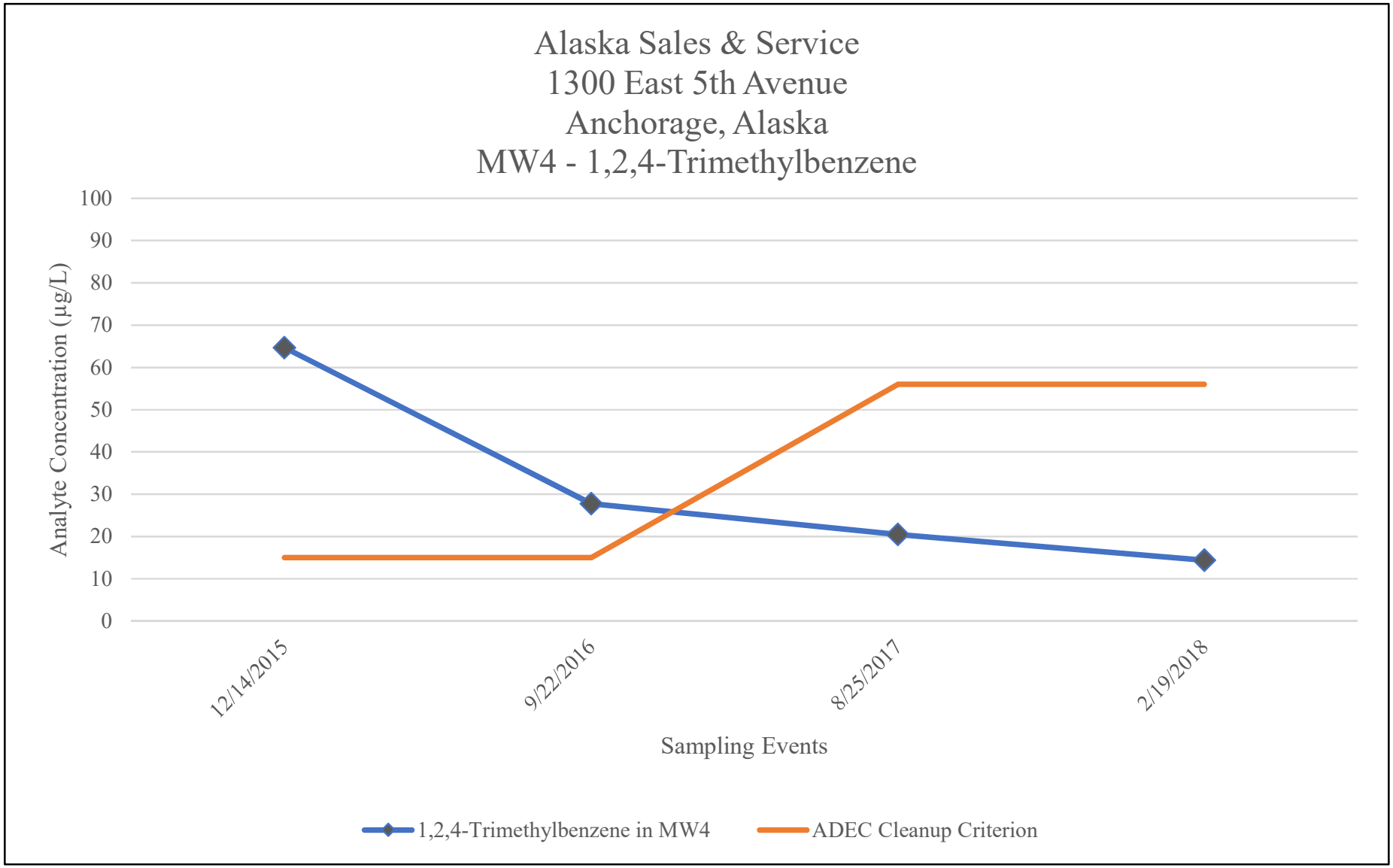
Sample No.	Parameter	Results (µg/L)	LOQ (µg/L)	ADEC Cleanup Criteria (µg/L)	Analytical Method
		August 2017 Sampling Event			
MW4-0825	GRO	121	100	2,200	AK 101
	DRO	**2,930**	588	1,500	AK 102
	RRO	931 J	490	1,100	AK 103
	1,1,1-Trichloroethane	2.63	1.00	8,000	SW8260C
	1,1-Dichloroethane	1.94	1.00	28	SW8260C
	1,2,3-Trichloropropane	*ND*	*1.00*	0.0075	SW8260C
	1,2,4-Trimethylbenzene	20.5	1.00	56	SW8260C
	1,3,5-Trimethylbenzene	10.4	1.00	60	SW8260C
	4-Isopropyltoluene	2.27	1.00	N/A	SW8260C
	Benzene	ND	0.400	4.6	SW8260C
	cis-1,2-Dichloroethene	1.02	1.00	36	SW8260C
	Ethylbenzene	1.12	1.00	15	SW8260C
	Naphthalene	**2.21**	1.00	1.7	SW8260C
	n-Propylbenzene	2.03	1.00	660	SW8260C
	Tetrachloroethene (PCE)	ND	1.00	41	SW8260C
	Toluene	ND	1.00	1,100	SW8260C
	Trichloroethene (TCE)	ND	1.00	2.8	SW8260C
	Total Xylenes	7.74	3.00	190	SW8260C
	All Other VOCs	ND	varies	varies	SW8260C
MW5-0825					
Duplicate of MW4-0825					
RPD =1%	GRO	120	100	2,200	AK 101
RPD =14%	**DRO**	**3,380**	600	1,500	AK 102
RPD =18%	**RRO**	**1,110** J	500	1,100	AK 103
RPD =2%	1,1,1-Trichloroethane	2.58	1.00	8,000	SW8260C
RPD =3%	1,1-Dichloroethane	2.00	1.00	28	SW8260C
	1,2,3-Trichloropropane	*ND*	*1.00*	0.0075	SW8260C
RPD =2%	1,2,4-Trimethylbenzene	20.1	1.00	56	SW8260C
RPD = 1%	1,3,5-Trimethylbenzene	10.3	1.00	60	SW8260C
RPD = 1%	4-Isopropyltoluene	2.29	1.00	N/A	SW8260C
	Benzene	ND	0.400	4.6	SW8260C
RPD =2%	cis-1,2-Dichloroethene	1.00	1.00	36	SW8260C
RPD =4%	Ethylbenzene	1.17	1.00	15	SW8260C
RPD =1%	**Naphthalene**	**2.19**	1.00	1.7	SW8260C
RPD =1%	n-Propylbenzene	2.01	1.00	660	SW8260C
	Tetrachloroethene (PCE)	ND	1.00	41	SW8260C
	Toluene	ND	1.00	1,100	SW8260C
	Trichloroethene (TCE)	ND	1.00	2.8	SW8260C
RPD =2%	Total Xylenes	7.90	3.00	190	SW8260C
	All Other VOCs	ND	varies	varies	SW8260C

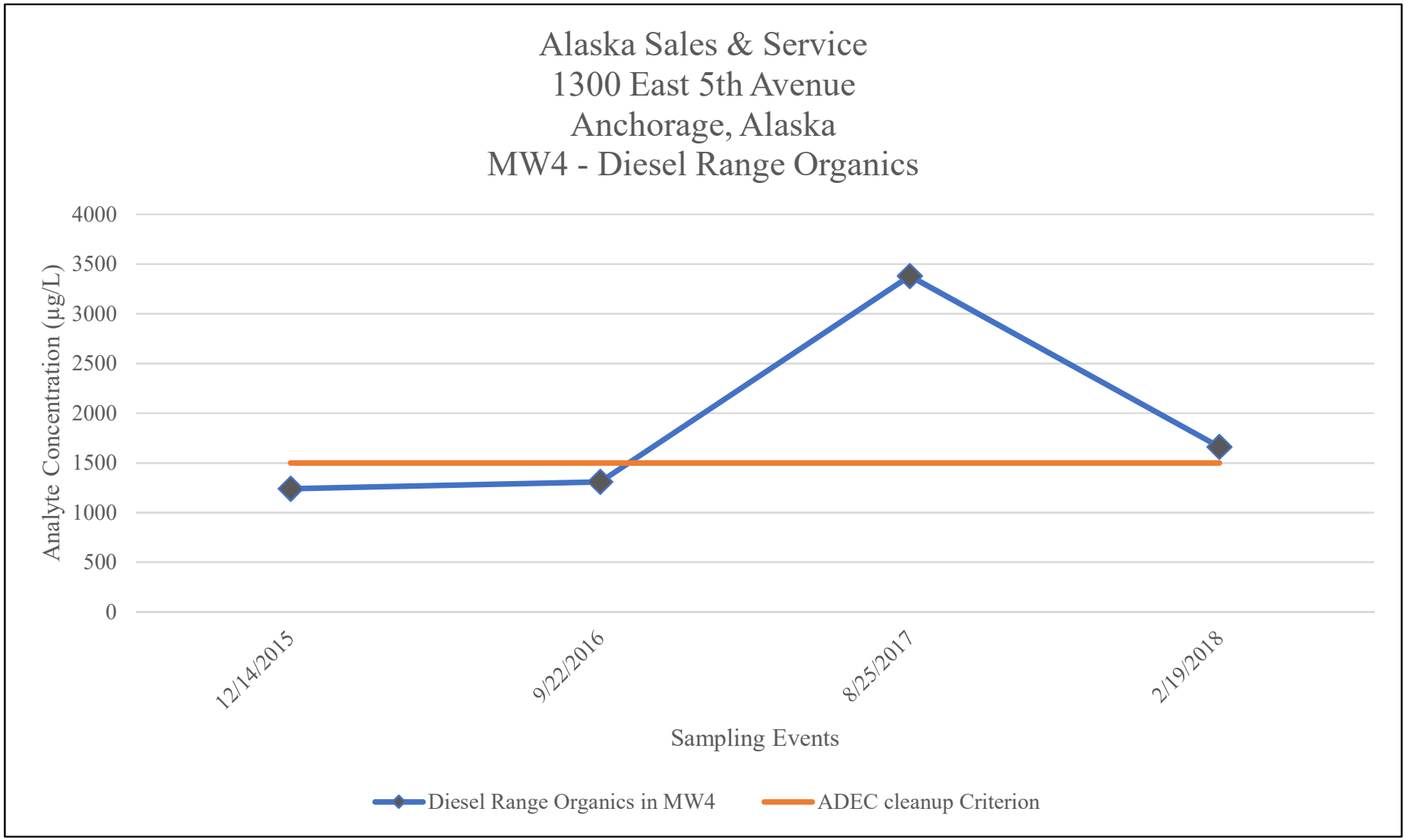
TABLE 3
1300 EAST 5TH AVENUE
ANCHORAGE, ALASKA
GROUNDWATER ANALYTICAL RESULTS (AUGUST 2017 & FEBRUARY 2018)

