Monitoring Well Installation and 2020 Groundwater Monitoring Williams Express Site No. 5021 6010 Old Seward Highway Anchorage, Alaska

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Submitted To: Williams One Williams CTR Tulsa, Oklahoma 74172

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SHANNON & WILSON, INC.

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
Discovery	Discovery Drilling, Inc.
DQO	Data quality objective
DRO	Diesel range organics
EPA	Environmental Protection Agency
GRO	Gasoline range organics
IDW	Investigation-derived waste
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MOA	Municipality of Anchorage
MS/MSD	Matrix spike/matrix spike duplicate
mV	Millivolt
NAPL	Non-aqueous phase liquid
NTU	Nephelometric Turbidity Units
ORP	Oxidation-reduction potential
PAHs	Polynuclear aromatic hydrocarbons
PID	Photoionization detector
ppm	Parts per million
P&T	Pump and treat
PVC	Polyvinyl chloride
RPD	Relative percent difference
SGS	SGS North America Inc.
UST	Underground storage tank
VES	Vapor extraction system
VOCs	Volatile organic compounds
WES	Williams Express Site

MONITORING WELL INSTALLATION AND 2020 GROUNDWATER MONITORING WILLIAMS EXPRESS SITE NO. 5021 6010 OLD SEWARD HIGHWAY ANCHORAGE, ALASKA

1.0 INTRODUCTION

This report presents the results of Shannon & Wilson's monitoring well installation and 2020 groundwater monitoring event conducted at Williams Express Site (WES) No. 5021.

2.0 BACKGROUND

At least 19 underground storage tanks (USTs) have been in use at or near WES No. 5021 since the late 1950s. The earliest formal records of on-site tank installations are four USTs that were installed in 1975. A vapor extraction system (VES) and groundwater pump-and-treat (P&T) system were installed at the site in December 1990 and October 1991, respectively. The P&T system function was limited due to low water table conditions and was shut down in January 2004. The VES system was last operated in 2007 and decommissioned in 2013. As part of ongoing site characterization activities, 40 groundwater monitoring wells have been installed at the site and neighboring properties. Many of these wells were decommissioned prior to 2016. In addition, during road construction activities conducted by the Municipally of Anchorage (MOA) in 2016, Monitoring Wells MW-9, MW-35, MW-36, MW-41, MW-43, and MW-44 were assumed destroyed. At this time, eight groundwater monitoring wells, including Wells MW-1R, MW-30, MW-31, MW-32, MW-39, MW-40, MW-42, and B5MW, remained at the site. The approximate locations of select former and existing wells are shown on Figure 1.

On July 26, 2017, representatives of Williams (Mr. Lee Andrews), ADEC (Mr. Bill O'Connell), and Shannon & Wilson (Mr. Dan McMahon) met to discuss the current regulatory status of WES 5021. During the meeting, it was agreed that replacement groundwater monitoring wells would be placed downgradient of WES 5021 and biennial groundwater monitoring would be conducted.

The project was performed in material accordance with our November 8, 2017 *Groundwater Monitoring Well Installation and Sampling Work Plan, Former Williams Express Site No. 5021, 6010 Old Seward Highway, Anchorage, Alaska.* The work plan was originally approved by Mr. Bill O'Connell of the ADEC on November 16, 2017 in the form of an email. At the request of the ADEC, the work plan was modified via email. The modifications, including using low-flow sampling procedures and decommissioning Monitoring Well MW-39. Ms. Janice Wiegers of the ADEC approved the modifications in an email dated June 29, 2020.

3.0 FIELD ACTIVITIES

Field work for this project consisted of decommissioning one monitoring well, advancing five borings, installing five monitoring wells, collecting soil and groundwater samples, and management of investigation-derived waste (IDW). Prior to advancing the borings, the local utility locate center was contacted to mark buried utilities within the project area. Several borings were moved slightly from the locations presented in our work plan due to the presence of buried utilities. The general site features are shown on Figure 1. Photographs of advancing the soil borings and installation of the monitoring wells are included in Appendix A. Boring and well construction logs are provided in Appendix B. Field notes are included as Appendix C. It should be noted that the field notes presented in Appendix C are provided for informational purposes only. Tables 1 through 6, and the boring logs and well completion logs presented in Appendix B represent our interpretation of the field data, and take precedent over the field notes.

3.1 Monitoring Well Decommissioning

While conducting utility locates, it was noted that Monitoring Well MW-39 was damaged, and an obstruction was encountered at approximately 19 feet below ground surface (bgs). Therefore, with ADEC approval, the well was decommissioned and replaced with Monitoring MW-49. Monitoring Well MW-39 was decommissioned in general accordance with the ADEC's September 2013 *Monitoring Well Guidance* on June 30, 2020 by Discovery Drilling, Inc. (Discovery).

The protective well casing monument was removed from the ground. Due to the obstruction, the well cap could not be separated from the well casing. Therefore, the entire polyvinyl chloride (PVC) well casing and screen were removed from the ground, allowing the aquifer materials to collapse into the borehole. The remainder of the borehole was sealed with bentonite chips to approximately 2 feet bgs. Pea gravel was placed above the bentonite.

3.2 Soil Borings and Sampling

Five soil borings, designated Borings B-45, B-46, B-47, B-48, and B-49 were advanced by Discovery on June 30 and July 1, 2020 in the approximate locations of former Monitoring Wells MW-41, MW-9, MW-36, MW-35, and MW-39, respectively. The borings were advanced utilizing a truck-mounted drill rig with 4.25-inch inside diameter hollow-stem augers.

Soil samples from the borings were collected with 3-inch outside diameter split spoon samplers driven by a 340-pound hammer. Field screening samples were collected at 5-foot intervals to about 15 feet bgs and then 2.5-foot intervals to the soil/water interface in each boring. Immediately following retrieval and opening of the split-spoon samplers, analytical samples and field screening samples were collected. The analytical sample jars for volatile analyses were

collected first, followed by the non-volatile analytical sample jars, and finally the field screening sample. The soil samples were "screened" for volatile organic vapors using a Thermo Instruments OVM 580B photoionization detector (PID) and an ADEC-approved headspace screening technique. The PID was calibrated before screening activities with 100 parts per million (ppm) isobutylene standard gas. The field screening samples were collected in resealable plastic bags by filling them with freshly exposed soil to one-half of their volumes, sealing the top, warmed to at least 40 degrees Fahrenheit, and screened within 10 minutes to one hour of collection. Screening was accomplished by inserting the PID sampling probe into the air space above the soil in the bag. The field screening results are presented in Table 1 and Appendix B.

One analytical soil sample was collected from each boring. Samples were collected from just above the soil/water interface observed during drilling or from the sample interval with the highest PID measurement. Shannon & Wilson's field representative used clean stainless-steel spoons and wore new nitrile gloves to transfer the soil into laboratory supplied containers for analysis. For each volatile sample, at least 25 grams of soil, but no more than what can be completely submerged with 25-milliliters of methanol, was placed into a pre-weighted, 4-ounce jar with a septa lid. A 25-milliliter aliquot of methanol containing laboratory-added surrogates was added to the sample jar to submerge the soil sample. For each non-volatile sample, the laboratory-supplied jar was completely filled with soil taking care to avoid pieces of gravel and debris. Sample jars were filled using decontaminated stainless-steel spoons, placed in coolers with ice packs, and transferred to the laboratory using chain-of-custody procedures. Table 1 summarizes the soil sample locations and depths.

3.3 Monitoring Well Installation

Borings B-45 through B-49 were completed as Monitoring Wells MW-45 through MW-49, respectively. Groundwater was encountered at approximately 21.5 (Borings B-48 and B-49) to 27.5 feet bgs (Boring B-45) in the borings. The borings were advanced approximately 5 feet beyond the soil/water interface to install the groundwater monitoring wells.

The monitoring wells were constructed of 2-inch nominal inside diameter schedule 40 PVC pipe with threaded connections. The lower 10-foot section of each well was constructed of PVC well screen with 0.010-inch slots. A sand pack of #10/20 silica sand was used to backfill around the well screen to approximately 1.5 to 3.5 feet above the screened section. About 5 feet of hydrated bentonite chips were used to backfill the boreholes above the sand pack. Drill cuttings were placed above the bentonite chips to about 1.5 to 2.0 feet bgs. Pea gravel was placed above the drill cuttings. Flush mount protective casings were installed and embedded in pea gravel (Well MW-49), concrete (Well MW-48) or asphalt (Wells MW-45, MW-46, and MW-47).

3.4 Monitoring Well Development

The monitoring wells were developed between July 17 and 20, 2020 using a surge block and a submersible pump. Three to five-minute periods of surging were alternated with periods of pumping. Water quality parameters, including pH, temperature, oxidation-reduction potential (ORP), turbidity, and conductivity were measured to evaluate the effectiveness of the development process.

Development of Monitoring Wells MW-46 and MW-47 were considered complete once stabilization criteria were met over three successive readings: pH was within 0.1 unit, temperature was within 3 percent (minimum 0.2 degree Celsius), conductivity was within three percent, and turbidity was within 10 percent. During development, approximately 46 and 52 gallons of water were removed from Wells MW-46 and 47, respectively.

Wells MW-45, MW-48, and MW-49 purged dry multiple times during development. These wells were allowed to recover to 80 percent of their pre-purge water column, surged for approximately 5 minutes, and then purged dry again. Development was considered complete after three hours of effort was expended at each of these wells. During development, approximately 5.3, 4.3, and 16.5 gallons of water were removed from Wells MW-45, MW-48, and MW-49, respectively. Groundwater data, including final water quality parameter measurements during development, are summarized in Table 2.

3.5 Monitoring Well Sampling

The 2020 groundwater sampling event was conducted on July 28, 2020 and consisted of collecting samples from Wells MW1R, MW-42, and MW-45 through MW-49. In addition, Well B5MW was screened for the presence of non-aqueous phase liquid (NAPL). NAPL was not documented in the well. Wells MW-30, MW-31, MW-32 are located on a parcel which was formerly owned by Sears. According to Williams, the property has changed ownership and Williams will work toward acquiring an access agreement. Well MW-40 is accessed via private property. Access to the well was not provided by the property owner during the sampling event.

Prior to collecting groundwater samples, the static water level was measured in the wells using an electronic water level indicator. The monitoring wells were purged and sampled using a low-flow sampling technique, using a submersible pump with disposable vinyl tubing. Sampling was initiated by purging each well to reduce the effect of stagnant well casing water on chemical concentrations and to obtain groundwater samples that are representative of the surrounding water-bearing formation. The submersible pump was placed within 2 feet of the measured groundwater depth in each well. The pump rate was set at approximately 0.1 to 0.5 liter per minute (L/min) with a goal of limiting the sustained water drawdown to a maximum of 4 inches. The drawdown was determined using an electronic water probe that was checked regularly throughout the purging/sampling process.

During the purging process, water quality parameters (pH, temperature, turbidity, ORP, and conductivity) were recorded at 3 to 5-minute intervals. Purging was considered complete when at least one well volume was removed and at least four of the following stabilization criteria were met over three successive readings: pH was within 0.1 unit, temperature was within 3 percent (minimum 0.2 degree Celsius), ORP was within 10 millivolts (mV), specific conductance was within three percent, and turbidity was within 10 percent or three consecutive readings of less than 10 Nephelometric Turbidity Units (NTU). The pump was decontaminated in between each well. Analytical samples were collected by transferring water directly from the disposable tubing into the laboratory supplied containers. The sample jars were filled in decreasing order of volatility. Monitoring well sampling data are presented in Table 3. A survey of the monitoring wells will be conducted prior to the next sampling event.

