

February 4, 2022

Jim Fish
Contaminated Sites Program
610 University Avenue
Fairbanks, AK 99709

Subject: 2021 Gaffney Road Remediation and Monitoring Report

Dear Mr. Fish:

Ahtna Engineering Services, LLC (Ahtna) is submitting this report to document the groundwater sampling, analytical results, and sub-slab depressurization (SSD) system operation and maintenance conducted in 2021. This work was performed under the Alaska Department of Environmental Conservation (ADEC) term contract #18-3007-18 for the Gaffney West site, ADEC Hazard ID 4503, ADEC File ID 102.38.084. Tables of results are in Attachment 1 and site figures are in Attachment 2.

GAFFNEY WEST SITE BACKGROUND

In 1999, a former ADEC term contractor drilled and installed groundwater monitoring well MW-9 and confirmed a source of tetrachloroethene (PCE) was present in vadose zone soil behind Good News Bible and Book Store (GNBBS), which had formerly been Royal Masters Launderette at 617 Gaffney Road, Fairbanks, Alaska. In 2007, an ADEC term contractor performed a detailed source area investigation around GNBBS, which revealed that the sanitary sewer network, constructed of wood-stave pipe, acted as a source with releases of PCE from the sewer. PCE likely settled in sludge and even possibly absorbed into the wood-stave piping. Leaks likely occurred at elbows and junctions in the sewer system. Surface releases also likely occurred behind GNBBS.

These multiple sources have resulted in a groundwater plume of chlorinated ethenes extending approximately 3,000 feet to the northwest. The end of the plume is approximately 1,000 feet upgradient from the Golden Heart Utilities well field. Approximately thirty monitoring wells exist at the site. Degradation of PCE is occurring as trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), and trans-1,2-dichloroethene (tDCE) are present in downgradient wells; however, vinyl chloride has not been detected in groundwater at the site in 20 years of monitoring. Vinyl chloride has only been detected in soil gas at the site.

A combined SSD/soil vapor extraction (SVE) system began operation in January 2010 at GNBBS to mitigate the movement of contaminant vapors into the commercial building and remove vapor phase contaminants from the vadose zone. The SSD system was modified in 2016 to a less-power-intensive inline depressurization fan; its efficacy has been documented. The SVE system

contaminant removal rate became asymptotic in 2012, and the SVE system operated intermittently from 2012 to 2017. In May 2019, the SVE system was modified to operate passively, without electric power.

The VI pathway currently presents the most risk for exposure to the contaminants of concern (COCs) as PCE degrades into TCE. Multiple VI evaluations and monitoring events have been performed at the source area and downgradient buildings, most recently in fall 2017. Well surveys conducted in 1999, 2011, and 2017 documented that all but one private well in the contaminant plume area were not operable, and the owners did not intend to put it into service. The single operable private well was found to be no longer in use in 2020.

FIELD ACTIVITIES

Fieldwork was conducted on behalf of the ADEC at the Gaffney West site in 2021. Field activities consisted of purging monitoring wells and collecting groundwater samples at three source area wells and conducting monitoring of the sub-slab depressurization (SSD) system. All work was conducted in accordance with ADEC's *Field Sampling Guidance* (ADEC, 2019) and the approved work plan addendum (Ahtna, 2020). Field notes are included in Attachment 3.

Groundwater Sampling

Ahtna purged and sampled monitoring wells MW-9, MW-29R, and TW-46 on August 31, 2021. Groundwater samples were collected using a bladder pump and low-flow purge and sample techniques in accordance with the ADEC *Field Sampling Guidance* (ADEC, 2019). The bladder pump was connected to Teflon-lined polyethylene tubing and placed in the well with the intake within the screened interval of the well. Drawdown was minimized by routinely monitoring the depth to groundwater and adjusting flow rate to compensate. Once a flow rate was established, the depth to groundwater was repeatedly measured during purging to ensure that drawdown was stable in the well. A water quality meter with flow-through cell was connected to the pump discharge line, and water quality measurements were recorded every three to five minutes. During purging, water quality parameters were monitored until at least three of the four following parameters were stable based on the following criteria:

1. Potential of hydrogen (pH) within 0.1
2. Specific conductivity within 3%
3. Oxidation reduction potential within 10 millivolts
4. Dissolved oxygen within 10%

All measurements were recorded on the groundwater sample data sheets provided in Attachment 3.

Once purging was complete, the water quality meter was disconnected, and groundwater samples were collected directly from the tubing connected to the pump. Each water sample volume was collected into three 40-milliliter vials pre-preserved with hydrochloric acid for VOC analysis by 8260. A duplicate sample was collected from TW-46. Samples were analyzed by SGS in Anchorage, Alaska.

SSD Monitoring

Ahtna performed SSD system operation and maintenance (O&M) assessments to ensure operation of the SSD system continues to be effective at mitigating the VI pathway in GNBBS. The inspections included an overall assessment of the SSD system (extraction wells, conveyance piping, inline fan, and exhaust stack) to document real or potential operating concerns. Monitoring was performed on February 19 and November 9, 2021. Assessments included the following:

- Electrical meter reading from the Kill-A-Watt[®] EZ Meter located on the GNBBS south wall
- Flow rates and vacuums at each of the five depressurization wells using a Dwyer[®] 471B digital thermo-anemometer and dial vacuum gauge
- Percent the ball valves are open
- Flow rate and vacuum at the manifold near the depressurization fan using the Dwyer 471B digital thermo-anemometer and dial vacuum gauge
- Differential pressure readings at eight sub-slab monitoring points (SS-1, SS-2, SS-3, SS-4, SS-36, SS-37, SS-38, and SS-44) using a Dwyer Series 475 Mark III digital manometer
- Observations of the exhaust stack (frosting or no frosting)

Well Maintenance

Ahtna performed maintenance on monitoring wells, SVE wells, and the SVE manifold in June and July of 2021. Monitoring wells MW-29M, MW-29D, and MW-8 were found to be frost jacked and had pushed up their covers. Approximately 2.5 inches of casing were cut off from MW-29M and MW-8, and 1.5 inches of casing were cut off MW-29D. The well cover and skirt were replaced on MW-29M, and traction rock was added to the annular space. The condensate trap on the western-most SVE manifold was replaced because it had cracked. Staff trimmed 6 inches of casing off EW-13 and 3 inches of casing off TW-46, added a well cover and skirt to EW-4, and added pea gravel in the annular space of EW-4. Staff trimmed an additional approximately 2.5 inches of casing from MW-8.

Investigation-Derived Waste Management

Investigation-derived waste included disposable sampling materials such as tubing, personal protective equipment, and incidental garbage generated on site (paper towels, waste plastic, etc.), and purge water. IDW was managed as F-listed hazardous waste from the Gaffney West site with ID AKR000003566 where the ADEC is a small quantity generator. Wastes were placed in 55-gallon steel drums, segregating by liquid and solid and waste streams, and locked inside the fenced area behind GNBBS, serving as a Central Accumulation Area. Ahtna documented weekly inspections of the waste in the field book. NRC Alaska was subcontracted to manifest, transport, and dispose of the IDW. The drums were transported to US Ecology Idaho, Inc., in Grand View, Idaho, for disposal. The waste manifest is included in Attachment 4.

RESULTS

The SSD system O&M data sheets are included in Attachment 3. The average negative pressure beneath the GNBBS foundation slab was 0.0547 inches of water in February 2021 and 0.044 inches of water in November 2021. The average vacuum from individual SSD wells was 13.6 inches of water in February 2021 and 13 inches of water in November 2021. The average flow rate from individual SSD wells was 8.29 cubic feet per minute in February 2021 and 7.45 cubic feet per minute in November 2021.

Analytical results of the August 2021 groundwater sampling are summarized in Table 1 in Attachment 1. The complete laboratory report is in Attachment 5. Concentrations of PCE and TCE exceeded ADEC cleanup levels in all three source area wells. All other VOC concentrations were less than cleanup levels.

Quality Assurance/Quality Control

An ADEC Laboratory Data Review Checklist was completed for the groundwater results and is included in Attachment 6. Quality control samples included a field duplicate collected from TW-46, an equipment blank, and a trip blank. There were no detections in the equipment blank or trip blank. Results greater than the detection limit but less than the limit of quantitation were qualified “J” as estimated. Results for cis-1,2-dichloroethene, PCE, and TCE in sample 21-GRW-002-GW from MW-9 are qualified “J+” as estimated biased high because of a failed surrogate recovery. No other qualifications were assigned. Data are considered usable as qualified. No data were rejected.

CONCLUSIONS/RECOMMENDATIONS

The SSD system continues to maintain a negative pressure envelope beneath GNBBS. Flow rates and vacuums are similar to previous O&M events. PCE and TCE concentrations in source area groundwater monitoring wells MW-9, MW-29R, and TW-46 continue to exceed ADEC cleanup levels and were similar to previous sampling events. Much of the source area monitoring infrastructure was found to be damaged by frost-jacking.

Semiannual SSD system O&M visits should continue to ensure the system maintains a negative pressure envelope beneath GNBBS. Source area monitoring wells MW-9, MW-29R, and TW-46 should be sampled again in late summer of 2022. A trend analysis can then be completed on results to observe the effect of modifying the SVE system from active to passive operation. Unnecessary source area monitoring infrastructure should be decommissioned in accordance with ADEC guidelines and federal regulations.

Sincerely,

Ahtna Engineering Services, LLC

A handwritten signature in black ink, appearing to be 'A. H. ...', written over a light grey horizontal line.

Project Manager

Attachments:

1. Tables
2. Figures
3. Field Notes
4. Disposal Documents
5. Laboratory Report
6. ADEC Laboratory Data Review Checklist

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ATTACHMENT 1

Tables

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Table 1: August 2021 Groundwater Analytical Results

Gaffney Road Remediation and Monitoring
Fairbanks, Alaska

			Location:	MW-29R	MW-9	TW-46		Equipment Blank	Trip Blank
			Client Sample ID:	21-GRW-001-GW	21-GRW-002-GW	21-GRW-003-GW	21-GRW-903-GW	21-GRW-004-EB	21-GRW-005-TB
			Lab Sample ID:	1215678001	1215678002	1215678003	1215678004	1215678005	1215678006
			Matrix:	Water	Water	Water	Water	Water	Water
			Collection Date:	8/31/2021 12:50 PM	8/31/2021 1:50 PM	8/31/2021 2:50 PM	8/31/2021 2:55 PM	8/31/2021 4:10 PM	9/1/2021 9:00 AM
Analysis	Analyte	Unit	Cleanup Level						
SW8260D	1,1,1,2-Tetrachloroethane	ug/L	5.7	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	1,1,1-Trichloroethane	ug/L	8000	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,1,2,2-Tetrachloroethane	ug/L	0.76	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	1,1,2-Trichloroethane	ug/L	0.41	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
SW8260D	1,1-Dichloroethane	ug/L	28	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,1-Dichloroethene	ug/L	280	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,1-Dichloropropene	ug/L		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,2,3-Trichlorobenzene	ug/L	7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,2,3-Trichloropropane	ug/L	0.0075	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,2,4-Trichlorobenzene	ug/L	4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,2,4-Trimethylbenzene	ug/L	56	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,2-Dibromo-3-chloropropane	ug/L		ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
SW8260D	1,2-Dibromoethane	ug/L	0.075	ND (0.0375)	ND (0.0375)	ND (0.0375)	ND (0.0375)	ND (0.0375)	ND (0.0375)
SW8260D	1,2-Dichlorobenzene	ug/L	300	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,2-Dichloroethane	ug/L	1.7	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	1,2-Dichloropropane	ug/L	8.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,3,5-Trimethylbenzene	ug/L	60	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,3-Dichlorobenzene	ug/L	300	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	1,3-Dichloropropane	ug/L		ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	1,4-Dichlorobenzene	ug/L	4.8	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	2,2-Dichloropropane	ug/L		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	2-Butanone (MEK)	ug/L	5600	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
SW8260D	2-Chlorotoluene	ug/L		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	2-Hexanone	ug/L	38	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
SW8260D	4-Chlorotoluene	ug/L		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	4-Isopropyltoluene	ug/L		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	4-Methyl-2-pentanone (MIBK)	ug/L	6300	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
SW8260D	Benzene	ug/L	4.6	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
SW8260D	Bromobenzene	ug/L	62	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Bromochloromethane	ug/L		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Bromodichloromethane	ug/L	1.3	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	Bromoform	ug/L	33	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Bromomethane	ug/L	7.5	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)
SW8260D	Carbon disulfide	ug/L	810	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
SW8260D	Carbon tetrachloride	ug/L	4.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Chlorobenzene	ug/L	78	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	Chloroethane	ug/L	21000	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Chloroform	ug/L	2.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.545 J	ND (0.5)
SW8260D	Chloromethane	ug/L	190	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Dibromochloromethane	ug/L	8.7	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	Dibromomethane	ug/L	8.3	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Dichlorodifluoromethane	ug/L	200	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Ethylbenzene	ug/L	15	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Freon-113	ug/L	10000	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)

Table 1: August 2021 Groundwater Analytical Results

Gaffney Road Remediation and Monitoring
Fairbanks, Alaska

			Location:	MW-29R	MW-9	TW-46		Equipment Blank	Trip Blank
			Client Sample ID:	21-GRW-001-GW	21-GRW-002-GW	21-GRW-003-GW	21-GRW-903-GW	21-GRW-004-EB	21-GRW-005-TB
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			Matrix:	Water	Water	Water	Water	Water	Water
			Collection Date:	8/31/2021 12:50 PM	8/31/2021 1:50 PM	8/31/2021 2:50 PM	8/31/2021 2:55 PM	8/31/2021 4:10 PM	9/1/2021 9:00 AM
Analysis	Analyte	Unit	Cleanup Level						
SW8260D	Hexachlorobutadiene	ug/L	1.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Isopropylbenzene (Cumene)	ug/L	450	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Methyl-t-butyl ether	ug/L	140	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
SW8260D	Methylene chloride	ug/L	110	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
SW8260D	Naphthalene	ug/L	1.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	P & M -Xylene	ug/L		ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
SW8260D	Styrene	ug/L	1200	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	Tetrachloroethene	ug/L	41	271	184 J+	196	182	ND (0.5)	ND (0.5)
SW8260D	Toluene	ug/L	1100	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.381 J	ND (0.5)
SW8260D	Trichloroethene	ug/L	2.8	4.83	8 J+	3.25	3.3	ND (0.5)	ND (0.5)
SW8260D	Trichlorofluoromethane	ug/L	5200	2.71	ND (0.5)	2.71	2.75	ND (0.5)	ND (0.5)
SW8260D	Vinyl acetate	ug/L	410	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
SW8260D	Vinyl chloride	ug/L	0.19	ND (0.075)	ND (0.075)	ND (0.075)	ND (0.075)	ND (0.075)	ND (0.075)
SW8260D	Xylenes (total)	ug/L	190	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)
SW8260D	cis-1,2-Dichloroethene	ug/L	36	7.79	1.32 J+	11.4	10	ND (0.5)	ND (0.5)
SW8260D	cis-1,3-Dichloropropene	ug/L	4.7	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
SW8260D	n-Butylbenzene	ug/L	1000	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	n-Propylbenzene	ug/L	660	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	o-Xylene	ug/L		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	sec-Butylbenzene	ug/L	2000	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	tert-Butylbenzene	ug/L	690	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
SW8260D	trans-1,2-Dichloroethene	ug/L	360	ND (0.5)	ND (0.5)	0.907 J	0.504 J	ND (0.5)	ND (0.5)
SW8260D	trans-1,3-Dichloropropene	ug/L	4.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)