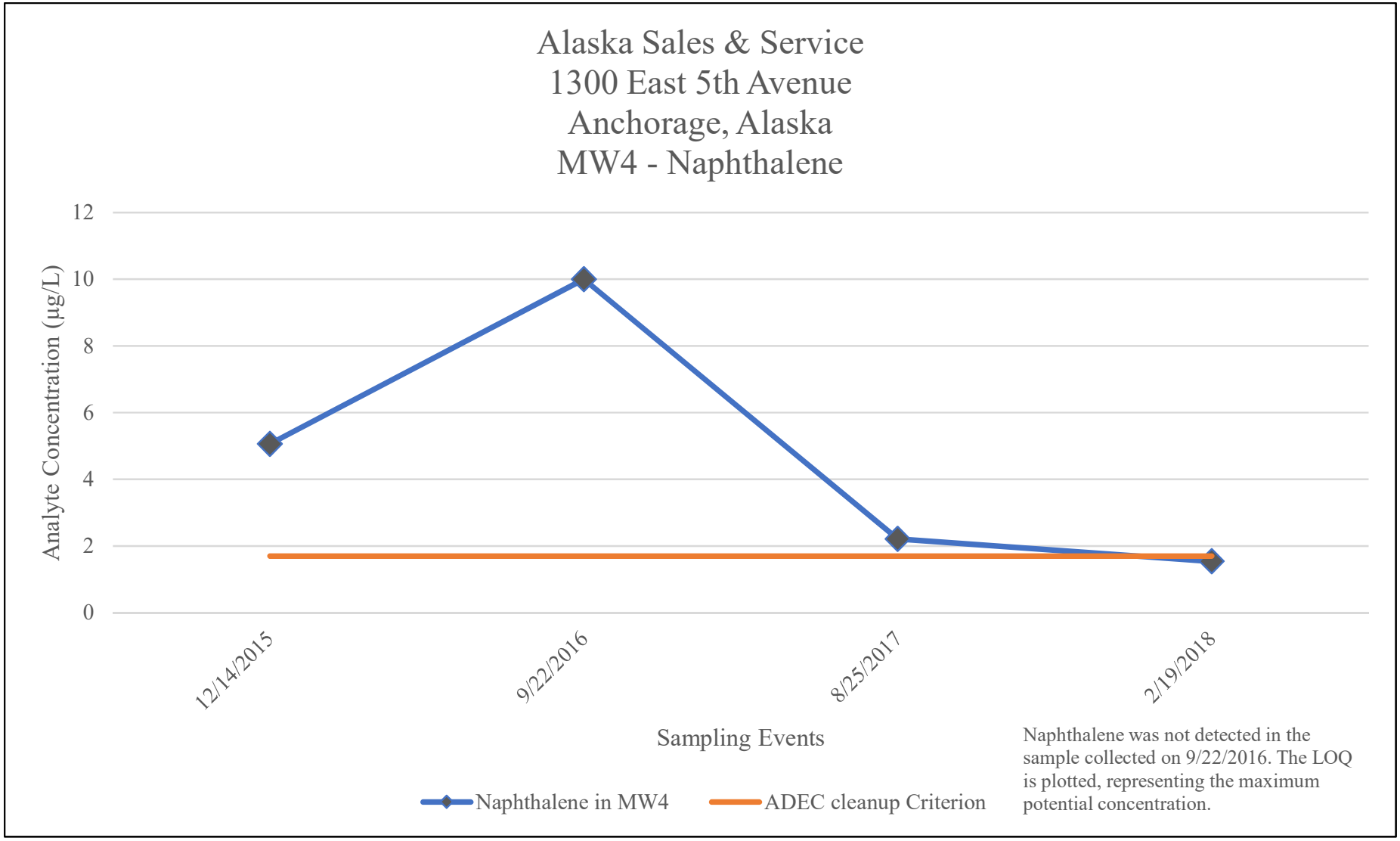
Sample No.	Parameter	Results (µg/L)	LOQ (µg/L)	ADEC Cleanup Criteria (µg/L)	Analytical Method
February 2018 Sampling Event					
MW4-0219	GRO	ND	100	2,200	AK 101
	DRO	**1,660**	566	1,500	AK 102
	RRO	**1,150**	472	1,100	AK 103
	1,1,1-Trichloroethane	2.07	1.00	8,000	SW8260C
	1,1-Dichloroethane	1.00	1.00	28	SW8260C
	1,2,3-Trichloropropane	*ND*	*1.00*	0.0075	SW8260C
	1,2,4-Trimethylbenzene	14.2	1.00	56	SW8260C
	1,3,5-Trimethylbenzene	7.55	1.00	60	SW8260C
	4-Isopropyltoluene	1.78	1.00	N/A	SW8260C
	Benzene	ND	0.400	4.6	SW8260C
	Ethylbenzene	ND	1.00	15	SW8260C
	Naphthalene	1.43	1.00	1.7	SW8260C
	n-Propylbenzene	1.34	1.00	660	SW8260C
	Tetrachloroethene (PCE)	ND	1.00	41	SW8260C
	Toluene	1.54	1.00	1,100	SW8260C
	Trichloroethene (TCE)	ND	1.00	2.8	SW8260C
	Total Xylenes	5.19	3.00	190	SW8260C
	All Other VOCs	ND	varies	varies	SW8260C
MW5-0219					
Duplicate of MW4-0219	GRO	ND	100	2,200	AK 101
RPD = 83%	DRO	684	577	1,500	AK 102
	RRO	ND	481	1,100	AK 103
RPD = 0%	1,1,1-Trichloroethane	2.07	1.00	8,000	SW8260C
	1,2,3-Trichloropropane	*ND*	*1.00*	0.0075	SW8260C
RPD = 1%	1,2,4-Trimethylbenzene	14.4	1.00	56	SW8260C
RPD = 2%	1,3,5-Trimethylbenzene	7.70	1.00	60	SW8260C
RPD = 2%	4-Isopropyltoluene	1.82	1.00	N/A	SW8260C
	Benzene	ND	0.400	4.6	SW8260C
	Ethylbenzene	ND	1.00	15	SW8260C
RPD = 7%	Naphthalene	1.54	1.00	1.7	SW8260C
RPD = 1%	n-Propylbenzene	1.36	1.00	660	SW8260C
	Tetrachloroethene (PCE)	ND	1.00	41	SW8260C
RPD = 2%	Toluene	1.51	1.00	1,100	SW8260C
	Trichloroethene (TCE)	ND	1.00	2.8	SW8260C
RPD = 2%	Total Xylenes	5.13	3.00	190	SW8260C
	All Other VOCs	ND	varies	varies	SW8260C

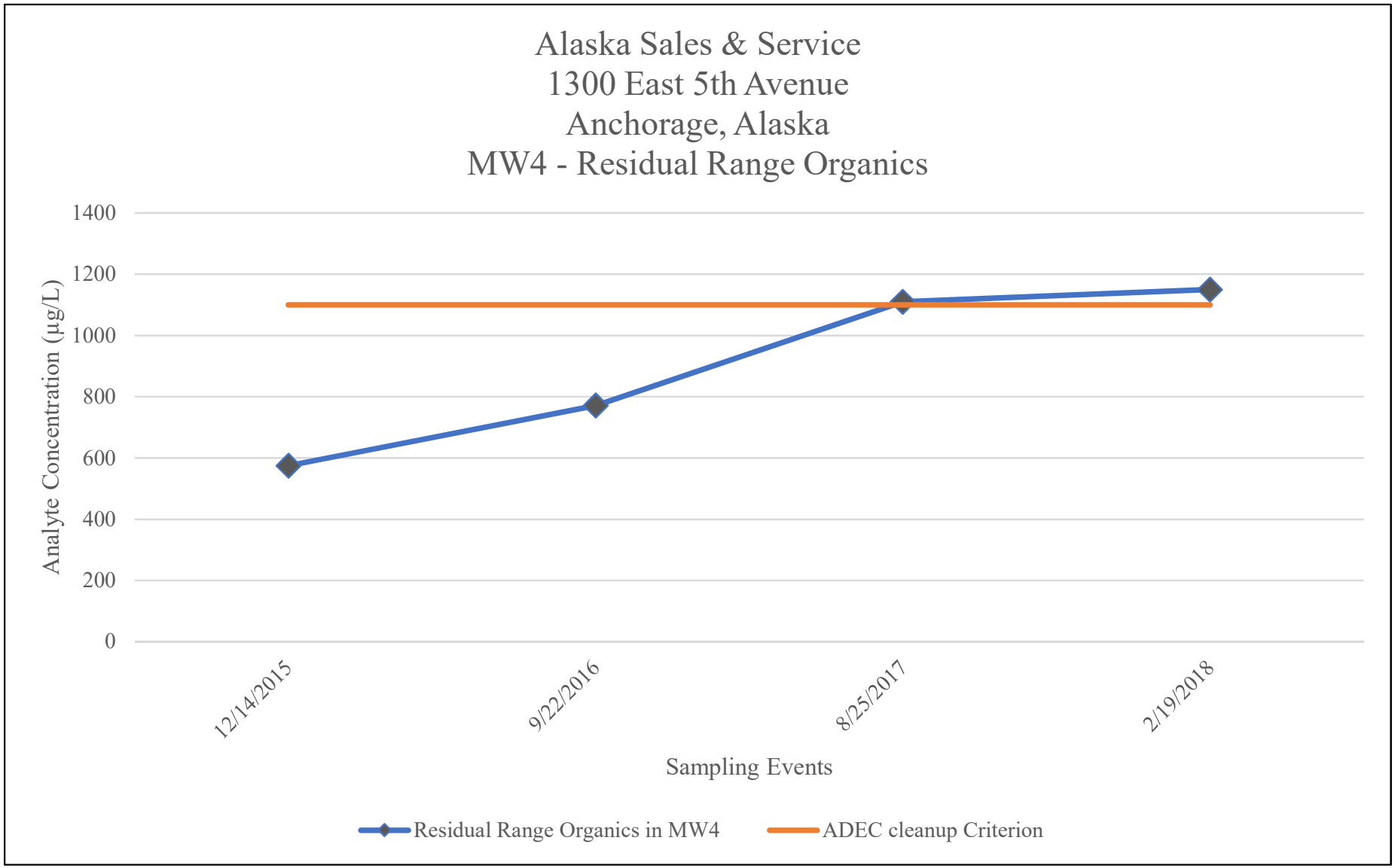
[1] Groundwater cleanup criteria are obtained from ADEC 18 AAC 75.345, Table C (September 2018).
AAC = Alaska Administrative Code; AK = Alaska Method; ADEC = Alaska Department of Environmental Conservation
µg/L = micrograms per liter; GRO = gasoline range organics; DRO = diesel range organics; RRO = residual range organics
VOCs = volatile organic compounds; LOQ = limit of quantitation; ND = not detected above the LOQ
RPD = Relative Percent Difference; N/A = not available
Bold = The concentration exceeds the applicable ADEC cleanup criterion.
Italics = The LOQ exceeds the applicable ADEC cleanup criterion.

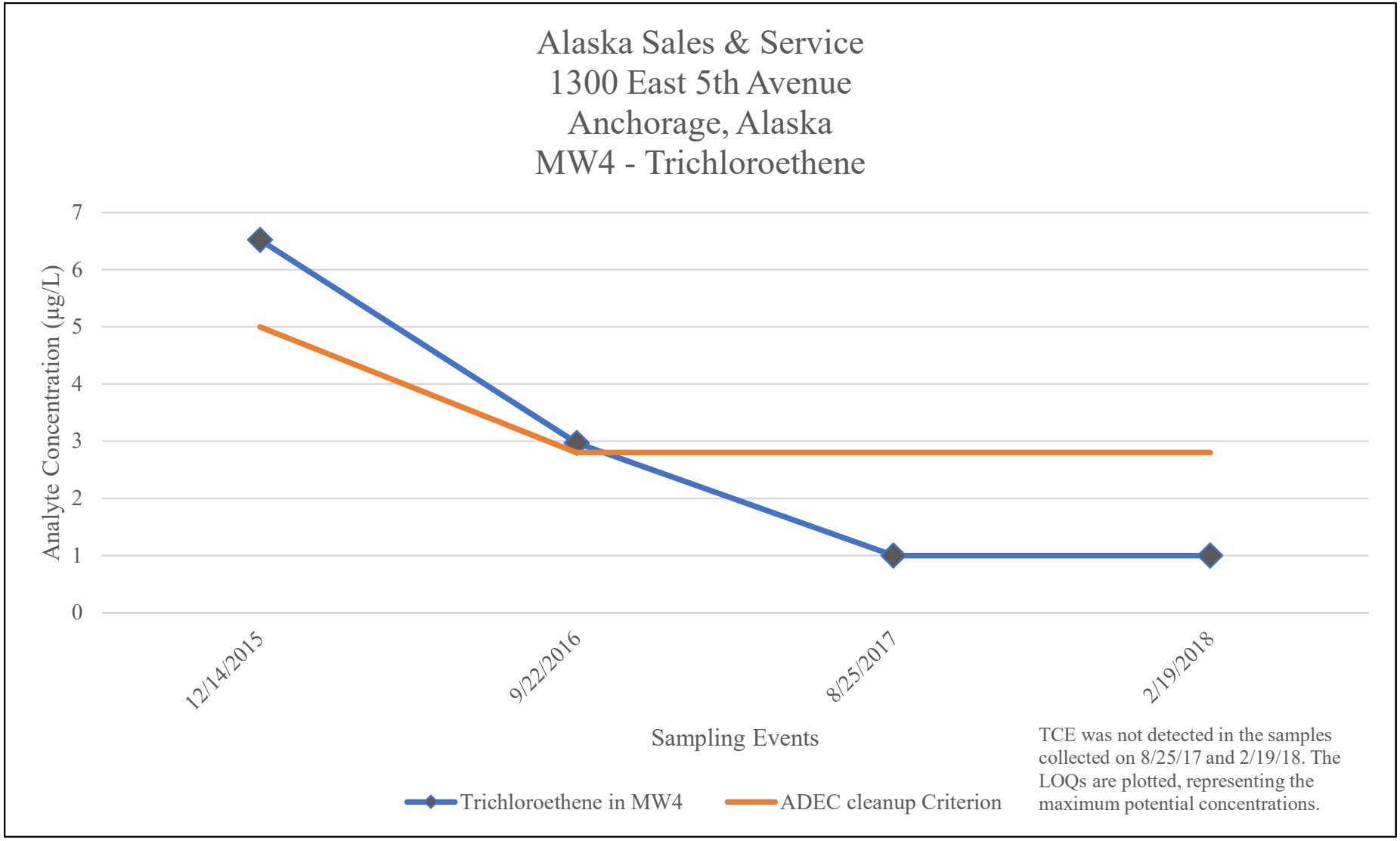
APPENDIX A
GRAPHS OF HISTORICAL CONCENTRATION TRENDS IN MONITORING WELL MW4


Alaska Sales & Service
1300 East 5th Avenue
Anchorage, Alaska
MW4 - 1,2,4-Trimethylbenzene
Analyte Concentration (µg/L)
100
90
80
70
60
50
40
30
20
10
0
12/14/2015
9/22/2016
8/25/2017
2/19/2018
Sampling Events
1,2,4-Trimethylbenzene in MW4
ADEC Cleanup Criterion


