NORTECH

SUSTAINABLE ENVIRONMENT, ENERGY,
HEALTH & SAFETY PROFESSIONAL SERVICES

***NORTECH*, Inc.**

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April 18, 2018

Sent via email to: goldhillalaska@gmail.com

Gold Hill Store
3040 Parks Highway,
Fairbanks, AK 99709

ATTN: Susan Osborne

RE: 2017 Monitoring Well Sampling at the Gold Hill Store Site

Dear Ms. Osborne:

NORTECH is pleased to submit this report summarizing the results of the August 24, 2017, groundwater monitoring event at the Gold Hill Store in Fairbanks, Alaska. The sampling program was carried out to characterize current concentrations of petroleum hydrocarbons in groundwater and indoor air. The scope of this work was outlined in ***NORTECH***'s ADEC approved work plan dated July 3, 2017. The following is a brief synopsis of the background, scope of work, methodology, field activities, sampling results with discussion including conclusions and recommendations

Figure 1 shows the location of the site in Fairbanks, Alaska. Figure 2 shows the site with associated buildings and contaminant concentrations in each tested monitoring well along with a brief history of sampling results.

Table 1 summarizes the 2017 groundwater laboratory results, and Table 2 shows the field duplicate quality control results. A copy of the laboratory analysis report for the sampling event and an ADEC QC Checklist for the current sample results are also attached.

Background

AMEC Earth and Environmental Inc. (formerly AGRA Earth & Environmental) identified a petroleum hydrocarbon release from the former gasoline underground storage tanks located on the east side of the store structure in 1994. In 1996, AMEC installed a soil vapor extraction system (SVE) in combination with an air sparge system to remediate impacts to the soil and groundwater. AMEC initiated groundwater monitoring in 1994 and conducted at least 27 groundwater monitoring events throughout the years.

A document search indicates AMEC's remedial and monitoring activities were concluded in 2004, with the final analytical results and conclusions published in their 2004 annual report. This report indicated that eight monitoring points had at least one or more contaminants of concern exceeding ADEC's recommended cleanup levels. However, based on a positive natural attenuation analysis, reducing contaminant trends and an encouraging exposure route evaluation, AMEC recommended ADEC consider issuing a No Further Remedial Action Planned (NFRAP) with the stipulations of continued long-term monitoring and continued use of carbon filtration on the Gold Hill Store water supply.

Shannon and Wilson conducted a groundwater monitoring event in November 2006. Three monitoring wells and the drinking water supply (MW-2, MW-17, MW-20, and GHW-2) were tested. The results indicated several constituents exceeded ADEC cleanup levels in each groundwater monitoring well. Contaminant concentration trends were inconclusive with some results higher and some results lower than prior year concentrations.

In July 2015 ***NORTECH*** conducted site work to document the location and condition of the monitoring wells (MWs), determine current groundwater conditions and outline long-term strategies for the remaining contamination remaining onsite.

Objectives/Scope of Work

The approved work plan was intended to identify current groundwater conditions at the Gold Hill Store Site and evaluate alternatives for a long-term strategy for management of potential threats to human health and the environment. As reported by AMEC in their final 2004 annual report, Shannon & Wilson in their November 2006 groundwater monitoring report, and ***NORTECH***'s January 8, 2016 report**,** contamination exceeding ADEC's cleanup levels remains on site.

The scope of work and the ADEC work plan for this monitoring event were intended to:

- Sample and report laboratory analysis of groundwater from offsite wells MW-14, MW-15, the Dream Works Cabinet Shop water supply well, and onsite wells MW-2, MW-16, and MW-20,
- Evaluate historical data using Mann-Kendall statistical analysis to quantify contaminant trends and remedial progress
- Evaluate potential indoor air concerns
    a. Perform Total Volatile Indoor Air Quality (IAQ) screening down to the part per billion.
    b. Include analytical samples if screening results suggest VOC impacts migrating from surface soil into occupied spaces of the facility
- Prepare a report documenting these activities, including the laboratory report, a laboratory data review checklist, and outlining potential long-term management strategies.

Methodology

Field sampling was completed in general accordance with the ADEC approved work plan, March 2017 ADEC UST Procedures Manual Standard Sampling Procedures (SSP), 2017 Field Sampling Guidance (FSG) and the attached standalone groundwater sampling methodologies as detailed in these sections.

Prior to purging, static water levels were measured in the monitoring wells and recorded. Purging and sampling were performed with a peristaltic pump and dedicated tubing. During the purging process, field personnel monitored water quality parameters and purge volume. Purging was considered complete when at least three well volumes were removed and/or water quality parameters stabilized. Groundwater quality parameters (including temperature, ORP, pH, conductivity, and dissolved oxygen) were measured within a flow-through cell at three to five-minute intervals during well purging. Water quality parameters were considered stabilized when three consecutive measurements indicated that: pH was within 0.1 units, conductivity was within 3 percent, the temperature was within 1 degree Celsius, and turbidity was within 10 percent. However, recharge rates in several wells were not sufficient to meet these criteria and

were pumped dry. These wells are identified in the field section and were sampled when sufficient water volume had recharged.

Once groundwater quality stabilization criteria were satisfied, the pump's discharge tubing was disconnected from the flow-through cell and groundwater samples were collected for laboratory analysis. Water was collected into clean, laboratory supplied glassware and placed immediately in a cooler with ice for transportation to the laboratory. One trip blank accompanied the samples submitted to the laboratory for analysis of volatile compounds. Samples were delivered under chain-of-custody (COC) to SGS Environmental Services in Anchorage, Alaska for analysis.

Field Activities

NORTECH mobilized to the site on August 24, 2017, to perform groundwater sampling and IAQ screening as outlined in the ADEC approved work plan. Each monitoring well was inspected and condition noted.

MW-2 is located near the southeast corner of the Gold Hill Lot within 25 feet of the boundary of the PHE property. The well monument was in poor condition, however, the well itself was adequate to collect a sample. Approximately two gallons of groundwater were purged from the well when it went dry.

MW-14 is an offsite well situated on the Parks Hiway Enterprises (PHE) property about fifty feet east of the Gold Hill/PHE boundary and was found to be in good condition. Approximately four gallons were purged before groundwater parameters stabilized.

MW-15 is an off-site monitoring well located south of the Parks Highway. The well has frost jacked approximately 8 inches causing the monument to partially rise out of the ground. The PVC well itself is in good condition. The well was purged until groundwater parameters stabilized and then the sample was collected.

MW-16 located east of the fuel dispenser island, was in good condition. Approximately five gallons of water were purged from the well prior to sample collection.

MW-20 was in good condition, though the recharge rate was slow. Approximately three gallons were purged when the well ran dry. The well was sampled an hour later when the well was sufficiently recharged to collect samples.

The sample from the water supply well at the Dream Works Cabinet shop (Larricks) was collected from the faucet in the break room. There was no water softener, filter or other device observed. The tap was turned on and allowed to run for five minutes prior to collecting a sample. The sample was labeled PHE.

The table below shows the analytical method used at each sampling point.

Analysis	MW-2	MW-14	MW-15	MW-16	MW-20	PHE (Larricks)
VOCs EPA 8260	X	X	X	X	X	X
EDB 504.1	X	X	X	X	X	

Indoor Air Quality Assessment

A parts per billion (ppb) calibrated ppbRAE PID was used to assess total volatile organic compounds (tVOCs) in the air of the facility including in the convenience and liquor store, storage room, apartment and outside areas near the pump islands and ambient outside areas away from the fuel dispensers. The ppbRAE was calibrated using outside ambient air to zero and 10 parts per million isobutylene gas to calibrate the span. The ambient outside areas south and east of the pumps had the lowest readings of zero ppb. The outside area near the pump island had the highest reading in the survey of about 25 ppb with no vehicle dispensing fuel. The interior of the facility had low readings that ranged from 0 to 20 ppb. The highest reading was near the back of the liquor sales area where it smelled slightly of alcohol beverages. The southeast portion of the building where grocery inventory is stored and the part of the building nearest the source of the contaminant plume had a reading of 0 ppb. No visual, olfactory or other indicators of compromised air quality were observed. Based on these observations and the low VOC readings no analytical air samples were collected.

2017 Results with Discussion

Groundwater Contaminant Concentrations

The groundwater contaminant concentrations for the 2017 sampling events are summarized in Table 1.

MW-2

MW-2, located near the highway had no BTEX compounds detected above the limit of quantitation in 2015 and 2017. Ethylene dichloride (EDC) and Ethylene dibromide (EDB) were detected above cleanup levels in 2015 but in 2017 below the limit of quantitation (LOQ). In 2015, Methyl *tert*-butyl ether (MTBE) and chloroethene levels were detected at concentrations below the cleanup levels in 2015 and in 2017 have decreased to levels below the LOQ. Since 1995, concentration trends have shown a decrease. In 2017 all tested compounds are below their respective LOQ.

MW-14: This monitoring well is on the Cornell Corrections Center Property. EDC is above the cleanup level and has decreased from 0.023mg/L in 2015 to 0.004 mg/L in 2017. No compound except for EDC has been detected above the LOQ.

MW-15:

MW-15 is an off-site groundwater monitoring well located across the Parks Highway and is directly in line from the source area to the Blue Loon Night Club which reportedly had benzene detected in their water supply. 2017 results indicated no compound was detected above the LOQ. The only benzene detection in this monitoring well occurred in May 1998 and was well below cleanup levels. Since that detection, neither BTEX nor GRO has been detected in the following groundwater sampling events. The source of the benzene contamination found at the Blue Loon property is not from the Gold Hill release.

MW-16: Results from MW-16 has detectable concentrations of BTEX with benzene concentrations exceeding ADEC cleanup levels but, below 2015 results. MTBE has been detected below ADEC cleanup levels and has decreased since 2015. EDC and EDB have decreased since 2015 but still exceed cleanup levels. In 2015, eleven other VOC compounds were detected well below ADECs cleanup levels. However, in 2017 due to changes in cleanup levels, 1,1,2-trichloroethane, 1,2,4-trimethylbenzene and naphthalene now exceed the cleanup levels.

MW-20: Benzene and EDC are above the ADEC cleanup levels, but have shown an order of magnitude decrease in concentrations since the 2015 sampling event, benzene, toluene, GRO, MTBE, EDB, and EDC were above cleanup levels.

PHE

PHE was collected from the Dream Works Cabinet shop located on the Larrick property and was labeled PHE. No compound was detected above the LOQ.

Data Quality

Laboratory analytical reports and associated Laboratory Data Quality Control forms are presented in the Attachments. The data quality review for this sampling event indicated there were no significant data quality issues associated with this laboratory report.

Other data quality issues, including the calculated relative percent differences (RPDs) for each analyte in the field duplicate pair, are discussed in the attached Laboratory Data Review Checklist (LDCR). The RPDs are acceptable and no other significant data quality issues that could impact the usability of the data were identified.

Biological Degradation

Except for EDC in MW-16, the historic results show a general long-term decrease in concentrations for all COCs. AMEC collected a broad array of geochemical parameters in May 2004 to evaluate the biological degradation of contaminants. Manganese, total iron, and ferrous iron were elevated at the plume center and gasoline degrading bacteria was detected, suggesting biologic activity is occurring. The general decrease in contaminant concentrations seen in this 2017 sampling event is a result of continued biological degradation of the contaminants and other natural attenuative processes. AMEC also concluded that nitrogen is limited and additions of ammonia and micronutrients may stimulate and increase natural attenuation.

Field parameters collected during this event show the dissolved oxygen is lowest in MW-16 and MW-20 (the most contaminated wells) and in the plume center. This is consistent with the presence of anaerobic biological breakdown of hydrocarbons. The oxygen reduction potential is positive in all wells with the lowest values at MW-16 (77.0 mv). The limited data suggests ongoing biologic activity at MW-16 and MW-20.

Indoor Air Quality

Based on the indoor screening results and observations indoor air quality at the store is not impacted by petroleum vapors originating from subsurface soils or groundwater. The screening results were characteristic of ambient background conditions. These results indicate that petroleum impacts to indoor air were not present at the time of the inspection. No further assessment of indoor air quality through screening or analytical sampling is recommended.