Key:

Detections are bold

Exceedances of cleanup levels are highlighted in orange

Limits of detection that exceed the cleanup level are highlighted in blue

Cleanup levels are based on 18 AAC 75 Table C groundwater cleanup levels

J+ = Value is estimated, biased high

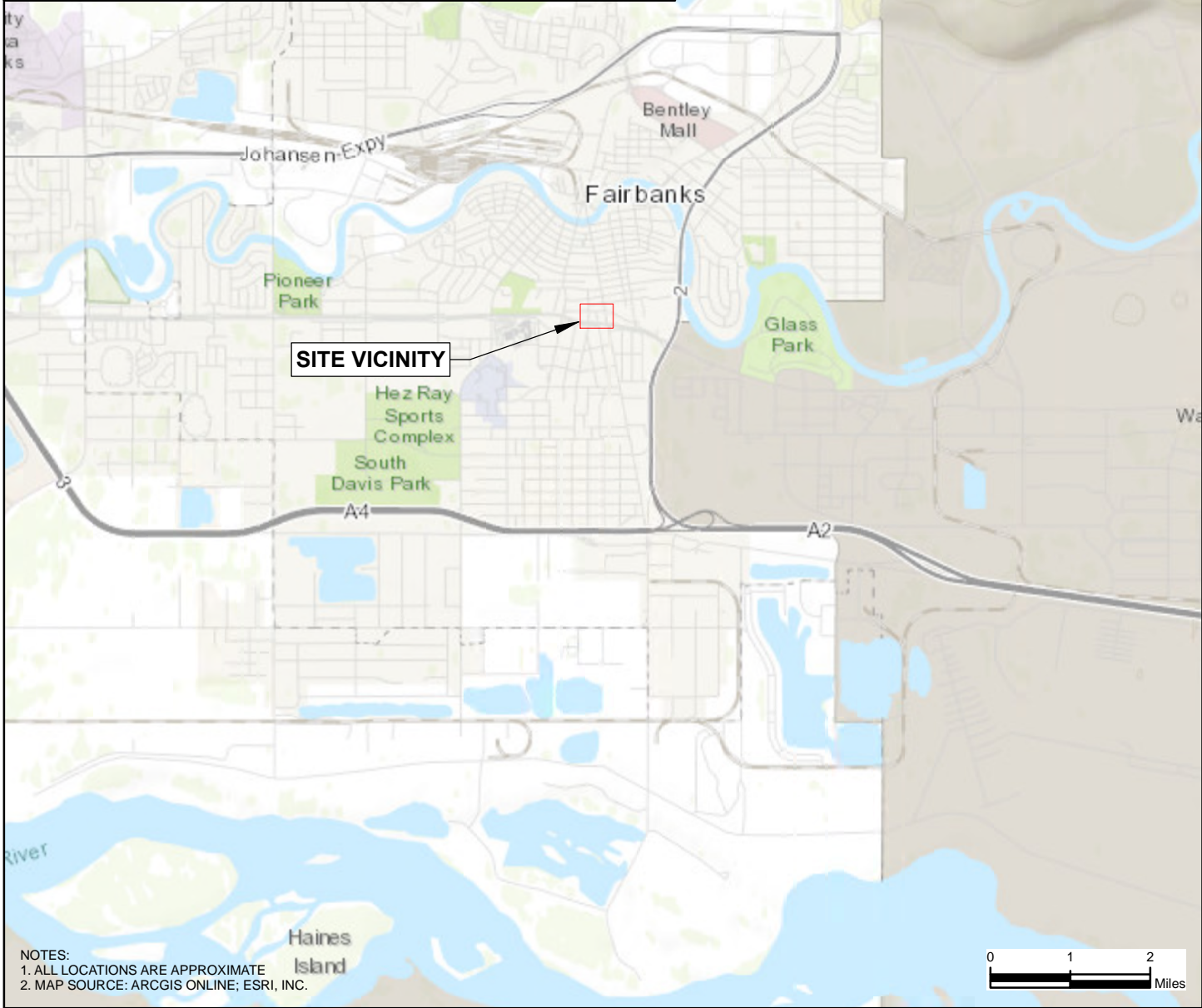
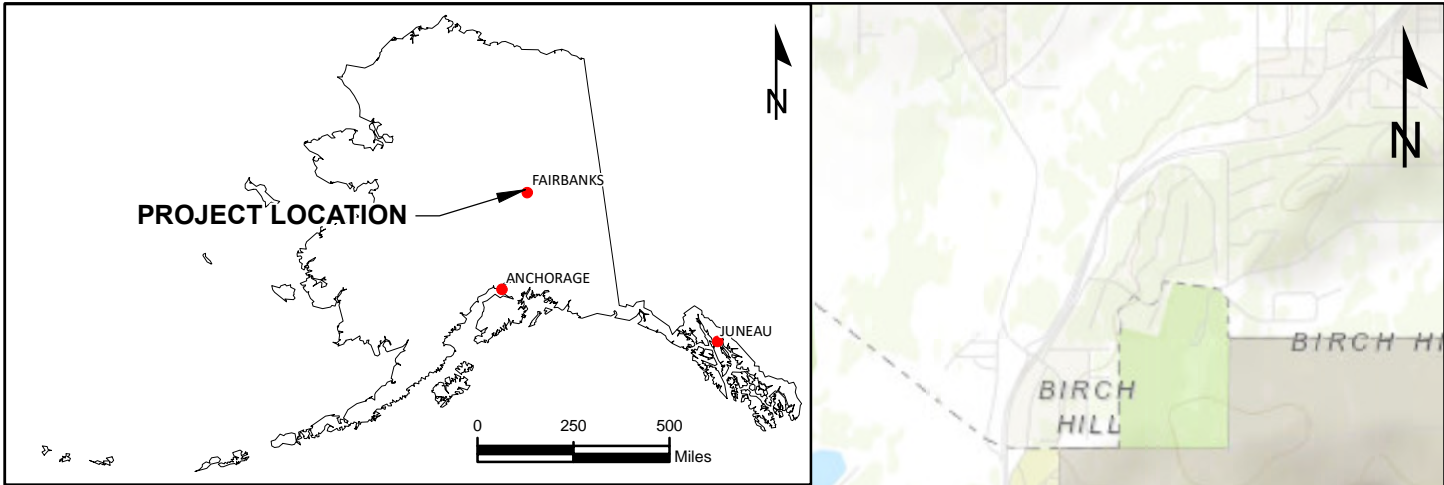
ND = Not detected at the limit of detection in parentheses

ug/L = micrograms per liter

ATTACHMENT 2

Figures

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NOTES:
 1. ALL LOCATIONS ARE APPROXIMATE
 2. MAP SOURCE: ARCGIS ONLINE; ESRI, INC.

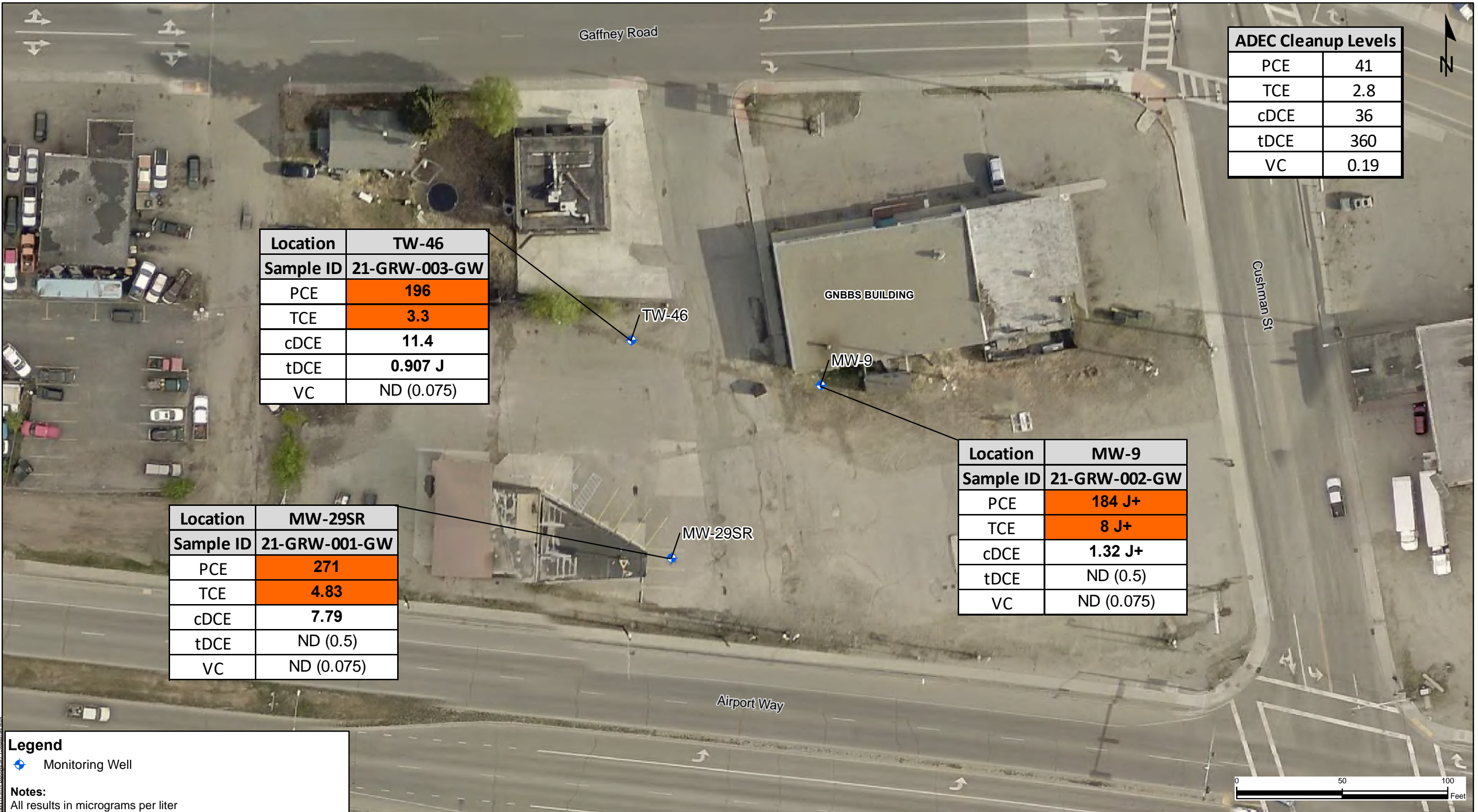
2021 Gaffney Road Remediation and Monitoring Report
 Fairbanks, Alaska

Ahtna
 Engineering Services, LLC

Project Number: 20301.008	Figure Number: 1
Date: 1/24/2022	
Drafted By: J.B.	

State and Site Vicinity

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ADEC Cleanup Levels	
PCE	41
TCE	2.8
cDCE	36
tDCE	360
VC	0.19

Location	TW-46
Sample ID	21-GRW-003-GW
PCE	196
TCE	3.3
cDCE	11.4
tDCE	0.907 J
VC	ND (0.075)

Location	MW-9
Sample ID	21-GRW-002-GW
PCE	184 J+
TCE	8 J+
cDCE	1.32 J+
tDCE	ND (0.5)
VC	ND (0.075)

Location	MW-29SR
Sample ID	21-GRW-001-GW
PCE	271
TCE	4.83
cDCE	7.79
tDCE	ND (0.5)
VC	ND (0.075)

Legend
 Monitoring Well

Notes:
 All results in micrograms per liter
 Results in orange exceed the cleanup level from 18 AAC 75
 ADEC = Alaska Department of Environmental Conservation
 cDCE = cis-1,2,-dichloroethene
 ND = Non-detect, limit of detection in parentheses
 PCE = Tetrachloroethene
 tDCE = trans-1,2-dichloroethene
 TCE = Trichloroethene
 VC = Vinyl chloride

2021 Gaffney Road Remediation and Monitoring Report
 Fairbanks, Alaska

August 2021 Groundwater Sampling Results

Ahtna
 Engineering Services, LLC

Project Number: 20301.008	Figure Number: 2
Date: 2/2/2022	
Drafted By: J.B.	

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ATTACHMENT 3

Field Notes

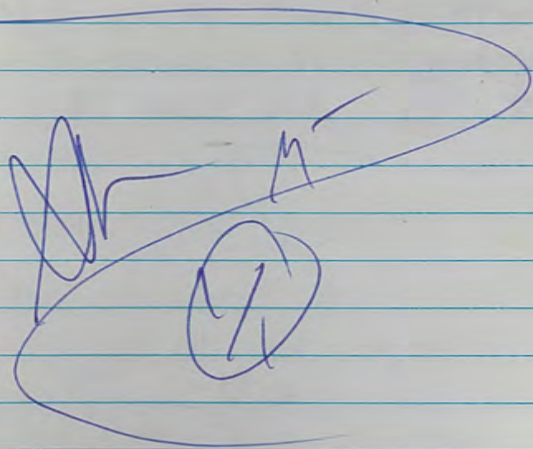
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11/24/20 Gaffney 5th Mecomb

1230 On Site for OM+M

- Conduct Readings on passive SVE Systems. Lots of icing on Manifolds 1 and 8. Attempted chipping away, but stopped due to hanging icicles. - Too dangerous - No Readings for Manifold 1 and 8. - See data sheet -

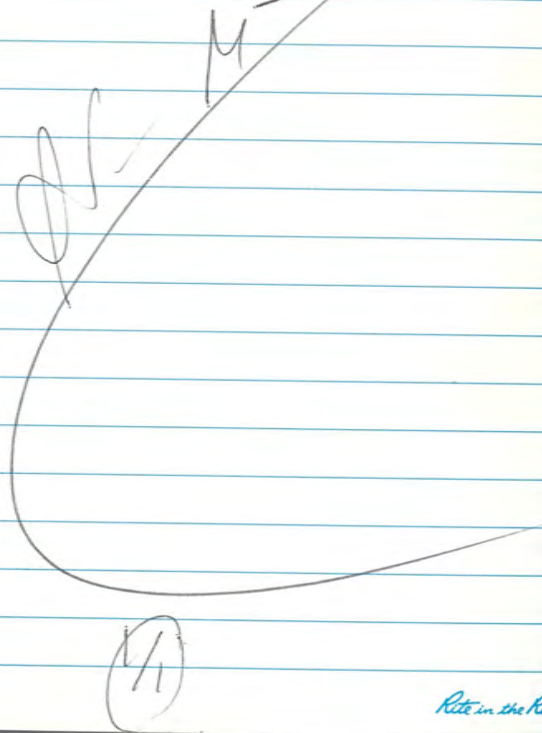
1400 In last OM+M. - GNBBS installed a new boiler Fuel line that does not effect Sample port access. - Too much Storage in the way of SS37 in the Hair Solen. - See data Sheet for Readings -



Mecomb Gaffney -8th 2-19-20th
21

1223 Mecomb on Site for OM+M. Start in ice at GNBBS then Shear Heaven. See data Sheet.

1446 Finish OM+M off Site



② 6/2/21 +70°F, Sun

~~6/2/21~~ Gaffney West Weller

1530 A Weller arrives at 1326

Cushman. Observes MW-29M, MW-29D,
MW-8 have frost-jacked and
pushed up well covers

- Trim ~2.5" off MW-29M.