Alaska Sales & Service
1300 East 5th Avenue
Anchorage, Alaska
MW4 - Diesel Range Organics
Analyte Concentration (µg/L)
4000
3500
3000
2500
2000
1500
1000
500
0
12/14/2015
9/22/2016
8/25/2017
2/19/2018
Sampling Events
Diesel Range Organics in MW4
ADEC cleanup Criterion


Alaska Sales & Service
1300 East 5th Avenue
Anchorage, Alaska
MW4 - Naphthalene
Analyte Concentration (µg/L)
12
10
8
6
4
2
0
12/14/2015
9/22/2016
8/25/2017
2/19/2018
Sampling Events
Naphthalene in MW4
ADEC cleanup Criterion
Naphthalene was not detected in the sample collected on 9/22/2016. The LOQ is plotted, representing the maximum potential concentration.


Alaska Sales & Service
1300 East 5th Avenue
Anchorage, Alaska
MW4 - Residual Range Organics
Analyte Concentration (µg/L)
1400
1200
1000
800
600
400
200
0
12/14/2015
9/22/2016
8/25/2017
2/19/2018
Sampling Events
Residual Range Organics in MW4
ADEC cleanup Criterion


Alaska Sales & Service
1300 East 5th Avenue
Anchorage, Alaska
MW4 - Trichloroethene
Analyte Concentration (µg/L)
7
6
5
4
3
2
1
0
12/14/2015
9/22/2016
8/25/2017
2/19/2018
Sampling Events
Trichloroethene in MW4
ADEC cleanup Criterion
TCE was not detected in the samples collected on 8/25/17 and 2/19/18. The LOQs are plotted, representing the maximum potential concentrations.

APPENDIX B

FIELD NOTES AND GROUNDWATER MONITORING LOGS

8/18/17

09:05 BGES on site to inspect and remove the well boom from mw 4

MW ID	DTP	DTW
mw4	—	35.6

remove well boom from well Boom for Sampling

8/25/17 62°

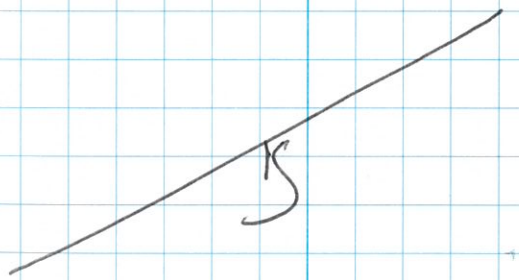
09:00 BGES on site to Sample MW4

	DTW	TDW	DTP	Time
MW1	34.75	44.2	—	0911
MW3	37.72	45.72	—	0929
MW2	38.53	42.33	—	0940
MW4	35.42	44.52	—	0944

10:15 begin purging MW4

13:10 Collect Samples MW4-0825 and Duplicate MW5-0825

14:20 BGES offsite for day



02/12/18 40° Cloudy

09:00 BGES on-site to remove well boom from MW4 and to check for presense of free product in the well

well ID	DTP	DTW	TDW
MW-4	No tare	35.40	43.1

Remove well boom & store in Mechanical Building

09:30 BGES off-site

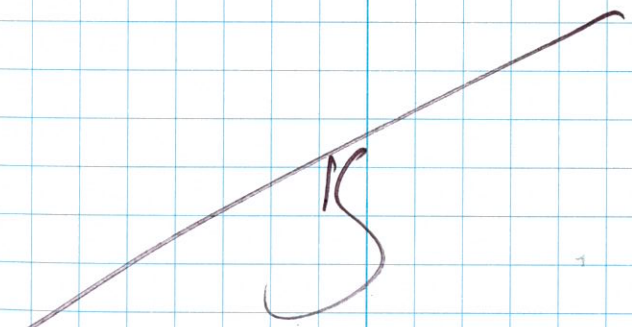
2/19/18 38°

09:15 BGES on site to monitor for free product in MW 1 – MW4 and collect Samples from MW4

well ID	DTP	DTW	TDW	Time
mw 1	—	34.68	44.2	9:35
mw 2	—	38.3	45.72	9:57
mw 3	—	37.58	42.3	9:43
mw 4	—	35.3	43.1	10:03

Replace well boom

BGES off site for day



BGES, INC.
ENVIRONMENTAL CONSULTANTS

GROUNDWATER MONITORING LOG

Well Number: MW4
Date of Sampling Event: 8-25-17

Weather Conditions: 55° rain
Time of Depth to Water Measurement: 09:44
Date of Depth to Water Measurement: 8-25-17

Total Depth of Well (feet below TOC): 44.52
Depth to Water (feet below TOC): 35.42
Water Column (feet): 9.1

Type of Sampling Equipment:
1.75" bladder pump. MP10 Controller
QED Compressor
YSI Pro Plus w/ flow through cell

Volume of well (gals): 5.94

=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: 10:15
Time of Sampling: 13:10
Volume purged: ~~3~~ gal

PURGE A MINIMUM OF THREE WELL VOLUMES

Temperature (°C)	8.9	Temperature (°C)	8.6 ✓
Conductivity	550	Conductivity	843 ✓
pH	5.65	pH	6.38 ✓
ORP	-113.4	ORP	-128.9 ✓
Volume Purged	0.5 Gal	Volume Purged	6 gal
Depth To Water	35.42	Depth To Water	35.42
Time of Measurement	10:30	Time of Measurement	12:55

Depth of Bladder intake: 39.42

Temperature (°C)	8.6	Temperature (°C)	
Conductivity	686	Conductivity	
pH	6.24	pH	
ORP	-135	ORP	
Volume Purged	2.5 gal	Volume Purged	
Depth To Water	35.42	Depth To Water	
Time of Measurement	11:28	Time of Measurement	

Purge Rate: 150 mL/min

Temperature (°C)	8.7	Temperature (°C)	
Conductivity	833	Conductivity	
pH	6.42	pH	
ORP	-127.9	ORP	
Volume Purged	6 gal	Volume Purged	
Depth To Water	35.42	Depth To Water	
Time of Measurement	12:49	Time of Measurement	

Sample Rate: 150 mL/min

Sample ID: MW4-0825
MW5-0825

Temperature (°C)	8.6 ✓	Temperature (°C)	
Conductivity	838 ✓	Conductivity	
pH	6.37 ✓	pH	
ORP	-128.3 ✓	ORP	
Volume Purged	6 gal	Volume Purged	
Depth To Water	35.42	Depth To Water	
Time of Measurement	12:52	Time of Measurement	

Additional Notes:

BGES, INC.
ENVIRONMENTAL CONSULTANTS

GROUNDWATER MONITORING LOG

BGES, INC.

Well Number: MW4
Date of Sampling Event: 2/19/18

Weather Conditions: 30° Clear
Time of Depth to Water Measurement: 10.03
Date of Depth to Water Measurement: 2-19-18

Total Depth of Well (feet below TOC): 43.1
Depth to Water (feet below TOC): 35.3
Water Column (feet): 7.8

Type of Sampling Equipment:
YSI 556; 1.75" bladder pump
MP 50; Solonist Interface probe
poly tubing + bladders

Volume of well (gals): 5.09

=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: 10:40
Time of Sampling: 13:40
Volume purged: 5.5

PURGE A MINIMUM OF THREE WELL VOLUMES

Temperature (°C)	6.65	±0.2	Temperature (°C)		
Conductivity	261	± 7.83	Conductivity		
pH	5.87	±0.1	pH		
ORP	-62.6	±10	ORP		
Volume Purged	4.5		Volume Purged		
Depth To Water	35.3		Depth To Water		
Time of Measurement	12:40		Time of Measurement		
Temperature (°C)	6.66	✓	Temperature (°C)		
Conductivity	262	✓	Conductivity		
pH	5.91	✓	pH		
ORP	-70.2	✓	ORP		
Volume Purged	4.55		Volume Purged		
Depth To Water	35.3		Depth To Water		
Time of Measurement	1250		Time of Measurement		
Temperature (°C)	6.64	✓	Temperature (°C)		
Conductivity	263	✓	Conductivity		
pH	5.93	✓	pH		
ORP	-70.5	✓	ORP		
Volume Purged	4.57		Volume Purged		
Depth To Water	35.3		Depth To Water		
Time of Measurement	1255		Time of Measurement		
Temperature (°C)			Temperature (°C)		
Conductivity			Conductivity		
pH			pH		
ORP			ORP		
Volume Purged			Volume Purged		
Depth To Water			Depth To Water		
Time of Measurement			Time of Measurement		

Depth of Bladder intake: 35.9

Purge Rate: ~400 ml/min

Sample Rate: 150 ml/min

Sample ID: MW4-0219
and Dup MW5-0219

Additional Notes:

APPENDIX C
LABORATORY ANALYTICAL DATA PACKAGES

Laboratory Report of Analysis

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

Report Number: **1176061**

Client Project: **AK Sales & Service**

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 Victoria 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.

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

Victoria Pennick
2017.09.08
11:39:12 -08'00'

Victoria Pennick Date
Project Manager
Victoria.Pennick@sgs.com

Print Date: 09/07/2017 3:24:37PM

Case Narrative

SGS Client: **BGES Inc.**
SGS Project: **1176061**
Project Name/Site: **AK Sales & Service**
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: 09/07/2017 3:24:39PM

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 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.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW4-0825	1176061001	08/25/2017	08/25/2017	Water (Surface, Eff., Ground)
MW5-0825	1176061002	08/25/2017	08/25/2017	Water (Surface, Eff., Ground)
Trip Blank	1176061003	08/25/2017	08/25/2017	Water (Surface, Eff., Ground)

Method	Method Description
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (W)
SW8260C	Volatile Organic Compounds (W) FULL

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Detectable Results Summary

Client Sample ID: **MW4-0825**
Lab Sample ID: 1176061001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	2.93	mg/L
	Residual Range Organics	0.931	mg/L
Volatile Fuels	Gasoline Range Organics	0.121	mg/L
Volatile GC/MS	1,1,1-Trichloroethane	2.63	ug/L
	1,1-Dichloroethane	1.94	ug/L
	1,2,4-Trimethylbenzene	20.5	ug/L
	1,3,5-Trimethylbenzene	10.4	ug/L
	4-Isopropyltoluene	2.27	ug/L
	cis-1,2-Dichloroethene	1.02	ug/L
	Ethylbenzene	1.12	ug/L
	Naphthalene	2.21	ug/L
	n-Propylbenzene	2.03	ug/L
	o-Xylene	1.85	ug/L
	P & M -Xylene	5.89	ug/L
	Xylenes (total)	7.74	ug/L

Client Sample ID: **MW5-0825**
Lab Sample ID: 1176061002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	3.38	mg/L
	Residual Range Organics	1.11	mg/L
Volatile Fuels	Gasoline Range Organics	0.120	mg/L
Volatile GC/MS	1,1,1-Trichloroethane	2.58	ug/L
	1,1-Dichloroethane	2.00	ug/L
	1,2,4-Trimethylbenzene	20.1	ug/L
	1,3,5-Trimethylbenzene	10.3	ug/L
	4-Isopropyltoluene	2.29	ug/L
	cis-1,2-Dichloroethene	1.00	ug/L
	Ethylbenzene	1.17	ug/L
	Naphthalene	2.19	ug/L
	n-Propylbenzene	2.01	ug/L
	o-Xylene	1.91	ug/L
	P & M -Xylene	5.99	ug/L
	Xylenes (total)	7.90	ug/L