3.6 Investigation-Derived Waste Management

IDW for this project consisted of a well casing, a protective monument, soil cuttings, and development and purge water. The well casing and protective monument was disposed of as unregulated solid waste. Soil cuttings were containerized in ten 55-gallon drums and development water and purge water was containerized in four 55-gallon drums. The drums were collected daily by NRC Alaska, LLC for offsite disposal and/or treatment. Disposal receipts are included in Appendix D.

4.0 LABORATORY ANALYSES

The analytical soil and groundwater samples were submitted to SGS North America Inc. (SGS) for analytical testing, using chain-of-custody procedures. The laboratory reports and completed ADEC Laboratory Data Review Checklists are provided in Appendix E.

The five analytical soil samples and eight groundwater samples, including one duplicate, were analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101; diesel range organics (DRO) by AK 102; and benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B. The groundwater samples were also analyzed for residual range organics (RRO) by AK 103. One soil sample was also analyzed for volatile organic compounds (VOCs) by EPA Method 8260D, in lieu of BTEX, and polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D SIM. A soil duplicate sample was inadvertently not collected. Soil and water trip blanks accompanied the samples and were analyzed for GRO by AK 101 and BTEX by EPA Method 8021B or VOCs by EPA Method 8260D. The analytical soil and groundwater sample results are summarized in Tables 4 and 5, respectively.

5.0 SUBSURFACE CONDITIONS

Subsurface soil conditions observed during the current site characterization efforts are presented in the boring logs included as Appendix B.

Soil encountered in the borings generally consisted of layers of sand and silt with varying gravel content, overlying gravel with silt and sand. Groundwater was typically encountered within the gravel layer.

As part of ongoing site characterization activities, a perched and/or seasonal water layer has been observed in several wells at depths less than 15 feet bgs. This perched layer was not documented during the current site characterization efforts. A deeper aquifer is located within more permeable material (sand and gravel) beneath less permeable material (silt and silty sand).

During drilling, groundwater was encountered between approximately 21.5 to 27.5 feet bgs. The measured static depth to water ranged from approximately 21.12 feet bgs in Well MW-48 to about 26.97 feet bgs in Well MW-42. These depths are generally consistent with previous site data. Based on historical data, the local groundwater flow direction in the vicinity of WES No. 5021 is generally to the southwest.

6.0 DISCUSSION OF ANALYTICAL RESULTS

The analytical soil and groundwater results were compared to ADEC cleanup levels in the October 2018, 18 Alaska Administrative Code (AAC) 75 regulations. The applicable soil criteria consist of the most stringent ADEC Method Two cleanup levels listed in Tables B1 and B2 of 18 AAC 75.341, for the "under 40-inch (precipitation) zone," and groundwater cleanup levels are established in Table C of 18 AAC 75.345. Historical groundwater analytical results are tabulated in Table 6.

6.1 Soil Samples

Benzene was detected above the ADEC Method Two cleanup level of 0.022 milligrams per kilogram (mg/kg) in Sample B46S8 (0.233 mg/kg), collected from Boring B46. Toluene and ethylbenzene were also detected in Sample B46S8, at concentrations less than applicable ADEC cleanup levels. The remaining samples did not contain detectible concentrations of the target analytes.

6.2 Groundwater Samples

The groundwater samples collected from Monitoring Wells MW1R and MW-42 contained concentrations of GRO (maximum of 25.3 J+ milligrams per liter [mg/L]), DRO (maximum of 8.43 mg/L), benzene (maximum of 0.145 mg/L), ethylbenzene (maximum of 0.507 mg/L), and

xylenes (maximum of 11.0 mg/L) exceeding the ADEC Table C cleanup levels of 2.2 mg/L, 1.5 mg/L, 0.0046 mg/L, 0.015 mg/L, and 0.19 mg/L, respectively. Well MW1R is located on the former WES 5021 property and Well MW-42 is located southwest of the former WES 5021 property. The Well MW1R analytical sample results are generally consistent with the historical sample results. Well MW-42 has been sampled three times and the concentrations of benzene and GRO detected during the current sampling event represent a reduction in contaminant concentrations. DRO is generally consistent with previous results, although this is the first event that DRO has exceeded the ADEC cleanup level.

Well MW-46 is located southwest of the former WES 5021 property in the approximate location of former Well MW-9. The sample collected from Well MW-46 contained 0.239 mg/L benzene, 0.0705 mg/L ethylbenzene, and 0.191 mg/L xylenes, which exceed the applicable ADEC cleanup levels. The remaining tested analytes were detected at concentrations less than the ADEC cleanup levels. The results are generally less than the Well MW-9 historical results.

Concentrations of target analytes were either not detected or were detected at concentrations less than the ADEC cleanup levels in the samples collected from Monitoring Wells MW-45, MW-47, MW-48, and MW-49. These wells were installed to replace wells which were destroyed during road construction activities. The 2020 sampling results are consistent with the results associated with the previous wells.

6.3 Quality Control Samples

The project laboratory follows on-going quality assurance/quality control procedures to evaluate conformance to applicable ADEC data quality objectives (DQOs). Internal laboratory controls to assess data quality for this project include surrogates, method blanks, matrix spike/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to assess precision, accuracy, and matrix bias. If a DQO was not met, the project laboratory provides a brief narrative concerning the problem in the case narrative of their laboratory reports (see Appendix E).

External quality controls included duplicate samples and trip blanks. One duplicate water sample set (MW-1R/MW-10R) was collected to assess precision of the sampling and analysis processes using the calculated relative percent difference (RPD). The RPDs are within the ADEC recommended DQO of 30 percent for water. A soil duplicate sample was inadvertently not collected.

One soil trip blank and one water trip blank accompanied the sample jars and bottles from the laboratory to the site during sampling activities and back again to SGS. The soil and water trip blanks did not contain detectable concentrations of the target analytes, indicating that the

groundwater samples collected were not cross contaminated during the sample handling, storage, or testing process.

Estimated concentrations of GRO and DRO were detected in the method blanks associated with the soil samples. Estimated concentrations of GRO and/or DRO were detected in at least one project sample. These sample results are reported as non-detect at the limitation of quantitation and flagged "B" on Table 4.

Shannon & Wilson conducted a limited data assessment to review the laboratory's compliance with precision, accuracy, sensitivity, and completeness to the data quality objectives. Shannon & Wilson reviewed the SGS data deliverables and completed the ADEC's Laboratory Data Review Checklist for each data package, which are included in Appendix E. No non-conformances that would adversely affect data usability were noted, with the exceptions noted above.

7.0 SUMMARY

The project included decommissioning one groundwater monitoring well (Well MW-39), installing five replacement wells (Wells MW-45 through MW-49), and collecting soil and groundwater samples. With the exception of the soil sample collected from Boring B-46, the soil samples did not contain contaminant concentration exceeding the ADEC cleanup levels.

Based on the current groundwater data, the horizontal extent of the groundwater contaminant plume, south of the former WES 5021 property, is currently defined to the south by Wells MW-47 and MW-48, to the east by Well MW-45, and to the west by Well MW-49.

8.0 CLOSURE/LIMITATIONS

This report is prepared for the exclusive use of our client and their representatives in the study of this site. The findings presented within this report are based on the limited research, sampling, and analyses that were conducted. They should not be construed as definite conclusions regarding the site's soil or groundwater quality. The sampling, analyses, and data interpretations can provide you with only our professional judgment as to the environmental characteristics of this site, and in no way guarantee that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our site characterization activities. Changes in site conditions can occur over time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

You are advised that various state and federal agencies (ADEC, EPA, etc.) may require the reporting of this information. Shannon & Wilson does not assume the responsibility for

reporting these findings and therefore has not, and will not, disclose the results of this study unless specifically requested and authorized by Williams, or as required by law.

Shannon & Wilson has prepared the information in Appendix F, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our report.

We appreciate this opportunity to be of service and your continued confidence in our firm. If you have questions or comments concerning this submittal, please contact the undersigned at (907) 561-2120.

SHANNON & WILSON, INC.

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TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

	Sample Location (See Figure 1 and								
Sample Number	Date	Appendix B)	Depth (feet bgs)	Headspace (ppm) ^					
SOIL SAMPLES									
Boring B-45									
B45S1	6/30/2020	Boring B-45, Sample S1	0.5-2.5	0.5					
B45S2	6/30/2020	Boring B-45, Sample S2	5-7	0					
B45S3	6/30/2020	Boring B-45, Sample S3	10-12	0					
B45S4	6/30/2020	Boring B-45, Sample S4	15-16.5	0					
B45S5	6/30/2020	Boring B-45, Sample S5	17.5-19	0					
B45S6	6/30/2020	Boring B-45, Sample S6	20-21.5	0.4					
B45S7	6/30/2020	Boring B-45, Sample S7	22.5-24	0					
* B45S8	6/30/2020	Boring B-45, Sample S8	25-26.5	0					
B45S9	6/30/2020	Boring B-45, Sample S9	27.5-29	0					
B45S10	6/30/2020	Boring B-45, Sample S10	30-31.5	-					
Boring B-46		6 , a 1							
B46S1	6/30/2020	Boring B-46, Sample S1	0.5-2.5	1.2					
B46S2	6/30/2020	Boring B-46, Sample S2	5-7	0.7					
B46S3	6/30/2020	Boring B-46, Sample S2	10-12	0.7					
B4653	6/30/2020	Boring B-46, Sample S5	15-16.5	0.7 1.4					
B4685	6/30/2020	Boring B-46, Sample S5 (No Sample)	17 5-10	1.4					
B4686	6/30/2020	Boring B 46, Sample S5 (No Sample)	20 21 5	-					
B4687	6/30/2020	Boring B 46, Sample S7	20-21.5	0.9					
D4037 * D4659	6/20/2020	Boring B-46, Sample S7	22.3-24	-					
* D4038	6/30/2020	Boring B 46, Sample So	23-20.3	1.2					
D4039	0/30/2020	Bornig B-40, Sample S9	21.5-29	-					
Boring B-47									
B47S1	7/1/2020	Boring B-47, Sample S1	0.5-2.5	0.1					
B47S2	7/1/2020	Boring B-47, Sample S2	5-7	0.1					
B47S3	7/1/2020	Boring B-47, Sample S3	10-12	0.4					
* B47S4	7/1/2020	Boring B-47, Sample S4	15-15.8	1.7					
B47S5	7/1/2020	Boring B-47, Sample S5	17.5-19	1.4					
B47S6	7/1/2020	Boring B-47, Sample S6	20-21.5	0.9					
B47S7	7/1/2020	Boring B-47, Sample S7	22.5-24	0.9					
Boring B-48									
B48S1	7/1/2020	Boring B-48, Sample S1	0.5-2.5	0.2					
B48S2	7/1/2020	Boring B-48, Sample S2	5-7	1.5					
B48S3	7/1/2020	Boring B-48, Sample S3	10-12	0.2					
B48S4	7/1/2020	Boring B-48, Sample S4	15-16.5	0.3					
* B48S5	7/1/2020	Boring B-48, Sample S5	17.5-19	0.3					
B48S6	7/1/2020	Boring B-48, Sample S6	20-21.5	0					
B48S7	7/1/2020	Boring B-48, Sample S7	22.5-24	-					
Boring B-49									
B49S1	7/1/2020	Boring B-49, Sample S1	0.8-2.3	0					
B49S2	7/1/2020	Boring B-49 Sample S2	5-6.5	1.0					
B49S3	7/1/2020	Boring B-49, Sample S3	10-11 5	0					
B49S4	7/1/2020	Boring B-49, Sample S4	15-16 5	0					
B4985	7/1/2020	Boring B-49 Sample S5	17 5-19	0					
* B49S6	7/1/2020	Boring B-49 Sample S6	20-21 5	0					
B49S7	7/1/2020	Boring B-49, Sample S7	22.5-24	-					
	1/1/2020	Bornig D-47, Sample S7	22.3-24	-					