MW-29M needs new compression
cap, lock, well cover with skirt,
see 1st photo

- Trim ~1.5" of MW-29D. MW-29D
needs new compression cap, lock,
well cover with skirt.

See 2nd photo

- Trim ~2.5" off MW-8, need
new compression cap, lock,
well cover, see 3rd photo

1400 Meet with Gary Evans.

He had question about asphalt
disposal and showed me his
tentative plan for reasphalting
1326 Cushman, maintaining
drainage to storm drain near
Airport Way

1430 offsite

(1/1)

Adw Zelle

+60°F, P cloudy

Weller Gaffney West

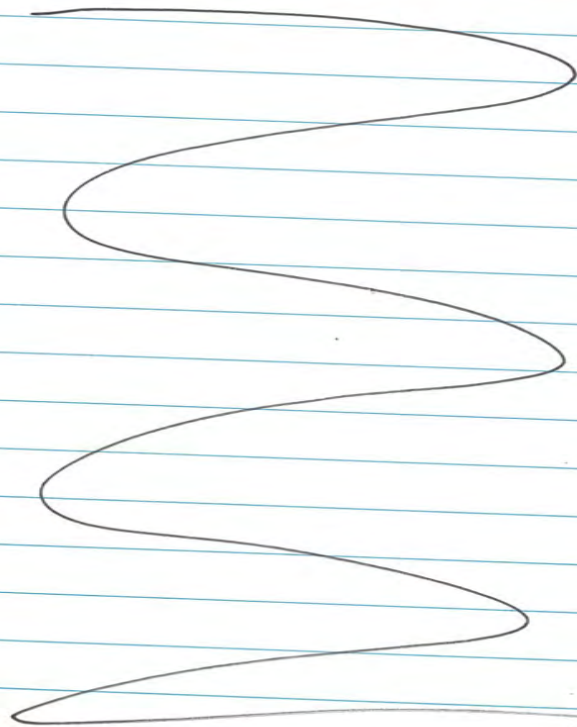
6/9/21

1300 Weller onsite to inspect

SG-5 and EW-6

- noticed that one of the
SSD manifolds (the one furthest
to the east) had a cracked
condensate trap and a disconnected
conveyance line

1315 offsite



Adw Zelle

(1/1)

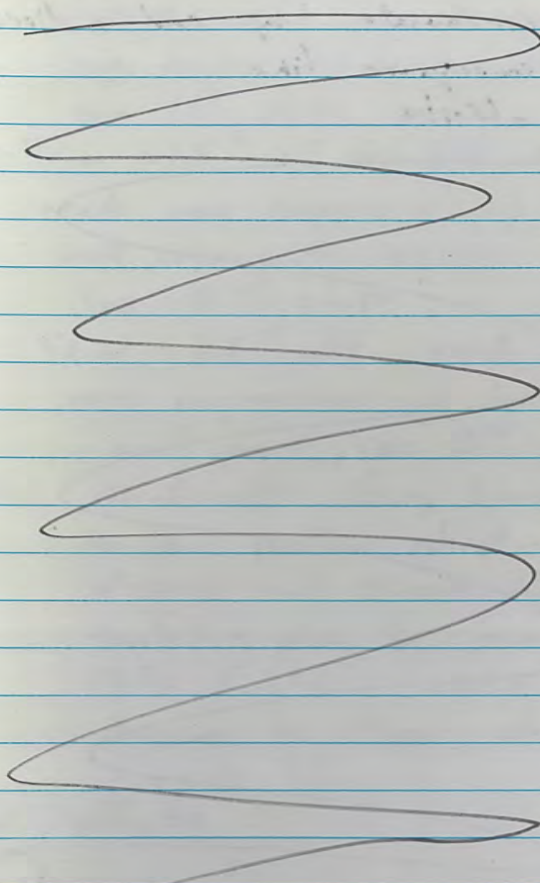
Rite in the Rain

6/10/21

+55°F, clearer
Gaffney West Wella

1130 Wella onsite to secure MW-29M
Plane used 6" well cover and
skirt over casing. Surround
with traction rock.

1145 offsite



(4/1)

John Z. Weller

+50°F, cloudy

Wella Gaffney West 6/11/21

0815 Wella cuts lock on SVE
manifold enclosure, reattaches
the 2nd SVE line from
the west-side to the stack.
Replace lock with Master
Lock (2001 Key). Placed 2001
Keys on both Gaffney Key
chains

0830 offsite



John Z. Weller

(4/1)

Rite in the Rain

+66°F, sunny

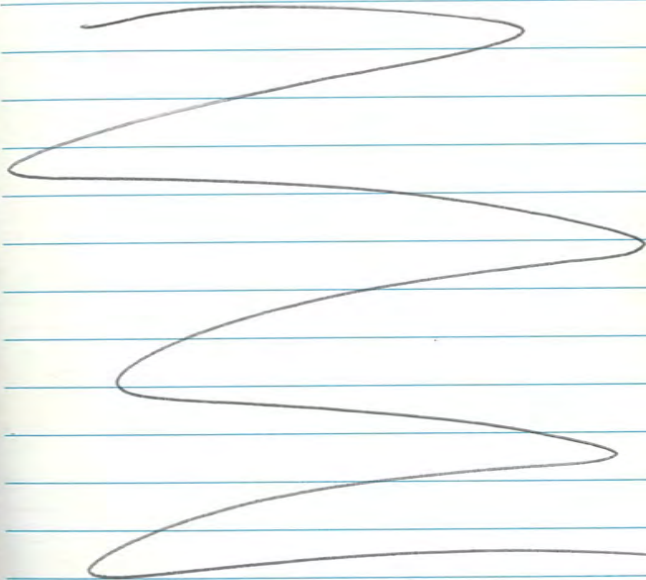
6/15/21 Gaffney West Weller
0700 Weller onsite to repair
condensate trap on SVE
manifold farthest West.
- replaced 1.5" Tee, clear
condensate trap, and
1.5" female adaptor
- glued the trap in place
- pick up excess scrap 2x4
boards
0715 offsite

(1/1)

John Weller

+60°F, cloudy

Weller Gaffney West 7/7/21
1650 Weller onsite
- 1st Photo of EW-13
- Trim approximately 6" of EW-13
1700 - 2nd Photo of TW-46
(Need new 4" compression cap,
well cover + skirt for EW-13)
- Trim approximately 3" of TW-46
- Need new 1.5" well cap and
need new cover + skirt at
TW-46
1710 offsite



John Weller

(1/1)
Rite in the Rain

7/30/21 +60°F, sun
Gaffney West Weller

1330 Weller onsite.

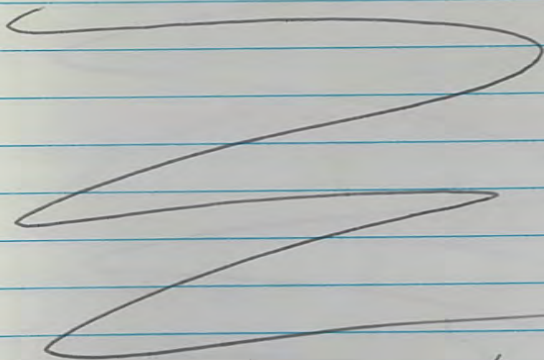
- Observe EW-4 has subsided → see photo
- Need new skirt + cover
- ~~EE~~ MW-8 needs to be trimmed again → see photo

1340 - head to garage to look for pea gravel, casing cutter, cold patch, etc

1410 - Weller back onsite → filled EW-4 void with aggregate and place cover on top

- Need to get casing cutter to trim MW-08 later

1415 offsite



(11)

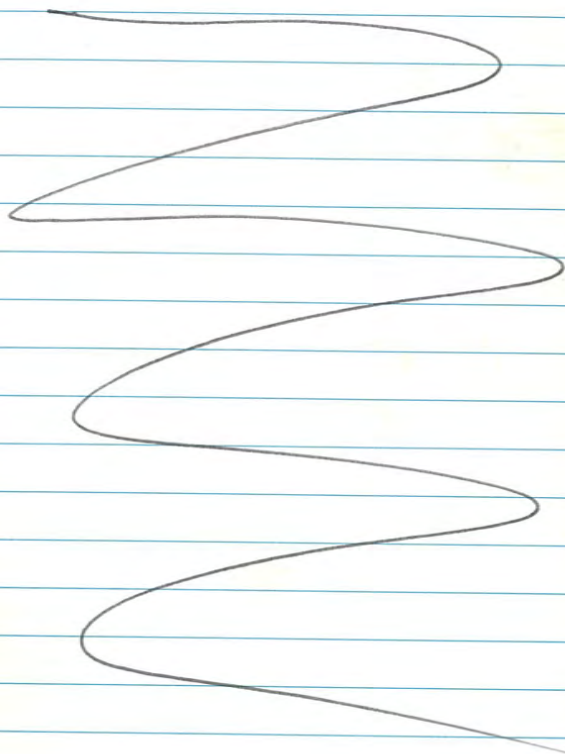
Chris Zuber

7/31/21 +80°F, sun
Weller Gaffney West

16:15 Weller onsite

- Trim ~ 2.5" from MW-08 casing
- cap is crushed and needs to be replaced

16:30 offsite



Chris Zuber

(41)

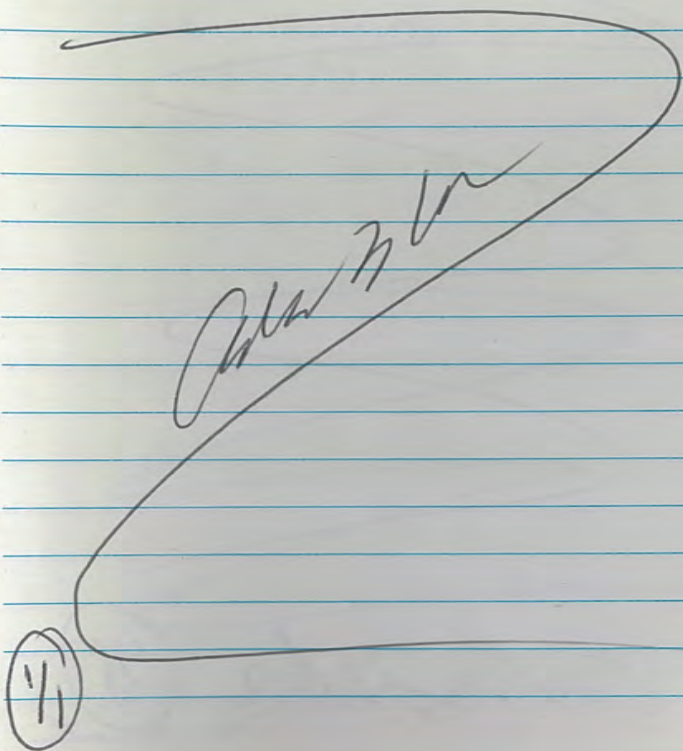
Rite in the Rain

8/16/21 +50°F rain Weller
Guffney West Hager

1415 Weller and Hager onsite to
determine if any extraction wells
lie within Stacia St. ROW

- The closest extraction well lies
immediately south of Stacia St.
ROW. The N edge of the
man hole cover appears to be
on the south boundary of
Stacia St. ROW

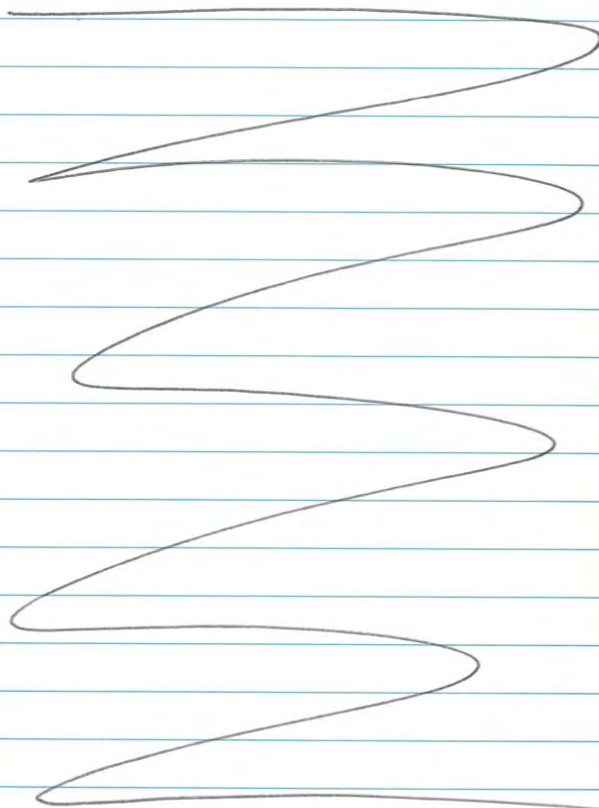
1420 offsite



Weller +50°F rain
Laihti Guffney West 8/19/21

0815 Taylor Laihti of Jacobs
picks up key to fenced area behind
6NBBS and places ~ 1 gallon
of disposable groundwater sampling
materials in SAA.

0930 Taylor returns key.



C. Taylor

Rite in the Rain

8/31/21 56° sunny Gaffner McComb

0900 McComb To Sample
MW-9, MW-29R, and TW-46
as part of Gaffner Road
Remediation and Monitoring
Work plan Addendum.

- Pick up Pump, YSI, interface
probe and brushes at TTT

- Pick up 2 Spray drags
at Arctic Fire and Safety.

1000 Calibrate YSI - See data sheet -

1030 on site locate wells.