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **MW4-0825**

Client Sample ID: **MW4-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061001
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2.93		0.588	0.176	mg/L	1		08/31/17 13:36
Surrogates								
5a Androstane (surr)	80.8		50-150		%	1		08/31/17 13:36

Batch Information

Analytical Batch: XFC13740
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 08/31/17 13:36
Container ID: 1176061001-G

Prep Batch: XXX38284
Prep Method: SW3520C
Prep Date/Time: 08/28/17 08:55
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.931		0.490	0.147	mg/L	1		08/31/17 13:36
Surrogates								
n-Triacontane-d62 (surr)	89.6		50-150		%	1		08/31/17 13:36

Batch Information

Analytical Batch: XFC13740
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 08/31/17 13:36
Container ID: 1176061001-G

Prep Batch: XXX38284
Prep Method: SW3520C
Prep Date/Time: 08/28/17 08:55
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **MW4-0825**

Client Sample ID: **MW4-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061001
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.121		0.100	0.0310	mg/L	1		08/28/17 21:23
Surrogates								
4-Bromofluorobenzene (surr)	97.4		50-150		%	1		08/28/17 21:23

Batch Information

Analytical Batch: VFC13842
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/28/17 21:23
Container ID: 1176061001-A

Prep Batch: VXX31167
Prep Method: SW5030B
Prep Date/Time: 08/28/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW4-0825**

Client Sample ID: **MW4-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061001
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:46
1,1,1-Trichloroethane	2.63		1.00	0.310	ug/L	1		09/03/17 22:46
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:46
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/03/17 22:46
1,1-Dichloroethane	1.94		1.00	0.310	ug/L	1		09/03/17 22:46
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
1,2,4-Trimethylbenzene	20.5		1.00	0.310	ug/L	1		09/03/17 22:46
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:46
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/03/17 22:46
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		09/06/17 15:39
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
1,3,5-Trimethylbenzene	10.4		1.00	0.310	ug/L	1		09/03/17 22:46
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:46
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:46
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:46
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:46
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
4-Isopropyltoluene	2.27		1.00	0.310	ug/L	1		09/03/17 22:46
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:46
Benzene	0.400	U	0.400	0.120	ug/L	1		09/06/17 15:39
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:46
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 22:46
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:46
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:46
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:46

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Results of **MW4-0825**

Client Sample ID: **MW4-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061001
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Chloromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
cis-1,2-Dichloroethene	1.02		1.00	0.310	ug/L	1		09/03/17 22:46
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		09/03/17 22:46
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		09/03/17 22:46
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Dichlorodifluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Ethylbenzene	1.12		1.00	0.310	ug/L	1		09/03/17 22:46
Freon-113	10.0 U		10.0	3.10	ug/L	1		09/03/17 22:46
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Isopropylbenzene (Cumene)	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		09/03/17 22:46
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		09/03/17 22:46
Naphthalene	2.21		1.00	0.310	ug/L	1		09/03/17 22:46
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
n-Propylbenzene	2.03		1.00	0.310	ug/L	1		09/03/17 22:46
o-Xylene	1.85		1.00	0.310	ug/L	1		09/03/17 22:46
P & M -Xylene	5.89		2.00	0.620	ug/L	1		09/03/17 22:46
sec-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Styrene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Toluene	1.00 U		1.00	0.310	ug/L	1		09/06/17 15:39
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Trichlorofluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 22:46
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		09/03/17 22:46
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		09/03/17 22:46
Xylenes (total)	7.74		3.00	1.00	ug/L	1		09/03/17 22:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		09/03/17 22:46
4-Bromofluorobenzene (surr)	96.6		85-114		%	1		09/03/17 22:46
Toluene-d8 (surr)	99.9		89-112		%	1		09/03/17 22:46

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Results of **MW4-0825**

Client Sample ID: **MW4-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061001
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17144
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/06/17 15:39
Container ID: 1176061001-D

Prep Batch: VXX31230
Prep Method: SW5030B
Prep Date/Time: 09/06/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17134
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 22:46
Container ID: 1176061001-D

Prep Batch: VXX31215
Prep Method: SW5030B
Prep Date/Time: 09/03/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW5-0825**

Client Sample ID: **MW5-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061002
Lab Project ID: 1176061

Collection Date: 08/25/17 13:30
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	3.38		0.600	0.180	mg/L	1		08/31/17 13:46
Surrogates								
5a Androstane (surr)	79.5		50-150		%	1		08/31/17 13:46

Batch Information

Analytical Batch: XFC13740
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 08/31/17 13:46
Container ID: 1176061002-G

Prep Batch: XXX38284
Prep Method: SW3520C
Prep Date/Time: 08/28/17 08:55
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1.11		0.500	0.150	mg/L	1		08/31/17 13:46
Surrogates								
n-Triacontane-d62 (surr)	88.7		50-150		%	1		08/31/17 13:46

Batch Information

Analytical Batch: XFC13740
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 08/31/17 13:46
Container ID: 1176061002-G

Prep Batch: XXX38284
Prep Method: SW3520C
Prep Date/Time: 08/28/17 08:55
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 09/07/2017 3:24:44PM

Results of **MW5-0825**

Client Sample ID: **MW5-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061002
Lab Project ID: 1176061

Collection Date: 08/25/17 13:30
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.120		0.100	0.0310	mg/L	1		08/28/17 21:42
Surrogates								
4-Bromofluorobenzene (surr)	95.4		50-150		%	1		08/28/17 21:42

Batch Information

Analytical Batch: VFC13842
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/28/17 21:42
Container ID: 1176061002-A

Prep Batch: VXX31167
Prep Method: SW5030B
Prep Date/Time: 08/28/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW5-0825**

Client Sample ID: **MW5-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061002
Lab Project ID: 1176061

Collection Date: 08/25/17 13:30
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:04
1,1,1-Trichloroethane	2.58		1.00	0.310	ug/L	1		09/03/17 23:04
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:04
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/03/17 23:04
1,1-Dichloroethane	2.00		1.00	0.310	ug/L	1		09/03/17 23:04
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
1,2,4-Trimethylbenzene	20.1		1.00	0.310	ug/L	1		09/03/17 23:04
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:04
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/03/17 23:04
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:04
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
1,3,5-Trimethylbenzene	10.3		1.00	0.310	ug/L	1		09/03/17 23:04
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:04
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:04
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:04
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:04
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
4-Isopropyltoluene	2.29		1.00	0.310	ug/L	1		09/03/17 23:04
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:04
Benzene	0.400	U	0.400	0.120	ug/L	1		09/03/17 23:04
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:04
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 23:04
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:04
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:04
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:04

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Results of **MW5-0825**

Client Sample ID: **MW5-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061002
Lab Project ID: 1176061

Collection Date: 08/25/17 13:30
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Chloromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
cis-1,2-Dichloroethene	1.00		1.00	0.310	ug/L	1		09/03/17 23:04
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		09/03/17 23:04
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		09/03/17 23:04
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Dichlorodifluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Ethylbenzene	1.17		1.00	0.310	ug/L	1		09/03/17 23:04
Freon-113	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:04
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Isopropylbenzene (Cumene)	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		09/03/17 23:04
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:04
Naphthalene	2.19		1.00	0.310	ug/L	1		09/03/17 23:04
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
n-Propylbenzene	2.01		1.00	0.310	ug/L	1		09/03/17 23:04
o-Xylene	1.91		1.00	0.310	ug/L	1		09/03/17 23:04
P & M -Xylene	5.99		2.00	0.620	ug/L	1		09/03/17 23:04
sec-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Styrene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Toluene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Trichlorofluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:04
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:04
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		09/03/17 23:04
Xylenes (total)	7.90		3.00	1.00	ug/L	1		09/03/17 23:04
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		09/03/17 23:04
4-Bromofluorobenzene (surr)	95.9		85-114		%	1		09/03/17 23:04
Toluene-d8 (surr)	100		89-112		%	1		09/03/17 23:04

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Results of **MW5-0825**

Client Sample ID: **MW5-0825**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061002
Lab Project ID: 1176061

Collection Date: 08/25/17 13:30
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17134
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 23:04
Container ID: 1176061002-D

Prep Batch: VXX31215
Prep Method: SW5030B
Prep Date/Time: 09/03/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061003
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.100	U	0.100	0.0310	mg/L	1		08/28/17 20:45
Surrogates								
4-Bromofluorobenzene (surr)	90.7		50-150		%	1		08/28/17 20:45

Batch Information

Analytical Batch: VFC13842
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/28/17 20:45
Container ID: 1176061003-A

Prep Batch: VXX31167
Prep Method: SW5030B
Prep Date/Time: 08/28/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061003
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 21:01
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 21:01
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/03/17 21:01
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 21:01
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/03/17 21:01
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 21:01
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 21:01
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 21:01
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 21:01
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 21:01
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 21:01
Benzene	0.400	U	0.400	0.120	ug/L	1		09/03/17 21:01
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 21:01
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 21:01
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 21:01
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 21:01
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 21:01

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061003
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Chloromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
cis-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		09/03/17 21:01
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		09/03/17 21:01
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Dichlorodifluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Ethylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Freon-113	10.0 U		10.0	3.10	ug/L	1		09/03/17 21:01
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Isopropylbenzene (Cumene)	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		09/03/17 21:01
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		09/03/17 21:01
Naphthalene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
n-Propylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
o-Xylene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
P & M -Xylene	2.00 U		2.00	0.620	ug/L	1		09/03/17 21:01
sec-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Styrene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Toluene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Trichlorofluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 21:01
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		09/03/17 21:01
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		09/03/17 21:01
Xylenes (total)	3.00 U		3.00	1.00	ug/L	1		09/03/17 21:01
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/03/17 21:01
4-Bromofluorobenzene (surr)	103		85-114		%	1		09/03/17 21:01
Toluene-d8 (surr)	101		89-112		%	1		09/03/17 21:01

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **AK Sales & Service**
Lab Sample ID: 1176061003
Lab Project ID: 1176061

Collection Date: 08/25/17 13:10
Received Date: 08/25/17 15:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17134
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 21:01
Container ID: 1176061003-D

Prep Batch: VXX31215
Prep Method: SW5030B
Prep Date/Time: 09/03/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1767109 [VXX/31167]
Blank Lab ID: 1408805

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176061001, 1176061002, 1176061003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	91.1	50-150		%

Batch Information

Analytical Batch: VFC13842
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 8/28/2017 8:26:00PM

Prep Batch: VXX31167
Prep Method: SW5030B
Prep Date/Time: 8/28/2017 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176061 [VXX31167]
Blank Spike Lab ID: 1408808
Date Analyzed: 08/28/2017 17:20

Spike Duplicate ID: LCSD for HBN 1176061 [VXX31167]
Spike Duplicate Lab ID: 1408809
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176061001, 1176061002, 1176061003

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.987	99	1.00	0.952	95	(60-120)	3.60	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	96.3	96	0.0500	95.8	96	(50-150)	0.50	

Batch Information

Analytical Batch: **VFC13842**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31167**
Prep Method: **SW5030B**
Prep Date/Time: **08/28/2017 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1767620 [VXX/31215]
Blank Lab ID: 1410363

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176061001, 1176061002, 1176061003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	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

Method Blank

Blank ID: MB for HBN 1767620 [VXX/31215]
Blank Lab ID: 1410363

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176061001, 1176061002, 1176061003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	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)	102	81-118		%
4-Bromofluorobenzene (surr)	105	85-114		%
Toluene-d8 (surr)	100	89-112		%

Method Blank

Blank ID: MB for HBN 1767620 [VXX/31215]
Blank Lab ID: 1410363

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176061001, 1176061002, 1176061003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17134
Analytical Method: SW8260C
Instrument: VSA Agilent GC/MS 7890B/5977A
Analyst: FDR
Analytical Date/Time: 9/3/2017 3:21:00PM

Prep Batch: VXX31215
Prep Method: SW5030B
Prep Date/Time: 9/3/2017 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176061 [VXX31215]
Blank Spike Lab ID: 1410366
Date Analyzed: 09/03/2017 17:46