Groundwater Plume Analysis

The contaminant plume is significantly smaller in area than in the 1990s and the concentrations have also decreased significantly. The benzene concentrations have been plotted using Surfer Contouring Software. Figure 2 and 3 show concentrations along lines having a constant value, so that each contour joins points of equal value. Figure 2 shows benzene concentrations from 1995 which indicates that the area and the magnitude of the benzene impacts encompass most of the onsite property and impacts the adjoining Cornell Correction Center Property. The 2017 contour map (Figure 3) shows that there are no offsite benzene impacts and that the remaining

impacts are near the source area (MW-16 and MW-20) and that the magnitude of the impacts are 5000 times less than benzene concentration from 1995.

Groundwater Contaminant Trend Analysis

Each well is discussed in detail below and summarized in Table 3. The historical data from all wells were compiled and evaluated for trends and patterns using the Mann-Kendall statistical analysis.

MW-1

MW-1 is located about 115 feet east of the Gold Hill facility. This well was sampled eight times and had a benzene concentration of 20,500 µg/L in 1994. This benzene concentration decreased to 193 µg/L the last time it was sampled in 2002. The Mann Kendall trend analysis indicated a downward trend of -22 for benzene and -24 for the remaining BTEX compounds showing a decrease with greater than 90% confidence (±12).

MW-2

MW-2 is located near the southeast corner of the Gold Hill Lot, within 25 feet of the boundary of the Parks Hiway Enterprise (North Star Center) property. The original data was non-detect for BTEX and GRO compounds and then as the plume traveled past, VOC concentration increased into the mid to late 1990s and was variable into the early 2000s. The latest data obtained in 2015 and 2017 indicate the groundwater VOC concentrations now meet ADEC cleanup levels. EDB and EDC samples were collected during the last four sampling events.

Mann Kendall also shows a decreasing trend analysis of -6 with a >90 % confidence and concentration are now less than the LOQ.

MW-3

MW-3 was successfully sampled eight times. The well was dry for 14 sampling events. The well is located on the northern boundary of the property near the bottom of the bluff. The sampling results for this well were below the LOQ for all compounds sampled each time it was successfully sampled. It was not necessary to evaluate with Mann-Kendall analysis.

MW-4

One viable sample was collected from MW-4 and the results were less than the LOQ. Eleven other attempts were made to collect samples from this well but the well was dry. Statistical analysis is not possible on this data set. MW-4 should be decommissioned.

MW-5

MW-5 is near the southwest corner of the building. Fourteen attempts were made to collect samples from this well. Samples were collected successfully during three events and the results were less than the LOQ for BTEX and GRO. This well is outside the source area and Mann Kendall analysis is neither necessary or possible.

MW-6

No trend was established for MW-6 as the monitoring well was never sampled. Based on AMEC's 2004 report, MW-6 was decommissioned.

MW-7
MW-7 was located between MW-1 and MW-9 in the source area. The well was sampled successfully three times prior to decommissioning in 1998. No significant trend was established due to limit number of sampling events. Data from this well should not be used to evaluate the site conditions.

MW-8
MW-8, located near MW-7 in the source area was sampled successfully four times out 15 attempts. Trend analysis was a -4 for each BTEX compound but the 90 percent confidence level was at ±5.

MW-9
MW-9 was a source area monitoring well located near the southeast corner of the store. The monitoring well as successfully sampled six times out of 13 attempts. The Mann-Kendall analysis was a -6 for benzene and ethylbenzene, -9 for Toluene and plus one for xylenes. remaining BTEX compounds showing a decrease with less than 90% confidence (±10). The results of the latest sampling event in 2015 were less than the LOQ for each tested compound.

MW-10
MW-10, an upgradient well is located near the highway west of the dispenser island. Based on historical research, BTEX and GRO have not been detected at this location.

MW-11
MW-11 located offsite on the PHE property near the bottom of the bluff was sampled five times. During the September 1995 sampling event, benzene was detected just above the cleanup level and GRO was detected below the cleanup level. The last two times the well was successfully sampled in the 1990s, the results were less than the LOQ for each COC. Review of the data shows a decreasing trend , while calculation in not necessary due to the number of non-detects.

MW-12
MW-12 is a well located near the southwest corner of the North Star Center. Benzene results were less than the LOQ in 22 out of 24 sampling events. The remain BTEX compounds have been less than their respective LOQs the last two sampling events. . EDB, EDC and MTBE were above the cleanup level the last time the well was sampled in 2004. There is not a sufficient quantity of EDB, EDC or MTBE sample results to perform a Mann Kendall analysis. It is anticipated, that EDC, EDC and MTBE reductions observed in MW-2 are occurring in MW-12 as well. Detailed calculations for BTEX compounds are not necessary due to the number of non-detects. The well is no longer serviceable and should be decommissioned.

MW-13
MW-13 is located 50 feet south of MW-16 and was just south of the source area. This well was sampled 17 times from 1996 through 2017. The Mann Kendall analysis was -88 for benzene, -25 for toluene, -23 for ethylbenzene and -34 for xylenes. The trend confidence level was ± 30, therefore, the benzene and the xylene reduction trend is > 90%, while the reduction in toluene and ethylbenzene is < than 90%. No COCs were detected above the LOQ from 1998 through the last sampling event in 2002.

MW-14

MW-14 is an offsite well situated on the PHE property about fifty feet east of the Gold Hill/PHE boundary. Mann Kendall showed a reducing trend with greater than 90 percent confidence for benzene. The contaminant reduction trends have resulted in no detections for BTEX compounds, since 1999. EDC is still above the cleanup level but has shown a 50% reduction since 2015. There is not a sufficient quantity of EDC sample results to perform a Mann Kendall analysis. It is anticipated, that EDC reductions observed in MW-2 are occurring in MW-14 as well.

MW-15

MW-15 is an off-site monitoring well located south of the Parks Highway. This well has been sampled 14 times, the most recent in 2017. Benzene was detected once in 1998, no VOCs have been detected above the LOQ in this well since 1998. Mann Kendall evaluation is not necessary

MW-16

MW-16 is an onsite monitoring well within the source area. The original groundwater result for benzene was 12,800 µg/L in 2003 and has decreased to 3210 µg/L in 2017, a reduction of one order of magnitude. The Mann-Kendall analysis results in a -2 to a -6 for the BTEX compounds with confidence levels of less than 90% (± 7) for the five sampling events. EDB and EDC have decreased based on Mann Kendall at less than a 90% confidence. This event was the first time VOCs were analyzed by EPA Method 8260 for VOCs (instead of only BTEX) and found 1,1,2-trichloroethane, 1,2,4-trimethylbenzene, and naphthalene exceed cleanup levels. Based on decreasing trends for BTEX, EDB, EDC, it is likely 1,1,2-trichloroethane, 1,2,4-trimethylbenzene and naphthalene concentration trends are decreasing.

MW-17

MW-17 was sampled three times with benzene concentrations decreasing from 3140 µg/L to 637 µg/L to 179 µg/L from May 2003 to July 2004 to November 2006 respectively. The Mann Kendall analysis for benzene was -3 but there were not enough sampling events to assign a 90% confidence factor. The remaining BTEX compound results were less than the LOQ in the 2006 sampling event the last time it was sampled. The well was not located in 2015 or 2017. Despite the statistical shortcomings of the data set, is assumed to be non-recoverable. This well shows a decrease of more than an order of magnitude after the remediation system was turned off, indicating natural attenuation is effective in this area.

MW-18

MW-18 is located about 50 feet further east near the eastern property boundary between Gold Hill and PHE. The well was sampled three times and there no BTEX or GRO compounds in any of the sampling events except for the May 2003 sampling event when benzene was detected below ADEC's cleanup level. There were no detections above the LOQ during the last sampling event conducted in May 2004. This well is outside of the plume

MW-19

MW-19 is located east of MW-16 on the PHE property. The monitoring well was sampled three times from 2003 through 2004. No BTEX or GRO compound was detected above the LOQ. This well is outside the plume.

MW-20

MW-20 is located directly east of the Gold Hill facility near the former stockpile location. The well has been sampled five times. Mann Kendall analysis has shown benzene, ethylbenzene, and xylenes have decreased but with a confidence level less than 90%. EDB has decreased three orders of magnitude from 2003 to 2017 but Mann Kendall analysis indicates a confidence of less than 90% due to the limited number of sampling events.

EDC has not shown a reduction as Mann Kendall analysis indicates the plume is stable (0). The 2003 sampling event was a non-detect result and the second event showed elevated EDC concentrations above the cleanup levels which may have skewed the Mann Kendall analysis. This potentially shows an increase as the plume traveled through in 2003 or represent inaccurate data in 2003. The next three sampling events have shown successive decreases in EDC concentrations and have shown an order of magnitude decrease. Mann Kendall analysis without the 2003 data in either case shows a clear downward trend.

GH-2

GH-2 is no longer being used, but is still functional. Benzene was detected in 2003 and 2004 below the ADEC cleanup level. No detections of the compounds tested have been observed in GH-2 since 2004. Trend analysis is not possible or necessary.

WW-2

WW-2 was reportedly installed to supply the North Star Center with potable water. Based on data showing steadily increasing benzene and GRO concentrations from 1995 through 1998, it is has been conjectured that the heavy use of WW-2 by the North Star Center caused the water well to act as a conduit to pull contamination above an aquitard (at 15 to 20 feet bgs) to the groundwater at depth. The benzene concentration in this well peaked in August 1998 and decreased by more than an order of magnitude by 2002. Mann Kendall analysis of all 24 sampling events indicates increasing benzene concentration trend from 1995 through 2002 with > 90% confidence. However, Mann Kendall analysis of benzene concentrations from August 1998 until it was decommissioned in 2004 strongly indicates a decreasing trend with a > 90% confidence.

Trend Summary

Overall, analysis of the BTEX data through 2017 indicated that COC concentrations are decreasing throughout the impacted area. All wells with detectable concentrations show decreasing trends, meet ADEC cleanup levels or are less than the LOQ for BTEX compounds. While less data is available for EDB, EDC and MTBE these wells also show decreasing trends.

Conceptual Site Model

A conceptual site model (CSM) identifies potential exposure routes and potential receptors based upon knowledge of site contaminants, site history, site geology and hydrogeology, and site land use. ***NORTECH*** has updated the CSM for the site in accordance with ADEC's Guidance on Developing Conceptual Site Models, January 2017. The update CSM is included in the attachments. The four potentially complete exposure pathways are discussed below.

Ingestion of and Dermal Contact with Groundwater

The onsite water supplied by water well GH-2 had an unpleasant odor and poor aesthetic quality. Due to these poor-quality issues, GH-2 was replaced by a hauled water system with a holding tank. The well was sampled in 2015 and found to contain Trichlorofluoromethane (Freon 11) at a concentration three orders of magnitude below the cleanup level. No other VOC

was detected above the detection level. Since the onsite well meets cleanup levels and is disconnected from the potable water system the pathway is no longer considered complete.

Inhalation of Vapors Migrating to Indoor Air
The source area for the contaminated soils and groundwater are east (downgradient) of the Gold Hill Store building. The IAQ screening results obtained with the ppb RAE showed results that are low (<20 ppb) and are similar to ambient background conditions. The lowest reading in the facility occurred in the storage room located in the south-east corner of the building which is nearest the plume and would be expected to have elevated readings if vapor intrusion was occurring. It is ***NORTECH***s experience that buildings impacted by VOC vapors exceeding ADEC residential target levels have results exceeding 150 ppb with the ppb RAE. Since the results are low and not spatially consistent with the documented contamination, this exposure pathway is not complete.

Inhalation of vapors migrating to outdoor air
Petroleum hydrocarbon impacts occur mostly at the soil-water interface, which occurs at some distance from the surface at 10 to 20 feet bgs. Therefore, unacceptable exposures from inhalation of vapors migrating to outdoor air are not expected. In addition, any vapors that migrate this distance will be diluted at the surface due to ambient weather conditions. It is likely vapors migrating to the outdoor air are insignificant in relation to vapor exposures from the fuel dispenser island during vehicle fuel fill-ups and from tankers topping off the storage tanks on site.

Direct Contact with Groundwater for Excavation Workers
This exposure pathway is considered complete for workers if excavation work were to be performed near MW-16 and MW-20 which is limited to an area east of the building and dispenser island. Any excavation in this area should be completed under an ADEC approved work plan.