Tailgate Meeting

TW-46 11.94' BTOC

MW-9 12.45' BTOC

MW-29R ~~H.54'~~ 11.56' BTOC

1200 Set up on MW-29R

1250 Collect Sample 21-GRW-001-GW
at MW-29R @ 1250

For VOCs - See Data Sheet

1308 Set up on MW-9

1350 Collect Sample 21-GRW-002-GW
at MW-9 @ 1350

1410 Set up on ~~MW-9~~ TW-46

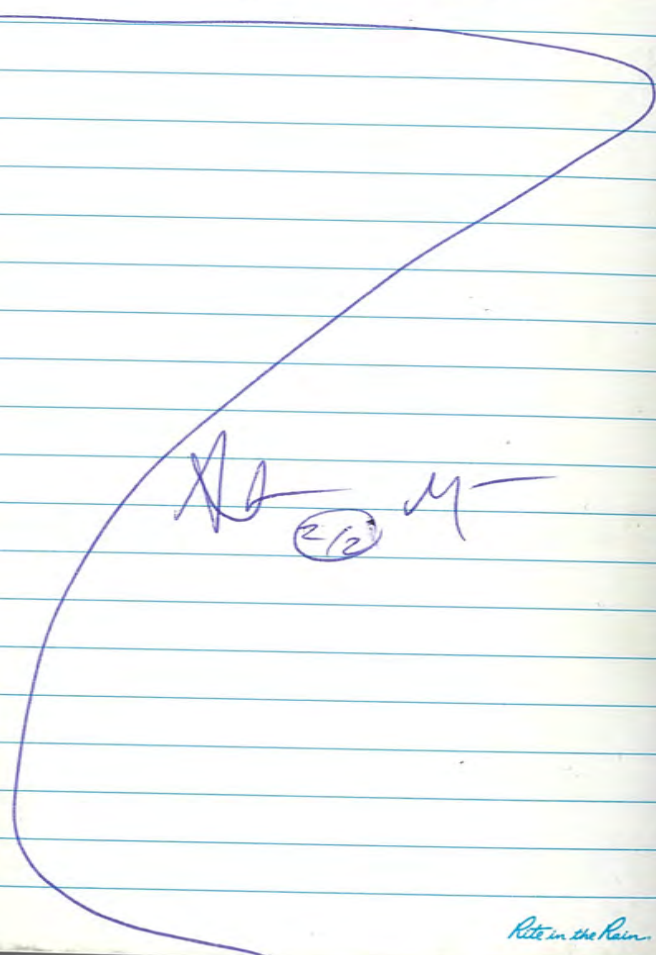
1450 Collect Sample 21-GRW-003-GW @ 1450
and Dup 21-GRW-903-GW @ 1455

[Signature] (12)

McComb 56° sunny Gaffner 8/31/21

1610 Collect equipment blank off
of hose and pump used
on project. 21-GRW-004-EB
@ 1610.

1640 Put samples in fridge
to bring to SGS tomorrow.



Hazardous Waste		Gaffney	
Date	Container	Is container closed	Is container intact
9/10/21	5-gal Purple H ₂ O	YES	YES
	25-gal Solid waste		
9/17/21	5-gal PURPLE H ₂ O	YES	YES
(NH)	25-gal SOLID WASTE	YES	YES
9/24/21	5-gal purple water	yes	yes
	25-gal solid waste	yes	yes

9/30/21 Gaffney Braun
 1505 Arrive on site, collect 2 drums of waste.
 1530 Relieve waste to us ecology.



GROUNDWATER SAMPLING FORM

PROJECT NUMBER:
20301.008

WELL NUMBER:
TW-46

SHEET:
1 of 1

PROJECT NAME <u>Galtner</u>	WELL CONDITION <u>Broken Well Cap</u>	NOMINAL DIAMETER	O.D.	I.D.	VOLUME (GAL/LIN FT)
CLIENT <u>ADEC</u>	DEPTH TO BASE (ft FROM TOC) <u>18.92</u>	1"	1.315"	1.049"	0.04
DATE <u>8/31/21</u>	DEPTH TO WATER (ft FROM TOC) <u>11.94</u>	1.5"	1.9"	1.610"	0.11
AOC <u>West</u>	HEIGHT OF WATER COLUMN (ft) <u>6.98</u>	<u>2</u> "	2.375"	2.067"	0.17
SCIENTIST <u>A. McComb</u>	WELL VOLUME (gal) <u>1.1866</u>	3"	3.5"	3.068"	0.38
WEATHER/TEMPERATURE <u>56° Sunny</u>	3 WELL VOLUMES (gal) <u>~3.56</u>	4"	4.5"	4.026"	0.66
WIND <u>None</u>					

SAMPLING DATA

DEPTH OF PUMP INTAKE 12.5

SAMPLE COLLECTED WITH: Bailer Pump, Type: Bradlet Other, Specify: _____

MADE OF: Stainless Steel PVC Teflon Disposable LDPE Other, Specify: _____

SAMPLING DECON PROCEDURE: Alconox DE Rinse

SAMPLE DESCRIPTION: (color, free product thickness, odor, turbidity) _____

FIELD WATER QUALITY PARAMETERS

Time	Purged Volume (Gal)	Purge Rate (mL/min)	Water Level	Draw Down (ft)	Temperature (°C)	Stabilization Requirements (3 must be stable)					Color	Odor
						Spec. Cond. (µS/cm) ^c	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)		
<u>1430</u>	<u>0.1</u>	<u>250</u>	<u>11.95</u>	<u>0.01</u>	<u>7.7</u>	<u>577</u>	<u>8.78</u>	<u>6.54</u>	<u>173.7</u>	<u>low</u>	<u>Tan</u>	<u>None</u>
<u>1435</u>	<u>0.6</u>	<u>250</u>	<u>11.91</u>	<u>0.01</u>	<u>7.1</u>	<u>504</u>	<u>10.40</u>	<u>6.51</u>	<u>174.6</u>	<u>low</u>	<u>Tan</u>	<u>None</u>
<u>1440</u>	<u>0.9</u>	<u>250</u>	<u>11.91</u>	<u>0.01</u>	<u>3.6</u>	<u>497.4</u>	<u>9.56</u>	<u>6.53</u>	<u>173.6</u>	<u>low</u>	<u>Tan</u>	<u>None</u>
<u>1445</u>	<u>1.5</u>	<u>250</u>	<u>11.91</u>	<u>0.01</u>	<u>3.6</u>	<u>497.6</u>	<u>9.27</u>	<u>6.55</u>	<u>172.8</u>	<u>low</u>	<u>Tan</u>	<u>None</u>

ANALYTICAL SAMPLE INFORMATION

Sample ID	Time	Analytes	Sampling Notes:
<u>21-GRW-003-GW</u>	<u>1450</u>	DRO RRO GRO BTEX PAH <u>VOCs</u> PEST HERB	<u>21-GRW-903-GW is duplicate of 21-GRW-003-GW</u>
<u>21-GRW-903-GW</u>	<u>1455</u>	DRO RRO GRO BTEX PAH <u>VOCs</u> PEST HERB	
		DRO RRO GRO BTEX PAH VOCs PEST HERB	



GROUNDWATER SAMPLING FORM

PROJECT NUMBER:
20301.008

WELL NUMBER:
MW-24R

SHEET:
1 of 1

PROJECT NAME <u>Guffney</u>	WELL CONDITION <u>Missing Well Cap/ready to run</u>	NOMINAL DIAMETER	O.D.	I.D.	VOLUME (GAL/LIN FT)
CLIENT <u>ADEC</u>	DEPTH TO BASE (ft FROM TOC) <u>19.41</u>	1"	1.315"	1.049"	0.04
DATE <u>8/31/21</u>	DEPTH TO WATER (ft FROM TOC) <u>11.56'</u>	1.5"	1.9"	1.610"	0.11
AOC <u>West</u>	HEIGHT OF WATER COLUMN (ft) <u>7.85</u>	<u>2"</u>	2.375"	2.067"	0.17
SCIENTIST <u>A. McComb</u>	WELL VOLUME (gal) <u>1.3345</u>	3"	3.5"	3.068"	0.38
WEATHER/TEMPERATURE <u>56° Sunny</u>	3 WELL VOLUMES (gal) <u>~4</u>	4"	4.5"	4.026"	0.66
WIND <u>None</u>					

SAMPLING DATA

DEPTH OF PUMP INTAKE 13.5

SAMPLE COLLECTED WITH: Bailer Pump, Type: Bladder 1.75" Other, Specify: _____

MADE OF: Stainless Steel PVC Teflon Disposable LDPE Other, Specify: _____

SAMPLING DECON PROCEDURE: AICnox / DI Rinse

SAMPLE DESCRIPTION: (color, free product thickness, odor, turbidity) Clear, No odor

FIELD WATER QUALITY PARAMETERS

Time	Purged Volume (Gal)	Purge Rate (mL/min)	Water Level	Draw Down (ft)	Temperature (°C)	Stabilization Requirements (3 must be stable)					Color	Odor
						± 3%	± 10%	± 0.1	± 10 mV	± 10%		
						Spec. Cond. (µS/cm) ✓	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)		
1225	0.1	250	11.57	0.01	4.5	549	7.91	6.35	124.9	low	Tan	None
1230	0.4	250	11.57	0.01	4.0	559	7.29	6.46	114.7	low	Tan	None
1235	1.0	250	11.57	0.01	3.8	559	2.01	6.57	103.9	low	Tan	None
1240	1.4	250	11.57	0.01	3.8	553	1.83	6.60	100.4	low	Tan	None
1245	2.0	250	11.57	0.01	3.8	549	1.91	6.61	98.1	low	Tan	None

ANALYTICAL SAMPLE INFORMATION

Sample ID	Time	Analytes	Sampling Notes:
<u>21-GRW-001-GW</u>	<u>1250</u>	DRO RRO GRO BTEX PAH <u>VOCs</u> PEST HERB	
		DRO RRO GRO BTEX PAH VOCs PEST HERB	
		DRO RRO GRO BTEX PAH VOCs PEST HERB	



GROUNDWATER SAMPLING FORM

PROJECT NUMBER:
20701.008

WELL NUMBER:
MW-9

SHEET:
1 of 1

PROJECT NAME <u>Gaffney</u>	WELL CONDITION <u>Good</u>	NOMINAL DIAMETER	O.D.	I.D.	VOLUME (GAL/LIN FT)
CLIENT <u>ADEC</u>	DEPTH TO BASE (ft FROM TOC) <u>19.04</u>	1"	1.315"	1.049"	0.04
DATE <u>8/31/21</u>	DEPTH TO WATER (ft FROM TOC) <u>12.45</u>	1.5"	1.9"	1.610"	0.11
AOC <u>West</u>	HEIGHT OF WATER COLUMN (ft) <u>6.59</u>	2"	2.375"	2.067"	0.17
SCIENTIST <u>A. McComb</u>	WELL VOLUME (gal) <u>1.1203</u>	3"	3.5"	3.068"	0.38
WEATHER/TEMPERATURE <u>56° Sunny</u>	3 WELL VOLUMES (gal) <u>3.36</u>	4"	4.5"	4.026"	0.66
WIND <u>None</u>					

SAMPLING DATA

DEPTH OF PUMP INTAKE: 13.50

SAMPLE COLLECTED WITH: Bailer Pump, Type: Bladder Other, Specify: _____

MADE OF: Stainless Steel PVC Teflon Disposable LDPE Other, Specify: _____

SAMPLING DECON PROCEDURE: Alconox/DJ Rinse

SAMPLE DESCRIPTION: (color, free product thickness, odor, turbidity) Clear, No odor

FIELD WATER QUALITY PARAMETERS

Time	Purged Volume (Gal)	Purge Rate (mL/min)	Water Level	Draw Down (ft)	Temperature (°C)	Stabilization Requirements (3 must be stable)					Color	Odor
						Spec. Cond. (µS/cm) ^c	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)		
1325	0.1	250	12.47	0.02	6.2	447.5	7.64	6.52	139.2	low	Tan	none
1330	0.405	250	12.46	0.01	5.3	501	4.78	6.52	148.0	low	Clear	none
1335	0.9	250	12.46	0.01	5.0	562	3.02	6.58	151.2	low	Clear	none
1340	1.5	250	12.46	0.01	5.0	578	2.30	6.58	152.9	low	Clear	none
1345	1.9	250	12.46	0.01	4.9	583	2.11	6.58	153.3	low	Clear	none

ANALYTICAL SAMPLE INFORMATION

Sample ID <u>21-GRW-002-GW</u>	Time <u>1350</u>	Analytes DRO RRO GRO BTEX PAH <u>VOCs</u> PEST HERB	Sampling Notes: <u>pH reading at 1340 was removed from wrong data field.</u>
		DRO RRO GRO BTEX PAH VOCs PEST HERB	
		DRO RRO GRO BTEX PAH VOCs PEST HERB	

Gaffney West OM&M Data Sheet

Date: **2-19-21** Time: **1223** Ambient Temp.(°F): **72°** Technician: **A. McComb** Equipment: Dwyer Mark III Series 475 Digital Manometer
 Dwyer 471B Digital Thermo Anemometer

Inline Fan SSD System

Depressurization Wells						Indoor Vapor Monitoring Points		
Line	Vacuum ("WC)	Flow (fpm)	Valve % open	Diameter Sch 80	Calculated Flow (cfm)	Manifold Vacuum ("WC):	Location	Vacuum ("WC)
DW 1	12	545.7	1000	1.5"	0	15 Hourmeter reading (KW-hr)/Time: 1571 KW/15 Exhaust stack hoarfrost?	SS1	0.000
DW 2	14	1661.0	No valve	1.5"	0		SS2	0.000
DW 3	14	756.8	100	1.5"	0		SS3	0.000
DW 4	14	589.9	30%	1.5"	0		SS4	0.013
DW 5	14	464.3	100%	2"	0		SS36	0.127
Notes: Too much furniture stored on top of 5537 to access sample port. took photo on phone.							SS37	-
							SS38	0.192

NOTES:

45 / 53 = "I" between readings indicates gauge reading "before" and "after" adjustment

NR = Not Recorded

Gaffney West OM&M Data Sheet

Date: 11/9/21 Time: 1250 Ambient Temp.(°F): Technician: A McComb Equipment: Dwyer Mark III Series 475 Digital Manometer
 Dwyer 471B Digital Thermo Anemometer

Inline Fan SSD System

Depressurization Wells						Indoor Vapor Monitoring Points	
Line	Vacuum ("WC)	Flow (fpm)	Valve % open	Diameter Sch 80	Calculated Flow (cfm)	Location	Vacuum ("WC)
DW 1	-11	563.8	100	1.5"	0	SS1	0.000
DW 2	-13	618.1	No valve	1.5"	0	SS2	0.000
DW 3	-13	512.9	100	1.5"	0	SS3	0.000
DW 4	-13	580.7	25	1.5"	0	SS4	0.003
DW 5	-15	428.4	100	2"	0	SS36	0.047
Notes: <u>Could not access SS-37</u>						SS37	-
						SS38	0.214

Notes:

45 / 53 = "/" between readings indicates gauge reading "before" and "after" adjustment

NR = Not Recorded

1250

Date: 2-19-21	Tech: A. Mccarb	Ambient Temp. (°F): -10	Weather: light snow
------------------	--------------------	----------------------------	------------------------

Passive SVE System

Manifold	Extraction Well	Vacuum ("WC)	Flow (fpm)	Vacuum ("WC)	Flow (fpm)	Flow Indicator* (mm)	Solar Fan Operating	Notes
1	3	0.000	20.9	—	—	0	N/A	Ice built up on Manifold
	11	0.000	19.3					
2	7	0.003	16.2	0.010	24.2	0		
	6	0.003	19.1					
3	8	0.009	18.7	0.008	29.1	0	N/A	
	5	0.000	17.4					
4	9	0.004	17.6	0.010	25.1	0		
	12	0.005	17.5					
5	15	0.000	25.9	0.007	22.9	0	N/A	
	1	0.000	24.5					
6	10	0.000	25.1	0.000	22.7	0		
	13	0.000	24.1					
7	14	0.000	25.6	0.000	37.7	0	N/A	
	2	0.000	24.1					
8	16	0.000	25.1	—	—	0		Ice built up on Manifold
	4	0.000	25.1					

Equipment:
Dwyer Mark III Series 475 Digital Manometer
Dwyer 471B Digital Thermo Anemometer

Notes:

Between Manifold 4 and 5 I re-zeroed manometer due to valves creeping up

45 / 53 = " / " between readings indicates gauge reading "before" and "after" adjustment