Notes on Page 2

TABLE 1 - SAMPLE LOCATIONS AND DESCRIPTIONS

		Sample Location (See Figure 1 and		
Sample Number	Date	Appendix B)	Depth (feet TOC)	Headspace (ppm) ^
WATER SAMPLES				
* MW1R	7/28/2020	Well MW1R	22.82	-
* MW10R~	7/28/2020	Duplicate of Sample MW1R	22.82	-
* MW-42	7/28/2020	Well MW-42	26.97	-
* MW-45	7/28/2020	Well MW-45	26.81	-
* MW-46	7/28/2020	Well MW-46	25.53	-
* MW-47	7/28/2020	Well MW-47	22.39	-
* MW-48	7/28/2020	Well MW-48	21.12	-
* MW-49	7/28/2020	Well MW-49	21.85	-
QUALITY CONTRO	OL SAMPLES			
* STB	7/1/2020	Soil Trip Blank	-	-
* WTB	7/28/2020	Water Trip Blank	-	-

Notes:

* = Sample analyzed by the project laboratory (See Tables 4 and 5)

^ = Field screening instrument was a Thermo Environmental Instruments 580B photoionization detector (PID).

- = Not measured

bgs = Below ground surface

ppm = Parts per million

TOC = Top of casing

TABLE 2 - MONITORING WELL DEVELOPMENT LOG

			Monitoring Well Number		
	MW-45	MW-46	MW-47	MW-48	MW-49
Development Data					
Development Date	7/17/20	7/17/20	7/20/20	7/20/20	7/20/20
Time Water Level Measured	9:10	12:20	10:50	9:25	13:56
Measured Depth to Water (ft below TOC)	26.81	25.52	22.27	21.10	21.14
Total Depth of Well (ft below TOC)	34.06	29.11	26.56	26.00	27.22
Water Column in Well (ft)	7.25	3.59	7/17/20 7/20/20 7/20/20 12:20 10:50 9:25 25.52 22.27 21.10 29.11 26.56 26.00 3.59 4.29 4.90 2-inch 2-inch 0.16 0.16 0.16 0.16 0.57 0.69 0.78 46 52 4.3 mersible Pump & Submersible Pump & Submersible Pump & Surge Block 7/20/20 7/20/20 10.6 11.6 10.3 7.20 7.20 7.20		6.08
Diameter of Well Casing	2-inch	2-inch	2-inch	2-inch	2-inch
Gallons per Foot	0.16	0.16	0.16	0.16	0.16
Water Column Volume (gallons)	1.16	0.57	0.69	0.78	0.97
Total Volume Pumped/Bailed (gallons)	5.3	46	52	4.3	14.3
Development Method	Submersible Pump &	Submersible Pump &	Submersible Pump &	Submersible Pump &	Submersible Pump &
	Surge Block	Surge Block	Surge Block	Surge Block	Surge Block
Water Quality Data					
Date Measured	7/17/20	7/17/20	7/20/20	7/20/20	7/20/20
Temperature (°C)	12.7	10.6	11.6	10.3	11.9
pH (Standard Units)	6.72	7.36	7.26	7.83	8.06
Specific Conductivity (µS/cm)	401	952	426	528	476
ORP (mV)	151	-96	829	406	404
Turbidity (NTU)	>1,000	225	376	>1,000	>1,000
Remarks	Well purged dry during			Well purged dry during	Well purged dry during
	development			development	development

Notes:

Water quality parameters were measured with Hanna, Hach, and YSI Instruments

KEY DESCRIPTION

- Not applicable
- ^ Depth to water measurement prior to development
- TOC Top of casing
- ft Feet
- °C Degrees Celsius
- μS/cm Microsiemens per Centimeter
- NTU Nephelometric Turbidity Unit
- mV Millivolts

TABLE 3 - MONITORING WELL SAMPLING LOG

WATER LEVEL MEASUREMENT DATA

Well Number	MW1R	MW-42	MW-45	MW-46
Date Water Level Measured	7/28/2020	7/28/2020	7/28/2020	7/28/2020
Time Water Level Measured	13:30	13:30	11:50	10:40
Measured Depth to Water (ft below MP)	22.82	26.97	26.81	25.53

SAMPLING DATA

Well Number	MW1R	MW-42	MW-45	MW-46
Date Sampled	7/28/2020	7/28/2020	7/28/2020	7/28/2020
Time Sampled	14:15	14:50	15:40	11:20
Measured Depth to Water (ft below MP)	22.82	26.97	26.81	25.53
Total Depth of Well (ft below MP)	32.33	34.92	34.20	28.96
Water Column in Well (ft)	9.51	7.95	7.39	3.43
Screened interval (ft below ground surface)*	21.4-31.4	25.0-35.0	24.0-34.0	19.25-29.25
Gallons per Foot	0.16	0.16	0.16	0.16
Water Column Volume (gallons)	1.52	1.27	1.18	0.55
Total Volume Pumped/Bailed (gallons)	1.6	6.0	1.3	2.5
Sampling Method	SP	SP	SP	SP
Diameter of Well Casing	2-inch	2-inch	2-inch	2-inch
Remarks	Duplicate		Well purged	
	Sample MW-		dry during	
	10R		sampling	

WATER QUALITY DATA

Well Number	MW1R	MW-42	MW-45	MW-46
Temperature (°C)	14.4	11.8	17.6	11.5
Specific Conductivity (µS/cm)	1,430	816	248	821
pH (Standard Units)	6.63	6.04	6.75	6.61
Turbidity (NTU)	14.6	7.74	331	28.1
ORP (mV)	5.0	64.8	6.0	-73
Dissolved Oxygen (mg/L)	0.86	0.32	-	5.46

Note: Water quality parameters were measured with Hanna, Hach, and YSI instruments.

KEY DESCRIPTION

°C Degrees Celsius

- ft Feet
- µS/cm Microsiemens per Centimeter
- mg/L Milligrams per liter
- MP Measuring Point
- SP Submersible Pump
- NTU Nephelometric turbidity units
- Not applicable or measurement not collected
- NS Not sampled
- DTW Depth to water
 - * At time of well installation

TABLE 3 - MONITORING WELL SAMPLING LOG

WATER LEVEL MEASUREMENT DATA

Well Number	MW-47	MW-48	MW-49	B5MW
Date Water Level Measured	7/28/2020	7/28/2020	7/28/2020	7/28/2020
Time Water Level Measured	9:32	8:45	10:27	16:00
Measured Depth to Water (ft below MP)	22.39	21.12	21.85	24.68

SAMPLING DATA

Well Number	MW-47	MW-48	MW-49	B5MW
Date Sampled	7/28/2020	7/28/2020	7/28/2020	NS
Time Sampled	10:15	10:05	11:23	NS
Measured Depth to Water (ft below MP)	22.39	21.12	21.85	24.68
Total Depth of Well (ft below MP)	26.65	25.90	28.04	31.99
Water Column in Well (ft)	4.26	4.78	6.19	7.31
Screened interval (ft below ground surface)*	16.7-26.7	16.0-26.0	18.5-28.5	27.5-37.5
Gallons per Foot	0.16	0.16	0.16	0.16
Water Column Volume (gallons)	0.68	0.76	0.99	1.17
Total Volume Pumped/Bailed (gallons)	2.2	2.5	3.1	-
Sampling Method	SP	SP	SP	-
Diameter of Well Casing	2-inch	2-inch	2-inch	2-inch
Remarks				No product
				observed.
				DTW only.
				5

WATER QUALITY DATA

Well Number	MW-47	MW-48	MW-49	B5MW
Temperature (°C)	10.9	8.15	8.69	-
Specific Conductivity (µS/cm)	449	608	502	-
pH (Standard Units)	6.12	4.11	6.40	-
Turbidity (NTU)	17.7	16.4	10.6	-
ORP (mV)	211	142	151	-
Dissolved Oxygen (mg/L)	5.41	0.46	0.47	-

Note: Water quality parameters were measured with Hanna, Hach, and YSI instruments.

KEY DESCRIPTION

°C Degrees Celsius

- ft Feet
- µS/cm Microsiemens per Centimeter
- mg/L Milligrams per liter
- MP Measuring Point
- SP Submersible Pump
- NTU Nephelometric turbidity units
- Not applicable or measurement not collected
- NS Not sampled
- DTW Depth to water
 - * At time of well installation

TABLE 4 - SUMMARY OF SOIL ANALYTICAL RESULTS

			Sample ID Number [^] and Soil Sample Depth in Feet bgs (Table 1 and Appendix B)					
		Cleanup			Soil Samples			Trip Blank
		Level	B45S8	B46S8	B47S4	B48S5	B49S6	TB
Parameter Tested	Method*	(mg/kg)**	25-26.5	25-26.5	15-16.5	17.5-19	20-21.5	-
PID Headspace Reading - ppm	580B PID	-	0	1.2	1.7	0.3	0	-
Gasoline Range Organics (GRO) - mg/kg	AK 101	300	<2.82 B	<3.27 B	<2.98 B	<1.81	<1.18 J-	<1.25
Diesel Range Organics (DRO) - mg/kg	AK 102	250	<21.7 B	<22.0 B	<21.4 B	<23.9 B	<11.2	-
Volatile Organic Compounds (VOCs)								
Benzene - mg/kg	EPA 8021B/8260D	0.022	< 0.00705	0.233	< 0.00745	< 0.00905	< 0.00590	< 0.00630
Toluene - mg/kg	EPA 8021B/8260D	6.7	< 0.0141	0.0163 J	< 0.0149	< 0.00181	< 0.00118	< 0.0126
Ethylbenzene - mg/kg	EPA 8021B/8260D	0.13	< 0.0141	0.0169 J	< 0.0149	< 0.00181	< 0.00118	< 0.0126
Xylenes - mg/kg	EPA 8021B/8260D	1.5	< 0.0424	< 0.0490	< 0.0447	< 0.0545	< 0.0354	< 0.0377
Other VOCs - mg/kg	EPA 8260C	various	-	ND	-	-	-	ND
Polynuclear Aromatic Hydrocarbons (PAHs) - mg/kg	EPA 8270D-SIM	various	-	ND	-	-	-	-

KEY DESCRIPTION

* See Appendix E for compounds tested, methods, and laboratory reporting limits.