Conclusions and Recommendations
Based on the current and historical data, Mann Kendall analysis and plume mapping, ***NORTECH*** has arrived at the following conclusions:

- Based on data obtained from more than 30 sampling events, the soil and groundwater impacted by petroleum hydrocarbons has been adequately delineated
- Contaminant trends since 1995 are decreasing
    - Benzene is the only compound above cleanup levels at MW-16 and MW-20, toluene, ethylbenzene, and total xylenes concentrations remain below cleanup levels
    - Excepting EDC, MW-20 and MW-16 are the only wells tested that has VOC compounds above the cleanup levels
    - No compound was detected in the domestic water well located on the Larrick property
    - EDC found in MW-14 above cleanup levels is the only offsite location with a compound above ADECs cleanup levels
        - It is expected EDC contaminant trends are decreasing similarly to trends in MW-12 and MW-2
    - EDC is the most recalcitrant compound and will remain on site longer than other VOCs but have shown decreasing trends based on Mann Kendall
- Plume contour analysis shows:

  - Shows the area impacted by benzene has decreased
  - The magnitude of benzene impacts has decreased
- Natural attenuation geochemistry was evaluated in 2004 by AMEC
  - This indicated biological degradation would provide long-term remediation at the site
  - Trends indicate biological activity is reducing contaminant trends since the active remediation system was shut down
  - Groundwater parameters collected in 2015 and 2017 indicated continued remedial biological activity
- The low IAQ screening results indicates the inhalation of indoor air pathway is incomplete

Project Management Recommendations

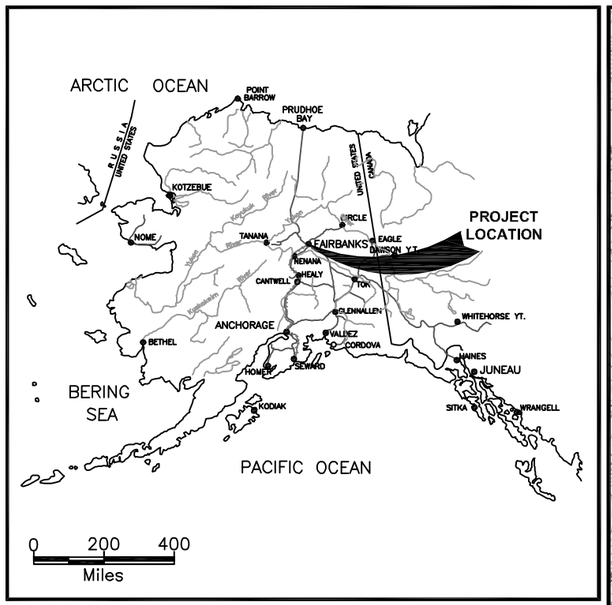
- Add nitrogen and microelements to stimulate remedial processes, especially to encourage EDC degradation across the site
- Based on the letter from ADEC requesting this work, the observed site conditions indicate the Site qualifies for closure with institutional controls
- This report should be submitted to ADEC with a request for closure
- All wells, points, and other in-ground hardware, including GHW-2, should be decommissioned if not part of a long-term monitoring program

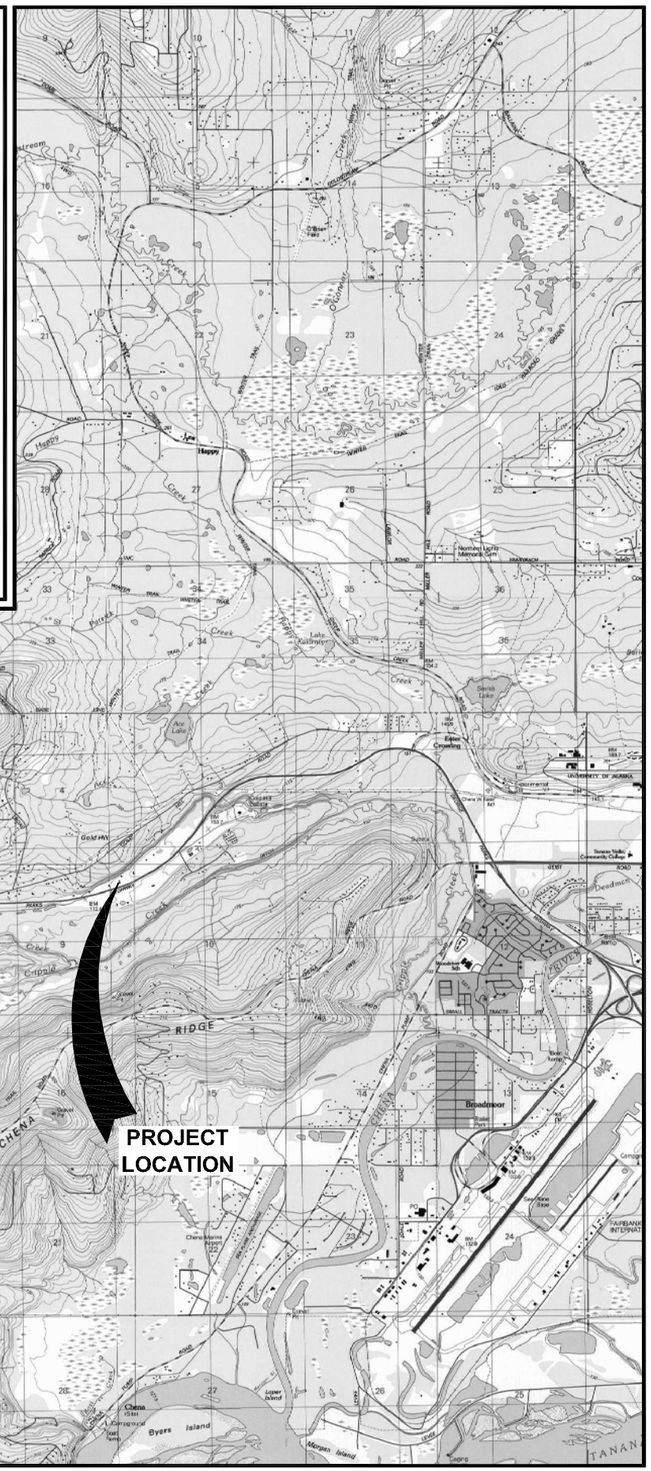
This report should be submitted to the ADEC for review and comment. ***NORTECH*** can coordinate this following your review of the report. The recommendations should be developed into a long-term monitoring program that establishes a limited number of wells to be sampled periodically. Please contact me at your earliest convenience if you have any questions or concerns.

Sincerely,
NORTECH

Doug Dusek
Environmental Specialist

Attachments: Figures
Tables
Laboratory Report and ADEC Laboratory Data Review Check List
Standard Groundwater Sampling Methodology





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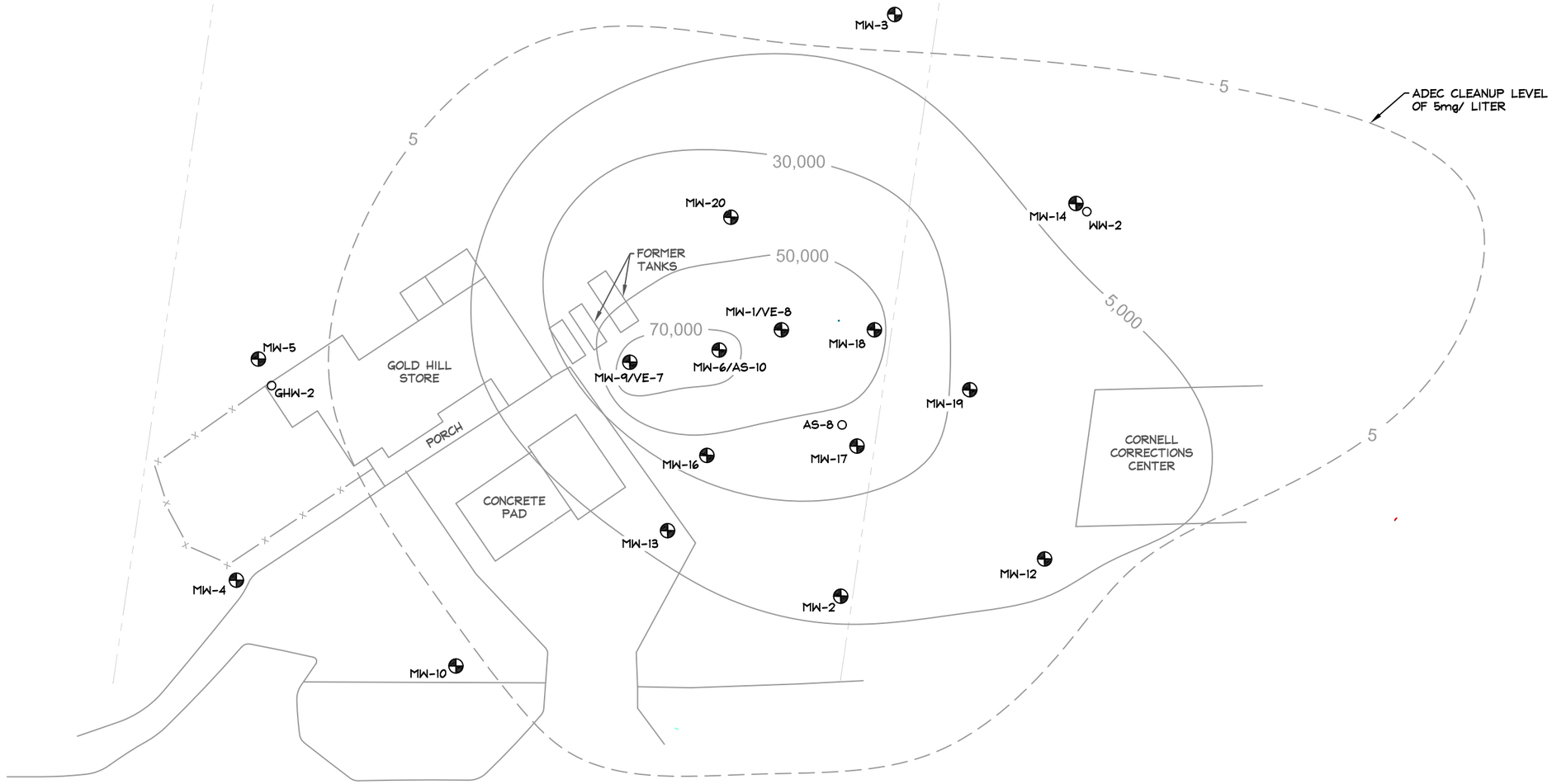
5438 Shaune Dr. Ste.B, Juneau, AK. 99801 907-586-6813

2015 Groundwater Monitoring
Gold Hill General Store
Fairbanks, Alaska

DATE: 1/7/2016	SCALE: As Shown
PROJ MGR: DD	PROJECT: 15-1091
DRAWN: CMR	DWG. NO.: 151091a(01)