NR = Not Recorded

*Distance in millimeters between ping pong ball seat and ping pong ball

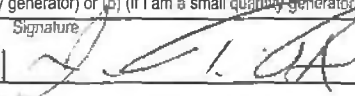

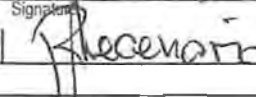
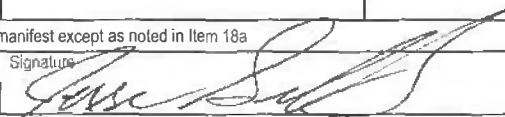
ATTACHMENT 4

Disposal Documents

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Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number AKR000003588	2. Page 1 of 2	3. Emergency Response Phone 800-899-4672	4. Manifest Tracking Number 004899082 FLE			
5. Generator's Name and Mailing Address ADEC - GAFFNEY ROAD WEST 610 UNIVERSITY AVENUE FAIRBANKS, AK 99709 (907) 452-2192			Generator's Site Address (if different than mailing address) ADEC - GAFFNEY ROAD WEST 610 GAFFNEY ROAD FAIRBANKS, AK 99701					
6. Transporter 1 Company Name US ECOLOGY ALASKA LLC			U.S. EPA ID Number AKR000004184					
7. Transporter 2 Company Name WEAVER BROTHERS			U.S. EPA ID Number AKD002848372					
8. Designated Facility Name and Site Address US ECOLOGY IDAHO, INC. 20400 LEMLEY RD GRAND VIEW, ID 83624 Facility's Phone: (208) 834-2275			U.S. EPA ID Number IDD073114654					
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes		
		No.	Type					
X	1 RQ, UN3082, Waste Environmentally hazardous substances, liquid, n.o.s. (TRICHLOROETHENE, TETRACHLOROETHENE), 9, PGIII, RQ=100 ERG#171	1	DM	10	P	F002		
X	2 RQ, UN3077, Waste Environmentally hazardous substances, solid, n.o.s. (TRICHLOROETHENE, TETRACHLOROETHENE), 9, PGIII, RQ=100 ERG#171	1	DM	40	P	F002		
	3.							
	4.							
14. Special Handling Instructions and Additional Information 1) USE52734 F002 PURGE WATER D38575 2) USE52736 F002 DEBRIS								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offoror's Printed/Typed Name James Fish				Signature 		Month Day Year 9 21 21		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name Fawn Wynatt				Signature 		Month Day Year 9 30 21		
Transporter 2 Printed/Typed Name Ryan Mecenari				Signature 		Month Day Year 10 13 21		
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
18b. Alternate Facility (or Generator) Manifest Reference Number: _____ U.S. EPA ID Number _____								
18c. Signature of Alternate Facility (or Generator) Month Day Year _____								
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1. _____		2. _____		3. _____		4. _____		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name Jesse Smith				Signature 		Month Day Year 11 12 21		

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US Ecology, Inc. Land Disposal Restriction Form



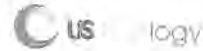
GENERATOR : ADEC - GAFFNEY ROAD WEST EPA I.D. NUMBER: AKR00003566
 WASTE STREAM or PROFILE NUMBER: 52734-0 Manifest Doc. No. 004899082 FLE Line No. 1
 WASTE IS A: Wastewater (<1% TSS and TOC) Non-wastewater Debris
 NOTIFICATION FREQUENCY: ONE TIME REQUIRED WITH EACH SHIPMENT
 Shipment EPA WASTE CODES (from 40 CFR 268.40) F002
 UHC's (Underlying Hazardous Constituents 40 CFR 268.48)? Yes No
 If yes, list: _____
 Does a subcategory apply per 40 CFR 268.48? Yes No
 If yes, list: _____
 Constituents requiring treatment in F001-5, F039, debris, and alternate soils? Yes No
 If yes, list: _____
 See Profile for analysis (if any).

- A. **Restricted Waste Meets Treatment Standards (40 CFR 268.7(a) (3))**
 The restricted waste identified above meets the treatment standards in 40 CFR 268.40 or Alternative LDR treatment standards for contaminated soil 40CFR268.49 and can be landfill disposed without further treatment.
 If applicable, under 268.49, this contaminated soil does or does not contain listed hazardous waste and does or does not exhibit a characteristic of hazardous waste and complies with the soil treatment standards as provided by 268.49 (c) or the universal treatment standards.
 I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.
- B. **Restricted Waste Treated To Treatment Standards (40 CFR 268.7(b) (1) & 268.7 (b) (2))**
 The treatment residue, or extract of such residue, or the restricted waste identified above has been tested to assure that the treatment residues or extract meet all applicable treatment standards in 40 CFR 268.40 and/or performance standards in 40 CFR 268.45.
 I certify under penalty of law that I personally have examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.
- C. **Restricted Waste Soil Treated To Alternative Standards (40 CFR 268.7(b) (4))**
 I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.49 without impermissible dilution of the prohibited wastes. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.
- D. **Restricted Waste Decharacterized But Requires Treatment For UHC (40 CFR 268.7(b)(4)(iv))**
 I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49 to remove the hazardous characteristic. This decharacterized waste contains Underlying Hazardous Constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.
- E. **Restricted Waste Subject To Treatment (40 CFR 268.7(a) (2))**
 The restricted waste identified above must be treated to the applicable treatment standards in 40 CFR 268.40, or treated to comply with applicable prohibitions set forth in Part 268.32 or RCRA Section 3004(d) and 268.49 (c).
 If applicable, under 268.49, this contaminated soil does or does not contain listed hazardous waste and does or does not exhibit a characteristic of hazardous wastewater and is subject to the soil treatment standards as provided by 268.49(c) or the universal treatment standards.
- F. **Hazardous Debris Subject To Treatment (40 CFR 268.45)**
 This hazardous debris identified above must be treated to the alternative treatment standards in 40 CFR 268.45.

I certify and warrant that the information that appears on this form, and appended documents, is true and correct. I have correctly indicated how my waste is to be managed in accordance with 40 CFR 268. My certification is based on personal examination of the information submitted, or is based on my inquiries of those individuals responsible for obtaining the information.

Authorized Signature James Fish Title Project Manager Date 9/21/21
UHC and Subcategory list from 40 CFR Part 268.48 and 268.40 available upon request

US Ecology, Inc. Land Disposal Restriction Form



GENERATOR: ADEC - GAFFNEY ROAD WEST EPA I.D. NUMBER: AKR000003566

WASTE STREAM or PROFILE NUMBER: 52736-0 Manifest Doc. No. 004899082FLE Line No. 2

WASTE IS A: Wastewater (<1% TSS and TOC) Non-wastewater Debris

NOTIFICATION FREQUENCY: ONE TIME REQUIRED WITH EACH SHIPMENT

Shipment EPA WASTE CODES (from 40 CFR 268.40) F002

UHC's (Underlying Hazardous Constituents 40 CFR 268.48)? Yes No

If yes, list:

Does a subcategory apply per 40 CFR 268.48? Yes No

If yes, list:

Constituents requiring treatment in F001-5, F039, debris, and alternate soils? Yes No

If yes, list:

See Profile for analysis (if any).

A. Restricted Waste Meets Treatment Standards (40 CFR 268.7(a) (3))

The restricted waste identified above meets the treatment standards in 40 CFR 268.40 or Alternative LDR treatment standards for contaminated soil 40CFR268.49 and can be landfill disposed without further treatment.

If applicable, under 268.49, this contaminated soil does or does not contain listed hazardous waste and does or does not exhibit a characteristic of hazardous waste and complies with the soil treatment standards as provided by 268.49 (c) or the universal treatment standards.

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

B. Restricted Waste Treated To Treatment Standards (40 CFR 268.7(b) (1) & 268.7 (b) (2))

The treatment residue, or extract of such residue, or the restricted waste identified above has been tested to assure that the treatment residues or extract meet all applicable treatment standards in 40 CFR 268.40 and/or performance standards in 40 CFR 268.45.

I certify under penalty of law that I personally have examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

C. Restricted Waste Soil Treated To Alternative Standards (40 CFR 268.7(b) (4))

I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.49 without impermissible dilution of the prohibited wastes. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

D. Restricted Waste Decharacterized But Requires Treatment For UHC (40 CFR 268.7(b)(4)(iv))

I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49 to remove the hazardous characteristic. This decharacterized waste contains Underlying Hazardous Constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

E. Restricted Waste Subject To Treatment (40 CFR 268.7(a) (2))

The restricted waste identified above must be treated to the applicable treatment standards in 40 CFR 268.40, or treated to comply with applicable prohibitions set forth in Part 268.32 or RCRA Section 3004(d) and 268.49 (c).

If applicable, under 268.49, this contaminated soil does or does not contain listed hazardous waste and does or does not exhibit a characteristic of hazardous wastewater and is subject to the soil treatment standards as provided by 268.49(c) or the universal treatment standards.

F. Hazardous Debris Subject To Treatment (40 CFR 268.45)

This hazardous debris identified above must be treated to the alternative treatment standards in 40 CFR 268.45.

I certify and warrant that the information that appears on this form, and appended documents, is true and correct. I have correctly indicated how my waste is to be managed in accordance with 40 CFR 268. My certification is based on personal examination of the information submitted, or is based on my inquiries of those individuals responsible for obtaining the information.

Authorized Signature James Fil Title Project Manager Date 9/21/21
UHC and Subcategory list from 40 CFR Part 268.48 and 268.40 available upon request

ATTACHMENT 5

Laboratory Report

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Laboratory Report of Analysis

To: Ahtna Engineering Svs
110 W 38th Ave Suite 200A
Anchorage, AK 99503
(907)433-0720

Report Number: **1215678**

Client Project: **Gaffney 20301.008**

Dear Joel Brann,

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

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

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

Sincerely,
SGS North America Inc.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **Ahtna Engineering Svs**
SGS Project: **1215678**
Project Name/Site: **Gaffney 20301.008**
Project Contact: **Joel Brann**

Refer to sample receipt form for information on sample condition.

21-GRW-002-GW (1215678002) PS

8260D - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. The analytes associated with this surrogate were not reported above the LOQ.

LCS for HBN 1825365 [VXX/37808 (1635667) LCS

8260D - LCS recovery for methylene chloride does not meet QC criteria. This analyte was not reported above the LOQ in the associated samples.

LCSD for HBN 1825365 [VXX/3780 (1635668) LCSD

8260D - LCSD recovery for methylene chloride does not meet QC criteria. This analyte was not reported above the LOQ in the associated samples.

LCSD for HBN 1825390 [VXX/3781 (1635753) LCSD

8260D - LCS/LCSD RPD for 1,2-dibromo-3-chloropropane does not meet QC criteria. This analyte was not reported above the LOQ in the 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.

Print Date: 09/15/2021 11:13:59AM

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. 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
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

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

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
21-GRW-001-GW	1215678001	08/31/2021	09/02/2021	Water (Surface, Eff., Ground)
21-GRW-002-GW	1215678002	08/31/2021	09/02/2021	Water (Surface, Eff., Ground)
21-GRW-003-GW	1215678003	08/31/2021	09/02/2021	Water (Surface, Eff., Ground)
21-GRW-903-GW	1215678004	08/31/2021	09/02/2021	Water (Surface, Eff., Ground)
21-GRW-004-EB	1215678005	08/31/2021	09/02/2021	Water (Surface, Eff., Ground)
21-GRW-005-TB	1215678006	09/01/2021	09/02/2021	Water (Surface, Eff., Ground)

Method

SW8260D

Method Description

Volatile Organic Compounds (W) FULL

Detectable Results Summary

Client Sample ID: **21-GRW-001-GW**

Lab Sample ID: 1215678001

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
cis-1,2-Dichloroethene	7.79	ug/L
Tetrachloroethene	271	ug/L
Trichloroethene	4.83	ug/L
Trichlorofluoromethane	2.71	ug/L

Client Sample ID: **21-GRW-002-GW**

Lab Sample ID: 1215678002

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
cis-1,2-Dichloroethene	1.32	ug/L
Tetrachloroethene	184	ug/L
Trichloroethene	8.00	ug/L

Client Sample ID: **21-GRW-003-GW**

Lab Sample ID: 1215678003

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
cis-1,2-Dichloroethene	11.4	ug/L
Tetrachloroethene	196	ug/L
trans-1,2-Dichloroethene	0.907J	ug/L
Trichloroethene	3.25	ug/L
Trichlorofluoromethane	2.71	ug/L

Client Sample ID: **21-GRW-903-GW**

Lab Sample ID: 1215678004

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
cis-1,2-Dichloroethene	10.0	ug/L
Tetrachloroethene	182	ug/L
trans-1,2-Dichloroethene	0.504J	ug/L
Trichloroethene	3.30	ug/L
Trichlorofluoromethane	2.75	ug/L

Client Sample ID: **21-GRW-004-EB**

Lab Sample ID: 1215678005

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Chloroform	0.545J	ug/L
Toluene	0.381J	ug/L



Results of 21-GRW-001-GW

Client Sample ID: 21-GRW-001-GW
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678001
Lab Project ID: 1215678

Collection Date: 08/31/21 12:50
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 21-GRW-001-GW

Client Sample ID: 21-GRW-001-GW
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678001
Lab Project ID: 1215678

Collection Date: 08/31/21 12:50
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 21-GRW-001-GW

Client Sample ID: **21-GRW-001-GW**
Client Project ID: **Gaffney 20301.008**
Lab Sample ID: 1215678001
Lab Project ID: 1215678

Collection Date: 08/31/21 12:50
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS21161
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/10/21 17:55
Container ID: 1215678001-A

Prep Batch: VXX37810
Prep Method: SW5030B
Prep Date/Time: 09/10/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS21161
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/10/21 18:25
Container ID: 1215678001-A

Prep Batch: VXX37810
Prep Method: SW5030B
Prep Date/Time: 09/10/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 21-GRW-002-GW

Client Sample ID: 21-GRW-002-GW
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678002
Lab Project ID: 1215678

Collection Date: 08/31/21 13:50
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Print Date: 09/15/2021 11:14:05AM

J flagging is activated



Results of 21-GRW-002-GW

Client Sample ID: **21-GRW-002-GW**
 Client Project ID: **Gaffney 20301.008**
 Lab Sample ID: 1215678002
 Lab Project ID: 1215678

Collection Date: 08/31/21 13:50
 Received Date: 09/02/21 09:48
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Chloromethane	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
cis-1,2-Dichloroethene	1.32	1.00	0.310	ug/L	1		09/10/21 18:10
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		09/10/21 18:10
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		09/10/21 18:10
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Freon-113	5.00 U	10.0	3.10	ug/L	1		09/10/21 18:10
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		09/10/21 18:10
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		09/10/21 18:10
Naphthalene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/10/21 18:10
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Styrene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Tetrachloroethene	184	1.00	0.310	ug/L	1		09/10/21 18:10
Toluene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Trichloroethene	8.00	1.00	0.310	ug/L	1		09/10/21 18:10
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		09/10/21 18:10
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		09/10/21 18:10
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		09/10/21 18:10
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		09/10/21 18:10
Surrogates							
1,2-Dichloroethane-D4 (surr)	106		81-118	%	1		09/10/21 18:10
4-Bromofluorobenzene (surr)	117	*	85-114	%	1		09/10/21 18:10
Toluene-d8 (surr)	105		89-112	%	1		09/10/21 18:10