Spike Duplicate ID: LCSD for HBN 1176061 [VXX31215]
Spike Duplicate Lab ID: 1410367
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176061001, 1176061002, 1176061003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	29.8	99	30	30.7	102	(78-124)	3.00	(< 20)
1,1,1-Trichloroethane	30	28.7	96	30	28.3	94	(74-131)	1.20	(< 20)
1,1,2,2-Tetrachloroethane	30	30.0	100	30	30.8	103	(71-121)	2.80	(< 20)
1,1,2-Trichloroethane	30	31.0	103	30	31.8	106	(80-119)	2.40	(< 20)
1,1-Dichloroethane	30	28.0	93	30	27.7	92	(77-125)	1.10	(< 20)
1,1-Dichloroethene	30	26.3	88	30	26.3	88	(71-131)	0.19	(< 20)
1,1-Dichloropropene	30	29.2	97	30	29.2	97	(79-125)	0.21	(< 20)
1,2,3-Trichlorobenzene	30	30.2	101	30	31.4	105	(69-129)	4.00	(< 20)
1,2,3-Trichloropropane	30	29.4	98	30	31.1	104	(73-122)	5.60	(< 20)
1,2,4-Trichlorobenzene	30	30.7	102	30	31.8	106	(69-130)	3.50	(< 20)
1,2,4-Trimethylbenzene	30	27.5	92	30	29.6	99	(79-124)	7.30	(< 20)
1,2-Dibromo-3-chloropropane	30	29.7	99	30	31.2	104	(62-128)	4.90	(< 20)
1,2-Dibromoethane	30	30.0	100	30	31.1	104	(77-121)	3.60	(< 20)
1,2-Dichlorobenzene	30	28.9	96	30	29.8	99	(80-119)	3.10	(< 20)
1,2-Dichloroethane	30	27.6	92	30	26.9	90	(73-128)	2.50	(< 20)
1,2-Dichloropropane	30	29.6	99	30	29.5	99	(78-122)	0.07	(< 20)
1,3,5-Trimethylbenzene	30	27.4	91	30	29.3	98	(75-124)	6.90	(< 20)
1,3-Dichlorobenzene	30	28.5	95	30	29.2	97	(80-119)	2.70	(< 20)
1,3-Dichloropropane	30	30.8	103	30	31.5	105	(80-119)	2.30	(< 20)
1,4-Dichlorobenzene	30	29.0	97	30	29.6	99	(79-118)	2.10	(< 20)
2,2-Dichloropropane	30	30.2	101	30	27.9	93	(60-139)	7.90	(< 20)
2-Butanone (MEK)	90	89.1	99	90	93.9	104	(56-143)	5.30	(< 20)
2-Chlorotoluene	30	28.7	96	30	29.9	100	(79-122)	4.20	(< 20)
2-Hexanone	90	89.2	99	90	97.9	109	(57-139)	9.40	(< 20)
4-Chlorotoluene	30	27.7	93	30	28.8	96	(78-122)	3.80	(< 20)
4-Isopropyltoluene	30	28.6	95	30	30.0	100	(77-127)	5.00	(< 20)
4-Methyl-2-pentanone (MIBK)	90	91.6	102	90	95.5	106	(67-130)	4.20	(< 20)
Benzene	30	29.0	97	30	29.8	99	(79-120)	2.60	(< 20)
Bromobenzene	30	28.3	94	30	29.5	98	(80-120)	4.10	(< 20)
Bromochloromethane	30	29.7	99	30	28.9	96	(78-123)	2.80	(< 20)
Bromodichloromethane	30	29.8	99	30	29.4	98	(79-125)	1.40	(< 20)
Bromoform	30	32.1	107	30	32.3	108	(66-130)	0.68	(< 20)
Bromomethane	30	26.1	87	30	25.9	86	(53-141)	0.46	(< 20)
Carbon disulfide	45	39.8	89	45	39.4	88	(64-133)	1.10	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176061 [VXX31215]
Blank Spike Lab ID: 1410366
Date Analyzed: 09/03/2017 17:46

Spike Duplicate ID: LCSD for HBN 1176061 [VXX31215]
Spike Duplicate Lab ID: 1410367
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176061001, 1176061002, 1176061003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.1	100	30	29.5	98	(72-136)	2.00	(< 20)
Chlorobenzene	30	28.3	94	30	29.3	98	(82-118)	3.40	(< 20)
Chloroethane	30	25.6	85	30	28.2	94	(60-138)	9.90	(< 20)
Chloroform	30	27.6	92	30	27.2	91	(79-124)	1.20	(< 20)
Chloromethane	30	28.3	94	30	26.5	88	(50-139)	6.50	(< 20)
cis-1,2-Dichloroethene	30	28.4	95	30	28.2	94	(78-123)	0.57	(< 20)
cis-1,3-Dichloropropene	30	30.7	102	30	30.5	102	(75-124)	0.46	(< 20)
Dibromochloromethane	30	31.9	106	30	32.5	108	(74-126)	2.10	(< 20)
Dibromomethane	30	28.9	96	30	28.4	95	(79-123)	1.60	(< 20)
Dichlorodifluoromethane	30	28.7	96	30	27.2	91	(32-152)	5.20	(< 20)
Ethylbenzene	30	28.9	96	30	30.1	100	(79-121)	4.10	(< 20)
Freon-113	45	40.3	90	45	40.3	89	(70-136)	0.17	(< 20)
Hexachlorobutadiene	30	30.9	103	30	30.5	102	(66-134)	1.50	(< 20)
Isopropylbenzene (Cumene)	30	28.9	96	30	29.5	98	(72-131)	2.10	(< 20)
Methylene chloride	30	27.9	93	30	27.5	92	(74-124)	1.60	(< 20)
Methyl-t-butyl ether	45	45.6	101	45	44.9	100	(71-124)	1.70	(< 20)
Naphthalene	30	30.5	102	30	32.7	109	(61-128)	7.00	(< 20)
n-Butylbenzene	30	28.2	94	30	29.4	98	(75-128)	4.30	(< 20)
n-Propylbenzene	30	27.7	92	30	28.9	96	(76-126)	4.20	(< 20)
o-Xylene	30	29.3	98	30	30.0	100	(78-122)	2.60	(< 20)
P & M -Xylene	60	57.6	96	60	59.2	99	(80-121)	2.70	(< 20)
sec-Butylbenzene	30	28.2	94	30	29.3	98	(77-126)	3.70	(< 20)
Styrene	30	30.1	100	30	30.6	102	(78-123)	1.80	(< 20)
tert-Butylbenzene	30	28.0	93	30	29.1	97	(78-124)	3.90	(< 20)
Tetrachloroethene	30	29.6	99	30	31.5	105	(74-129)	6.10	(< 20)
Toluene	30	27.8	93	30	29.3	98	(80-121)	5.20	(< 20)
trans-1,2-Dichloroethene	30	28.0	93	30	27.7	92	(75-124)	0.93	(< 20)
trans-1,3-Dichloropropene	30	28.4	95	30	28.7	96	(73-127)	1.30	(< 20)
Trichloroethene	30	29.5	98	30	30.1	100	(79-123)	1.90	(< 20)
Trichlorofluoromethane	30	28.2	94	30	27.6	92	(65-141)	2.30	(< 20)
Vinyl acetate	30	31.0	103	30	28.1	94	(54-146)	9.60	(< 20)
Vinyl chloride	30	27.8	93	30	27.0	90	(58-137)	2.70	(< 20)
Xylenes (total)	90	86.8	97	90	89.2	99	(79-121)	2.70	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176061 [VXX31215]
Blank Spike Lab ID: 1410366
Date Analyzed: 09/03/2017 17:46

Spike Duplicate ID: LCSD for HBN 1176061 [VXX31215]
Spike Duplicate Lab ID: 1410367
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176061001, 1176061002, 1176061003

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	98	98	30	92.6	93	(81-118)	5.70	
4-Bromofluorobenzene (surr)	30	94.1	94	30	94.6	95	(85-114)	0.49	
Toluene-d8 (surr)	30	103	103	30	103	103	(89-112)	0.13	

Batch Information

Analytical Batch: **VMS17134**
Analytical Method: **SW8260C**
Instrument: **VSA Agilent GC/MS 7890B/5977A**
Analyst: **FDR**

Prep Batch: **VXX31215**
Prep Method: **SW5030B**
Prep Date/Time: **09/03/2017 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1767790 [VXX/31230]
Blank Lab ID: 1410992

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176061001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	101	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	99.5	89-112		%

Batch Information

Analytical Batch: VMS17144
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 9/6/2017 11:15:00AM

Prep Batch: VXX31230
Prep Method: SW5030B
Prep Date/Time: 9/6/2017 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Leaching Blank

Blank ID: LB for HBN 1767691 [TCLP/9036]
Blank Lab ID: 1410538

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176061001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,2-Dichloroethane	12.5U	25.0	7.50	ug/L
Benzene	10.0U	20.0	6.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	104	81-118		%
4-Bromofluorobenzene (surr)	100	85-114		%
Toluene-d8 (surr)	98.4	89-112		%

Batch Information

Analytical Batch: VMS17144
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 9/6/2017 8:19:00PM

Prep Batch: VXX31230
Prep Method: SW5030B
Prep Date/Time: 9/6/2017 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176061 [VXX31230]
Blank Spike Lab ID: 1410993
Date Analyzed: 09/06/2017 11:41

Spike Duplicate ID: LCSD for HBN 1176061 [VXX31230]
Spike Duplicate Lab ID: 1410994
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176061001

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2-Dichloroethane	30	30.3	101	30	30.0	100	(73-128)	0.80	(< 20)
Benzene	30	32.3	108	30	31.7	106	(79-120)	1.80	(< 20)
Toluene	30	31.0	103	30	30.0	100	(80-121)	3.40	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	99.2	99	30	99	99	(81-118)	0.17	
4-Bromofluorobenzene (surr)	30	99.6	100	30	100	100	(85-114)	0.47	
Toluene-d8 (surr)	30	99.6	100	30	98.5	99	(89-112)	1.10	

Batch Information

Analytical Batch: **VMS17144**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX31230**
Prep Method: **SW5030B**
Prep Date/Time: **09/06/2017 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1767040 [XXX/38284]
Blank Lab ID: 1408492

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176061001, 1176061002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	76.2	60-120		%

Batch Information

Analytical Batch: XFC13740
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: JMG
Analytical Date/Time: 8/31/2017 10:59:00AM

Prep Batch: XXX38284
Prep Method: SW3520C
Prep Date/Time: 8/28/2017 8:55:33AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176061 [XXX38284]
Blank Spike Lab ID: 1408493
Date Analyzed: 08/31/2017 11:10

Spike Duplicate ID: LCSD for HBN 1176061 [XXX38284]
Spike Duplicate Lab ID: 1408494
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176061001, 1176061002

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	18.7	94	20	18.5	92	(75-125)	1.30	(< 20)
Surrogates									
5a Androstane (surr)	0.4	101	101	0.4	101	101	(60-120)	0.81	

Batch Information

Analytical Batch: **XFC13740**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **JMG**

Prep Batch: **XXX38284**
Prep Method: **SW3520C**
Prep Date/Time: **08/28/2017 08:55**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1767040 [XXX/38284]
Blank Lab ID: 1408492

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176061001, 1176061002

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.178J	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	95.1	60-120		%

Batch Information

Analytical Batch: XFC13740
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: JMG
Analytical Date/Time: 8/31/2017 10:59:00AM

Prep Batch: XXX38284
Prep Method: SW3520C
Prep Date/Time: 8/28/2017 8:55:33AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176061 [XXX38284]
Blank Spike Lab ID: 1408493
Date Analyzed: 08/31/2017 11:10

Spike Duplicate ID: LCSD for HBN 1176061 [XXX38284]
Spike Duplicate Lab ID: 1408494
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176061001, 1176061002

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	20.0	100	20	19.4	97	(60-120)	2.90	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	96.2	96	0.4	96.8	97	(60-120)	0.63	

Batch Information

Analytical Batch: **XFC13740**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **JMG**

Prep Batch: **XXX38284**
Prep Method: **SW3520C**
Prep Date/Time: **08/28/2017 08:55**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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CHAIN OF CUSTODY RECORD

1176061

Locations Nationwide

Alaska	Maryland
New Jersey	New York
North Carolina	Indiana
West Virgina	Kentucky

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Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page 1 of 1

Section 1

CLIENT: BGES Inc

CONTACT: Kris Shippen — PHONE #: 907-644-2900

PROJECT NAME: AK Sales & Service — Project/ PWSID/ PERMIT#:

REPORTS TO: Jayne Martin — E-MAIL: kris @ bgesinc.com

INVOICE TO: BGES Inc — QUOTE #: open — P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Pres: Type: Comp Grab MI (Multi-incremental)	HCL GRO (AK101)	HCL VOCs (8260C)	HCL DRO/RRO (AK102/AK103) LV							REMARKS/ LOC ID
(1) A-H	MW4-0825	8-25-17	13:10	W	8	G	X	X	X							
(2) A-H	MW5-0825	8-25-17	13:30	W	8	G	X	X	X							
(3) A-C	Trip blank			W	3		X									
(3) D-F	Trip blank			W	3			X								

Section 3 — Preservative

Section 4

DOD Project? No

Cooler ID: _____

Data Deliverable Requirements: QC2/DV

Requested Turnaround Time and/or Special Instructions: Standard

Section 5

	Date	Time	Received By:
Relinquished By: (1)	8-25-17	15:46	
Relinquished By: (2)			
Relinquished By: (3)			
Relinquished By: (4)	8/25/17	15:46	Received For Laboratory By:

Temp Blank °C: 4.2 D 24

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

HD

e-Sample Receipt Form

SGS Workorder #: **1176061**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	Hand Delivered
COC accompanied samples?	Yes	
Yes — **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)?	Yes	Cooler ID: 1 @ 4.2 °C Therm. ID: D24
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
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?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	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)	Yes	
		N/A — ***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	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

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1176061001-A	HCL to pH < 2	OK			
1176061001-B	HCL to pH < 2	OK			
1176061001-C	HCL to pH < 2	OK			
1176061001-D	HCL to pH < 2	OK			
1176061001-E	HCL to pH < 2	OK			
1176061001-F	HCL to pH < 2	OK			
1176061001-G	HCL to pH < 2	OK			
1176061001-H	HCL to pH < 2	OK			
1176061002-A	HCL to pH < 2	OK			
1176061002-B	HCL to pH < 2	OK			
1176061002-C	HCL to pH < 2	OK			
1176061002-D	HCL to pH < 2	OK			
1176061002-E	HCL to pH < 2	OK			
1176061002-F	HCL to pH < 2	OK			
1176061002-G	HCL to pH < 2	OK			
1176061002-H	HCL to pH < 2	OK			
1176061003-A	HCL to pH < 2	OK			
1176061003-B	HCL to pH < 2	OK			
1176061003-C	HCL to pH < 2	OK			
1176061003-D	HCL to pH < 2	OK			
1176061003-E	HCL to pH < 2	OK			
1176061003-F	HCL to pH < 2	OK			

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
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.
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.

Laboratory Report of Analysis

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

Report Number: **1180690**

Client Project: **Alaska Sales & Service**

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@sgs.com, c=US
2018.02.28 15:46:37 -09'00'

Jillian Vlahovich Date
Project Manager
Jillian.Vlahovich@sgs.com

Print Date: 02/28/2018 3:33:41PM

Case Narrative

SGS Client: **BGES Inc.**
SGS Project: **1180690**
Project Name/Site: **Alaska Sales & Service**
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.

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

Laboratory Qualifiers

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

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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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW4-0219	1180690001	02/19/2018	02/19/2018	Water (Surface, Eff., Ground)
MW5-0219	1180690002	02/19/2018	02/19/2018	Water (Surface, Eff., Ground)
Trip Blank	1180690003	02/19/2018	02/19/2018	Water (Surface, Eff., Ground)

Method	Method Description
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (W)
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MW4-0219**
Lab Sample ID: 1180690001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1.66	mg/L
	Residual Range Organics	1.15	mg/L
Volatile GC/MS	1,1,1-Trichloroethane	2.07	ug/L
	1,1-Dichloroethane	1.00	ug/L
	1,2,4-Trimethylbenzene	14.2	ug/L
	1,3,5-Trimethylbenzene	7.55	ug/L
	4-Isopropyltoluene	1.78	ug/L
	Naphthalene	1.43	ug/L
	n-Propylbenzene	1.34	ug/L
	o-Xylene	1.41	ug/L
	P & M -Xylene	3.78	ug/L
	Toluene	1.54	ug/L
	Xylenes (total)	5.19	ug/L

Client Sample ID: **MW5-0219**
Lab Sample ID: 1180690002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.684	mg/L
Volatile GC/MS	1,1,1-Trichloroethane	2.07	ug/L
	1,2,4-Trimethylbenzene	14.4	ug/L
	1,3,5-Trimethylbenzene	7.70	ug/L
	4-Isopropyltoluene	1.82	ug/L
	Naphthalene	1.54	ug/L
	n-Propylbenzene	1.36	ug/L
	o-Xylene	1.42	ug/L
	P & M -Xylene	3.71	ug/L
	Toluene	1.51	ug/L
	Xylenes (total)	5.13	ug/L

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Results of **MW4-0219**

Client Sample ID: **MW4-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690001
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.66		0.566	0.170	mg/L	1		02/26/18 12:12
Surrogates								
5a Androstane (surr)	84.7		50-150		%	1		02/26/18 12:12

Batch Information

Analytical Batch: XFC14073
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 02/26/18 12:12
Container ID: 1180690001-G

Prep Batch: XXX39093
Prep Method: SW3520C
Prep Date/Time: 02/23/18 08:40
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1.15		0.472	0.142	mg/L	1		02/26/18 12:12
Surrogates								
n-Triacontane-d62 (surr)	93.2		50-150		%	1		02/26/18 12:12

Batch Information

Analytical Batch: XFC14073
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 02/26/18 12:12
Container ID: 1180690001-G

Prep Batch: XXX39093
Prep Method: SW3520C
Prep Date/Time: 02/23/18 08:40
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 02/28/2018 3:33:46PM

Results of **MW4-0219**

Client Sample ID: **MW4-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690001
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.100	U	0.100	0.0310	mg/L	1		02/21/18 00:36
Surrogates								
4-Bromofluorobenzene (surr)	96.9		50-150		%	1		02/21/18 00:36

Batch Information

Analytical Batch: VFC14058
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 02/21/18 00:36
Container ID: 1180690001-A

Prep Batch: VXX31958
Prep Method: SW5030B
Prep Date/Time: 02/20/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW4-0219**

Client Sample ID: **MW4-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690001
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:18
1,1,1-Trichloroethane	2.07		1.00	0.310	ug/L	1		02/26/18 15:18
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:18
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		02/26/18 15:18
1,1-Dichloroethane	1.00		1.00	0.310	ug/L	1		02/26/18 15:18
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
1,2,4-Trimethylbenzene	14.2		1.00	0.310	ug/L	1		02/26/18 15:18
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:18
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		02/26/18 15:18
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:18
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
1,3,5-Trimethylbenzene	7.55		1.00	0.310	ug/L	1		02/26/18 15:18
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:18
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:18
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:18
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:18
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
4-Isopropyltoluene	1.78		1.00	0.310	ug/L	1		02/26/18 15:18
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:18
Benzene	0.400	U	0.400	0.120	ug/L	1		02/26/18 15:18
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:18
Bromoform	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
Bromomethane	5.00	U	5.00	1.50	ug/L	1		02/26/18 15:18
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:18
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:18
Chloroethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:18

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Results of **MW4-0219**

Client Sample ID: **MW4-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690001
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Chloromethane	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
cis-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		02/26/18 15:18
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		02/26/18 15:18
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Dichlorodifluoromethane	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Ethylbenzene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Freon-113	10.0 U		10.0	3.10	ug/L	1		02/26/18 15:18
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Isopropylbenzene (Cumene)	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		02/26/18 15:18
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		02/26/18 15:18
Naphthalene	1.43		1.00	0.310	ug/L	1		02/26/18 15:18
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
n-Propylbenzene	1.34		1.00	0.310	ug/L	1		02/26/18 15:18
o-Xylene	1.41		1.00	0.310	ug/L	1		02/26/18 15:18
P & M -Xylene	3.78		2.00	0.620	ug/L	1		02/26/18 15:18
sec-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Styrene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Toluene	1.54		1.00	0.310	ug/L	1		02/26/18 15:18
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Trichlorofluoromethane	1.00 U		1.00	0.310	ug/L	1		02/26/18 15:18
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		02/26/18 15:18
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		02/26/18 15:18
Xylenes (total)	5.19		3.00	1.00	ug/L	1		02/26/18 15:18
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		02/26/18 15:18
4-Bromofluorobenzene (surr)	98.4		85-114		%	1		02/26/18 15:18
Toluene-d8 (surr)	97.4		89-112		%	1		02/26/18 15:18

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Results of **MW4-0219**

Client Sample ID: **MW4-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690001
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17615
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 02/26/18 15:18
Container ID: 1180690001-D

Prep Batch: VXX31970
Prep Method: SW5030B
Prep Date/Time: 02/26/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW5-0219**

Client Sample ID: **MW5-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690002
Lab Project ID: 1180690

Collection Date: 02/19/18 13:30
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.684		0.577	0.173	mg/L	1		02/26/18 12:21
Surrogates								
5a Androstane (surr)	83.3		50-150		%	1		02/26/18 12:21

Batch Information

Analytical Batch: XFC14073
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 02/26/18 12:21
Container ID: 1180690002-G

Prep Batch: XXX39093
Prep Method: SW3520C
Prep Date/Time: 02/23/18 08:40
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.481 U		0.481	0.144	mg/L	1		02/26/18 12:21
Surrogates								
n-Triacontane-d62 (surr)	90.9		50-150		%	1		02/26/18 12:21

Batch Information

Analytical Batch: XFC14073
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 02/26/18 12:21
Container ID: 1180690002-G

Prep Batch: XXX39093
Prep Method: SW3520C
Prep Date/Time: 02/23/18 08:40
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

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Results of **MW5-0219**

Client Sample ID: **MW5-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690002
Lab Project ID: 1180690

Collection Date: 02/19/18 13:30
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.100	U	0.100	0.0310	mg/L	1		02/21/18 00:55
Surrogates								
4-Bromofluorobenzene (surr)	98.5		50-150		%	1		02/21/18 00:55

Batch Information

Analytical Batch: VFC14058
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 02/21/18 00:55
Container ID: 1180690002-A

Prep Batch: VXX31958
Prep Method: SW5030B
Prep Date/Time: 02/20/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW5-0219**

Client Sample ID: **MW5-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690002
Lab Project ID: 1180690

Collection Date: 02/19/18 13:30
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
1,1,1-Trichloroethane	2.07		1.00	0.310	ug/L	1		02/26/18 15:35
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		02/26/18 15:35
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,2,4-Trimethylbenzene	14.4		1.00	0.310	ug/L	1		02/26/18 15:35
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:35
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		02/26/18 15:35
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,3,5-Trimethylbenzene	7.70		1.00	0.310	ug/L	1		02/26/18 15:35
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:35
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:35
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
4-Isopropyltoluene	1.82		1.00	0.310	ug/L	1		02/26/18 15:35
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:35
Benzene	0.400	U	0.400	0.120	ug/L	1		02/26/18 15:35
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
Bromoform	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Bromomethane	5.00	U	5.00	1.50	ug/L	1		02/26/18 15:35
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:35
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
Chloroethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35

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Results of **MW5-0219**

Client Sample ID: **MW5-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690002
Lab Project ID: 1180690

Collection Date: 02/19/18 13:30
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Chloromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 15:35
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Freon-113	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:35
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		02/26/18 15:35
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:35
Naphthalene	1.54		1.00	0.310	ug/L	1		02/26/18 15:35
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
n-Propylbenzene	1.36		1.00	0.310	ug/L	1		02/26/18 15:35
o-Xylene	1.42		1.00	0.310	ug/L	1		02/26/18 15:35
P & M -Xylene	3.71		2.00	0.620	ug/L	1		02/26/18 15:35
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Styrene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Toluene	1.51		1.00	0.310	ug/L	1		02/26/18 15:35
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 15:35
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		02/26/18 15:35
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		02/26/18 15:35
Xylenes (total)	5.13		3.00	1.00	ug/L	1		02/26/18 15:35
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		02/26/18 15:35
4-Bromofluorobenzene (surr)	98.9		85-114		%	1		02/26/18 15:35
Toluene-d8 (surr)	99.9		89-112		%	1		02/26/18 15:35

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Results of **MW5-0219**

Client Sample ID: **MW5-0219**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690002
Lab Project ID: 1180690

Collection Date: 02/19/18 13:30
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17615
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 02/26/18 15:35
Container ID: 1180690002-D

Prep Batch: VXX31970
Prep Method: SW5030B
Prep Date/Time: 02/26/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690003
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.100	U	0.100	0.0310	mg/L	1		02/20/18 23:41
Surrogates								
4-Bromofluorobenzene (surr)	85.6		50-150		%	1		02/20/18 23:41