** Soil cleanup level is the most stringent Method Two standard listed in Table B1 or B2, 18 AAC 75, for the "under 40-inch (precipitation) zone" (October 2018).

^ Sample ID No. preceded by "101293" on the chain-of-custody form.

ppm Parts per million

mg/kg Milligrams per kilogram

Not tested or not applicable

<0.00705 Analyte not detected; laboratory limit of detection is 0.00705 mg/kg.

0.0163 Analyte detected at a concentration less than the applicable ADEC cleanup levels.

0.233 Reported concentration exceeds the ADEC's most stringent Method Two cleanup level.

B Analyte concentration potentially affected by method blank contamination. See the ADEC Laboratory Data Review Checklist.

J Estimated concentration less than the limit of quantitation (LOQ). See the laboratory report for details.

J- Quantitation is an estimate (biased low) due to surrogate recovery failures. See ADEC LDRC in Appendix E for details.

		Cleanup	Sample Number [^] and Groundwater Depth in Feet (See Tables 1 & 2 and Appendix B)										
		Level (mg/L)**	MW1R	MW10R~	MW-42	MW-45	MW-46	MW-47	MW-48	MW-49	Trip Blank		
Parameter Tested	Method*	(8,)	22.82	22.82	26.97	26.81	25.53	22.39	21.12	21.85	IB		
Gasoline Range Organics (GRO) - mg/L	AK 101	2.2	25.3 J+	25.3 J+	2.93	< 0.0500	1.21 J+	< 0.0500	< 0.0500	< 0.0500	< 0.0500		
Diesel Range Organics (DRO) - mg/L	AK 102	1.5	8.43	8.37	1.56	0.212 J	0.333 J	< 0.288	< 0.300	0.276 J	-		
Residual Range Organics (RRO) - mg/L	AK 103	1.1	0.448 J	0.579	0.183 J	0.173 J	0.215 J	< 0.240	< 0.250	0.243 J	-		
Aromatic Volatile Organics (BTEX)													
Benzene - mg/L	EPA 8021B	0.0046	0.145	0.139	0.114	0.000240 J	0.239	0.000190 J	< 0.000250	< 0.000250	< 0.000250		
Toluene - mg/L	EPA 8021B	1.1	0.0534	0.0531	0.00119	< 0.000500	0.000480 J	< 0.000500	< 0.000500	< 0.000500	< 0.000500		
Ethylbenzene - mg/L	EPA 8021B	0.015	0.507	0.494	0.281	0.000370 J	0.0705	< 0.000500	< 0.000500	< 0.000500	< 0.000500		
Xylenes (Total) - mg/L	EPA 8021B	0.19	11.0	8.88	0.926	0.00553	0.191	< 0.00150	< 0.00150	< 0.00150	< 0.00150		

TABLE 5 - SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

KEY DESCRIPTION

* See Appendix E for compounds tested, methods, and laboratory reporting limits

** Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (October 2018).

^ Sample ID No. preceded by "101293" on the chain-of-custody form.

<0.0500 Analyte not detected; laboratory reporting limit of 0.0500 mg/L.

0.448 Analyte detected

- Sample not tested for this analyte.

~ Duplicate of Sample MW1R

mg/L Milligrams per liter

25.3 Reported concentration exceeds the regulated cleanup level.

J Analyte detected below laboratory method detection limit.

J+ Quantitation is an estimate (biased high) due to surrogate recovery failures. See ADEC LDRC in Appendix E for details.

			Target Analyte Concentrations* (mg/L)								
		Groundwater	D		GDO	550	DD 0				
Well No.	Sample Date	Depth [^] (ft)	Benzene	Total BTEX	GRO	DRO	RRO				
MW-1	4/4/2006	29.01	4.69	52.9	75.6	6.40	-				
	9/26/2006	27.32	7.27	/4.0	-	5.87	-				
	4/30/2007	27.15	2.10	42.5	/5.0	0.33	-				
	12/14/2007	27.05	2.37	58.5 28.5	97.7	4.97	-				
	4/28/2008	27.00	0.941	30.3 22.7	00.2 68 5	4.54	-				
	9/10/2008 5/11/2009	20.01	0.400	55.7 17.8	00.5 AA 6	4.39	-				
	0/28/2009	27.70	0.125	17.8	83 1	5.10	-				
	<i>4/27/2010</i>	28.02	0.049	42.0	38.2	5.10	-				
	9/2/2010	27.02	1 16	48.6	89.3	4 51	_				
	5/5/2011	25.01	0 324	16.6	40.0	678	_				
	9/14/2011	25.97	0.424	27.9	54.1	6.95	_				
	4/18/2012	25.60	0.340	19.3	51.2	5.87	-				
	9/25/2012	24.65	0.843	33.3	62.1	4.31	-				
	9/18/2013	25.60	0.498	20.0	53.2	4.62					
	,,,	Decommissioned b	by Tesoro in 201	.3							
MW-1R		Installed by Tesore	o in April 2015 t	to replace source	e well MW-1						
	8/20/2015	24.15	0.236	11.7	31.5	7.26	-				
	9/20/2016	23.37	0.606	11.3 J	31.2	11.7	-				
	7/28/2020~	22.82	0.145	11.7	25.3 J+	8.43	0.579				
MW-8A	4/4/2006	14.93	ND	0.00272	-	-	-				
	9/26/2006	6.40	ND	ND	-	-	-				
	4/27/2007	11.35	0.000517	0.00283	-	-	-				
	12/18/2007	6.80	ND	ND	-	-	-				
	6/2/2008	6.10	ND	ND	-	-	-				
	9/16/2008	6.14	ND	ND	-	-	-				
	5/11/2009	4.92	ND	0.00448 J	-	-					
	9/28/2009	8.12	ND	ND	-	-	-				
	4/27/2010	8.61	ND	0.0107	ND	-	-				
	9/8/2010	7.30	ND	ND	-	-	-				
	5/6/2011	6.01	ND	ND	-	-	-				
	9/15/2011	7.64	ND	0.00466	-	-	-				
	9/24/2012	3.33	NS	NS	NS	NS	NS				
		Removed from the	sampling progr	$am \ln 2013$							
MW	4/4/2000		1 co	, 2015	7.90		1 40				
MW-9	4/4/2006	26.93	1.09	3.83	/.80	-	1.48 ND				
	9/20/2000	25.55	0.0204	0.07		-	1.80				
	4/30/2007	25.98	2.01	5.30	0.90	-	ND				
	10/4/2007	25.55	2.01	3.42	5.65	_	2 32				
	9/16/2008	20.03	0 170	0.606	1 11		5.01				
	5/11/2009	26.23	1.74	4 73	8.06	_	23.5				
	9/28/2009	26.29	1.34	5 38	10.2	_	0 549				
	4/27/2010	26.32	0.449	1.37	ND	_	1.67				
	9/2/2010	25.69	2.13	8.19	15.4	_	1.32				
	5/6/2011	25.97	1.26	4.83	9.22	-	1.74				
	9/14/2011	25.89	1.63	7.63	14.2	-	1.86				
	4/18/2012	25.92	1.42	5.40 J	10.1	-	2.35				
	9/25/2012	24.40	1.99	8.82	17.2	-	0.903				
	9/18/2013	24.98	0.567	2.48	5.63	-	4.60				
	8/26/2014	25.81	0.288	0.334 J	0.721	-	3.57				
	8/20/2015	26.45	0.463	1.31	2.75	-	4.89				
	9/20/2016	Assumed destroye	d by road impro	vement project c	conducted in 201	6.					

-			Target Analyte Concentrations* (mg/L)							
		Groundwater								
Well No.	Sample Date	Depth [^] (ft)	Benzene	Total BTEX	GRO	DRO	RRO			
MW-10	4/4/2006	20.97	ND	ND	-	-	ND			
	9/26/2006	26.25	ND	ND	-	-	ND			
	4/30/2007	16.92	ND	ND	-	-	ND			
	10/4/2007	17.74	0.00121	0.03179	-	-	ND			
	4/28/2008	16.97	ND	0.00260	-	-	0.838			
	9/16/2008	17.44	0.000549	0.00882	-	-	2.87			
	5/11/2009	17.97	0.000843	0.00492 J	-	-	3.47 J			
	9/28/2009	18.37	ND	ND	-	-	ND			
	4/27/2010	17.84	ND	0.00880	-	-	0.787			
	9/2/2010	17.12	ND	ND	-	-	0.742			
	5/6/2011	17.18	ND	ND	-	-	0.569			
	9/14/2011	17.42	ND	0.00208	-	-	0.959			
	4/18/2012	16.53	ND	ND	-	-	0.350 J			
	9/25/2012	16.34	ND	ND	-	-	ND			
	9/17/2013	17.10	ND	ND	-	-	0.365 J			
	8/26/2014	37.87***	ND	ND	-	-	ND			
		Well Decommission	oned on June 26	, 2015						
MW-16	9/2/2003	18.68	ND	ND	-	0.180	0.630			
	5/5/2004	21.75	ND	ND	-	0.321	ND			
	9/20/2004	18.93	ND	ND	-	ND	ND			
	3/31/2005	18.42	ND	0.00385	-	ND	ND			
		Well decommissio	ned on October	27, 2005						
MW-19	5/5/2004	23.69	ND	ND	-	-	-			
	9/20/2004	22.50	ND	ND	-	-	-			
	3/31/2005	22.31	ND	0.00295	-	-	-			
	9/15/2005	21.42	ND	ND	-	-	-			
	4/4/2006	22.70	ND	ND	-	-	-			
	9/26/2006	Assumed destroye	d by road impro	vement project.						
MW-20	9/2/2003	19.97	ND	ND	-	-	-			
	4/15/2004	18.01	ND	ND	-	-	-			
	9/20/2004	19.42	ND	ND	-	-	-			
	3/31/2005	19.66	ND	0.00229	-	-	-			
		Sampling suspende	ed due to consis	tently low or NE	o results					
	4/17/2012	17.43	ND	ND	-	-	-			
		Well decommissio	ned on May 3, 2	2012						
MW-21	9/2/2003	20.03	ND	ND	-	-	-			
	5/15/2004	18.11	0.001	0.005	-	-	-			
	9/20/2004	19.23	ND	ND	-	-	-			
	3/31/2005	19.65	ND	ND	-	-	-			
		Well decommissio	ned on October	27, 2005						
MW-22	3/10/2003	12.93	ND	ND	ND	ND	0.21			
	9/2/2003	14.09	ND	ND	-	-	-			
		Well decommissio	ned on October	27, 2005						
MW-24	3/10/2003	14.24	ND	ND	ND	0.72	1.80			
	9/2/2003	14.54	ND	ND	-	-	-			
		Well decommissio	ned on October	27, 2005						