Results of 21-GRW-002-GW

Client Sample ID: **21-GRW-002-GW**
Client Project ID: **Gaffney 20301.008**
Lab Sample ID: 1215678002
Lab Project ID: 1215678

Collection Date: 08/31/21 13:50
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS21161
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/10/21 18:10
Container ID: 1215678002-A

Prep Batch: VXX37810
Prep Method: SW5030B
Prep Date/Time: 09/10/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 21-GRW-003-GW

Client Sample ID: 21-GRW-003-GW
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678003
Lab Project ID: 1215678

Collection Date: 08/31/21 14:50
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Print Date: 09/15/2021 11:14:05AM

J flagging is activated



Results of 21-GRW-003-GW

Client Sample ID: **21-GRW-003-GW**
 Client Project ID: **Gaffney 20301.008**
 Lab Sample ID: 1215678003
 Lab Project ID: 1215678

Collection Date: 08/31/21 14:50
 Received Date: 09/02/21 09:48
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Chloromethane	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
cis-1,2-Dichloroethene	11.4	1.00	0.310	ug/L	1		09/10/21 17:53
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		09/10/21 17:53
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		09/10/21 17:53
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Freon-113	5.00 U	10.0	3.10	ug/L	1		09/10/21 17:53
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		09/10/21 17:53
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		09/10/21 17:53
Naphthalene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/10/21 17:53
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Styrene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Tetrachloroethene	196	10.0	3.10	ug/L	10		09/10/21 18:37
Toluene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
trans-1,2-Dichloroethene	0.907 J	1.00	0.310	ug/L	1		09/10/21 17:53
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/10/21 17:53
Trichloroethene	3.25	1.00	0.310	ug/L	1		09/10/21 17:53
Trichlorofluoromethane	2.71	1.00	0.310	ug/L	1		09/10/21 17:53
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		09/10/21 17:53
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		09/10/21 17:53
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		09/10/21 17:53
Surrogates							
1,2-Dichloroethane-D4 (surr)	103	81-118		%	1		09/10/21 17:53
4-Bromofluorobenzene (surr)	101	85-114		%	1		09/10/21 17:53
Toluene-d8 (surr)	104	89-112		%	1		09/10/21 17:53



Results of **21-GRW-003-GW**

Client Sample ID: **21-GRW-003-GW**
Client Project ID: **Gaffney 20301.008**
Lab Sample ID: 1215678003
Lab Project ID: 1215678

Collection Date: 08/31/21 14:50
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21159
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 09/10/21 17:53
Container ID: 1215678003-A

Prep Batch: VXX37808
Prep Method: SW5030B
Prep Date/Time: 09/10/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS21159
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 09/10/21 18:37
Container ID: 1215678003-A

Prep Batch: VXX37808
Prep Method: SW5030B
Prep Date/Time: 09/10/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 21-GRW-903-GW

Client Sample ID: 21-GRW-903-GW
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678004
Lab Project ID: 1215678

Collection Date: 08/31/21 14:55
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Print Date: 09/15/2021 11:14:05AM

J flagging is activated



Results of 21-GRW-903-GW

Client Sample ID: 21-GRW-903-GW
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678004
Lab Project ID: 1215678

Collection Date: 08/31/21 14:55
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 21-GRW-903-GW

Client Sample ID: **21-GRW-903-GW**
Client Project ID: **Gaffney 20301.008**
Lab Sample ID: 1215678004
Lab Project ID: 1215678

Collection Date: 08/31/21 14:55
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS21159
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 09/10/21 18:07
Container ID: 1215678004-A

Prep Batch: VXX37808
Prep Method: SW5030B
Prep Date/Time: 09/10/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS21159
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 09/10/21 18:52
Container ID: 1215678004-A

Prep Batch: VXX37808
Prep Method: SW5030B
Prep Date/Time: 09/10/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 21-GRW-004-EB

Client Sample ID: 21-GRW-004-EB
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678005
Lab Project ID: 1215678

Collection Date: 08/31/21 16:10
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Print Date: 09/15/2021 11:14:05AM

J flagging is activated



Results of 21-GRW-004-EB

Client Sample ID: 21-GRW-004-EB
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678005
Lab Project ID: 1215678

Collection Date: 08/31/21 16:10
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of **21-GRW-004-EB**

Client Sample ID: **21-GRW-004-EB**
Client Project ID: **Gaffney 20301.008**
Lab Sample ID: 1215678005
Lab Project ID: 1215678

Collection Date: 08/31/21 16:10
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21159
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 09/10/21 18:22
Container ID: 1215678005-A

Prep Batch: VXX37808
Prep Method: SW5030B
Prep Date/Time: 09/10/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 21-GRW-005-TB

Client Sample ID: 21-GRW-005-TB
Client Project ID: Gaffney 20301.008
Lab Sample ID: 1215678006
Lab Project ID: 1215678

Collection Date: 09/01/21 09:00
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 21-GRW-005-TB

Client Sample ID: **21-GRW-005-TB**
 Client Project ID: **Gaffney 20301.008**
 Lab Sample ID: 1215678006
 Lab Project ID: 1215678

Collection Date: 09/01/21 09:00
 Received Date: 09/02/21 09:48
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Chloromethane	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		09/11/21 16:56
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		09/11/21 16:56
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Freon-113	5.00 U	10.0	3.10	ug/L	1		09/11/21 16:56
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		09/11/21 16:56
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		09/11/21 16:56
Naphthalene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
o-Xylene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		09/11/21 16:56
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Styrene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Toluene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		09/11/21 16:56
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		09/11/21 16:56
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		09/11/21 16:56
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		09/11/21 16:56
Surrogates							
1,2-Dichloroethane-D4 (surr)	107	81-118		%	1		09/11/21 16:56
4-Bromofluorobenzene (surr)	106	85-114		%	1		09/11/21 16:56
Toluene-d8 (surr)	97.9	89-112		%	1		09/11/21 16:56



Results of **21-GRW-005-TB**

Client Sample ID: **21-GRW-005-TB**
Client Project ID: **Gaffney 20301.008**
Lab Sample ID: 1215678006
Lab Project ID: 1215678

Collection Date: 09/01/21 09:00
Received Date: 09/02/21 09:48
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21162
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/11/21 16:56
Container ID: 1215678006-A

Prep Batch: VXX37815
Prep Method: SW5030B
Prep Date/Time: 09/11/21 13:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1825365 [VXX/37808]

Blank Lab ID: 1635666

QC for Samples:

1215678003, 1215678004, 1215678005

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	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	3.00U	6.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Print Date: 09/15/2021 11:14:07AM

Method Blank

Blank ID: MB for HBN 1825365 [VXX/37808]

Blank Lab ID: 1635666

QC for Samples:

1215678003, 1215678004, 1215678005

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	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)	107	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	102	89-112		%

Print Date: 09/15/2021 11:14:07AM



Method Blank

Blank ID: MB for HBN 1825365 [VXX/37808]
Blank Lab ID: 1635666

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1215678003, 1215678004, 1215678005

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS21159
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: MDT
Analytical Date/Time: 9/10/2021 10:26:00AM

Prep Batch: VXX37808
Prep Method: SW5030B
Prep Date/Time: 9/10/2021 10:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/15/2021 11:14:07AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37808]
 Blank Spike Lab ID: 1635667
 Date Analyzed: 09/10/2021 10:41

Spike Duplicate ID: LCSD for HBN 1215678
 [VXX37808]
 Spike Duplicate Lab ID: 1635668
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678003, 1215678004, 1215678005

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	32.7	109	30	32.4	108	(78-124)	1.00	(< 20)
1,1,1-Trichloroethane	30	32.8	109	30	30.4	101	(74-131)	7.60	(< 20)
1,1,2,2-Tetrachloroethane	30	32.6	109	30	32.9	110	(71-121)	0.68	(< 20)
1,1,2-Trichloroethane	30	33.1	110	30	32.8	109	(80-119)	0.81	(< 20)
1,1-Dichloroethane	30	33.8	113	30	30.6	102	(77-125)	9.90	(< 20)
1,1-Dichloroethene	30	33.3	111	30	34.7	116	(71-131)	3.90	(< 20)
1,1-Dichloropropene	30	33.5	112	30	30.8	103	(79-125)	8.50	(< 20)
1,2,3-Trichlorobenzene	30	32.5	108	30	32.8	109	(69-129)	0.84	(< 20)
1,2,3-Trichloropropane	30	31.3	104	30	31.9	106	(73-122)	1.80	(< 20)
1,2,4-Trichlorobenzene	30	32.1	107	30	32.2	107	(69-130)	0.28	(< 20)
1,2,4-Trimethylbenzene	30	33.6	112	30	33.4	111	(79-124)	0.59	(< 20)
1,2-Dibromo-3-chloropropane	30	30.3	101	30	31.1	104	(62-128)	2.50	(< 20)
1,2-Dibromoethane	30	33.1	110	30	33.2	111	(77-121)	0.21	(< 20)
1,2-Dichlorobenzene	30	31.8	106	30	31.4	105	(80-119)	1.30	(< 20)
1,2-Dichloroethane	30	31.8	106	30	29.1	97	(73-128)	8.80	(< 20)
1,2-Dichloropropane	30	31.5	105	30	31.9	106	(78-122)	1.20	(< 20)
1,3,5-Trimethylbenzene	30	33.3	111	30	33.0	110	(75-124)	0.85	(< 20)
1,3-Dichlorobenzene	30	32.0	107	30	32.4	108	(80-119)	1.40	(< 20)
1,3-Dichloropropane	30	33.0	110	30	32.6	109	(80-119)	1.10	(< 20)
1,4-Dichlorobenzene	30	32.3	108	30	32.3	108	(79-118)	0.08	(< 20)
2,2-Dichloropropane	30	34.4	115	30	31.6	105	(60-139)	8.50	(< 20)
2-Butanone (MEK)	90	90.4	100	90	85.1	95	(56-143)	6.00	(< 20)
2-Chlorotoluene	30	32.9	110	30	32.4	108	(79-122)	1.50	(< 20)
2-Hexanone	90	94.8	105	90	94.5	105	(57-139)	0.31	(< 20)
4-Chlorotoluene	30	32.5	108	30	32.8	109	(78-122)	0.96	(< 20)
4-Isopropyltoluene	30	29.5	98	30	29.7	99	(77-127)	0.59	(< 20)
4-Methyl-2-pentanone (MIBK)	90	94.1	105	90	94.7	105	(67-130)	0.61	(< 20)
Benzene	30	33.9	113	30	30.8	103	(79-120)	9.50	(< 20)
Bromobenzene	30	30.9	103	30	31.2	104	(80-120)	0.77	(< 20)
Bromochloromethane	30	33.4	111	30	30.7	102	(78-123)	8.50	(< 20)
Bromodichloromethane	30	31.9	106	30	31.8	106	(79-125)	0.39	(< 20)
Bromoform	30	30.6	102	30	30.5	102	(66-130)	0.48	(< 20)
Bromomethane	30	32.6	109	30	34.2	114	(53-141)	4.90	(< 20)
Carbon disulfide	45	50.0	111	45	55.4	123	(64-133)	10.30	(< 20)

Print Date: 09/15/2021 11:14:10AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37808]
 Blank Spike Lab ID: 1635667
 Date Analyzed: 09/10/2021 10:41

Spike Duplicate ID: LCSD for HBN 1215678 [VXX37808]
 Spike Duplicate Lab ID: 1635668
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678003, 1215678004, 1215678005

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	32.9	110	30	31.0	103	(72-136)	6.00	(< 20)
Chlorobenzene	30	31.8	106	30	31.5	105	(82-118)	1.10	(< 20)
Chloroethane	30	38.8	129	30	38.5	128	(60-138)	0.80	(< 20)
Chloroform	30	32.5	108	30	29.3	98	(79-124)	10.20	(< 20)
Chloromethane	30	25.0	83	30	28.4	95	(50-139)	12.60	(< 20)
cis-1,2-Dichloroethene	30	32.9	110	30	29.1	97	(78-123)	12.10	(< 20)
cis-1,3-Dichloropropene	30	32.2	107	30	32.4	108	(75-124)	0.71	(< 20)
Dibromochloromethane	30	33.6	112	30	33.6	112	(74-126)	0.16	(< 20)
Dibromomethane	30	31.7	106	30	30.9	103	(79-123)	2.70	(< 20)
Dichlorodifluoromethane	30	31.7	106	30	34.1	114	(32-152)	7.30	(< 20)
Ethylbenzene	30	32.5	108	30	32.0	107	(79-121)	1.60	(< 20)
Freon-113	45	50.6	112	45	54.1	120	(70-136)	6.70	(< 20)
Hexachlorobutadiene	30	32.4	108	30	32.7	109	(66-134)	0.83	(< 20)
Isopropylbenzene (Cumene)	30	32.8	109	30	32.5	108	(72-131)	0.99	(< 20)
Methylene chloride	30	38.4	128	* 30	40.4	135	* (74-124)	5.00	(< 20)
Methyl-t-butyl ether	45	50.0	111	45	53.6	119	(71-124)	6.80	(< 20)
Naphthalene	30	28.5	95	30	29.4	98	(61-128)	3.20	(< 20)
n-Butylbenzene	30	30.9	103	30	30.5	102	(75-128)	1.00	(< 20)
n-Propylbenzene	30	32.9	110	30	32.9	110	(76-126)	0.07	(< 20)
o-Xylene	30	32.4	108	30	31.9	106	(78-122)	1.70	(< 20)
P & M -Xylene	60	64.5	108	60	64.6	108	(80-121)	0.07	(< 20)
sec-Butylbenzene	30	33.4	111	30	33.6	112	(77-126)	0.64	(< 20)
Styrene	30	33.6	112	30	33.5	112	(78-123)	0.45	(< 20)
tert-Butylbenzene	30	32.4	108	30	32.5	108	(78-124)	0.09	(< 20)
Tetrachloroethene	30	32.0	107	30	31.8	106	(74-129)	0.70	(< 20)
Toluene	30	31.2	104	30	30.9	103	(80-121)	0.81	(< 20)
trans-1,2-Dichloroethene	30	32.6	109	30	34.4	115	(75-124)	5.30	(< 20)
trans-1,3-Dichloropropene	30	34.1	114	30	34.1	114	(73-127)	0.19	(< 20)
Trichloroethene	30	30.5	102	30	30.3	101	(79-123)	0.64	(< 20)
Trichlorofluoromethane	30	34.1	114	30	33.8	113	(65-141)	0.88	(< 20)
Vinyl acetate	30	33.8	113	30	31.6	105	(54-146)	6.50	(< 20)
Vinyl chloride	30	33.5	112	30	33.0	110	(58-137)	1.60	(< 20)
Xylenes (total)	90	96.9	108	90	96.4	107	(79-121)	0.52	(< 20)

Print Date: 09/15/2021 11:14:10AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37808]
 Blank Spike Lab ID: 1635667
 Date Analyzed: 09/10/2021 10:41

Spike Duplicate ID: LCSD for HBN 1215678 [VXX37808]
 Spike Duplicate Lab ID: 1635668
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678003, 1215678004, 1215678005

Results by SW8260D

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		108	30		99	(81-118)	8.10	
4-Bromofluorobenzene (surr)	30		101	30		102	(85-114)	0.99	
Toluene-d8 (surr)	30		104	30		103	(89-112)	0.56	