FIGURE 1



Legend

MW-# Monitoring well location and ID

MW-15

N

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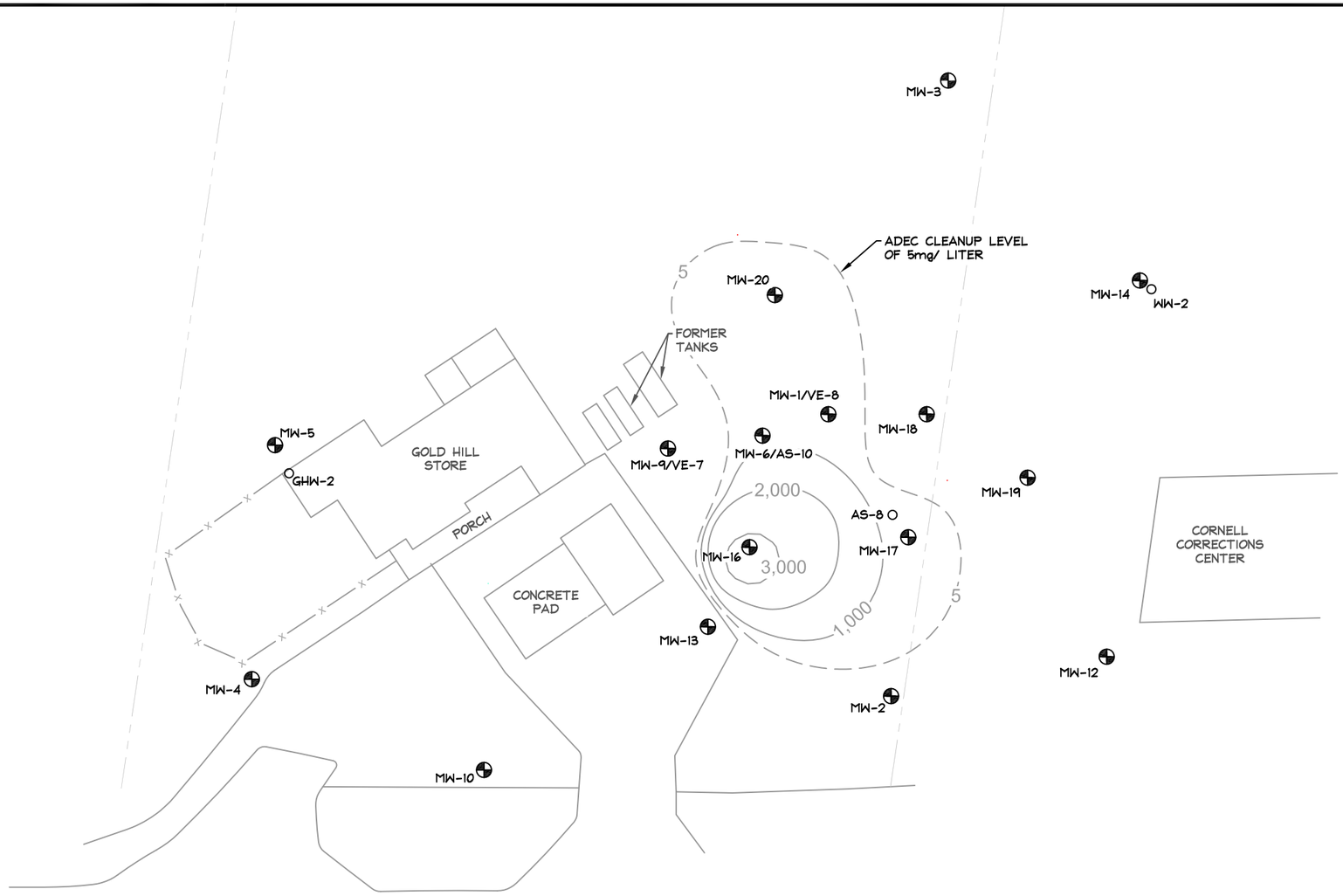
2400 College Road, Fairbanks, AK. 99709, 907-452-5688
3105 Lakeshore Dr. Ste.A106, Anchorage, AK. 99517 907-222-2445
5438 Shaune Dr. Ste.B, Juneau, AK. 99801 907-586-6813

Benzene Groundwater Consentrations 1995
Gold Hill General Store Groundwater Monitoring
Fairbanks, Alaska

DATE: 11/07/2017	SCALE: 1" = 50'
PROJ MGR: DSD	PROJECT: 15-1091
DRAWN: CMR/SPH	DWG. NO.: 151091d(02)

FIGURE 2



Legend

MW-# Monitoring well location and ID

MW-15

N

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2400 College Road, Fairbanks, AK. 99709, 907-452-5688
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Benzene Groundwater Consentrations 2017
Gold Hill General Store Groundwater Monitoring
Fairbanks, Alaska

DATE: 11/07/2017	SCALE: 1" = 50'
PROJ MGR: DSD	PROJECT: 15-1091
DRAWN: CMR/SPH	DWG. NO.: 151091d(02)

FIGURE 3

Table 1

2017 Gold Hill Goundwater Monitoring Results

Sample ID:			MW-14	MW15	MW-16	MW2	MW20	MW21	PHE
	ADEC Cleanup Levels	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1,2-Trichloroethane	0.41	0.00041	0.0004U	0.0004U	**0.0012**	0.0004U	0.0004U	0.0004U	0.0004U
1,2,4-Trimethylbenzene	15	0.015	0.001U	0.001U	**0.12**	0.001U	0.001U	0.001U	0.001U
1,2-Dibromoethane (EDB) by 501.2	0.075	0.000075	ND 0.00001	ND 0.00001	**0.014**	ND 0.00001	0.00002	0.00001	ND 0.00001
1,2-Dibromoethane (EDB)	0.075	0.000075	0.000075U	0.000075U	**0.0195**	0.000075U	0.000075U	0.000075U	0.000075U
1,2-Dichloroethane (EDC)	1.7	0.0017	**0.00445**	0.0005U	**0.17**	0.0005U	**0.00711**	**0.0086**	0.0005U
1,3,5-Trimethylbenzene	120	0.12	0.001U	0.001U	0.0534	0.001U	0.001U	0.001U	0.001U
4-Isopropyltoluene		0	0.001U	0.001U	0.00646	0.001U	0.001U	0.001U	0.001U
Benzene	4.6	0.0046	0.0004U	0.0004U	**3.21**	0.0004U	**0.177**	**0.121**	0.0004U
Ethylbenzene	15	0.015	0.001U	0.001U	0.00855	0.0004U	0.001U	0.001U	0.001UU
Isopropylbenzene (Cumene)	450	0.45	0.001U	0.001U	0.00419	0.001U	0.0027	0.00264	0.001U
Methyl-t-butyl ether (MTBE)	140	0.14	0.01U	0.01U	0.0926	0.01U	0.001U	0.01U	0.01U
Naphthalene	1.7	0.0017	0.001U	0.001U	**0.0501**	0.001U	0.001U	0.001U	0.001U
n-Propylbenzene	660	0.66	0.001U	0.001U	0.00924	0.001U	0.001U	0.001U	0.001U
o-Xylene		0	0.001U	0.001U	0.14	0.001U	0.001U	0.001U	0.001U
P & M -Xylene		0	0.002U	0.002U	0.0954	0.002U	0.001U	0.002U	0.002U
sec-Butylbenzene	2000	2	0.001U	0.001U	0.00235	0.001U	0.0015	0.00173	0.001U
Toluene	1100	1.1	0.001U	0.001U	0.0435	0.001U	0.001U	0.001U	0.001U
Trichlorofluoromethane	5200	5.2	0.001U	0.001U	0.001U	0.001U	0.001U	0.001U	0.0223
Xylenes (total)	190	0.19	0.003U	0.003U	**0.235**	0.003U	0.003U	0.003U	0.003U

Notes:

# U	Analyte not detected at the listed limit of quantitation (LOQ)
NA	Analyte not analyzed
Shade	Analyte detected in concentration below the ADEC Cleanup level
Bold	Analyte detected in concentration exceeding the ADEC Cleanup level

Table 2
QA/QC Water Sample Results Summary

Sample ID	MW-2	MW-20	RPD
Analyte	mg/L	mg/L	%
Benzene	0.177	0.121	37.58%
Ethylbenzene	0.001U	0.001U	NC
1,2-Dichloroethane (EDC)	0.00711	0.0086	18.97%
1,2-Dibromoethane (EDB) by 501.2	0.00002	0.00001	66.67%
Toluene	0.001U	0.01U	NC
o-Xylene	0.001U	0.001U	NC
p & m-Xylene	0.001U	0.001U	NC
Xylenes (total)	0.003U	0.003U	NC

Notes:

# U	Analyte not detected at the listed limit of quantitation (LOQ)
NC	Not Calculable
RPD	Relative Percent Difference

Laboratory Report of Analysis

To: Nortech
2400 College Road
Fairbanks, AK 99709

Report Number: **1178282**

Client Project: **Gold Hill**

Dear Doug Dusek,

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 Jennifer 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.

Alaska Division Technical Director

Stephen Ede
2017.09.07
16:06:22 -08'00'

Jennifer Dawkins
Project Manager
Jennifer.Dawkins@sgs.com

Date

Print Date: 09/07/2017 3:36:45PM

Case Narrative

SGS Client: **Nortech**
SGS Project: **1178282**
Project Name/Site: **Gold Hill**
Project Contact: **Doug Dusek**

Refer to sample receipt form for information on sample condition.

MW-16 (1178282001) PS

504.1 - EDB was analyzed by Eurofins of Garden Grove, CA.

LCS for HBN 1767609 [VXX/31214 (1410397) LCS

8260C - LCS recovery for dichlorodifluoromethane (172%) does not meet QC criteria. This analyte was not detected above the LOQ in associated samples.

LCSD for HBN 1767609 [VXX/3121 (1410398) LCSD

8260C - LCSD recoveries for dichlorodifluoromethane (192%) and chloromethane (146%) do not meet QC criteria. These analytes were not detected above the LOQ in associated samples.

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

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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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW-16	1178282001	08/24/2017	08/25/2017	Water (Surface, Eff., Ground)
MW20	1178282002	08/24/2017	08/25/2017	Water (Surface, Eff., Ground)
MW14	1178282003	08/24/2017	08/25/2017	Water (Surface, Eff., Ground)
MW2	1178282004	08/24/2017	08/25/2017	Water (Surface, Eff., Ground)
PHE	1178282005	08/24/2017	08/25/2017	Water (Surface, Eff., Ground)
MW15	1178282006	08/24/2017	08/25/2017	Water (Surface, Eff., Ground)
MW21	1178282007	08/24/2017	08/25/2017	Water (Surface, Eff., Ground)
Trip Blank	1178282008	08/24/2017	08/25/2017	Water (Surface, Eff., Ground)

Method	Method Description
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MW-16**
Lab Sample ID: 1178282001
Volatile GC/MS

Parameter	Result	Units
1,1,2-Trichloroethane	1.20	ug/L
1,2,4-Trimethylbenzene	120	ug/L
1,2-Dibromoethane	19.5	ug/L
1,2-Dichloroethane	170	ug/L
1,3,5-Trimethylbenzene	53.4	ug/L
4-Isopropyltoluene	6.46	ug/L
Benzene	3210	ug/L
Ethylbenzene	8.55	ug/L
Isopropylbenzene (Cumene)	4.19	ug/L
Methyl-t-butyl ether	92.6	ug/L
Naphthalene	50.1	ug/L
n-Propylbenzene	9.24	ug/L
o-Xylene	140	ug/L
P & M -Xylene	95.4	ug/L
sec-Butylbenzene	2.35	ug/L
Toluene	43.5	ug/L
Xylenes (total)	235	ug/L

Client Sample ID: **MW20**
Lab Sample ID: 1178282002
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	7.11	ug/L
Benzene	177	ug/L
Dichlorodifluoromethane	1.32	ug/L
Isopropylbenzene (Cumene)	2.70	ug/L
sec-Butylbenzene	1.50	ug/L

Client Sample ID: **MW14**
Lab Sample ID: 1178282003
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	4.45	ug/L

Client Sample ID: **PHE**
Lab Sample ID: 1178282005
Volatile GC/MS

Parameter	Result	Units
Trichlorofluoromethane	22.3	ug/L

Client Sample ID: **MW21**
Lab Sample ID: 1178282007
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	8.60	ug/L
Benzene	121	ug/L
Isopropylbenzene (Cumene)	2.64	ug/L
sec-Butylbenzene	1.73	ug/L

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Results of **MW-16**

Client Sample ID: **MW-16**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282001
Lab Project ID: 1178282

Collection Date: 08/24/17 11:27
Received Date: 08/25/17 08:55
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 22:34
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:34
1,1,2-Trichloroethane	1.20		0.400	0.120	ug/L	1		09/03/17 22:34
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,2,4-Trimethylbenzene	120		1.00	0.310	ug/L	1		09/03/17 22:34
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:34
1,2-Dibromoethane	19.5		0.0750	0.0180	ug/L	1		09/03/17 22:34
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,2-Dichloroethane	170		0.500	0.150	ug/L	1		09/03/17 22:34
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,3,5-Trimethylbenzene	53.4		1.00	0.310	ug/L	1		09/03/17 22:34
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:34
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:34
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:34
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:34
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
4-Isopropyltoluene	6.46		1.00	0.310	ug/L	1		09/03/17 22:34
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:34
Benzene	3210		20.0	6.00	ug/L	50		09/06/17 16:14
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:34
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 22:34
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:34
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:34
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34

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Results of **MW-16**

Client Sample ID: **MW-16**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282001
Lab Project ID: 1178282