_			Target Analyte Concentrations* (mg/L)							
		Groundwater								
Well No.	Sample Date	Depth [^] (ft)	Benzene	Total BTEX	GRO	DRO	RRO			
MW-25	4/4/2006	20.22	ND	ND	_	_	_			
	9/26/2006	17.90	ND	ND	-	_	-			
	4/27/2007	18.65	ND	ND	-	-	-			
	1/2/2008	18.42	ND	ND	-	-	-			
	4/29/2008	18.08	ND	ND	-	-	-			
	9/16/2008	17.63	ND	ND	-	-	-			
	5/11/2009	18.38	0.000157 J	0.00393 J	-	-	-			
	9/28/2009	18.27	ND	ND	-	-	-			
	4/27/2010	18.60	ND	0.00806	ND	-	-			
	9/2/2010	17.80	ND	ND	-	-	-			
	5/6/2011	18.13	ND	ND	-	-	-			
	9/15/2011	18.27	0.000322 J	0.00806	-	-	-			
	4/18/2012	18.07	ND	ND	ND	-	-			
	9/25/2012	16.25	ND	ND	_	-	-			
	9/17/2013	16.74	ND	ND	-	_	-			
	8/26/2014	17.75	ND	ND	-	_	-			
	0, _ 0, _ 0 _ 1	Well Decommission	oned on June 26	, 2015						
MW-26	10/20/2009	26.56	0.00378	0.00378	ND	ND	-			
	5/7/2010	26.52	ND	ND	ND	ND	-			
	9/2/2010	25.78	ND	ND	ND	ND	-			
	5/5/2011	26.02	ND	0.000680 J	ND	ND	-			
	9/14/2011	25.99	0.000710	0.0102	0.211 J	0.0451 J	-			
	4/17/2012	25.90	Not sampled. I	Depth to water m	easurement only	·.				
	9/24/2012	24.75	Not sampled. I	Depth to water m	easurement only	· .				
	9/17/2013	25.81	Not sampled. I	Depth to water m	easurement only	· .				
		Assumed destroye	d during Tesoro	construction in 2	2013/2014.					
MW-27	10/20/2009~	24.50	2.50	48.1 E	77.0	1.37	-			
	4/27/2010 #	24.87	4.52	92.3	178	57.1	-			
	9/2/2010	23.62	1.19	38.1	78.1	8.23	-			
	5/6/2011	23.81	0.342	20.9	46.6	16.4	-			
	9/15/2011#	23.81	0.03 foot of pro	duct observed, r	not sampled					
	4/17/2012#	23.80	0.05 foot of pro	duct observed, r	not sampled					
		Well decommission	oned on May 3, 2	2012						
MW-28	10/20/2009	23.50	5.30	71.7 E	132	2.19	-			
	4/27/2010	23.76	8.11	59.7	115	3.78	-			
	9/2/2010	22.65	8.23	55.6	97.3	3.58	-			
	5/5/2011	22.90	5.38	49.8	90.5	2.72	-			
	9/15/2011	22.70	5.45	65.0	103	3.32	-			
	4/17/2012	22.73	Not sampled. N	No product obser	ved.					
		Well decommission	oned on May 3, 2	2012						
MW-29	10/20/2009	15.14	ND	ND	ND	ND	-			
	4/27/2010	14.79	0.000720	0.0217	ND	ND	-			
	9/2/2110	14.30	ND	ND	ND	ND	-			
	5/5/2011	15.05	ND	0.000640 J	ND	ND	-			
	9/15/2011	15.70	0.000186 J	0.00434	ND	0.269 J	-			
	4/17/2012	12.96	NS	NS	NS	NS	NS			
		Well decommission	ned on May 3, 2	2012						

			Target Analyte Concentrations* (mg/L)							
		Groundwater								
Well No.	Sample Date	Depth [^] (ft)	Benzene	Total BTEX	GRO	DRO	RRO			
MW-30	9/15/2011#	20.68	0.02 foot of pro	duct observed, r	not sampled		-			
	4/17/2012	20.70	Not sampled. N	No product obser	ved.					
	9/24/2012	19.32	Not sampled. N	No product obser	rved.					
	1/3/2013~	19.24	0.266	17.7	33.9	1.51	ND			
	9/17/2013	20.03	Not sampled. N	No product obser	ved.					
	8/25/2014	19.93	Not sampled. N	No product obser	ved.					
	8/18/2015	22.16	Not sampled. N	No product obser	ved.					
	9/20/2016	20.90	Not sampled. N	No product obser	ved.					
MW-31	7/22/2011~	23.07	0.0567	2.13	7.35	0.643	ND			
	9/14/2011	21.86	0.0259	0.0712	1.27	0.431 J	-			
	4/17/2012	21.73	ND	ND	0.0478 J	ND	-			
	9/26/2012	20.38	ND	ND	ND	ND	ND			
	1/3/2013	20.60	0.00640	1.01	-	-	-			
	9/18/2013	21.33	0.0367	1.80	5.88	0.601	-			
	8/26/2014	21.50	0.0326	1.78 J	4.81	0.324 J	-			
	8/20/2015	23.57	0.0650	1.06	3.28	0.758	-			
	9/20/2016	22.24	0.112	1.65	4.66	0.995 B	-			
MW-32	7/22/2011	23.89	ND	ND	ND	ND	ND			
	9/14/2011	22.63	0.000447 J	0.0149	0.0498 J	ND	-			
	4/17/2013	22.48	ND	ND	ND	ND	ND			
	6/26/2012	21.13	ND	ND	ND	ND	ND			
	1/3/2013	21.36	ND	0.00383 J	-	-	-			
	9/18/2013	22.02	ND	ND	0.0327 J	ND	-			
	8/26/2014	22.26	ND	ND	ND	ND	-			
	8/18/2015	24.23	ND	ND	ND	ND	-			
	9/20/2016	22.95	ND	0.00247 J	ND	ND	-			
MW-33	7/21/2011	23.60	ND	ND	ND	ND	ND			
	9/15/2011	22.64	0.000265 J	0.0158	0.0498 J	0.200 J	-			
	4/18/2012	22.67	0.000200 J	0.000810 J	ND	0.247 J	ND			
	9/26/2012	21.51	ND	0.000880 J	ND	ND	ND			
	9/18/2013	22.56	ND	ND	ND	ND	-			
	8/26/2014	22.14	ND	ND	ND	ND	-			
		Well Decommissi	oned on June 26	, 2015						
MW-34	7/21/2011	23.57	ND	ND	ND	ND	ND			
	9/15/2011	22.54	0.000183 J	0.0206	0.0548 J	0.276 J	-			
	4/18/2012	22.37	0.000150 J	0.000150 J	ND	ND	0.155 J			
	9/26/2012	20.98	ND	ND	ND	ND	ND			
	9/18/2013	12.69***	ND	ND	ND	ND	-			
	8/26/2014	21.84	ND	ND	ND	ND	-			
		Well Decommissi	oned on June 26	, 2015						
MW-35	9/2/2011	20.26	ND	ND	ND	ND	ND			
	4/18/2012	20.13	0.000130 J	0.000560 J	ND	ND	ND			
	9/25/2012	18.79	ND	ND	ND	ND	ND			
	9/17/2013	19.32	ND	ND	ND	ND	-			
	8/25/2014	20.33	ND	ND	ND	ND	-			
	8/18/2015	20.98	ND	ND	0.0379 J	ND	-			
	9/20/2016	Assumed destroye	ed by road impro	vement project c	conducted in 201	6.				

_		Target Analyte Concentrations* (mg/L)								
		Groundwater								
Well No.	Sample Date	Depth [^] (ft)	Benzene	Total BTEX	GRO	DRO	RRO			
MW-36	4/18/2012	22.93	ND	ND	ND	0.310 J	0.340 J			
	9/25/2012	21.50	ND	ND	ND	ND	ND			
	9/17/2013	22.04	ND	ND	0.0401 J	ND	-			
	8/25/2014	23.04	ND	ND	ND	ND	-			
	8/18/2015	23.67	ND	0.00102 J	0.0386 J	ND	-			
	9/20/2016	Assumed destroye	d by road impro	vement project c	onducted in 201	6.				
MW-37	9/26/2012	17.28	ND	ND	ND	ND	ND			
	9/18/2013	14.45	ND	ND	ND	ND	-			
	8/26/2014	13.75	ND	ND	ND	ND	-			
		Well Decommission	oned on June 26	, 2015						
MW-38	9/26/2012	15.35	ND	ND	ND	ND	ND			
	9/18/2013	15.99	ND	ND	ND	0.250 J	-			
	8/26/2014	16.86	ND	ND	ND	ND	-			
		Well Decommission	oned on June 26	, 2015						
MW-39	7/1/2014	20.14	ND	ND	ND	ND	0.186 J			
	8/26/2014	21.84	ND	ND	ND	ND	-			
	8/18/2015	22.03	ND	ND	0.0477 J	ND	-			
	9/20/2016	20.62	ND	0.00236 J	0.0437 J	ND	-			
MW-40	6/26/2014~	24.91	0.00283	0.00283	ND	ND	0.163 J			
	8/26/2014	25.35	0.00401	0.00401	ND	ND	-			
	8/20/2015	26.01	0.0230	0.0233	0.0903 J	ND	-			
	9/20/2016	Could not access w	vell.							
MW-41	6/26/2014	26.34	ND	ND	ND	ND	ND			
	8/26/2014	26.73	ND	ND	ND	ND	-			
	8/20/2015	27.29	ND	0.00154	0.0498 J	ND	-			
	9/20/2016	Assumed destroye	d by road impro	vement project c	onducted in 201	6.				
MW-42	8/20/2015	28.25	1.65	16.5	28.9	1.26	ND			
	9/20/2016	27.17	1.16	11.4	18.8	1.31 B	-			
	7/28/2020	26.97	0.114	1.32	2.93	1.56	0.183 J			
MW-43	8/20/2015	27.39	0.000190 J	0.00394	0.0507 J	ND	ND			
	9/20/2016	Assumed destrove	d by road impro	vement project c	onducted in 201	6.				
MW-44	8/20/2015	25.52	ND	0.00119	0.0518 J	ND	ND			
	9/20/2016	Assumed destrove	d by road impro	vement project c	onducted in 201	6.				
MW-45	7/28/2020	26.81	0.000240 J	0.000610 J	ND	0.212 J	0.173 J			
MW-46	7/28/2020	25.53	0.239	0.501 J	1.21 J+	0.333 J	0.215 J			
MW-47	7/28/2020	22.39	0.000190 J	0.000190 J	ND	ND	ND			
MW-48	7/28/2020	21.12	ND	ND	ND	ND	ND			
MW-49	7/28/2020	21.85	ND	ND	ND	0.276 J	0.243 J			