Batch Information

Analytical Batch: **VMS21159**
 Analytical Method: **SW8260D**
 Instrument: **VPA 780/5975 GC/MS**
 Analyst: **MDT**

Prep Batch: **VXX37808**
 Prep Method: **SW5030B**
 Prep Date/Time: **09/10/2021 10:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 09/15/2021 11:14:10AM

Method Blank

Blank ID: MB for HBN 1825390 [VXX/37810]

Blank Lab ID: 1635751

QC for Samples:

1215678001, 1215678002

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	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	3.00U	6.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Print Date: 09/15/2021 11:14:12AM

Method Blank

Blank ID: MB for HBN 1825390 [VXX/37810]

Blank Lab ID: 1635751

QC for Samples:

1215678001, 1215678002

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	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)	105	81-118		%
4-Bromofluorobenzene (surr)	106	85-114		%
Toluene-d8 (surr)	102	89-112		%

Print Date: 09/15/2021 11:14:12AM



Method Blank

Blank ID: MB for HBN 1825390 [VXX/37810]
Blank Lab ID: 1635751

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1215678001, 1215678002

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS21161
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: NRB
Analytical Date/Time: 9/10/2021 10:28:00AM

Prep Batch: VXX37810
Prep Method: SW5030B
Prep Date/Time: 9/10/2021 10:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/15/2021 11:14:12AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37810]
 Blank Spike Lab ID: 1635752
 Date Analyzed: 09/10/2021 10:43

Spike Duplicate ID: LCSD for HBN 1215678 [VXX37810]
 Spike Duplicate Lab ID: 1635753
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678001, 1215678002

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	31.1	104	30	30.1	100	(78-124)	3.20	(< 20)
1,1,1-Trichloroethane	30	31.2	104	30	32.8	109	(74-131)	4.80	(< 20)
1,1,2,2-Tetrachloroethane	30	28.9	97	30	33.2	111	(71-121)	13.80	(< 20)
1,1,2-Trichloroethane	30	30.9	103	30	29.2	97	(80-119)	5.90	(< 20)
1,1-Dichloroethane	30	30.1	100	30	30.1	100	(77-125)	0.03	(< 20)
1,1-Dichloroethene	30	30.9	103	30	29.9	100	(71-131)	3.30	(< 20)
1,1-Dichloropropene	30	32.7	109	30	32.9	110	(79-125)	0.75	(< 20)
1,2,3-Trichlorobenzene	30	30.1	100	30	35.5	118	(69-129)	16.50	(< 20)
1,2,3-Trichloropropane	30	29.0	97	30	33.5	112	(73-122)	14.30	(< 20)
1,2,4-Trichlorobenzene	30	30.3	101	30	34.7	116	(69-130)	13.40	(< 20)
1,2,4-Trimethylbenzene	30	30.6	102	30	34.5	115	(79-124)	12.00	(< 20)
1,2-Dibromo-3-chloropropane	30	26.6	89	30	33.4	111	(62-128)	22.90	* (< 20)
1,2-Dibromoethane	30	29.7	99	30	30.0	100	(77-121)	0.71	(< 20)
1,2-Dichlorobenzene	30	29.3	98	30	30.2	101	(80-119)	2.90	(< 20)
1,2-Dichloroethane	30	31.1	104	30	27.5	92	(73-128)	12.30	(< 20)
1,2-Dichloropropane	30	31.0	103	30	29.6	99	(78-122)	4.70	(< 20)
1,3,5-Trimethylbenzene	30	29.8	99	30	33.7	112	(75-124)	12.40	(< 20)
1,3-Dichlorobenzene	30	29.9	100	30	33.6	112	(80-119)	11.70	(< 20)
1,3-Dichloropropane	30	31.8	106	30	29.3	98	(80-119)	8.40	(< 20)
1,4-Dichlorobenzene	30	29.7	99	30	33.5	112	(79-118)	12.00	(< 20)
2,2-Dichloropropane	30	34.3	114	30	33.7	112	(60-139)	1.80	(< 20)
2-Butanone (MEK)	90	97.0	108	90	96.4	107	(56-143)	0.65	(< 20)
2-Chlorotoluene	30	30.5	102	30	34.6	115	(79-122)	12.70	(< 20)
2-Hexanone	90	88.6	99	90	78.6	87	(57-139)	12.00	(< 20)
4-Chlorotoluene	30	30.8	103	30	34.9	116	(78-122)	12.40	(< 20)
4-Isopropyltoluene	30	29.3	98	30	32.9	110	(77-127)	11.70	(< 20)
4-Methyl-2-pentanone (MIBK)	90	87.1	97	90	86.6	96	(67-130)	0.63	(< 20)
Benzene	30	31.7	106	30	30.6	102	(79-120)	3.70	(< 20)
Bromobenzene	30	28.7	96	30	33.0	110	(80-120)	14.00	(< 20)
Bromochloromethane	30	29.5	98	30	29.1	97	(78-123)	1.20	(< 20)
Bromodichloromethane	30	30.8	103	30	29.5	98	(79-125)	4.10	(< 20)
Bromoform	30	28.6	95	30	29.9	100	(66-130)	4.40	(< 20)
Bromomethane	30	32.8	109	30	34.6	115	(53-141)	5.30	(< 20)
Carbon disulfide	45	47.0	104	45	46.0	102	(64-133)	2.20	(< 20)

Print Date: 09/15/2021 11:14:14AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37810]
 Blank Spike Lab ID: 1635752
 Date Analyzed: 09/10/2021 10:43

Spike Duplicate ID: LCSD for HBN 1215678 [VXX37810]
 Spike Duplicate Lab ID: 1635753
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678001, 1215678002

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	31.7	106	30	31.8	106	(72-136)	0.26	(< 20)
Chlorobenzene	30	30.0	100	30	29.9	100	(82-118)	0.24	(< 20)
Chloroethane	30	35.7	119	30	35.4	118	(60-138)	0.83	(< 20)
Chloroform	30	30.4	101	30	30.6	102	(79-124)	0.70	(< 20)
Chloromethane	30	28.9	97	30	26.8	89	(50-139)	7.80	(< 20)
cis-1,2-Dichloroethene	30	29.9	100	30	29.2	97	(78-123)	2.50	(< 20)
cis-1,3-Dichloropropene	30	31.7	106	30	30.7	102	(75-124)	3.30	(< 20)
Dibromochloromethane	30	30.0	100	30	30.0	100	(74-126)	0.14	(< 20)
Dibromomethane	30	30.4	101	30	29.9	100	(79-123)	1.60	(< 20)
Dichlorodifluoromethane	30	36.3	121	30	35.1	117	(32-152)	3.40	(< 20)
Ethylbenzene	30	32.6	109	30	31.1	104	(79-121)	4.60	(< 20)
Freon-113	45	47.5	106	45	46.6	103	(70-136)	2.00	(< 20)
Hexachlorobutadiene	30	30.8	103	30	34.0	113	(66-134)	10.00	(< 20)
Isopropylbenzene (Cumene)	30	33.7	112	30	31.8	106	(72-131)	5.90	(< 20)
Methylene chloride	30	29.6	99	30	28.2	94	(74-124)	5.00	(< 20)
Methyl-t-butyl ether	45	45.8	102	45	46.8	104	(71-124)	2.20	(< 20)
Naphthalene	30	27.7	92	30	33.5	112	(61-128)	18.90	(< 20)
n-Butylbenzene	30	27.4	91	30	31.9	106	(75-128)	15.10	(< 20)
n-Propylbenzene	30	32.5	108	30	36.7	122	(76-126)	12.10	(< 20)
o-Xylene	30	30.7	102	30	31.4	105	(78-122)	2.20	(< 20)
P & M -Xylene	60	68.2	114	60	64.6	108	(80-121)	5.40	(< 20)
sec-Butylbenzene	30	30.4	101	30	34.2	114	(77-126)	11.80	(< 20)
Styrene	30	30.5	102	30	30.4	101	(78-123)	0.47	(< 20)
tert-Butylbenzene	30	31.4	105	30	35.4	118	(78-124)	12.10	(< 20)
Tetrachloroethene	30	27.8	93	30	31.4	105	(74-129)	12.10	(< 20)
Toluene	30	31.6	105	30	29.3	98	(80-121)	7.60	(< 20)
trans-1,2-Dichloroethene	30	30.5	102	30	28.6	95	(75-124)	6.50	(< 20)
trans-1,3-Dichloropropene	30	32.5	108	30	29.8	99	(73-127)	8.70	(< 20)
Trichloroethene	30	30.4	101	30	30.3	101	(79-123)	0.50	(< 20)
Trichlorofluoromethane	30	34.3	114	30	33.6	112	(65-141)	2.00	(< 20)
Vinyl acetate	30	33.2	111	30	32.1	107	(54-146)	3.30	(< 20)
Vinyl chloride	30	33.7	112	30	31.9	106	(58-137)	5.70	(< 20)
Xylenes (total)	90	98.9	110	90	96.0	107	(79-121)	2.90	(< 20)

Print Date: 09/15/2021 11:14:14AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37810]
 Blank Spike Lab ID: 1635752
 Date Analyzed: 09/10/2021 10:43

Spike Duplicate ID: LCSD for HBN 1215678 [VXX37810]
 Spike Duplicate Lab ID: 1635753
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678001, 1215678002

Results by SW8260D

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		110	30		95	(81-118)	14.10	
4-Bromofluorobenzene (surr)	30		100	30		113	(85-114)	12.20	
Toluene-d8 (surr)	30		108	30		100	(89-112)	7.10	

Batch Information

Analytical Batch: **VMS21161**
 Analytical Method: **SW8260D**
 Instrument: **Agilent 7890-75MS**
 Analyst: **NRB**

Prep Batch: **VXX37810**
 Prep Method: **SW5030B**
 Prep Date/Time: **09/10/2021 10:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 09/15/2021 11:14:14AM

Method Blank

Blank ID: MB for HBN 1825406 [VXX/37815]

Blank Lab ID: 1635832

QC for Samples:

1215678006

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	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	3.00U	6.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Print Date: 09/15/2021 11:14:16AM

Method Blank

Blank ID: MB for HBN 1825406 [VXX/37815]

Blank Lab ID: 1635832

QC for Samples:

1215678006

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	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)	109	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	101	89-112		%

Print Date: 09/15/2021 11:14:16AM



Method Blank

Blank ID: MB for HBN 1825406 [VXX/37815]
Blank Lab ID: 1635832

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1215678006

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS21162
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: NRB
Analytical Date/Time: 9/11/2021 1:42:00PM

Prep Batch: VXX37815
Prep Method: SW5030B
Prep Date/Time: 9/11/2021 1:00:00PM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/15/2021 11:14:16AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37815]
 Blank Spike Lab ID: 1635833
 Date Analyzed: 09/11/2021 13:57

Spike Duplicate ID: LCSD for HBN 1215678 [VXX37815]
 Spike Duplicate Lab ID: 1635834
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678006

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	29.5	98	30	28.0	93	(78-124)	5.40	(< 20)
1,1,1-Trichloroethane	30	30.9	103	30	30.6	102	(74-131)	0.87	(< 20)
1,1,2,2-Tetrachloroethane	30	28.2	94	30	30.3	101	(71-121)	7.10	(< 20)
1,1,2-Trichloroethane	30	29.3	98	30	29.9	100	(80-119)	2.00	(< 20)
1,1-Dichloroethane	30	29.7	99	30	30.2	101	(77-125)	1.70	(< 20)
1,1-Dichloroethene	30	29.2	97	30	28.6	96	(71-131)	1.90	(< 20)
1,1-Dichloropropene	30	30.6	102	30	30.9	103	(79-125)	0.97	(< 20)
1,2,3-Trichlorobenzene	30	28.8	96	30	29.8	99	(69-129)	3.50	(< 20)
1,2,3-Trichloropropane	30	28.2	94	30	31.2	104	(73-122)	10.10	(< 20)
1,2,4-Trichlorobenzene	30	27.3	91	30	28.4	95	(69-130)	4.00	(< 20)
1,2,4-Trimethylbenzene	30	30.3	101	30	31.9	106	(79-124)	5.00	(< 20)
1,2-Dibromo-3-chloropropane	30	29.2	97	30	32.2	107	(62-128)	9.70	(< 20)
1,2-Dibromoethane	30	29.6	99	30	30.0	100	(77-121)	1.50	(< 20)
1,2-Dichlorobenzene	30	29.0	97	30	29.6	99	(80-119)	2.10	(< 20)
1,2-Dichloroethane	30	30.7	102	30	29.1	97	(73-128)	5.60	(< 20)
1,2-Dichloropropane	30	29.6	99	30	30.2	101	(78-122)	2.10	(< 20)
1,3,5-Trimethylbenzene	30	28.1	94	30	30.7	102	(75-124)	8.50	(< 20)
1,3-Dichlorobenzene	30	29.1	97	30	30.7	102	(80-119)	5.40	(< 20)
1,3-Dichloropropane	30	29.5	99	30	30.1	100	(80-119)	1.80	(< 20)
1,4-Dichlorobenzene	30	28.8	96	30	30.7	102	(79-118)	6.40	(< 20)
2,2-Dichloropropane	30	32.7	109	30	32.0	107	(60-139)	2.40	(< 20)
2-Butanone (MEK)	90	95.5	106	90	104	115	(56-143)	8.10	(< 20)
2-Chlorotoluene	30	28.6	96	30	31.5	105	(79-122)	9.50	(< 20)
2-Hexanone	90	82.5	92	90	93.2	104	(57-139)	12.30	(< 20)
4-Chlorotoluene	30	29.6	99	30	31.6	105	(78-122)	6.60	(< 20)
4-Isopropyltoluene	30	28.6	95	30	30.2	101	(77-127)	5.50	(< 20)
4-Methyl-2-pentanone (MIBK)	90	90.5	101	90	95.0	106	(67-130)	4.80	(< 20)
Benzene	30	29.2	97	30	29.9	100	(79-120)	2.50	(< 20)
Bromobenzene	30	28.4	95	30	30.8	103	(80-120)	8.00	(< 20)
Bromochloromethane	30	28.0	93	30	29.5	98	(78-123)	5.40	(< 20)
Bromodichloromethane	30	30.2	101	30	30.4	101	(79-125)	0.63	(< 20)
Bromoform	30	28.9	96	30	29.2	97	(66-130)	0.92	(< 20)
Bromomethane	30	36.2	121	30	36.5	122	(53-141)	0.90	(< 20)
Carbon disulfide	45	44.1	98	45	43.5	97	(64-133)	1.30	(< 20)

Print Date: 09/15/2021 11:14:19AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37815]
 Blank Spike Lab ID: 1635833
 Date Analyzed: 09/11/2021 13:57

Spike Duplicate ID: LCSD for HBN 1215678 [VXX37815]
 Spike Duplicate Lab ID: 1635834
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678006