Collection Date: 08/24/17 11:27
Received Date: 08/25/17 08:55
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 22:34
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:34
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:34
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Dichlorodifluoromethane	50.0	U	50.0	15.5	ug/L	50		09/06/17 16:14
Ethylbenzene	8.55		1.00	0.310	ug/L	1		09/03/17 22:34
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:34
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Isopropylbenzene (Cumene)	4.19		1.00	0.310	ug/L	1		09/03/17 22:34
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		09/03/17 22:34
Methyl-t-butyl ether	92.6		10.0	3.10	ug/L	1		09/03/17 22:34
Naphthalene	50.1		1.00	0.310	ug/L	1		09/03/17 22:34
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
n-Propylbenzene	9.24		1.00	0.310	ug/L	1		09/03/17 22:34
o-Xylene	140		1.00	0.310	ug/L	1		09/03/17 22:34
P & M -Xylene	95.4		2.00	0.620	ug/L	1		09/03/17 22:34
sec-Butylbenzene	2.35		1.00	0.310	ug/L	1		09/03/17 22:34
Styrene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Toluene	43.5		1.00	0.310	ug/L	1		09/03/17 22:34
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:34
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:34
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/03/17 22:34
Xylenes (total)	235		3.00	1.00	ug/L	1		09/03/17 22:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	91.3		81-118		%	1		09/03/17 22:34
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/03/17 22:34
Toluene-d8 (surr)	103		89-112		%	1		09/03/17 22:34

Results of **MW-16**

Client Sample ID: **MW-16**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282001
Lab Project ID: 1178282

Collection Date: 08/24/17 11:27
Received Date: 08/25/17 08:55
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 16:14
Container ID: 1178282001-A

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: VMS17131
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 22:34
Container ID: 1178282001-A

Prep Batch: VXX31214
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 **MW20**

Client Sample ID: **MW20**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282002
Lab Project ID: 1178282

Collection Date: 08/24/17 12:29
Received Date: 08/25/17 08:55
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 22:51
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:51
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/03/17 22:51
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:51
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/03/17 22:51
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,2-Dichloroethane	7.11		0.500	0.150	ug/L	1		09/06/17 14:28
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:51
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:51
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:51
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:51
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:51
Benzene	177		0.400	0.120	ug/L	1		09/06/17 14:28
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:51
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 22:51
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:51
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:51
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51

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Results of **MW20**

Client Sample ID: **MW20**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282002
Lab Project ID: 1178282

Collection Date: 08/24/17 12:29
Received Date: 08/25/17 08:55
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 22:51
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:51
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 22:51
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Dichlorodifluoromethane	1.32		1.00	0.310	ug/L	1		09/06/17 14:28
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:51
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Isopropylbenzene (Cumene)	2.70		1.00	0.310	ug/L	1		09/03/17 22:51
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		09/03/17 22:51
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:51
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/06/17 14:28
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/03/17 22:51
sec-Butylbenzene	1.50		1.00	0.310	ug/L	1		09/03/17 22:51
Styrene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Toluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 22:51
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/03/17 22:51
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/03/17 22:51
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/03/17 22:51
Surrogates								
1,2-Dichloroethane-D4 (surr)	94.9		81-118		%	1		09/03/17 22:51
4-Bromofluorobenzene (surr)	104		85-114		%	1		09/03/17 22:51
Toluene-d8 (surr)	101		89-112		%	1		09/03/17 22:51

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Results of **MW20**

Client Sample ID: **MW20**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282002
Lab Project ID: 1178282

Collection Date: 08/24/17 12:29
Received Date: 08/25/17 08:55
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 14:28
Container ID: 1178282002-A

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: VMS17131
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 22:51
Container ID: 1178282002-A

Prep Batch: VXX31214
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 **MW14**

Client Sample ID: **MW14**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282003
Lab Project ID: 1178282

Collection Date: 08/24/17 13:28
Received Date: 08/25/17 08:55
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 23:09
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:09
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/03/17 23:09
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:09
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/03/17 23:09
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,2-Dichloroethane	4.45		0.500	0.150	ug/L	1		09/03/17 23:09
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:09
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:09
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:09
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:09
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:09
Benzene	0.400	U	0.400	0.120	ug/L	1		09/03/17 23:09
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:09
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 23:09
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:09
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:09
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:09

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Results of **MW14**

Client Sample ID: **MW14**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282003
Lab Project ID: 1178282

Collection Date: 08/24/17 13:28
Received Date: 08/25/17 08:55
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 23:09
Chloromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
cis-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		09/03/17 23:09
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		09/03/17 23:09
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Dichlorodifluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Ethylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Freon-113	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:09
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Isopropylbenzene (Cumene)	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		09/03/17 23:09
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:09
Naphthalene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
n-Propylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
o-Xylene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
P & M -Xylene	2.00 U		2.00	0.620	ug/L	1		09/03/17 23:09
sec-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Styrene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Toluene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Trichlorofluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:09
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:09
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		09/03/17 23:09
Xylenes (total)	3.00 U		3.00	1.00	ug/L	1		09/03/17 23:09
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.7		81-118		%	1		09/03/17 23:09
4-Bromofluorobenzene (surr)	100		85-114		%	1		09/03/17 23:09
Toluene-d8 (surr)	102		89-112		%	1		09/03/17 23:09

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Results of **MW14**

Client Sample ID: **MW14**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282003
Lab Project ID: 1178282

Collection Date: 08/24/17 13:28
Received Date: 08/25/17 08:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17131
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 23:09
Container ID: 1178282003-A

Prep Batch: VXX31214
Prep Method: SW5030B
Prep Date/Time: 09/03/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/07/2017 3:36:50PM

Results of **MW2**

Client Sample ID: **MW2**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282004
Lab Project ID: 1178282

Collection Date: 08/24/17 14:12
Received Date: 08/25/17 08:55
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 23:26
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:26
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/03/17 23:26
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:26
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/03/17 23:26
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:26
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:26
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:26
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:26
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:26
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:26
Benzene	0.400	U	0.400	0.120	ug/L	1		09/03/17 23:26
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:26
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 23:26
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:26
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:26
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:26

Results of **MW2**

Client Sample ID: **MW2**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282004
Lab Project ID: 1178282

Collection Date: 08/24/17 14:12
Received Date: 08/25/17 08:55
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 23:26
Chloromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
cis-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		09/03/17 23:26
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		09/03/17 23:26
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Dichlorodifluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Ethylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Freon-113	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:26
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Isopropylbenzene (Cumene)	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		09/03/17 23:26
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:26
Naphthalene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
n-Propylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
o-Xylene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
P & M -Xylene	2.00 U		2.00	0.620	ug/L	1		09/03/17 23:26
sec-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Styrene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Toluene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Trichlorofluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:26
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:26
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		09/03/17 23:26
Xylenes (total)	3.00 U		3.00	1.00	ug/L	1		09/03/17 23:26
Surrogates								
1,2-Dichloroethane-D4 (surr)	98		81-118		%	1		09/03/17 23:26
4-Bromofluorobenzene (surr)	105		85-114		%	1		09/03/17 23:26
Toluene-d8 (surr)	101		89-112		%	1		09/03/17 23:26

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Results of **MW2**

Client Sample ID: **MW2**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282004
Lab Project ID: 1178282

Collection Date: 08/24/17 14:12
Received Date: 08/25/17 08:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17131
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 23:26
Container ID: 1178282004-A

Prep Batch: VXX31214
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 **PHE**

Client Sample ID: **PHE**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282005
Lab Project ID: 1178282

Collection Date: 08/24/17 14:05
Received Date: 08/25/17 08:55
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 23:44
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:44
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/03/17 23:44
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:44
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/03/17 23:44
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:44
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:44
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:44
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:44
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:44
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:44
Benzene	0.400	U	0.400	0.120	ug/L	1		09/03/17 23:44
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:44
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 23:44
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 23:44
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 23:44
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 23:44

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Results of **PHE**

Client Sample ID: **PHE**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282005
Lab Project ID: 1178282

Collection Date: 08/24/17 14:05
Received Date: 08/25/17 08:55
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 23:44
Chloromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
cis-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		09/03/17 23:44
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		09/03/17 23:44
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Dichlorodifluoromethane	1.00 U		1.00	0.310	ug/L	1		09/06/17 14:46
Ethylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Freon-113	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:44
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Isopropylbenzene (Cumene)	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		09/03/17 23:44
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:44
Naphthalene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
n-Propylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
o-Xylene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
P & M -Xylene	2.00 U		2.00	0.620	ug/L	1		09/03/17 23:44
sec-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Styrene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Toluene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 23:44
Trichlorofluoromethane	22.3		1.00	0.310	ug/L	1		09/03/17 23:44
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		09/03/17 23:44
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		09/03/17 23:44
Xylenes (total)	3.00 U		3.00	1.00	ug/L	1		09/03/17 23:44
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.7		81-118		%	1		09/03/17 23:44
4-Bromofluorobenzene (surr)	104		85-114		%	1		09/03/17 23:44
Toluene-d8 (surr)	102		89-112		%	1		09/03/17 23:44

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Results of **PHE**

Client Sample ID: **PHE**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282005
Lab Project ID: 1178282

Collection Date: 08/24/17 14:05
Received Date: 08/25/17 08:55
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 14:46
Container ID: 1178282005-A

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: VMS17131
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 23:44
Container ID: 1178282005-A

Prep Batch: VXX31214
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 **MW15**

Client Sample ID: **MW15**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282006
Lab Project ID: 1178282

Collection Date: 08/24/17 15:20
Received Date: 08/25/17 08:55
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		09/04/17 00:02
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:02
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/04/17 00:02
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:02
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/04/17 00:02
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:02
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:02
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:02
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:02
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:02
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:02
Benzene	0.400	U	0.400	0.120	ug/L	1		09/04/17 00:02
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:02
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/04/17 00:02
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:02
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:02
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02

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Results of **MW15**

Client Sample ID: **MW15**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282006
Lab Project ID: 1178282

Collection Date: 08/24/17 15:20
Received Date: 08/25/17 08:55
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		09/04/17 00:02
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:02
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:02
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:02
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		09/04/17 00:02
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:02
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/04/17 00:02
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Styrene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Toluene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:02
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:02
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/04/17 00:02
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/04/17 00:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.5		81-118		%	1		09/04/17 00:02
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/04/17 00:02
Toluene-d8 (surr)	102		89-112		%	1		09/04/17 00:02

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Results of **MW15**

Client Sample ID: **MW15**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282006
Lab Project ID: 1178282

Collection Date: 08/24/17 15:20
Received Date: 08/25/17 08:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17131
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/04/17 00:02
Container ID: 1178282006-A

Prep Batch: VXX31214
Prep Method: SW5030B
Prep Date/Time: 09/03/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/07/2017 3:36:50PM

Results of **MW21**

Client Sample ID: **MW21**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282007
Lab Project ID: 1178282

Collection Date: 08/24/17 15:47
Received Date: 08/25/17 08:55
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		09/04/17 00:19
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:19
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/04/17 00:19
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:19
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/04/17 00:19
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,2-Dichloroethane	8.60		0.500	0.150	ug/L	1		09/04/17 00:19
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:19
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:19
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:19
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:19
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:19
Benzene	121		2.00	0.600	ug/L	5		09/06/17 15:56
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:19
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/04/17 00:19
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/04/17 00:19
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/04/17 00:19
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/04/17 00:19

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Results of **MW21**

Client Sample ID: **MW21**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282007
Lab Project ID: 1178282

Collection Date: 08/24/17 15:47
Received Date: 08/25/17 08:55
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		09/04/17 00:19
Chloromethane	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
cis-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		09/04/17 00:19
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		09/04/17 00:19
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
Dichlorodifluoromethane	5.00 U		5.00	1.55	ug/L	5		09/06/17 15:56
Ethylbenzene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
Freon-113	10.0 U		10.0	3.10	ug/L	1		09/04/17 00:19
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
Isopropylbenzene (Cumene)	2.64		1.00	0.310	ug/L	1		09/04/17 00:19
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		09/04/17 00:19
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		09/04/17 00:19
Naphthalene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
n-Propylbenzene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
o-Xylene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
P & M -Xylene	2.00 U		2.00	0.620	ug/L	1		09/04/17 00:19
sec-Butylbenzene	1.73		1.00	0.310	ug/L	1		09/04/17 00:19
Styrene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
Toluene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
Trichlorofluoromethane	1.00 U		1.00	0.310	ug/L	1		09/04/17 00:19
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		09/04/17 00:19
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		09/04/17 00:19
Xylenes (total)	3.00 U		3.00	1.00	ug/L	1		09/04/17 00:19
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.6		81-118		%	1		09/04/17 00:19
4-Bromofluorobenzene (surr)	103		85-114		%	1		09/04/17 00:19
Toluene-d8 (surr)	101		89-112		%	1		09/04/17 00:19