_			Target Analyte Concentrations* (mg/L)							
		Groundwater								
Well No.	Sample Date	Depth^ (ft)	Benzene	Total BTEX	GRO	DRO	RRO			
B5MW	4/4/2006	26.49	17.7	119.3	230	3.46	-			
	9/26/2006	24.48	-	-	29.2	2.77	-			
	4/27/2007	25.09	0.937	14.9	30.7	4.58	-			
	10/4/2007	25.61	1.49	30.6	63.7	5.33	-			
	4/29/2008	24.45	1.13	13.3	34.3	3.09	-			
	9/16/2008	24.44	1.68	19.8	41.7	1.68	-			
	5/11/2009	25.62	1.64	18.5	36.7	3.43	-			
	9/28/2009	25.89	5.47	37.8	75.8	2.05	-			
	4/27/2010	25.80	Sample not ana	lyzed						
	9/2/2010	24.76	2.34	17.8	40.3	2.65	-			
	9/14/2011	24.97	4.90	29.4	57.5	3.14	-			
	4/18/2012	24.87	23.1	98.9	-	-	-			
	9/24/2012	23.61	Not sampled. N	No product obser	ved.					
	9/17/2013	24.66	Not sampled. N	No product obser	ved.					
	8/18/2015	26.51	Not sampled. N	No product obser	ved.					
	9/20/2016	25.60	Not sampled. N	No product obser	ved.					
B6MW	4/11/2006	27.22	ND	ND	-	-	-			
	4/12/2006	28.22	ND	ND	-	-	-			
		Sampling suspend	ed due to consist	tently low or ND	o results					
		Assumed destroye	d by road impro	vement project c	conducted in 201	3.				
B8MW	4/30/2007	19.83	ND	ND	ND	ND	-			
	4/28/2008	19.43	ND	0.00762	ND	ND	-			
	9/16/2008	19.28	ND	ND	ND	ND	-			
	5/11/2009	20.34	ND	0.000818 J	ND	ND	-			
	9/28/2008	Well not sampled	due to site acces	s limitation						
	2010	Well not sampled	due to site acces	s limitation						
	7/22/2011	20.71	1.51	16.79	32.9	0.420 J	ND			
	9/14/2011	19.53	ND	0.000903	ND	ND	-			
	4/17/2012	19.38	ND	0.000510 J	0.0546 J	ND	-			
		Well decommission	oned on May 3, 2	2012						
B13MW	6/2/2008	24.30	ND	ND	-	-	10.2			
	9/16/2008	24.00	ND	ND	-	-	8.64			
	5/11/2009	25.12	ND	0.00138 J	-	-	7.79			
	9/28/2009	25.38	ND	ND	-	-	1.97			
	4/27/2010	25.00	0.00104	0.0379	-	-	2.90			
	9/2/2010	24.21	ND	ND	-	-	2.47			
	5/5/2011	24.48	ND	ND	-	-	0.623			
	9/14/2011	24.44	ND	0.00543	-	-	6.25			
	4/18/2012	24.33	ND	ND	-	-	2.76			
	9/26/2012	23.27	-	-	-	-	0.987			
	9/18/2013	24.30	-	-	-	-	4.31			
		Assumed destroye	d during Tesoro	construction in 2	2013/2014.					

_			Target Analyte Concentrations* (mg/L)							
		Groundwater								
	Sample Date	Depth [^] (ft)	Benzene	Total BTEX	GRO	DRO	RRO			
B4P†	12/18/2007	20.18	8.98	114.3	174	6.43	-			
	4/29/2008	20.46	4.49	69.9	120	1.72	-			
	9/16/2008	20.25	2.12	28.2	47.1	0.961	-			
	5/11/2009	21.29	9.93	96.0	170	3.15	-			
	9/28/2009	Well not sampled	due to site acces	s limitation						
	2010	Well not sampled	due to site acces	s limitation						
	7/22/2011	21.72	8.18	99.41	193	2.20	ND			
	9/14/2011	20.55	8.17	126	180	6.32	-			
	4/17/2012	20.43	Not sampled. N	No product obser	ved.					
		Well decommissio	ned on May 3, 2	2012						
Former	12/12/2008	-	ND	ND	ND	ND	ND			
Park n'	12/22/2009	-	ND	ND	ND	ND	ND			
Sell Water	9/23/2011	-	ND	ND	ND	ND	1.38			
Well	12/15/2011	-	ND**	ND**	ND**	ND**	ND**			
	9/28/2012	-	ND	ND	ND	ND	ND			
	9/19/2013	-	ND	ND	ND	ND	ND			
	8/22/2014	-	ND	ND .	ND	ND	ND			
	8/20/2015	Well not sampled;	the parcel is cui	rrently unoccupie	ed.					
	9/20/2016	well assumed dest	royed by constr	uction activities.						
	<u>KEY</u>	DESCRIPTION	<u>N</u> Community (1)	4 4		1				
	* *	See Appendix E	for compounds	tested, methods,	and laboratory i	eporting limits				
		Massurament no	t reported for sail	t applicable	nd after sinca-ge	er intering				
	-	Dopth of static g	roundwatar lava	l balow the mass	uring point or to	on of casing				
	***	Potential error d	uring recording	measurement in	the field	op of casing				
	ND	Not detected								
	NS	Not sampled								
	8.98	Analyte concent	ration exceeds c	urrent cleanup ci	iterion (0.0046)	ppm benzene. 2.	2 ppm GRO.			
	0000	1.5 ppm DRO, a	nd 1.1 ppm RRC	$\frac{1}{2}$	5.345 (October 2	2018)	- ppin orro,			
	J	Estimated conce	entration detecte	d below the repo	orting limit	/				
	~	Listed value base	ed on highest co	ncentrations in d	uplicate set					
	#	Free product obs	erved		1					
	Е	Value is based of	n an estimated c	oncentration of t	coluene above the	e calibration ran	ge			
	mg/L	milligrams per li	ter				6			
	ft	feet								
	†	Well B8MW and	l Piezometer B4	P were both sam	pled in the 2008	and 2009 groun	ndwater			
		monitoring even	ts. Based on his	torical data for V	Vell B8MW. it v	was speculated the	hat samples			
		were inadvertent	ly collected fror	n Piezometer B4	P in 2004 and 2	007 but incorrec	tly attributed to			
		Well B8MW T	hese results are	now listed under	Piezometer R4I)				
	В	Analyte concentr	ation potentially	affected by met	hod blank contai	mination				
	Ц	See the ADEC La	aboratory Data F	Review Checklist	t for details.					
			<u> </u>							



<u>LEGEND</u>

- MW-32	Approximate location of Monitoring Well MW-32
ф- мw-12	Approximate location of former Monitoring Well MW-12 (well was decommissioned, destroyed, or could not be located during the most recent sampling event)
\bigotimes	Approximate Location of Former Drinking Water Well
ND	Not Detected
NS	Not Sampled
GRO	Gasoline Range Organics (mg/L)
DRO	Diesel Range Organics (mg/L)
RRO	Residual Range Organics (mg/L)
в	Benzene (mg/L)
т	Toluene (mg/L)
Е	Ethylbenzene (mg/L)
Х	Total Xylenes (mg/L)

* The higher analytical results of a duplicate sample set.

Notes:

Existing and select former wells are presented on this figure. Samples were collected on July 28, 2020. Flagged analytical results, including J and J+ are defined on Table 5.



APPENDIX A

SITE PHOTOGRAPHS

101293-001



Photo 1: Looking southwest at the advancement of Boring B-45. (June 30, 2020)



Photo 2: Looking south during the installation of Monitoring Well MW-45. (June 30, 2020)





Photo 3: Looking southeast at the installation of Monitoring Well MW-46. (June 30, 2020)

6010 Old Seward Highway Anchorage, Alaska							
РНОТО 3							
September 2020 1012	293-001						
SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	A-2						
-							

APPENDIX B

BORING LOGS

AND WELL CONSTRUCTION DETAILS

MATERIAL DESCRIPTION	Depth, Ft.	Symbol	Samples	Ground Water Depth, Ft.	Penetration Resistance (340 lb. weight, 30" drop) ▲ Blows per foot			
 Zinches Asphalt Medium dense, brown, <i>Poorly Graded Sand</i> with Silt and Gravel (SP-SM); moist Loose, tan to orange-brown, Silty Sand (SM); moist Very stiff, tan to gray-brown, Sandy Silt with Gravel (ML) to Silty Sand with Gravel (SM); moist 	-3.5		S1 S2 S3					
 Hard, gray-brown, <i>Silt with Sand and Gravel</i> (<i>ML</i>); moist Dense, gray-brown, <i>Silty Sand with Gravel</i> (<i>SM</i>); moist Medium dense to very dense, gray-brown, <i>Poorly Graded Sand with Silt and Gravel</i> (<i>SP-SM</i>); moist Medium dense to dense, gray, <i>Silty Sand with Gravel</i> (<i>SM</i>); moist to wet 	• 17.0 • 19.5 • 22.0 • 27.0		S4 III S5 III S6 III S7 III S8 III S9 III S10 III	20 20 07/87/2 20 07/87/2 20 07/87/2 25 30				
Bottom of Boring Boring Completed 6/30/2020	-34.5			35				
* Sample not recovered ¥ Sample not recovered ¥ Ground Water Level At Time Of ¥ Static Water Level Solid Casing, Sand Pack Solid Casing and Annular Seal Slotted Section, Filter Sand Solid Casing, Cuttings Backfill					■ PID PID Reading (ppm) 6010 Old Seward Highway Anchorage, Alaska			
NOTES 1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual. 2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials. 3. Water level, if indicated above, is for the date specified and may vary. 4. USC letter symbol based on visual classification.					LOG OF BORING B-45 September 2020 101293-001 SHANNON & WILSON, INC. FIG. B-1			

ſ	MATERIAL DESCRIPTION	Depth, Ft.	Symbol	Samples	Ground Water Depth, Ft.	Penetration Resistance (340 lb. weight, 30" drop) ▲ Blows per foot
	2 inches Asphalt /	0.2	2.141			
	Loose to medium dense, dark brown, Poorly Graded Sand with Silt and Gravel (SP-SM); moist			S1	AND AN	
	Medium stiff to very stiff, brown to gray, Silt	-6.8		s2	MCMCMCM	╸ ╸ ┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍
	<i>with Sand (ML)</i> ; moist			s3		┍╺╘╺╘╺╘╺╘╺╘╺╘╺╘╺╘╺╘╺╘ ┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍┍
					15	
				⁵⁴		
				s6 <u></u>	20	┍╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴ ╺╴╴ ╺╴╴╴╴╴╴╴╴╴╴╴╴╴╴
	Medium dense to dense, dark gray, <i>Poorly</i>	-25.8	0	s7 III	¹¹¹¹¹¹¹¹¹¹ 25	
	Bottom of Boring	-29.5		s8 III	30	
	Boring Completed 6/30/2020					
					35	
/5/20						
3DT 1(1		1	I	I I
J S&W_GEO1.G	* Sample not recovered ♀ Ground \	Water ater Le sing, S	Leve evel Sand	el At Time Of Pack	Drilling	■ PID PID Reading (ppm)
TEMPLATE7.GF	Solid Casing and Annular Seal Solid Casing, Filter Sand Solid Casing, Cuttings Backfill NOTES 1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual. 2. The discussion in the text of this report is necessary for a proper understanding of the active of automatic as materials					6010 Old Seward Highway Anchorage, Alaska
TAL LOG GINT						LOG OF BORING B-46
NMEN ⁻	3. Water level, if indicated above, is for the date specified a	and ma	y var	у.	Septen	nber 2020 101293-001
ENVIRO	4. USC letter symbol based on visual classification.					HANNON & WILSON, INC. otechnical and Environmental Consultants FIG. B-2