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	30.1	100	30	29.8	99	(72-136)	0.84	(< 20)
Chlorobenzene	30	29.1	97	30	29.1	97	(82-118)	0.13	(< 20)
Chloroethane	30	33.3	111	30	32.2	107	(60-138)	3.30	(< 20)
Chloroform	30	29.1	97	30	28.9	96	(79-124)	0.73	(< 20)
Chloromethane	30	26.9	90	30	26.5	88	(50-139)	1.30	(< 20)
cis-1,2-Dichloroethene	30	28.4	95	30	29.4	98	(78-123)	3.40	(< 20)
cis-1,3-Dichloropropene	30	31.0	103	30	30.4	101	(75-124)	2.20	(< 20)
Dibromochloromethane	30	29.6	99	30	29.9	100	(74-126)	1.00	(< 20)
Dibromomethane	30	29.5	98	30	30.1	100	(79-123)	2.30	(< 20)
Dichlorodifluoromethane	30	32.1	107	30	31.4	105	(32-152)	2.20	(< 20)
Ethylbenzene	30	30.5	102	30	29.1	97	(79-121)	5.00	(< 20)
Freon-113	45	45.0	100	45	44.5	99	(70-136)	1.10	(< 20)
Hexachlorobutadiene	30	28.5	95	30	27.1	90	(66-134)	5.00	(< 20)
Isopropylbenzene (Cumene)	30	31.0	103	30	31.1	104	(72-131)	0.24	(< 20)
Methylene chloride	30	28.6	95	30	28.5	95	(74-124)	0.21	(< 20)
Methyl-t-butyl ether	45	46.6	104	45	47.1	105	(71-124)	1.10	(< 20)
Naphthalene	30	27.0	90	30	30.3	101	(61-128)	11.40	(< 20)
n-Butylbenzene	30	27.3	91	30	28.4	95	(75-128)	3.90	(< 20)
n-Propylbenzene	30	31.4	105	30	33.3	111	(76-126)	5.70	(< 20)
o-Xylene	30	31.0	103	30	30.5	102	(78-122)	1.50	(< 20)
P & M -Xylene	60	63.5	106	60	60.6	101	(80-121)	4.60	(< 20)
sec-Butylbenzene	30	29.6	99	30	31.2	104	(77-126)	5.10	(< 20)
Styrene	30	30.3	101	30	30.3	101	(78-123)	0.17	(< 20)
tert-Butylbenzene	30	30.3	101	30	32.3	108	(78-124)	6.40	(< 20)
Tetrachloroethene	30	29.4	98	30	28.4	95	(74-129)	3.30	(< 20)
Toluene	30	29.0	97	30	28.2	94	(80-121)	2.80	(< 20)
trans-1,2-Dichloroethene	30	29.1	97	30	29.0	97	(75-124)	0.59	(< 20)
trans-1,3-Dichloropropene	30	30.9	103	30	31.6	105	(73-127)	2.10	(< 20)
Trichloroethene	30	28.9	96	30	29.8	99	(79-123)	2.80	(< 20)
Trichlorofluoromethane	30	32.4	108	30	32.0	107	(65-141)	1.20	(< 20)
Vinyl acetate	30	31.9	106	30	32.4	108	(54-146)	1.40	(< 20)
Vinyl chloride	30	31.5	105	30	31.0	103	(58-137)	1.80	(< 20)
Xylenes (total)	90	94.5	105	90	91.1	101	(79-121)	3.60	(< 20)

Print Date: 09/15/2021 11:14:19AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1215678 [VXX37815]
 Blank Spike Lab ID: 1635833
 Date Analyzed: 09/11/2021 13:57

Spike Duplicate ID: LCSD for HBN 1215678 [VXX37815]
 Spike Duplicate Lab ID: 1635834
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1215678006

Results by SW8260D

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		108	30		102	(81-118)	5.90	
4-Bromofluorobenzene (surr)	30		100	30		104	(85-114)	3.70	
Toluene-d8 (surr)	30		100	30		97	(89-112)	3.60	

Batch Information

Analytical Batch: **VMS21162**
 Analytical Method: **SW8260D**
 Instrument: **Agilent 7890-75MS**
 Analyst: **NRB**

Prep Batch: **VXX37815**
 Prep Method: **SW5030B**
 Prep Date/Time: **09/11/2021 13:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 09/15/2021 11:14:19AM



SGS North America Inc. CHAIN OF CUSTODY RECORD

1215678



P# 365949

www.us.sgs.com

CLIENT: **Ahtna Engineering Services**

CONTACT: **Joel Brann** PHONE #: **(907) 771-4404**

PROJECT NAME: **Gaffney** PROJECT/PWSID/PERMIT#: **20301008**

REPORTS TO: **Joel Brann** E-MAIL: **JBrann@ahna.net**

INVOICE TO: **aesape@ahna.net** QUOTE #: **02002323**

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

Page 1 of 1

Section 1

Section 3 Preservative

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE	# CONTAINERS	Comp Grab MI (Multi-incremental)	Analysis*				REMARKS/LOC ID	
							GRE-AK101	BFO-AK102	VOC 8260	PAH-BZD-SUM		
①	AL 21-GRW-001-GW	08/31/21	1250	W	3	Grab			X			
②	AL 21-GRW-002-GW	08/31/21	1350	W	3	Grab			X			
③	AL 21-GRW-003-GW	08/31/21	1450	W	3	Grab			X			
④	AL 21-GRW-903-GW	08/31/21	1455	W	3	Grab			X			
⑤	AL 21-GRW-004-EB	08/31/21	1610	W	3	Grab			X			
⑥	AL 21-GRW-005-TB	09/1/21	0900	W	1	Grab			X			Trip Blank

NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS

Section 2

Section 4 DOD Project? Yes No Data Deliverable Requirements:

Relinquished By: (1) **Alvin Mccomb** Date: **9/1/2021** Time: **0900** Received By: **[Signature]**

Relinquished By: (2) **[Signature]** Date: **9-1-21** Time: **1430** Received By: **[Signature]**

Relinquished By: (3) **[Signature]** Date: Time: Received By:

Relinquished By: (4) **[Signature]** Date: **9/2/21** Time: **0948** Received For Laboratory By: **[Signature]**

Section 5

Section 4 Cooler ID:

Requested Turnaround Time and/or Special Instructions: **Standard TAT**

Temp Blank °C: **ANC-4-0 DSG 5-0**

Chain of Custody Seal: (Circle) **INTACT** BROKEN ABSENT

Delivery Method: Hand Delivery [] Commercial Delivery []



SGS Workorder #:

Ahtna



Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
<input type="checkbox"/> **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 @ 5.0 °C Therm. ID: D62
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		
*If >6°C, were samples collected <8 hours ago?		
If <0°C, were sample containers ice free?		
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.
Do samples match COC** (i.e., sample IDs, dates/times collected)?	N/C	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were samples in good condition (no leaks/cracks/breakage)?	Yes	
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
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)?	N/C	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	
For Rush/Short Hold Time, was RUSH/Short HT email sent?	N/A	
Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		
SGS Profile #		0



e-Sample Receipt Form

SGS Workorder #:

1215678



1 2 1 5 6 7 8

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		
Were Custody Seals intact? Note # & location	Yes	1F, 1B
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
<input checked="" type="checkbox"/> **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 4.0 °C Therm. ID: D58
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		
Note: Refer to form F-083 "Sample Guide" for specific holding times.		
Were samples received within holding time?	Yes	
Do samples match COC** (i.e., sample IDs, dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were proper containers (type/mass/volume/preservative***) used?	Yes	N/A ***Exemption permitted for metals (e.g.200.8/6020B).
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

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1215678001-A	HCL to pH < 2	OK			
1215678001-B	HCL to pH < 2	OK			
1215678001-C	HCL to pH < 2	OK			
1215678002-A	HCL to pH < 2	OK			
1215678002-B	HCL to pH < 2	OK			
1215678002-C	HCL to pH < 2	OK			
1215678003-A	HCL to pH < 2	OK			
1215678003-B	HCL to pH < 2	OK			
1215678003-C	HCL to pH < 2	OK			
1215678004-A	HCL to pH < 2	OK			
1215678004-B	HCL to pH < 2	OK			
1215678004-C	HCL to pH < 2	OK			
1215678005-A	HCL to pH < 2	OK			
1215678005-B	HCL to pH < 2	OK			
1215678005-C	HCL to pH < 2	OK			
1215678006-A	HCL to pH < 2	OK			
1215678006-B	HCL to pH < 2	OK			
1215678006-C	HCL to pH < 2	OK			

Container Condition Glossary

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

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

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

DM - The container was received damaged.

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

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

NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

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.

QN - Insufficient sample quantity provided.

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ATTACHMENT 6

ADEC Laboratory Data Review Checklist

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Laboratory Data Review Checklist

Completed By:

Alexander Thompson

Title:

Chemist

Date:

September 29, 2021

Consultant Firm:

Arctic Data Services, LLC for Ahtna Engineering Services, LLC

Laboratory Name:

SGS North America, Inc. – Anchorage, AK

Laboratory Report Number:

1215678

Laboratory Report Date:

September 15, 2021

CS Site Name:

Gaffney West

ADEC File Number:

102.38.084

Hazard Identification Number:

4503

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

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

Yes No N/A Comments:

Samples were received and analyzed by SGS North America, Inc. in Anchorage, Alaska.

- 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 N/A Comments:

No samples were transferred to another laboratory.

2. Chain of Custody (CoC)

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

Yes No N/A Comments:

- b. Correct analyses requested?

Yes No N/A Comments:

3. Laboratory Sample Receipt Documentation

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

Yes No N/A Comments:

The samples were dropped off in a single cooler at the SGS Fairbanks receiving office and received with intact custody seals and within the acceptable temperature range. The cooler was shipped to the SGS Anchorage laboratory and received within the acceptable temperature range.

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

Yes No N/A Comments:

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

Yes No N/A Comments:

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

Yes No N/A Comments:

There were no sample receiving discrepancies.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes No N/A Comments:

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

Yes No N/A Comments:

The laboratory report case narrative identified a number of QC anomalies which are addressed in the following relevant sections of this checklist.

c. Were all corrective actions documented?

Yes No N/A Comments:

No corrective actions were reported or performed.

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

Comments:

The case narrative makes no conclusions regarding data quality or usability.

5. Samples Results

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

Yes No N/A Comments:

b. All applicable holding times met?

Yes No N/A Comments:

c. All soils reported on a dry weight basis?

Yes No N/A Comments:

No soil samples were reported in this work order.

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

Yes No N/A Comments:

LODs and LOQs were compared to the 18 AAC 75.345 Table C Groundwater Cleanup Levels (GCLs). LODs and LOQs for 1,2,3-trichloropropane (TCP) exceeded the GCL for each sample. Refer to the table below for further details (* denotes a limit exceeds the GCL).

Client Sample ID	Method	Analyte	Units	DL		LOD		LOQ		PAL
21-GRW-001-GW	8260D	1,2,3-Trichloropropane	mg/L	0.00031	*	0.0005	*	0.001	*	0.0000075
21-GRW-002-GW	8260D	1,2,3-Trichloropropane	mg/L	0.00031	*	0.0005	*	0.001	*	0.0000075
21-GRW-003-GW	8260D	1,2,3-Trichloropropane	mg/L	0.00031	*	0.0005	*	0.001	*	0.0000075
21-GRW-903-GW	8260D	1,2,3-Trichloropropane	mg/L	0.00031	*	0.0005	*	0.001	*	0.0000075
21-GRW-004-EB	8260D	1,2,3-Trichloropropane	mg/L	0.00031	*	0.0005	*	0.001	*	0.0000075
21-GRW-005-TB	8260D	1,2,3-Trichloropropane	mg/L	0.00031	*	0.0005	*	0.001	*	0.0000075

e. Data quality or usability affected?

Data quality is not affected. Non-detect results cannot be used to rule out the presence of TCP at concentrations above the cleanup level for the sampled locations. Project sample concentrations of tetrachloroethene (PCE) exceed GCLs, and TCP is not a contaminant of concern for the site, so there is no impact to data usability from poor sensitivity of TCP.

6. QC Samples

a. Method Blank

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

Yes No N/A Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes No N/A Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

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

Yes No N/A Comments:

NA; see above.

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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 N/A Comments:

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

Yes No N/A Comments:

No metals/inorganic hazardous substance analyses were performed in this work order.

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

Yes No N/A Comments:

Methylene chloride was recovered above laboratory control limits in the LCS and LCSD associated with 8260D prep batch VXX37808. However, the analyte was not detected in any associated project samples, thus data quality is not affected.

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

Yes No N/A Comments:

The LCS/LCSD RPD for 1,2-dibromo-3-chloropropane was above laboratory control limits for the LCS/LCSD associated with prep batch VXX37810. 1,2-Dibromo-3-chloropropane was not detected in any associated project samples, thus data quality is not affected.

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

Comments:

No samples were affected.

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

Yes No N/A Comments:

NA; see above.

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

Comments:

Data quality and usability were not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

- i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

- ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes No N/A Comments:

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

Comments:

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

Yes No N/A Comments:

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

Comments:

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

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

Yes No N/A Comments:

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes No N/A Comments:

The 8260D surrogate 4-bromofluorobenzene (4-BFB) was recovered above laboratory control limits in sample 21-GRW-002-GW. Refer to the table below for further information.

Client Sample ID	Surrogate	DF	PercentRecovery	LCL	UCL	recovery
21-GRW-002-GW	4-Bromofluorobenzene	1.0	117.0	85.0	114.0	high

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

Yes No N/A Comments:

Affected results are qualified as estimated, biased high, and flagged 'J+'. Refer to the table below for a full list of affected results.

Client Sample ID	Lab Sample ID	Method	Analyte	CAS	Result	QC Flag
21-GRW-002-GW	1215678002	8260D	cis-1,2-Dichloroethene	156-59-2	1.32	J+
21-GRW-002-GW	1215678002	8260D	Tetrachloroethene (PCE)	127-18-4	184	J+
21-GRW-002-GW	1215678002	8260D	Trichloroethene (TCE)	79-01-6	8.00	J+

- iv. Data quality or usability affected?

Comments:

Data quality is affected as described above. Usability of the cis-1,2-dichloroethene result is minimal, as the estimated concentration is below the GCL, despite the high bias. Tetrachloroethene and trichloroethene results should be used with a degree of caution, as the results are within an order of magnitude above the relevant GCL and are biased high.

- e. Trip Blanks

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

Yes No N/A Comments:

Sample 21-GRW-005-TB was submitted as a trip blank sample and analyzed for VOCs by 8260D.

- 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 N/A Comments:

Samples were submitted in a single cooler.

iii. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

No analytes were detected in the trip blank sample.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes No N/A Comments:

Sample 21-GRW-903-GW was submitted as a field duplicate of sample 21-GRW-003-GW.

ii. Submitted blind to lab?

Yes No N/A Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives?
(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 N/A Comments:

RPDs were compared to the 30% recommended measurement quality objective (MQO) for water samples. RPDs were calculated where an analyte was quantitatively detected (above the LOQ) in at least one sample. No RPDs exceeded the 30% recommended MQOs, where calculated.

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

Comments:

Data quality and usability were not affected.

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

Yes No N/A Comments:

Sample 21-GRW-004-EB was submitted as an equipment blank sample, associated with all collected samples for this work order.

- i. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

Chloroform and toluene were detected below the LOQ in the EB sample.

- ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Chloroform and toluene were not detected in any associated project samples, thus no results are considered affected.

- iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

- a. Defined and appropriate?

Yes No N/A Comments:

There were no additional laboratory-specific qualifiers applied.

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