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Results of **MW21**

Client Sample ID: **MW21**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282007
Lab Project ID: 1178282

Collection Date: 08/24/17 15:47
Received Date: 08/25/17 08:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17131
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/04/17 00:19
Container ID: 1178282007-A

Prep Batch: VXX31214
Prep Method: SW5030B
Prep Date/Time: 09/03/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17144
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/06/17 15:56
Container ID: 1178282007-A

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

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282008
Lab Project ID: 1178282

Collection Date: 08/24/17 15:47
Received Date: 08/25/17 08:55
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 20:14
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 20:14
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/03/17 20:14
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/03/17 20:14
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/03/17 20:14
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 20:14
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/03/17 20:14
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 20:14
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 20:14
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/03/17 20:14
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/03/17 20:14
Benzene	0.400	U	0.400	0.120	ug/L	1		09/03/17 20:14
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/03/17 20:14
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
Bromomethane	5.00	U	5.00	1.50	ug/L	1		09/03/17 20:14
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/03/17 20:14
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/03/17 20:14
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/03/17 20:14

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282008
Lab Project ID: 1178282

Collection Date: 08/24/17 15:47
Received Date: 08/25/17 08:55
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 20:14
Chloromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
cis-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
cis-1,3-Dichloropropene	0.500 U		0.500	0.150	ug/L	1		09/03/17 20:14
Dibromochloromethane	0.500 U		0.500	0.150	ug/L	1		09/03/17 20:14
Dibromomethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Dichlorodifluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Ethylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Freon-113	10.0 U		10.0	3.10	ug/L	1		09/03/17 20:14
Hexachlorobutadiene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Isopropylbenzene (Cumene)	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Methylene chloride	5.00 U		5.00	1.00	ug/L	1		09/03/17 20:14
Methyl-t-butyl ether	10.0 U		10.0	3.10	ug/L	1		09/03/17 20:14
Naphthalene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
n-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
n-Propylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
o-Xylene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
P & M -Xylene	2.00 U		2.00	0.620	ug/L	1		09/03/17 20:14
sec-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Styrene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
tert-Butylbenzene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Tetrachloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Toluene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
trans-1,2-Dichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
trans-1,3-Dichloropropene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Trichloroethene	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Trichlorofluoromethane	1.00 U		1.00	0.310	ug/L	1		09/03/17 20:14
Vinyl acetate	10.0 U		10.0	3.10	ug/L	1		09/03/17 20:14
Vinyl chloride	0.150 U		0.150	0.0500	ug/L	1		09/03/17 20:14
Xylenes (total)	3.00 U		3.00	1.00	ug/L	1		09/03/17 20:14
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.9		81-118		%	1		09/03/17 20:14
4-Bromofluorobenzene (surr)	105		85-114		%	1		09/03/17 20:14
Toluene-d8 (surr)	100		89-112		%	1		09/03/17 20:14

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Gold Hill**
Lab Sample ID: 1178282008
Lab Project ID: 1178282

Collection Date: 08/24/17 15:47
Received Date: 08/25/17 08:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17131
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/03/17 20:14
Container ID: 1178282008-A

Prep Batch: VXX31214
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 1767609 [VXX/31214]
Blank Lab ID: 1410316

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1178282001, 1178282002, 1178282003, 1178282004, 1178282005, 1178282006, 1178282007, 1178282008

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 1767609 [VXX/31214]
Blank Lab ID: 1410316

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1178282001, 1178282002, 1178282003, 1178282004, 1178282005, 1178282006, 1178282007, 1178282008

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)	97.8	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	102	89-112		%

Method Blank

Blank ID: MB for HBN 1767609 [VXX/31214]
Blank Lab ID: 1410316

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1178282001, 1178282002, 1178282003, 1178282004, 1178282005, 1178282006, 1178282007, 1178282008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17131
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 9/3/2017 3:26:00PM

Prep Batch: VXX31214
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 1178282 [VXX31214]
Blank Spike Lab ID: 1410397
Date Analyzed: 09/03/2017 17:48

Spike Duplicate ID: LCSD for HBN 1178282 [VXX31214]
Spike Duplicate Lab ID: 1410398
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1178282001, 1178282002, 1178282003, 1178282004, 1178282005, 1178282006, 1178282007, 1178282008

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	30.9	103	(78-124)	3.60	(< 20)
1,1,1-Trichloroethane	30	26.7	89	30	27.8	93	(74-131)	4.00	(< 20)
1,1,2,2-Tetrachloroethane	30	33.2	111	30	34.5	115	(71-121)	3.90	(< 20)
1,1,2-Trichloroethane	30	32.3	108	30	33.2	111	(80-119)	2.70	(< 20)
1,1-Dichloroethane	30	29.7	99	30	30.9	103	(77-125)	3.90	(< 20)
1,1-Dichloroethene	30	24.0	80	30	25.0	83	(71-131)	4.00	(< 20)
1,1-Dichloropropene	30	28.9	96	30	30.2	101	(79-125)	4.50	(< 20)
1,2,3-Trichlorobenzene	30	31.1	104	30	35.0	117	(69-129)	12.00	(< 20)
1,2,3-Trichloropropane	30	31.3	104	30	32.7	109	(73-122)	4.40	(< 20)
1,2,4-Trichlorobenzene	30	30.8	103	30	34.0	113	(69-130)	9.70	(< 20)
1,2,4-Trimethylbenzene	30	32.9	110	30	34.3	114	(79-124)	4.30	(< 20)
1,2-Dibromo-3-chloropropane	30	30.9	103	30	33.3	111	(62-128)	7.30	(< 20)
1,2-Dibromoethane	30	31.9	106	30	32.8	109	(77-121)	3.00	(< 20)
1,2-Dichlorobenzene	30	30.0	100	30	31.4	105	(80-119)	4.30	(< 20)
1,2-Dichloroethane	30	27.1	90	30	28.0	93	(73-128)	3.50	(< 20)
1,2-Dichloropropane	30	31.0	103	30	31.8	106	(78-122)	2.40	(< 20)
1,3,5-Trimethylbenzene	30	32.1	107	30	33.6	112	(75-124)	4.60	(< 20)
1,3-Dichlorobenzene	30	30.6	102	30	31.9	106	(80-119)	4.30	(< 20)
1,3-Dichloropropane	30	32.4	108	30	33.3	111	(80-119)	2.60	(< 20)
1,4-Dichlorobenzene	30	30.6	102	30	31.7	106	(79-118)	3.50	(< 20)
2,2-Dichloropropane	30	29.3	98	30	30.3	101	(60-139)	3.50	(< 20)
2-Butanone (MEK)	90	99.7	111	90	106	117	(56-143)	5.80	(< 20)
2-Chlorotoluene	30	31.6	105	30	33.1	110	(79-122)	4.70	(< 20)
2-Hexanone	90	117	130	90	124	137	(57-139)	5.20	(< 20)
4-Chlorotoluene	30	32.6	109	30	34.0	113	(78-122)	4.30	(< 20)
4-Isopropyltoluene	30	32.8	109	30	33.4	111	(77-127)	1.80	(< 20)
4-Methyl-2-pentanone (MIBK)	90	106	118	90	111	123	(67-130)	4.30	(< 20)
Benzene	30	29.9	100	30	30.8	103	(79-120)	3.00	(< 20)
Bromobenzene	30	29.7	99	30	31.2	104	(80-120)	4.90	(< 20)
Bromochloromethane	30	28.6	95	30	29.3	98	(78-123)	2.40	(< 20)
Bromodichloromethane	30	28.6	95	30	29.7	99	(79-125)	3.80	(< 20)
Bromoform	30	30.9	103	30	31.8	106	(66-130)	2.70	(< 20)
Bromomethane	30	26.5	89	30	26.7	89	(53-141)	0.41	(< 20)
Carbon disulfide	45	38.8	86	45	39.1	87	(64-133)	0.74	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1178282 [VXX31214]
Blank Spike Lab ID: 1410397
Date Analyzed: 09/03/2017 17:48

Spike Duplicate ID: LCSD for HBN 1178282 [VXX31214]
Spike Duplicate Lab ID: 1410398
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1178282001, 1178282002, 1178282003, 1178282004, 1178282005, 1178282006, 1178282007, 1178282008

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	26.9	90	30	27.7	92	(72-136)	2.70	(< 20)
Chlorobenzene	30	28.8	96	30	30.4	101	(82-118)	5.20	(< 20)
Chloroethane	30	34.4	115	30	29.6	99	(60-138)	14.90	(< 20)
Chloroform	30	26.6	89	30	27.9	93	(79-124)	4.70	(< 20)
Chloromethane	30	37.1	124	30	43.9	146 *	(50-139)	16.90	(< 20)
cis-1,2-Dichloroethene	30	28.8	96	30	29.3	98	(78-123)	1.80	(< 20)
cis-1,3-Dichloropropene	30	30.5	102	30	31.8	106	(75-124)	4.20	(< 20)
Dibromochloromethane	30	30.8	103	30	31.8	106	(74-126)	2.90	(< 20)
Dibromomethane	30	29.0	97	30	29.2	97	(79-123)	0.86	(< 20)
Dichlorodifluoromethane	30	51.7	172 *	30	57.5	192 *	(32-152)	10.60	(< 20)
Ethylbenzene	30	30.4	101	30	31.9	106	(79-121)	4.80	(< 20)
Freon-113	45	37.4	83	45	38.4	85	(70-136)	2.50	(< 20)
Hexachlorobutadiene	30	31.0	103	30	32.8	109	(66-134)	5.60	(< 20)
Isopropylbenzene (Cumene)	30	30.8	103	30	31.7	106	(72-131)	2.60	(< 20)
Methylene chloride	30	27.5	92	30	28.4	95	(74-124)	3.20	(< 20)
Methyl-t-butyl ether	45	43.6	97	45	44.8	100	(71-124)	2.80	(< 20)
Naphthalene	30	31.3	104	30	36.1	120	(61-128)	14.30	(< 20)
n-Butylbenzene	30	34.8	116	30	35.8	119	(75-128)	3.10	(< 20)
n-Propylbenzene	30	32.6	109	30	33.6	112	(76-126)	2.90	(< 20)
o-Xylene	30	31.1	104	30	32.7	109	(78-122)	5.00	(< 20)
P & M -Xylene	60	61.0	102	60	64.2	107	(80-121)	5.00	(< 20)
sec-Butylbenzene	30	33.2	111	30	33.6	112	(77-126)	1.20	(< 20)
Styrene	30	31.6	105	30	33.1	110	(78-123)	4.70	(< 20)
tert-Butylbenzene	30	32.0	107	30	32.9	110	(78-124)	2.80	(< 20)
Tetrachloroethene	30	29.1	97	30	30.6	102	(74-129)	5.30	(< 20)
Toluene	30	29.3	98	30	30.8	103	(80-121)	4.80	(< 20)
trans-1,2-Dichloroethene	30	27.9	93	30	29.3	98	(75-124)	4.90	(< 20)
trans-1,3-Dichloropropene	30	32.8	109	30	33.5	112	(73-127)	2.10	(< 20)
Trichloroethene	30	28.3	94	30	29.4	98	(79-123)	3.90	(< 20)
Trichlorofluoromethane	30	26.8	89	30	27.6	92	(65-141)	3.10	(< 20)
Vinyl acetate	30	39.6	132	30	40.3	134	(54-146)	1.70	(< 20)
Vinyl chloride	30	31.6	105	30	30.7	102	(58-137)	2.90	(< 20)
Xylenes (total)	90	92.2	102	90	96.9	108	(79-121)	5.00	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1178282 [VXX31214]
Blank Spike Lab ID: 1410397
Date Analyzed: 09/03/2017 17:48

Spike Duplicate ID: LCSD for HBN 1178282 [VXX31214]
Spike Duplicate Lab ID: 1410398
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1178282001, 1178282002, 1178282003, 1178282004, 1178282005, 1178282006, 1178282007, 1178282008