Batch Information

Analytical Batch: VFC14058
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 02/20/18 23:41
Container ID: 1180690003-A

Prep Batch: VXX31958
Prep Method: SW5030B
Prep Date/Time: 02/20/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690003
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		02/26/18 13:34
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		02/26/18 13:34
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		02/26/18 13:34
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		02/26/18 13:34
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		02/26/18 13:34
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		02/26/18 13:34
Benzene	0.400	U	0.400	0.120	ug/L	1		02/26/18 13:34
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
Bromoform	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Bromomethane	5.00	U	5.00	1.50	ug/L	1		02/26/18 13:34
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		02/26/18 13:34
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
Chloroethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690003
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Chloromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		02/26/18 13:34
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Freon-113	10.0	U	10.0	3.10	ug/L	1		02/26/18 13:34
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		02/26/18 13:34
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		02/26/18 13:34
Naphthalene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
o-Xylene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		02/26/18 13:34
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Styrene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Toluene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		02/26/18 13:34
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		02/26/18 13:34
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		02/26/18 13:34
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		02/26/18 13:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		02/26/18 13:34
4-Bromofluorobenzene (surr)	100		85-114		%	1		02/26/18 13:34
Toluene-d8 (surr)	96.8		89-112		%	1		02/26/18 13:34

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Sales & Service**
Lab Sample ID: 1180690003
Lab Project ID: 1180690

Collection Date: 02/19/18 13:10
Received Date: 02/19/18 16:51
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17615
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 02/26/18 13:34
Container ID: 1180690003-D

Prep Batch: VXX31970
Prep Method: SW5030B
Prep Date/Time: 02/26/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1776801 [VXX/31958]
Blank Lab ID: 1435072

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1180690001, 1180690002, 1180690003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	88.9	50-150		%

Batch Information

Analytical Batch: VFC14058
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 2/20/2018 3:00:00PM

Prep Batch: VXX31958
Prep Method: SW5030B
Prep Date/Time: 2/20/2018 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1180690 [VXX31958]
Blank Spike Lab ID: 1435075
Date Analyzed: 02/20/2018 21:49

Spike Duplicate ID: LCSD for HBN 1180690 [VXX31958]
Spike Duplicate Lab ID: 1435076
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1180690001, 1180690002, 1180690003

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.957	96	1.00	0.948	95	(60-120)	0.91	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	94.6	95	0.0500	101	101	(50-150)	6.90	

Batch Information

Analytical Batch: **VFC14058**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31958**
Prep Method: **SW5030B**
Prep Date/Time: **02/20/2018 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1776935 [VXX/31970]
Blank Lab ID: 1435554

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1180690001, 1180690002, 1180690003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	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

Method Blank

Blank ID: MB for HBN 1776935 [VXX/31970]
Blank Lab ID: 1435554

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1180690001, 1180690002, 1180690003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	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)	101	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	96.6	89-112		%

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Method Blank

Blank ID: MB for HBN 1776935 [VXX/31970]
Blank Lab ID: 1435554

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1180690001, 1180690002, 1180690003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17615
Analytical Method: SW8260C
Instrument: VSA Agilent GC/MS 7890B/5977A
Analyst: FDR
Analytical Date/Time: 2/26/2018 8:51:00AM

Prep Batch: VXX31970
Prep Method: SW5030B
Prep Date/Time: 2/26/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1180690 [VXX31970]
Blank Spike Lab ID: 1435555
Date Analyzed: 02/26/2018 09:07

Spike Duplicate ID: LCSD for HBN 1180690 [VXX31970]
Spike Duplicate Lab ID: 1435556
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1180690001, 1180690002, 1180690003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	32.0	107	30	31.9	106	(78-124)	0.22	(< 20)
1,1,1-Trichloroethane	30	30.9	103	30	30.8	103	(74-131)	0.26	(< 20)
1,1,2,2-Tetrachloroethane	30	31.2	104	30	30.4	101	(71-121)	2.50	(< 20)
1,1,2-Trichloroethane	30	32.1	107	30	32.0	107	(80-119)	0.37	(< 20)
1,1-Dichloroethane	30	29.5	98	30	29.5	98	(77-125)	0.03	(< 20)
1,1-Dichloroethene	30	29.7	99	30	29.3	98	(71-131)	1.30	(< 20)
1,1-Dichloropropene	30	32.3	108	30	32.4	108	(79-125)	0.15	(< 20)
1,2,3-Trichlorobenzene	30	32.2	107	30	32.0	107	(69-129)	0.65	(< 20)
1,2,3-Trichloropropane	30	30.4	101	30	29.5	98	(73-122)	3.00	(< 20)
1,2,4-Trichlorobenzene	30	32.8	109	30	32.5	108	(69-130)	0.92	(< 20)
1,2,4-Trimethylbenzene	30	31.7	106	30	31.6	105	(79-124)	0.25	(< 20)
1,2-Dibromo-3-chloropropane	30	31.0	103	30	30.4	101	(62-128)	1.90	(< 20)
1,2-Dibromoethane	30	31.5	105	30	31.7	106	(77-121)	0.76	(< 20)
1,2-Dichlorobenzene	30	30.6	102	30	30.8	103	(80-119)	0.52	(< 20)
1,2-Dichloroethane	30	27.5	92	30	27.3	91	(73-128)	0.77	(< 20)
1,2-Dichloropropane	30	31.7	106	30	31.1	104	(78-122)	1.90	(< 20)
1,3,5-Trimethylbenzene	30	31.7	106	30	31.8	106	(75-124)	0.22	(< 20)
1,3-Dichlorobenzene	30	30.7	102	30	30.6	102	(80-119)	0.33	(< 20)
1,3-Dichloropropane	30	32.2	107	30	32.2	107	(80-119)	0.25	(< 20)
1,4-Dichlorobenzene	30	31.5	105	30	31.1	104	(79-118)	1.40	(< 20)
2,2-Dichloropropane	30	31.1	104	30	30.7	102	(60-139)	1.20	(< 20)
2-Butanone (MEK)	90	84.2	94	90	83.8	93	(56-143)	0.40	(< 20)
2-Chlorotoluene	30	31.2	104	30	31.4	105	(79-122)	0.42	(< 20)
2-Hexanone	90	89.9	100	90	90.0	100	(57-139)	0.07	(< 20)
4-Chlorotoluene	30	31.5	105	30	31.2	104	(78-122)	1.10	(< 20)
4-Isopropyltoluene	30	32.2	107	30	32.2	107	(77-127)	0.22	(< 20)
4-Methyl-2-pentanone (MIBK)	90	96.6	107	90	96.3	107	(67-130)	0.24	(< 20)
Benzene	30	30.9	103	30	31.2	104	(79-120)	1.00	(< 20)
Bromobenzene	30	31.2	104	30	30.9	103	(80-120)	0.74	(< 20)
Bromochloromethane	30	29.6	99	30	29.2	97	(78-123)	1.40	(< 20)
Bromodichloromethane	30	31.2	104	30	31.0	103	(79-125)	0.48	(< 20)
Bromoform	30	31.7	106	30	31.2	104	(66-130)	1.50	(< 20)
Bromomethane	30	25.0	83	30	26.8	89	(53-141)	7.10	(< 20)
Carbon disulfide	45	43.8	97	45	43.5	97	(64-133)	0.78	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1180690 [VXX31970]
Blank Spike Lab ID: 1435555
Date Analyzed: 02/26/2018 09:07

Spike Duplicate ID: LCSD for HBN 1180690 [VXX31970]
Spike Duplicate Lab ID: 1435556
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1180690001, 1180690002, 1180690003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	32.3	108	30	32.1	107	(72-136)	0.62	(< 20)
Chlorobenzene	30	29.6	99	30	29.7	99	(82-118)	0.30	(< 20)
Chloroethane	30	25.6	85	30	25.1	84	(60-138)	1.70	(< 20)
Chloroform	30	28.8	96	30	28.5	95	(79-124)	1.20	(< 20)
Chloromethane	30	28.3	94	30	28.3	94	(50-139)	0.07	(< 20)
cis-1,2-Dichloroethene	30	29.5	98	30	29.3	98	(78-123)	0.61	(< 20)
cis-1,3-Dichloropropene	30	32.7	109	30	32.4	108	(75-124)	0.92	(< 20)
Dibromochloromethane	30	31.6	105	30	31.7	106	(74-126)	0.47	(< 20)
Dibromomethane	30	28.8	96	30	28.4	95	(79-123)	1.50	(< 20)
Dichlorodifluoromethane	30	30.4	101	30	30.5	102	(32-152)	0.39	(< 20)
Ethylbenzene	30	30.8	103	30	30.9	103	(79-121)	0.36	(< 20)
Freon-113	45	42.6	95	45	42.6	95	(70-136)	0.09	(< 20)
Hexachlorobutadiene	30	33.1	110	30	33.1	110	(66-134)	0.00	(< 20)
Isopropylbenzene (Cumene)	30	30.6	102	30	31.3	104	(72-131)	2.10	(< 20)
Methylene chloride	30	29.3	98	30	29.1	97	(74-124)	0.82	(< 20)
Methyl-t-butyl ether	45	46.2	103	45	45.4	101	(71-124)	1.60	(< 20)
Naphthalene	30	32.6	109	30	33.2	111	(61-128)	1.80	(< 20)
n-Butylbenzene	30	32.5	108	30	32.4	108	(75-128)	0.49	(< 20)
n-Propylbenzene	30	31.6	105	30	31.9	106	(76-126)	1.10	(< 20)
o-Xylene	30	30.8	103	30	31.4	105	(78-122)	2.00	(< 20)
P & M -Xylene	60	61.4	102	60	61.9	103	(80-121)	0.79	(< 20)
sec-Butylbenzene	30	32.0	107	30	32.4	108	(77-126)	1.30	(< 20)
Styrene	30	31.1	104	30	31.3	104	(78-123)	0.51	(< 20)
tert-Butylbenzene	30	32.4	108	30	32.2	107	(78-124)	0.62	(< 20)
Tetrachloroethene	30	32.1	107	30	32.8	109	(74-129)	2.30	(< 20)
Toluene	30	29.9	100	30	30.1	100	(80-121)	0.53	(< 20)
trans-1,2-Dichloroethene	30	29.8	99	30	30.0	100	(75-124)	0.90	(< 20)
trans-1,3-Dichloropropene	30	32.2	107	30	32.4	108	(73-127)	0.65	(< 20)
Trichloroethene	30	31.2	104	30	31.2	104	(79-123)	0.16	(< 20)
Trichlorofluoromethane	30	27.2	91	30	27.0	90	(65-141)	0.67	(< 20)
Vinyl acetate	30	27.7	92	30	27.5	92	(54-146)	0.80	(< 20)
Vinyl chloride	30	28.7	96	30	28.8	96	(58-137)	0.42	(< 20)
Xylenes (total)	90	92.3	103	90	93.4	104	(79-121)	1.20	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1180690 [VXX31970]
Blank Spike Lab ID: 1435555
Date Analyzed: 02/26/2018 09:07

Spike Duplicate ID: LCSD for HBN 1180690 [VXX31970]
Spike Duplicate Lab ID: 1435556
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1180690001, 1180690002, 1180690003

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	92.6	93	30	91.9	92	(81-118)	0.83	
4-Bromofluorobenzene (surr)	30	101	101	30	99.2	99	(85-114)	1.80	
Toluene-d8 (surr)	30	102	102	30	102	102	(89-112)	0.07	

Batch Information

Analytical Batch: **VMS17615**
Analytical Method: **SW8260C**
Instrument: **VSA Agilent GC/MS 7890B/5977A**
Analyst: **FDR**

Prep Batch: **VXX31970**
Prep Method: **SW5030B**
Prep Date/Time: **02/26/2018 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1776844 [XXX/39093]
Blank Lab ID: 1435255

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1180690001, 1180690002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	85.8	60-120		%

Batch Information

Analytical Batch: XFC14073
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 2/26/2018 10:54:00AM

Prep Batch: XXX39093
Prep Method: SW3520C
Prep Date/Time: 2/23/2018 8:40:20AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1180690 [XXX39093]
Blank Spike Lab ID: 1435256
Date Analyzed: 02/26/2018 11:03

Spike Duplicate ID: LCSD for HBN 1180690 [XXX39093]
Spike Duplicate Lab ID: 1435257
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1180690001, 1180690002

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	18.8	94	20	18.1	91	(75-125)	3.60	(< 20)
Surrogates									
5a Androstane (surr)	0.4	103	103	0.4	99.7	100	(60-120)	3.70	

Batch Information

Analytical Batch: **XFC14073**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX39093**
Prep Method: **SW3520C**
Prep Date/Time: **02/23/2018 08:40**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1776844 [XXX/39093]
Blank Lab ID: 1435255

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1180690001, 1180690002

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	94.3	60-120		%

Batch Information

Analytical Batch: XFC14073
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 2/26/2018 10:54:00AM

Prep Batch: XXX39093
Prep Method: SW3520C
Prep Date/Time: 2/23/2018 8:40:20AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1180690 [XXX39093]
Blank Spike Lab ID: 1435256
Date Analyzed: 02/26/2018 11:03

Spike Duplicate ID: LCSD for HBN 1180690 [XXX39093]
Spike Duplicate Lab ID: 1435257
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1180690001, 1180690002

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	18.7	93	20	17.8	89	(60-120)	4.90	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	97.1	97	0.4	94.5	95	(60-120)	2.70	

Batch Information

Analytical Batch: **XFC14073**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX39093**
Prep Method: **SW3520C**
Prep Date/Time: **02/23/2018 08:40**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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SGS NORTH AMERICA INC. CHAIN OF CUSTODY RECORD

1180690

ntal Services
Road
9518

aska

SECTION 1

CLIENT: BGES Inc.