REV 3 - Approved for Submittal

MATERIAL DESCRIPTION	Depth, Ft.	Symbol	Samples	Ground Water Depth, Ft.	Penetration Resistance (340 lb. weight, 30" drop) ▲ Blows per foot 0. 25 50 75 100
3 inches Asphalt Loose to medium dense, brown, <i>Poorly</i> <i>Graded Sand with Silt (SP-SM)</i> ; moist Medium stiff, light brown, <i>Gravelly Silt (ML)</i> :	-0.3 -5.8		S1	MUNUNUNUN	
Medium dense to very dense, tan, <i>Interbedded</i> Poorly Graded Sand with Gravel (SP) and Silt with Gravel (ML); moist	-8.5		S3 54 TT		
Medium dense to very dense, brown, <i>Poorly</i> <i>Graded Gravel with Silt and Sand (GP-GM) to</i> <i>Poorly Graded Sand with Silt and Gravel</i> <i>(SP-SM)</i> ; moist to wet Bottom of Boring Boring Completed 7/1/2020	- 16.5			20 20 20 20 20 20 20 20 20 20	
LEGEND * Sample not recovered ♀ Ground W III 3" O.D. Split Spoon Sample ♀ Static Wa Solid Cas Solid Cas EIII Slotted Se BIEN Solid Cas	Image: ND 0 10 20 30 Image: Constraint of Distribution of Distrebutication of Di				
 <u>NOTES</u> 1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual. 2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials. 3. Water level, if indicated above, is for the date specified and may vary. 4. USC letter symbol based on visual classification. 			Septem	LOG OF BORING B-47 nber 2020 101293-001 HANNON & WILSON, INC. FIG. B-3	

ENVIRONMENTAL LOG GINT TEMPLATE7.GPJ S&W_GEO1.GDT 10/5/20














APPENDIX C

FIELD NOTES

	FIELD LOG OF BORING
SON ENVILSON, INC.	FIELD LOU
BEDTECHNICAL AND ENVIRONMENTAL CONSULTANTS	JOB NO: 101293 BURINO
STUL COMPANY/DRILLER: DISCO / DAVIE + 40	JOB NAME: WES SOZI
DRILL RIGEQUIPMENT: CME 75	LOGGED BY: SKD
DRILLING METHOD: USA	LOCATION:
HAMMER TYPE: Avto ROD TYPE DROP	START DATE: 0/30 END DATE
HAMMER WEIGHT: 340 HAMMER DIG SIZE:	WEATHER DURING DRILLING: Nor 304
CASING SIZE/TYPE: 4.1510 HOLE GILLS	
TIME SAMP. NO. FROM DRIVING L. REG. DRILL CONTACTS	S / PID CONST. [Density/consistency, color, Group Name (USCS); moisture; constituent properties
TIME O'UNTE E RESISTANCE ENV. ACTION GROUNDWA	TER 70 (particle size, picture, maist
DATE THE D	GHO bra JOI POLOJ
9:17 1 0.5 12	05 \$ 50
355 2.5 5	6 tanto orcorn, silty sd, moist
0.01 7 5 42,0 20	0 \$ 70
Y.L. L J YY Y V	F 30 Productor in OISK
332 1 6200	30 try suity sq FJS+ and
9129 3 10 \$ 40 40	0 30
355 12 1315 Y	GIE achon Sandy SILF W/ST, moist
A34 4 15 5 (21) 2.0	
200 V 5 8 13 V	F 56
552 (0:0)	015 gran silt w/ soldge moist
9:57 5 17.5 (99 1.5	0 \$ 15 0.
355 19 34 Y	F 70
10:05 6 20 14 (32) 15	25 Gibon Silty Startine
200 215 72 Y	
>>> 2 1 2 LL 1	@ 20 ar bon PG sol w/ silter
10:14 7 42.5 27 27 1.7	0 s moist
355 24 36 Y	F 5
SUMMARY FIELD LOG OF BORING	COMMENTS (i.e. materials used, visitors, problems, etc.):
FROM TO CLASSIF. GENERALIZED SOIL DESCRIPTION FOR DR	AFTED GINT LOG
0.0.2 Z" csphalt	
R	GROUNDWATER DATA
	WATER DEPTH TIME DATE
	77.5 10:31 6/36
	SUMMARY OF TIME AND FOOTAGE
	FOOTAGE SAMPLES Attempted
	DRILLED: Recovered
	DRILL/SAMPLE T: 14 hrs. STANDBY: hrs.
2	SETUP/CLEANUP: hrs. WELL INSTALL: hrs.
	• UTHER.
P 15 200	BORING: MW45 SHEET OF 2

DDUU	00404			10	1	1.0				101292 MALUS		
			ER: 1/1500	15	MLI V		-	JOB NO: 101215 BORING NO: 11075				
DRILLING METHOD: HSA								1		EDBY SED		
HAMMER TYPE: Ave ROD TYPE/DIA.: HAMMER WEIGHT: 340 HAMMER DROP: CASING SIZE/TYPE: 415 10 HOLE SIZE:									OGGE			
								6	TADT			
						17E-	-	IA	EATH			
OAOII			1.02 -		HOLL 5	SAM		DA	TA			
TIME DATE	SAMP. NO.	FROM	DRIVING RESISTANCE BLOWS / 6 INCH	L. REC. Env. Sample	DRILL ACTION	CONTACTS / GROUNDWATER	PID	c	ONST. %	FIELD IDENTIFICATION [Density/consistency, color, Group Name (USCS); moisture; constituent propert (particle size, plasticity, etc.); organics; structure; other, unit name]		
10:24	8	25	11 (22)	1.5			0	G S	30	gr brn PG sd -/ sill dSr moist		
	355			Y		27	_	F	5			
0:31	9	27.5	411 22	1.5 V		27,5	D	S S	35	St silly st w/st moist to		
0.47	10	20	8 (27)	15		-	-	G	35	RT silly solul or moist to wet		
0	10	10	13	1.2				s		- water stringers -		
			24	N				F	20	sendy zones one most		
							6					
							F					
					.*		G					
		10			·			S				
-					. 1			F				
•								S				
								F		· · · · · · · · · · · · · · · · · · ·		
								G				
								S				
-								F				
DEP	тн	USCS	UMMARY FIEL	DLOG	OF BOR	ING		_		COMMENTS (i.e. materials used, visitors, problems, etc.):		
ROM	TO	CLASSIF.	GENERAL	IZED SOIL	DESCRIPTI	ON FOR DRAFTED G	SINT LO	DG				
						10.019.949- 10.0999- 1.						
						ANT - APACA.						
-					to to the second second					GROUNDWATER DATA		
										WATER DEPTH TIME DATE		
						-						
										SUMMARY OF TIME AND FOOTAGE		
										FOOTAGE SAMPLES: Attempt		
										DRILLED: Recove		
								_		DRILL/SAMPLE hrs. STANDBY: hr		
										SETUP/GLEANUP: hrs. WELL INSTALL: hr		

*

	I SF	ECHNICAL	AND ENVIRONM	LSU	ONSULTA	NTS				FIELD LOG OF BORING		
DRILL	COMPA		FR. Dist.	21/2	Durie	1:10		.10	OB NO	10: 10/293 BORING NO: MW46		
DRILL	RIG EOI	JIPMENT	CME75	Ney	Lanie	1:20	-	J	OB NA	IAME: 10/25 5021		
DRILL	ING MET	HOD:	HSA				-	L	OGGE	ED BY: ZJT + SKD		
HAMM		E: A.J	2	ROE) TYPE/D	DIA: 25/2	-	LOCATION: FI FV :				
НАММ		GHT	340#	HAM	MER DR	OP.	-	S	TART	T DATE 6/30 END DATE		
CASI	ING SIZE/TYPE: 4.25 #D HOLE SIZE: ~7.5"							W	/EATH	HER DURING DRILLING: 65° Surner light brace		
						SAM	PLED	DA	TA	<u> </u>		
TIME	SAMP. NO.	I FROM	DRIVING	L. REC.	DDU	CONTACTO			ONOT	FIELD IDENTIFICATION		
DATE	TYPE	то	RESISTANCE BLOWS / 6 INCH	Env. Sample (Y/N)	ACTION	GROUNDWATER	PID		%	[Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other; unit name]		
14:17	1	0.5	3-(10)	1.2				G	20	Durk brown, etg Moist		
1-30	355	25	-354				1.2	S L	70			
	000	2.0	2 00	40			<u>r</u> [G	20	Durk brown, Most. 1.8 St of StG		
14:25	1	5	43 (1)	C.		6.8	0.7	S	70	charges to silt fines		
6.30	355	7	3		~~~~		ppm	F	10			
14:31	3	10	1, 7	1.5				G	5	Brown/tan moist clay?? or LP silt		
1.20	000	17	344	11.0			0.7 00m	S	25			
6.00	355	14					n	FG	10	There Brown haist days or I Pault		
14:36	4	15	1,0	1.6		1.4	s	5	2" Sand lens			
6.30	355	16.5	- 4				ppm	F	80	nin		
-	5	17.5	missed	15		1.1	0.8	G	Ð	Gros bloist		
	205	11/2		10-			0A	S	15			
	355						ni	F	35			
1443	6	20	480	1.5			0.9	S	0	Gray Moist LESUE a Ciky		
6.30	355	21.5	7				ppm	F	85			
	7	201	INAUSCA	-				G	00			
-		LLiD	Musical					s				
								F				
DE	РТН	USCS	SUMMARY FIEL	DLOG	OF BOR	ING		_		COMMENTS (i.e. materials used, visitors, problems, etc.):		
FROM	TO	CLASSIF.	GENERAL	IZED SOIL	DESCRIPTI	ON FOR DRAFTED	GINT LC	G				
0.0	0.2		Asphalt S	wheel	appro	x. 2"			·····			
						11 11 11 11 11 11 11 11 11 11 11 11 11			-	·····		
										GROUNDWATER DATA		
	× 1					· · · ·				WATER DEPTH TIME DATE		
				4		1. 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.				- Lo.L 3:00 . \$4/30		
1	1									POOTAGE Attempted DRILLED: Recovered		
										DRILL/SAMPLE hrs. STANDBY: hrs.		
		•								SETUP/CLEANUP:hrs. WELL INSTALL:hrs.		
						and the start start and	ŋ			OTHER:		
										BORING MW46 SHEET L OF 7		
	ield Log a	f Daring I	Indated Nov 2015							BORING. THE OF L		

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GEOTECHNICAL AND ENVIRO	VILSON, INC.	FIELD LOG OF BORING					
DRILL COMPANY/DRILLER: DIS DRILL RIG EQUIPMENT: CMC DRILLING METHOD: H5A HAMMER TYPE: AVI-0 HAMMER WEIGHT: 340 CASING SIZE/TYPE: 4,25	ROD TYPE/DIA.: HAMMER DROP: 1D HOLE SIZE:	JOB NO: 101293 BORING NO: MW46 JOB NAME: WES 5021 LOGGED BY: ZST JSKD LOCATION: ELEV.: START DATE: 6130 END DATE: WEATHER DURING DRILLING:					
	SAMP	PLE DATA					
TIME SAMP. NO. FROM DRIVING DATE TYPE TO RESISTANC BLOWS / 6 IN	E Env. DRILL CONTACTS / CH Sample (Y/N)	PID % FIELD IDENTIFICATION % [Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other; unit name]					
14:59 8 25 13 26 4 6.30 355 26.5 17	€ <u>1.5</u> 25.8	1.2 \$ 30 Gray brown clay Moist 1PM F 10 Sand + Gravel enange, dark avery, west					
15:07 9 27.5 Pg (9) 4:30 355 29 10	1.0	G 60 Dark grey wet mostly sand + Gravel 5 35 F 5					
		G S F					
		G					
•		G S F					
		G S F					
		G					
SUMMARY F DEPTH USCS FROM TO - -	IELD LOG OF BORING RALIZED SOIL DESCRIPTION FOR DRAFTED G	COMMENTS (i.e. materials used, visitors, problems, etc.):					
	······································	GROUNDWATER DATA					
		WATER DEPTH TIME DATE					
		SUMMARY OF TIME AND FOOTAGE FOOTAGE SAMPLES: Attempted DRILLED: Recovered					
		DRILL/SAMPLE hrs. STANDBY: hrs. SETUP/CLEANUP: hrs. WELL INSTALL: hrs. OTHER:					
		BORING: MW46 SHEET 2 OF 2					