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	94.1	94	30	93.8	94	(81-118)	0.32	
4-Bromofluorobenzene (surr)	30	103	103	30	102	102	(85-114)	1.10	
Toluene-d8 (surr)	30	104	104	30	103	103	(89-112)	0.84	

Batch Information

Analytical Batch: **VMS17131**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX31214**
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:
1178282001, 1178282002, 1178282005, 1178282007

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
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Naphthalene	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:
1178282001, 1178282002, 1178282005, 1178282007

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 1178282 [VXX31230]
Blank Spike Lab ID: 1410993
Date Analyzed: 09/06/2017 11:41

Spike Duplicate ID: LCSD for HBN 1178282 [VXX31230]
Spike Duplicate Lab ID: 1410994
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1178282001, 1178282002, 1178282005, 1178282007

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)
Dichlorodifluoromethane	30	24.8	83	30	26.4	88	(32-152)	6.20	(< 20)
Naphthalene	30	30.8	103	30	32.4	108	(61-128)	5.10	(< 20)
Surrt f aœg									
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	

Baœsc Ɱlt rmaɑt n

Analytical Batch: **VMS17133**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX41240**
Prep Method: **SW5040B**
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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SGS

CH 1178282

Locations Nationwide

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

www.us.sgs.com

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

Page ___ of ___

Section 1

CLIENT: NORTECH

CONTACT: DOUG DUSEK PHONE NO:

PROJECT NAME: GOLD HILL PROJECT/ PWSID/ PERMIT#:

REPORTS TO: E-MAIL: ddusek@nortechengr.com

INVOICE TO: QUOTE #:

P.O. #:

Section 3 — Preservative

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	BTEX/MTBE/TPH EDB	VOCs 8260								REMARKS/ LOC ID
(1) A-F	MW-16	8/24/17	1127	W	6	G	✓	✓								
(2) A-F	MW20	08/24/17	1229	W	6	G	✓	✓								
(3) A-F	MW2	08/24/17	1328	W	6	G	✓	✓								
(4) A-F	MW7	08/24/17	[illegible]	W	6	G	✓	✓								
(5) A-F	PHE	08/24/17	1405	W	6	G	✓	✓								
(6) A-F	MW15	08/24/17	1520	W	6	G	✓	✓								
(7) A-F	MW21	08/24/17	1547	W	6	G	✓	✓								
~~(8)~~ A-D	Trip Blank						✓									
(8) A-C	Trip Blank							✓								
ARC 8/25/17																

Section 5

	Date	Time	Received By:
Relinquished By: (1)	08/24/17	1549	
Relinquished By: (2)	8-24-17	1615	
Relinquished By: (3)			
Relinquished By: (4)	8/25/17	8:55	Received For Laboratory By:

Section 4

DOD Project? Yes No

Cooler ID: _____

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

No J-flags

Temp Blank °C: 6.0°C

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

ANC: 2.5+010

CS: 1F 1B

[ ] 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

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

F083-Kit_Request_and_COC_Templates-Blank
Revised 2013-03-24

SGS

1178282

Returned Bottles Inventory

Name of individual returning bottles: Doug

Date Received: 8/25/17

Client Name: Nortech

Received by: ARC

Project Name: Gold Hill

SGS PM: Jen

HDPE/Nalgene:	1-L					
	500-ml					
	250-ml or 8-oz					
	125-ml or 4-oz					
	60-ml or 2-oz					
	other					
amber glass:	1-L					
	500-ml					
	250-ml or 8-oz					
	125-ml or 4-oz with or without septa					
	40-ml VOA vial	18				
	other					
Subtotal:						

Note: Returned bottles (regardless of size/pres.) are billed back at $4/bottle ***unless otherwise quoted*** *.*

Amount to Invoice Client $: 12.00

WO#: 1178282

SGS

1178282

FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

Review Criteria:	Condition:	Comments/Actions Taken
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No ~~N/A~~ ~~Yes~~ No N/A	□*Exemption permitted if sampler hand carries/delivers.*
Temperature blank compliant* (i.e., 0-6°C) *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID: 1 @ 6.0 w/Therm. ID: D25 Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**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 ( ). Please check one.	~~Yes~~ No Yes No ~~N/A~~ Yes No ~~N/A~~	□*Exemption permitted if chilled & collected <8hrs ago* ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery Method: ~~Client~~ (hand carried) Other:____	Tracking/AB# : Or see attached ~~Or N/A~~	
→For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ~~Bubble Wrap~~ Separate plastic bags Vermiculite Other:____	~~Yes~~ No N/A	***Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.***
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	~~Yes~~ No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No ~~N/A~~ Yes No ~~N/A~~	

Additional notes (if applicable):

Profile #: 341954

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

e-Sample Receipt Form

SGS Workorder #: **1178282**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1 Front 1 Back
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 @ 2.5 °C Therm. ID: D10
		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)? **Note: If times differ <1hr, record details & login per COC.	No	**Sample 3 "MW-14" is the correct sample ID for "WW2" on the COC per client.**
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
1178282001-A	HCL to pH < 2	OK	1178282008-A	HCL to pH < 2	OK
1178282001-B	HCL to pH < 2	OK	1178282008-B	HCL to pH < 2	OK
1178282001-C	HCL to pH < 2	OK	1178282008-C	HCL to pH < 2	OK
1178282001-D	No Preservative Required	OK	1178282008-D	No Preservative Required	OK
1178282001-E	No Preservative Required	OK	1178282008-E	No Preservative Required	OK
1178282001-F	No Preservative Required	OK	1178282008-F	No Preservative Required	OK
1178282002-A	HCL to pH < 2	OK			
1178282002-B	HCL to pH < 2	OK			
1178282002-C	HCL to pH < 2	OK			
1178282002-D	No Preservative Required	OK			
1178282002-E	No Preservative Required	OK			
1178282002-F	No Preservative Required	OK			
1178282003-A	HCL to pH < 2	OK			
1178282003-B	HCL to pH < 2	OK			
1178282003-C	HCL to pH < 2	OK			
1178282003-D	No Preservative Required	OK			
1178282003-E	No Preservative Required	OK			
1178282003-F	No Preservative Required	OK			
1178282004-A	HCL to pH < 2	OK			
1178282004-B	HCL to pH < 2	OK			
1178282004-C	HCL to pH < 2	OK			
1178282004-D	No Preservative Required	OK			
1178282004-E	No Preservative Required	OK			
1178282004-F	No Preservative Required	OK			
1178282005-A	HCL to pH < 2	OK			
1178282005-B	HCL to pH < 2	OK			
1178282005-C	HCL to pH < 2	OK			
1178282005-D	No Preservative Required	OK			
1178282005-E	No Preservative Required	OK			
1178282005-F	No Preservative Required	OK			
1178282006-A	HCL to pH < 2	OK			
1178282006-B	HCL to pH < 2	OK			
1178282006-C	HCL to pH < 2	OK			
1178282006-D	No Preservative Required	OK			
1178282006-E	No Preservative Required	OK			
1178282006-F	No Preservative Required	OK			
1178282007-A	HCL to pH < 2	OK			
1178282007-B	HCL to pH < 2	OK			
1178282007-C	HCL to pH < 2	OK			
1178282007-D	No Preservative Required	OK			
1178282007-E	No Preservative Required	OK			
1178282007-F	No Preservative Required	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

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.

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WORK ORDER NUMBER: 17-08-2309

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: SGS North America, Inc.

Client Project Name: 1178282

Attention: Julie Shumway
200 West Potter Drive
Anchorage, AK 99518-1605

Approved for release on 09/06/2017 by:
Julie Lam
Project Manager

ResultLink

Email your PM

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Client Project Name: 1178282
Work Order Number: 17-08-2309

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Work Order Narrative

Work Order: 17-08-2309 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/29/17. They were assigned to Work Order 17-08-2309.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	SGS North America, Inc.	Work Order:	17-08-2309
	200 West Potter Drive	Project Name:	1178282
	Anchorage, AK 99518-1605	PO Number:	1178282
		Date/Time Received:	08/29/17 10:30
		Number of Containers:	24
Attn:	Julie Shumway		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
MW-16	17-08-2309-1	08/24/17 11:27	3	Aqueous
MW20	17-08-2309-2	08/24/17 12:29	3	Aqueous
MW14	17-08-2309-3	08/24/17 13:28	3	Aqueous
MW2	17-08-2309-4	08/24/17 14:12	3	Aqueous
PHE	17-08-2309-5	08/24/17 14:05	3	Aqueous
MW15	17-08-2309-6	08/24/17 15:20	3	Aqueous
MW21	17-08-2309-7	08/24/17 15:47	3	Aqueous
Trip Blank	17-08-2309-8	08/24/17 00:00	3	Aqueous

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Analytical Report

SGS North America, Inc.
200 West Potter Drive
Anchorage, AK 99518-1605

Project: 1178282

Date Received: 08/29/17
Work Order: 17-08-2309
Preparation: EPA 504.1 Ext.
Method: EPA 504.1
Units: mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-16	**17-08-2309-1-A**	**08/24/17 11:27**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 20:54**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	0.014	0.00050	50.0	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW20	**17-08-2309-2-A**	**08/24/17 12:29**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 18:16**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	0.000020	0.0000099	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW14	**17-08-2309-3-A**	**08/24/17 13:28**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 18:39**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	ND	0.000010	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW2	**17-08-2309-4-A**	**08/24/17 14:12**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 19:01**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	ND	0.000010	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
PHE	**17-08-2309-5-A**	**08/24/17 14:05**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 19:24**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	ND	0.000010	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW15	**17-08-2309-6-A**	**08/24/17 15:20**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 19:47**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	ND	0.000010	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW21	**17-08-2309-7-A**	**08/24/17 15:47**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 20:09**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	0.000010	0.000010	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Trip Blank	**17-08-2309-8-A**	**08/24/17 00:00**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 20:32**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	ND	0.000010	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

SGS North America, Inc.
200 West Potter Drive
Anchorage, AK 99518-1605

Project: 1178282

Date Received: 08/29/17
Work Order: 17-08-2309
Preparation: EPA 504.1 Ext.
Method: EPA 504.1
Units: mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-520-514**	**N/A**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 16:20**	**170905L06**

Parameter	Result	RL	DF	Qualifiers
1,2-Dibromoethane	ND	0.000010	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

SGS North America, Inc.		Date Received:	08/29/17
200 West Potter Drive		Work Order:	17-08-2309
Anchorage, AK 99518-1605		Preparation:	EPA 504.1 Ext.
		Method:	EPA 504.1
Project: 1178282			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-16	**Sample**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 20:54**	**170905S06**
MW-16	**Matrix Spike**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 17:07**	**170905S06**
MW-16	**Matrix Spike Duplicate**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 17:30**	**170905S06**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,2-Dibromoethane	0.01358	0.0002857	0.01234	0	0.01207	0	65-135	2	0-25	3

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

SGS North America, Inc.		Date Received:	08/29/17
200 West Potter Drive		Work Order:	17-08-2309
Anchorage, AK 99518-1605		Preparation:	EPA 504.1 Ext.
		Method:	EPA 504.1
Project: 1178282			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-12-520-514	**LCS**	**Aqueous**	**GC 40**	**09/05/17**	**09/05/17 16:44**	**170905L06**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
1,2-Dibromoethane	0.0002857	0.0002900	102	70-130	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 17-08-2309 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 504.1	EPA 504.1 Ext.	944	GC 40	1

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Glossary of Terms and Qualifiers

Work Order: 17-08-2309 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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SGS North America Inc.

CHAIN OF CUSTODY RECORD

1178282

17-08-2309

Locations Nationwide

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

www.us.sgs.com

CLIENT:	SGS North America Inc. - Alaska Division	SGS Reference:	EUROFINS CALSCIENCE
CONTACT:	Julie Shumway	PHONE NO:	(907) 562-2343
PROJECT NAME:	1178282	PROJECT/ PWSID/ PERMIT#:	
REPORTS TO:		E-MAIL:	Julie.Shumway@sgs.com
INVOICE TO:	SGS - Alaska	QUOTE #:	
		P.O. #:	1178282

Additional Comments: All soils report out in dry weight unless otherwise requested.