CONTACT: Kris Shippen — PHONE #: 907-644-2900

PROJECT NAME: Alaska Sales & Service — PROJECT/ PWSID/ PERMIT #:

REPORTS TO: Kris Shippen — E-MAIL: Kris@bgesinc.com

INVOICE TO: Jayne Martin — QUOTE #: OPEN — P.O. #:

INSTRUCTIONS: SECTIONS 1-5 MUST BE FILLED OUT. OMISSIONS MAY DELAY THE ONSET OF ANALYSIS.

Page 1 of 1

SECTION 3

SECTION 2

RESERVED FOR LAB USE	SAMPLE IDENTIFICATION	DATE MM/DD/YY	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE: Comp Grab MI (Multi-incremental)	PRESERVATIVE: HCL	HCL	HCL							REMARKS/ LOC ID
							GRO/AK101	VOCs/8260C	DRO/RRO (AK102/AK103) LV							
①A-A	MW4-0219	2/19/2018	13:10	W	8	G	✓	✓	✓							
②A-A	MW5-0219	2/19/2018	13:30	W	8	G	✓	✓	✓							
③A-C	Trip Blank			W	3		✓									
③D-F	Trip Blank			W	3			✓								

SECTION 5

	DATE	TIME	
RELINQUISHED BY: (1)	2-19-18	16:51	RECEIVED BY:
RELINQUISHED BY:(2)	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:(3)	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:(4)	2/19/18	16:51	RECEIVED FOR LABORATORY BY:

SECTION 4 DOD Project? NO

COC ID:
Cooler ID:

DATA DELIVERABLE REQUIREMENTS: Level 2

REQUESTED TURNAROUND TIME AND/OR SPECIAL INSTRUCTIONS: Standard

2.7 TEMP BLANK °C: #041
OR AMBIENT [ ]
(See attached Sample Receipt Form)

CHAIN OF CUSTODY SEAL: (CIRCLE)
INTACT BROKEN ABSENT
(See attached Sample Receipt Form)

NCW

Hand Delivered

http://www.sgs.com/terms-and-conditions

F101_eCOC_Revised_2015-8-28

e-Sample Receipt Form

SGS Workorder #: **1180690**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		yes Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	n/a	ABSENT
COC accompanied samples?	yes	
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)?	yes	Cooler ID: 1 @ 2.7 °C Therm. ID: D41
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	n/a	
If <0°C, were sample containers ice free?	n/a	
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
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?	yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	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)	yes	
	n/a	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	yes	
Were all soil VOAs field extracted with MeOH+BFB?	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

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1180690001-A	HCL to pH < 2	OK			
1180690001-B	HCL to pH < 2	OK			
1180690001-C	HCL to pH < 2	OK			
1180690001-D	HCL to pH < 2	OK			
1180690001-E	HCL to pH < 2	OK			
1180690001-F	HCL to pH < 2	OK			
1180690001-G	HCL to pH < 2	OK			
1180690001-H	HCL to pH < 2	OK			
1180690002-A	HCL to pH < 2	OK			
1180690002-B	HCL to pH < 2	OK			
1180690002-C	HCL to pH < 2	OK			
1180690002-D	HCL to pH < 2	OK			
1180690002-E	HCL to pH < 2	OK			
1180690002-F	HCL to pH < 2	OK			
1180690002-G	HCL to pH < 2	OK			
1180690002-H	HCL to pH < 2	OK			
1180690003-A	HCL to pH < 2	OK			
1180690003-B	HCL to pH < 2	OK			
1180690003-C	HCL to pH < 2	OK			
1180690003-D	HCL to pH < 2	OK			
1180690003-E	HCL to pH < 2	OK			
1180690003-F	HCL to pH < 2	OK			

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
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 CHECKLISTS

Laboratory Data Review Checklist

Completed By:

Rose Pollock

Title:

Environmental Scientist II

Date:

10/31/2018

CS Report Name:

2017 & 2018 Free Product Monitoring and Groundwater Monitoring Report

Report Date:

November 2018

Consultant Firm:

BGES, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1176061

ADEC File Number:

2100.26.227

Hazard Identification Number:

23886

1176061

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:

   Samples were not transferred.

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:

   The temperature of the cooler containing the samples was measured at the time of receipt to be 4.2 degrees C, which is within the ADEC-prescribed optimal temperature range of 0 to 6 degrees C.

   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:

   No unusual sample conditions were noted.

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 discrepancies were noted.

e. Data quality or usability affected?

Comments:

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:

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

Comments:

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:

This work order does not contain soil samples.

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

○ Yes ◉ No Comments:

The LOQs for 1,2,3-trichloropropane exceeded the applicable ADEC cleanup criterion for Samples MW4-0825 and MW5-0825; as such it cannot be determined if the actual concentrations of this analyte exceed the ADEC cleanup criterion within these samples. Because Samples MW4-0825 and MW5-0825 contained concentrations of three or more analytes that exceeded the ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

e. Data quality or usability affected?

○ Yes ◉ No Comments:

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:

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

○ Yes ○ No Comments:

v. Data quality or usability affected?

Comments:

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

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

(•) Yes ( ) No Comments:

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

( ) Yes (•) No Comments:

Samples on this work order were not analyzed for metals/inorganics.

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:

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

( ) Yes ( ) No Comments:

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

Comments:

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:

iv. Data quality or usability affected?

Comments:

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:

All samples on this work order were submitted in a single cooler.

iii. All results less than LOQ?

◉ Yes ○ No Comments:

iv. If above LOQ, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

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)

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

◉ Yes ○ No Comments:

Sample MW5-0825 was a duplicate of Sample MW4-0825 and was collected to evaluate sampling precision. The RPDs for all analytes that were detected in both samples ranged from 1 to 18 percent, which are below the ADEC-prescribed limit of 30 percent for water samples and indicates acceptable field sampling precision. The RPDs between the reported concentrations of several analytes could not be calculated, as they were not detected above the LOQs.

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

Comments:

No. See 6.e.iii above.

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

○ Yes ○ No ◉ Not Applicable

The approved scope of work for this project did not include decontamination or equipment blanks.

i. All results less than LOQ?

○ Yes ○ No Comments:

ii. If above LOQ, what samples are affected?

Comments:

iii. Data quality or usability affected?

Comments:

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

a. Defined and appropriate?

○ Yes ◉ No Comments:

No other data flags were appropriate for this work order.

Laboratory Data Review Checklist

Completed By:

Rose Pollock

Title:

Environmental Scientist II

Date:

10/31/2018

CS Report Name:

2017 & 2018 Free Product Monitoring and Groundwater Monitoring Report

Report Date:

November 2018

Consultant Firm:

BGES, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1180690

ADEC File Number:

2100.26.227

Hazard Identification Number:

23886

1180690

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:

   Samples were not transferred.

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:

   The temperature of the cooler containing the samples was measured at the time of receipt to be 2.7 degrees C, which is within the ADEC-prescribed optimal temperature range of 0 to 6 degrees C.

   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:

   No unusual sample conditions were noted.

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 discrepancies were noted.

e. Data quality or usability affected?

Comments:

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:

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

Comments:

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:

This work order does not contain soil samples.

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

○ Yes ◉ No Comments:

The LOQs for 1,2,3-trichloropropane exceeded the applicable ADEC cleanup criterion for Samples MW4-0219 and MW5-0219; as such it cannot be determined if the actual concentrations of this analyte exceed the ADEC cleanup criterion within these samples. Because Samples MW4-0219 and MW5-0219 contained concentrations of DRO and RRO that exceeded the ADEC cleanup criteria, it is our opinion that this QC failure does not affect the interpretation of the data for their intended use.

e. Data quality or usability affected?

○ Yes ◉ No Comments:

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:

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

○ Yes ○ No Comments:

v. Data quality or usability affected?

Comments:

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

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

(•) Yes ( ) No Comments:

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

( ) Yes (•) No Comments:

Samples on this work order were not analyzed for metals/inorganics.

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:

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

( ) Yes ( ) No Comments:

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

Comments:

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:

iv. Data quality or usability affected?

Comments:

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:

All samples on this work order were submitted in a single cooler.

iii. All results less than LOQ?

(•) Yes ( ) No Comments:

iv. If above LOQ, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

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)

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

(•) Yes ( ) No Comments:

Sample MW5-0219 was a duplicate of Sample MW4-0219 and was collected to evaluate sampling precision. The RPDs for 1,1,1-trichloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 4-isopropyltoluene, naphthalene, n-propylbenzene, toluene, and total xylenes ranged from 0 to 7 percent, which are below the ADEC-prescribed limit of 30 percent for water samples and indicates acceptable field sampling precision with respect to these analytes. The RPD for DRO was 83 percent, potentially indicating poor field sampling precision. The RPDs between the reported concentrations of several analytes could not be calculated, as they were not detected above the LOQs.

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

Comments:

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

○ Yes ○ No ◉ Not Applicable

The approved scope of work for this project did not include decontamination or equipment blanks.

i. All results less than LOQ?

○ Yes ○ No Comments:

ii. If above LOQ, what samples are affected?

Comments:

iii. Data quality or usability affected?

Comments:

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

a. Defined and appropriate?

○ Yes ◉ No Comments:

No other data flags were appropriate for this work order.

APPENDIX E
CONCEPTUAL SITE MODEL

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: 1300 East 5th Avenue, Anchorage Alaska 99501
Alaska Sales & Service

Completed By: Rose Pollock
Date Completed: 9/27/2018

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

Media	Transport Mechanisms	
☐ Surface Soil (0-2 ft bgs)	☐ Direct release to surface soil	check soil
	☐ Migration to subsurface	check soil
	☐ Migration to groundwater	check groundwater
	☐ Volatilization	check air
	☐ Runoff or erosion	check surface water
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☑ Subsurface Soil (2-15 ft bgs)	☐ Direct release to subsurface soil	check soil
	☑ Migration to groundwater	check groundwater
	☑ Volatilization	check air
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☑ Ground-water	☐ Direct release to groundwater	check groundwater
	☑ Volatilization	check air
	☐ Flow to surface water body	check surface water
	☐ Flow to sediment	check sediment
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☐ Surface Water	☐ Direct release to surface water	check surface water
	☐ Volatilization	check air
	☐ Sedimentation	check sediment
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☐ Sediment	☐ Direct release to sediment	check sediment
	☐ Resuspension, runoff, or erosion	check surface water
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	

(3) *Check all exposure media identified in (2).*

(4) *Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

Current & Future Receptors

Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion		F	F	F			
	☑ Dermal Absorption of Contaminants from Soil							
	☐ Inhalation of Fugitive Dust							
☑ groundwater	☑ Ingestion of Groundwater		F	F	F			
	☑ Dermal Absorption of Contaminants in Groundwater		F	F	F			
	☑ Inhalation of Volatile Compounds in Tap Water		F	F	F			
☑ air	☑ Inhalation of Outdoor Air		C/F	C/F	C/F			
	☑ Inhalation of Indoor Air		C/F	C/F	C/F			
	☐ Inhalation of Fugitive Dust							
☐ surface water	☐ Ingestion of Surface Water							
	☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Inhalation of Volatile Compounds in Tap Water							
☐ sediment	☐ Direct Contact with Sediment							
☐ biota	☐ Ingestion of Wild or Farmed Foods							

Revised, 10/01/2010