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RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/ MATRIX	# CONTAINERS	Preservative Used: NONE	EDB 504.1				MS	MSD	SGS lab #	Loc ID	REMARKS
						TYPE C = COMP G = GRAB Incremental Soils									
1	MW-16	8/24/2017	1127	W	3	GRAB	X						1178282001		
2	MW20	8/24/2017	1229	W	3	GRAB	X						1178282002		
3	MW14	8/24/2017	1328	W	3	GRAB	X						1178282003		
4	MW2	8/24/2017	1412	W	3	GRAB	X						1178282004		
5	PHE	8/24/2017	1405	W	3	GRAB	X						1178282005		
6	MW15	8/24/2017	1520	W	3	GRAB	X						1178282006		
7	MW21	8/24/2017	1547	W	3	GRAB	X						1178282007		
8	Trip Blank	8/24/2017		TB	3	GRAB	X						1178282008		

Relinquished By: (1)	Date 8/28/17	Time 1027	Received By:	8/29/17 1030	DOD Project? ☐ YES ☑ NO Report to DL (J Flags) ☐ Cooler ID:
Relinquished By: (2)	Date	Time (UPS)	Received By:		
Relinquished By: (3)	Date	Time	Received By:		
Relinquished By: (4)	Date	Time	Received For Laboratory By:		

Data Deliverable Requirements:

LEVEL 2 + DV EDD

Requested Turnaround Time and-or Special Instructions:

STANDARD

Report all analyses for Soils/Waters in mg/L or mg/Kg

Temp Blank °C: _____

or Ambient [ ]

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

[X] 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

http://www.sgs.com/terms_and_conditions.htm

1178282_EDB_8.28.17.xls

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JULIE SHUMWAY
(907) 562-2343
SGS ENVIRONMENTAL SERVICES INC
200 W POTTER DR
ANCHORAGE AK 99518-1605

11 LBS

SHIP TO:
SAMPLE RECIEVING
EUROFINS CALSCIENCE
7440 LINCOLN WAY
GARDEN GROVE CA 92841-1427

CA 927 9-09

UPS NEXT DAY AIR

TRACKING #: 1Z A86 19W 01 6452 2706

1

BILLING: P/P

WS 20.0.20 Zebra ZP 450 90.0A 07/2017

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WORK ORDER NUMBER: 17-08- 2309

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: SGS

DATE: 08 / 29 / 2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 3.6 °C (w/ CF): 3.8 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: BG

CUSTODY SEAL:

Cooler ☑ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: BG

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: BG

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☑	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☑	☐	☐
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: N/A)

Aqueous: ☑ VOA (3) ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: BG

Reviewed by: ZB

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WORK ORDER NUMBER: 17-08- 2309

SAMPLE ANOMALY REPORT

DATE: 08 / 29 / 2017

SAMPLES, CONTAINERS, AND LABELS:

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☐ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired (list client or ECI sample ID and analysis)
- ☐ Insufficient sample amount for requested analysis (list analysis)
- ☐ Improper container(s) used (list analysis)
- ☑ Improper preservative used (list analysis)
- ☐ No preservative noted on COC or label (list analysis and notify lab)
- ☐ Sample container(s) not labeled
- ☐ Client sample label(s) illegible (list container type and analysis)
- ☐ Client sample label(s) do not match COC (comment)
  - ☐ Project information
  - ☐ Client sample ID
  - ☐ Sampling date and/or time
  - ☐ Number of container(s)
  - ☐ Requested analysis
- ☐ Sample container(s) compromised (comment)
  - ☐ Broken
  - ☐ Water present in sample container
- ☐ Air sample container(s) compromised (comment)
  - ☐ Flat
  - ☐ Very low in volume
  - ☐ Leaking (not transferred; duplicate bag submitted)
  - ☐ Leaking (transferred into ECI Tedlar™ bags*)
  - ☐ Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

Comments

(-1) to (-8) Received unpreserved for EDB 504.1.

MISCELLANEOUS: (Describe)

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

ECI Sample ID	ECI Container ID	Total Number**	ECI Sample ID	ECI Container ID	Total Number**

(Containers with bubble for other analysis)

ECI Sample ID	ECI Container ID	Total Number**	Requested Analysis

Comments: _____

Reported by: SR6

Reviewed by: TB

** Record the total number of containers (i.e., vials or bottles) for the affected sample.

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Print Form

Human Health Conceptual Site Model
Scoping Form

Site Name: Gold Hill 2017 Update

File Number: 24409

Completed by: Doug Dusek

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☒ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☐ Other:

Release Mechanisms *(check potential release mechanisms at the site)*

- ☐ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☐ Air
- ☐ Sediment
- ☒ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☒ Commercial or industrial worker
- ☒ Construction worker
- ☐ Subsistence harvester (i.e. gathers wild foods)
- ☐ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☐ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

Complete for workers excavating near MW-20 and MW-16

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Incomplete

Comments:

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the ground-water is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

No drinking water wells with impacts remain

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☐

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☐

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☐

If all of the boxes are checked, label this pathway complete: Incomplete

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Inhalation of outdoor air is unlike and insignificant when copared to outdoor air exposures caused by fuel island dispenser during vehicle fillups

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Field Screening indicates ambient air conditions with respect to VOCs

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.
- Chromium is present in soil that can be dispersed as dust particles of any size.

Generally, DEC direct contact soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because it is assumed most dust particles are incidentally ingested instead of inhaled to the lower lungs. The inhalation pathway only needs to be evaluated when very small dust particles are present (e.g., along a dirt roadway or where dusts are a nuisance). This is not true in the case of chromium. Site specific cleanup levels will need to be calculated in the event that inhalation of dust containing chromium is a complete pathway at a site.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

Laboratory Data Review Checklist

Completed by:	Doug Dusek		
Title:	Staff Scientist	Date:	Dec 6, 2017
CS Report Name:	Gold Hill	Report Date:	Sep 7, 2017
Consultant Firm:	Nortech Inc.		
Laboratory Name:	SGS	Laboratory Report Number:	1178282
ADEC File Number:	24409	ADEC RecKey Number:	

1. Laboratory

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

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

Samples transferred to Test America. edb

2. Chain of Custody (COC)

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

b. Correct analyses requested?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

( ) Yes ( ) No (•) NA (Please explain) Comments:

All samples received in good condition.

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

( ) Yes ( ) No (•) NA (Please explain) Comments:

No discrepancies reported.

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

Comments:

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

c. Were all corrective actions documented?

( ) Yes ( ) No (•) NA (Please explain) Comments:

Corrective actions not taken.

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 ( ) NA (Please explain) Comments:

b. All applicable holding times met?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

c. All soils reported on a dry weight basis?

( ) Yes ( ) No (•) NA (Please explain) Comments:

Only water samples were collected

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

(•) Yes (•) No ( ) NA (Please explain) Comments:

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

Comments:

6. QC Samples

a. Method Blank

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

ii. All method blank results less than PQL?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

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

○ Yes ○ No ◉ NA (Please explain) Comments:

All results below the PQL.

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

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

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ○ No ◉ NA (Please explain) Comments:

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

○ Yes ◉ No ○ NA (Please explain) Comments:

LCS and LCSD recoveries do not meet QC diclorodifluoromethane. not detected in associated samples.

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

○ Yes ◉ No ○ NA (Please explain) Comments:

see above

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

Comments:

see above

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

○ Yes ○ No ◉ NA (Please explain) Comments:

Samples within acceptable limits.

vii. Data quality or usability affected? (Please explain) Comments:

c. Surrogates - Organics Only

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

◉ Yes ○ No ○ NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

○ Yes ◉ No ○ NA (Please explain) Comments:

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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

Not affected

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

◉ Yes ○ No ○ NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

◉ Yes ○ No ○ NA (Please explain.) Comments:

iii. All results less than PQL?

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

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

Comments:

e. Field Duplicate

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

ii. Submitted blind to lab?

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

( ) Yes (•) No ( ) NA (Please explain) Comments:

EDB and Benzene exceed 30%

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

( ) Yes (•) No ( ) NA (Please explain) Comments:

Both results below cleanup level

f. Decontamination or Equipment Blank (if applicable)

○ Yes ◉ No ○ NA (Please explain) Comments:

Not required for this project.

i. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain) Comments:

ii. If above PQL, what samples are affected?

Comments:

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

Comments:

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

a. Defined and appropriate?

○ Yes ○ No ◉ NA (Please explain) Comments:

No other data flags defined.

Reset Form

Laboratory Sampling Plan
STANDARIZED METHODOLOGY
(Version 4)
October 2017

Laboratory Sampling Plan

The site-specific laboratory sampling plan for this project is attached and provides site specific details regarding sampling. *If there are discrepancies between the site-specific document and this standard methodology, the site-specific sampling plan takes precedence*. This document provides the standard methodology used to obtain and analyze the site samples. In general, laboratory sampling will be conducted for the following four primary purposes:

1. to assess the surface and sub-surface soil environment in the subject area for potential contaminants
2. to provide confirmation of contaminant removal from the surface and subsurface soil environment in areas impacted by the contaminant(s).
3. to assess, if necessary, the groundwater environment at the Site for potential impacts resulting from contaminant migration from the source area(s)
4. to characterize any additional excavated soil material generated during the investigation for disposal purposes

For the purposes of this document, the laboratory sampling approach is described below by the following areas:

- Surface soil sampling of suspect areas
- Surface and sub-surface soil sampling of the impacted area to define the horizontal and vertical extent of contamination.
- Groundwater sampling of the source area, an upgradient location, and a downgradient location.

NORTECH will collect all laboratory soil and groundwater samples in general accordance with the ADEC August 2017 Field Sampling Guidance (FSG) document. All project soil and groundwater samples will be collected directly into clean glassware provided by the laboratory and immediately placed in a cooler with ice prior to transportation under chain-of-custody to the laboratory. A minimum of one duplicate sample will be collected for each ten samples submitted to the laboratory. If multiple days of sampling are required, a minimum of one duplicate sample will be collected each day. A minimum of one trip blank will accompany each set of volatile samples submitted to the lab.

The contaminants of concern (COC) for the characterization and corrective action effort (confirmation samples) are listed in the site-specific corrective action plan or site sampling plan. Typical fuel contaminants are: gasoline range organics (GRO), diesel range organics (DRO), and benzene, toluene, ethylbenzene, and xylenes (BTEX).

Specific laboratory analyses for these types of contaminates are:

- GRO by method AK 101
- DRO by method AK102
- BTEX by Method 8021

Should the contaminate(s) of concern be other than the above listed or should a deviation be necessary then the site-specific plan will identify those changes, deviations, and any additional required analysis.

NORTECH typically uses SGS Environmental Services in Anchorage, Alaska as the analytical laboratory for all laboratory samples needed for this project. SGS was used during the soil sampling previously conducted at the Site and is an ADEC approved laboratory.

Soil Sampling

Soil samples will be collected from various locations and depths during the project effort. All soil samples will be collected of freshly exposed soils using clean or disposable sampling tools.

In general, surface soil sampling (0-2 feet of the ground surface) will be conducted to confirm that contamination has been removed from the site to the applicable cleanup limits. Surface sample locations will be determined by the field screening results and samples will be collected using hand tools. Sub-surface soil sampling (>2 feet) will be conducted to assess the potential presence of contaminants and to characterize contaminant concentration which may remain in the sub-surface soil environment. Sub-surface soil samples will be collected from cores recovered from direct-push borings advanced through the subsurface environment.

Groundwater sampling

Existing groundwater wells and the temporary sampling points will be purged and sampled using low-flow techniques. Purging will consist of three to five well volumes and/or until the suspended silt is minimized and field parameters, including dissolved oxygen, pH, ORP, and conductivity, have stabilized. One sample will be collected from each groundwater sampling well/point. At least one field duplicate will be collected for every ten samples submitted.

Soil and Groundwater Cleanup Limits

Laboratory analyses of groundwater samples collected during this investigation will include GRO, DRO, RRO, and VOCs contaminants using the methodologies described above. All project soil and groundwater laboratory sample results will be compared to the site-specific soil and groundwater cleanup limits provided in the following tables:

ADEC Method 2 Limits

Contaminant of Concern	Soil (mg/Kg)*	Groundwater (mg/L)**
GRO	300	2.2
DRO	250	1.5
RRO	11,000	1.1
Benzene	0.022	0.0046
Toluene	6.7	1.1
Ethylbenzene	0.13	0.015
Total Xylenes	1.5	0.190

* 18 AAC 75.341. Soil cleanup levels; Tables B1 and B2 (Under 40 Inch Zone) Migration to groundwater.
**18 AAC 75.345. Groundwater and surface water cleanup levels Table C.