		SF GEOT	ECHNICAL	AND ENVIRONM	LSO	N, IN	C.			FIELD LOG OF B	SORING
	DRILL		NY/DRILL	ER: Disua	1 Dani	1 +1	0	T	JOB	D: 101293 BORING NO:	MW47
	DRILL	RIGEQ		CME -	75				JOB	ME: WES 5021	
	DRILL	ING MET	HOD:	HSA					LOG	DBY: SKD	
	HAMM	MER TYPI	E: 2	340 Auto	ROE	TYPE/D	IA.:		LOC	ION: ELE	EV.:
	HAMM	MER WEI	GHT:	340	HAM	MER DR	OP:		STA	DATE: 7/1 END DATE:	
	CASI	NG SIZE/	TYPE:	4.25	D	HOLE SI	ZE:		WE	ER DURING DRILLING: hat dsmy	
							SAMF	PLE	DATA		
	TIME	SAMP. NO. TYPE	HLAND TO	DRIVING RESISTANCE BLOWS / 6 INCH	L. REC. Env. Sample	DRILL ACTION	CONTACTS / GROUNDWATER	PID	CON %	FIELD IDENTIFICATION [Density/consistency, color, Group Name (USCS); moisture, (particle size, plasticity, etc.); organics; structure; of	; constituent properties ther; unit name]
	8:31	1	0.5	5 10 (20)	2.0			0	GI	brown PG so w/silt, no	Dist
		355	2.5	10 10	Y			01	FEI		
	4:39	2.	5	74 3	18		5.8 .		GZ	AA +05.8	L.LT.
		355	7	140	V			0.(S l	light bron, LP silt -/st	maist
	N'Co	10)	1		i.d		. 8		F ((the introduct POS	+ siltular
	× 40	3	10	4 4 (4)	1.0			0.4	S	moist	V ant my
		355	12	· 10 g	.1			1	FS	and so hest silf	ka
X	9:01	4	15	31 81/101	1.5			10	G	At but long or w/ sok	halst
1		355 15,8 >04" Y		5		1.1	F	0 0			
	9:16	5	17.5	13 (37)	12				GL	on PG sd of silt der.	, noist
	(355	19	17 0	Y			14	S F	V	
	9.74	10	20	10 (55)	15				GU	appin, Pla gr u/silt tsl	maist
	101	355	215	20	Y		771	0.9	S		
	9:36	7	17 5	9 63	15		1222.5		G 5	Arbun PG Sr wsiltt	sd wet
		255	74	13 66	y bt	probebly	4	0.9	S		
		512	S	UMMARY FIEL	DLOG	OF BORI	NG		P 6	COMMENTS (i.e. materials used, visitors, pro	oblems, etc.);
	DE	PTH	USCS	GENERAL	IZED SOIL	DESCRIPTIO	ON FOR DRAFTED G	GINT L	.OG		
	O	0.25	OLAGON .	3ª such	olt			-			
	-	-	ц Ц								
		Au 		the second se	-		-			•	
				1							DATE
										22.5 9:36	7/1
									·	SUMMARY OF TIME AND FOOT	TAGE
							-			FOOTAGE SAMPLES: DRILLED:	Attempted Recovered
						2 1. 199 Barrier				DRILL/SAMPLE 7-27_hrs. STANDBY	r: hrs.
										SETUP/CLEANUP:hrs. WELL INSTA	LL: hrs.
					-	1				OTHER:	
					1.16.64					BORING: MW47 SHEET)	OF
		iold Log a	f Boring II	ndeted New 2015	1		alme				

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tere.

	GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS										FIELD LOG OF BORING				
	DRILL DRILL DRILL HAMM HAMM CASIN	. Compa . Rig Eqi .ing Met Mer Typ Mer Wei Ng Size/	NY/DRILL THOD: E: GHT: TYPE:	ER: Disco ME7 HSA WA 340 # 4.2510	/ Dan 5 HAM	D TYPE/E MER DR HOLE S	DIA.: DIA: IZE:		JC LC S W	DB NC DB NA DGGE DCATI FART	E 101293 BORING NO: MW 45 ME: WES 5021 D BY: SKD ON:				
	TIME	IME SAMP. NO. FROM SPURING L. REC.									E DATA				
	DATE	TYPE	TO TO	DRIVING RESISTANCE BLOWS / 6 INCH	Env. Sample (Y/N)	DRILL	CONTACTS / GROUNDWATER	PID	, C	ONST. %	FIELD IDENTIFICATION [Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other, unit name]				
	11:50	l	0,5	2,6)	2.0		10	0.	G	15	bin silfyst moist				
	7/1	355	2.5	244	Y			Uit	F	570	light bra silt of addgr moist				
	11:56	2	5	5750	0,3		I worldn't this 1.5	G	30	lightbrn sdy silt moist					
	12:07	3	10	4 6 (1)	20			10	FG	15	light bin IP site w/ sater				
		355	12	6.8	Y			VIC	F	15					
	12:17	ч	15	470	15		season IGW?	0.3	G S	60	gry dilatert silly sd, moist				
		355	16.5		N			L-	F	40	mere dilabort fine sol to sittle sol				
*	12:30	5	17.5	10 14 (31)	1.5 V		-	0,2	s	70	Moist to wet				
	12:39	6	20	10 (47)	1.5		21.0	0	G	13	arey dilatent fines d to stilling ad moist formet				
		355	21.5	27	N		a)		F	125	grey sitty of W/sd moist				
	12:52	7	22.5	8 18 25	1.5		0.7		G		grey Plage while with				
-		SSC		17	N				F	al-19949180-201914					
	DEI	РТН	USCS	GENERAL	IZED SOIL	OF BOR	ING	GINT L	OG		COMMENTS (i.e. materials used, visitors, problems, etc.):				
	FROM	то	CLASSIF.												
			4	0 -											
											GROUNDWATER DATA				
											WATER DEPTH TIME DATE				
						······································			-	4.1189 / 197 / American American					
		m.1977-1979-197-197-197-197-197-197-197-19						=			SUMMARY OF TIME AND FOOTAGE SAMPLES: Attempted				
						-					DRILLED: Recovered				
							an and a fact of the second				DRILL/SAMPLE W:40 hrs. STANDBY: hrs. SETUP/CLEANUP: hrs. WELL INSTALL; hrs.				
					00						OTHER:				
											BORING: MW48 SHEET CF				

Field	Log	of	Boring	Updated	Nov	20
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		CONMICAL	AND ENVIRONS	AENTAL (ONSULTA	NIS	T					
DRILL	COMPA	NY/DRILL	ER: Diso	1 Dan	id +L	0		JOB NO: 101293 BORING NO: MW49				
DRILL	RIG EQ	UIPMENT	CMET	15			-	JOB N/	AME: WES 5021			
DRILL	ING MET		HSA		•		LOGGE	ED BY: SKD				
HAMN	AMMER TYPE: AVA ROD TYPE/DIA.:								ION: ELEV.:			
HAMN	IER WEI	GHT:	340#	HAM	IMER DR	OP:		START	DATE: 7/1 END DATE:			
CASIN	IG SIZE/	TYPE:	4.25 1	0	HOLE S	IZE:		WEAT	HER DURING DRILLING: Wot J Sunny			
			and the second s			SAM	PLEI	DATA				
TIME	SAMP. NO.	I FROM	DRIVING	L. REC.	DDILL	CONTACTO		CONET	FIELD IDENTIFICATION			
DATE	TYPE	TO DEPT	RESISTANCE BLOWS / 6 INCH	Env. Sample (Y/N)	ACTION	GROUNDWATER	PID	% %	[Density/consistency, color, Group Name (USCS); moisture; constituent properties (particle size, plasticity, etc.); organics; structure; other, unit name]			
3:29		0.8	\$ 25	1.5				G S IAD	brn, silty su			
	355	Z.3	3		-		0	F 40	- · · · · · · · · · · · · · · · · · · ·			
3:35	2	5	2. 6	15				G	· O.SAA W/sr			
1.47	355	65	43	10		•	1.0	S	grom pasd w/silt monst			
3:42	3	10	2.0	1.8		•	•	G 25	light brin sitt w/ sol tog maist			
	355	11.5	2.4.				0	s 15 F	0			
3:98	Ц	15	2 2 (8)	1.8				G 20	gray Usilt upshofer moist			
	355	16.5	5				0	F	2			
3:55	5	17.5	220	1.8			0	G S 5-12	grey day! moist			
0	355	19	T				-	F	A. A. 21			
4:02	6	20	340	1.8	,	- #3 *	0	s 30	ATA to FI			
	0>>	21.5	6		present	1 97,215	-	F 15	and pitty solution of the states and solution of the states of the state			
4:09	100	14	2620	<u>C'</u>			*	S	S staffilt dgr lutte			
	7))	27	14.		0.5.0.0.0		an the	F 50 1				
DEF	тн	USCS CLASSIF.	GENERAL	IZED SOIL	DESCRIPTI	ON FOR DRAFTED G	SINT LO	DG	Well installed			
						•	ج	5- 10 5- 10				
					1000			Sta	GROUNDWATER DATA			
							· · · ·	15	21.5: 4:05. 7/1			
1												
								A	FOOTAGE SAMPLES: Attempted			
									DRILLED:RecoveredRECOVERED			
							• ,		SETUP/CLEANUP:hrs. WELL INSTALL:hrs.			
									¹ OTHER:			

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Intelection	1	17
and the second second	U 18	
	6 B.	
	100	-

MONITORING WELL CONSTRUCTION DETAILS

eather: Mice, an	athe bruze	
ell No.: MW	45	
ate: 6/30/20	Time Started:	11:22 Time Completed: (-30
	1	WELL DATA:
		Pine Type: Schadula HO PVG
		Diameter: 2"
		Total Depth (ft bgs): 34.5
		Well Screen Interval (feet): 23-6-33-6' 24-34
		Top of Well Screen (ft bgs): <u>-23,6</u> 24,0'
	- 5/20	Slot size: O_0
		Casing Connection: <u>+hreaded</u>
phate KE	- off	Casing stickup: N/A
RIG LOCATI	conformation plass	
Judia		PACKING MATERIAL:
alea		Depth below ground surface.
attings		From To
0	- (*)	Soil Cuttings
	Solid riser	Sand (20-40):
721 Sgal H20		Bentonite chips: 16.7 22 Sand (2000): 34 27
bentonite		10-20
3 bass		MONUMENT:
22		Flush Mount 🖌 Post 🗆
	24.0	Monument height: N/A
		Monument Diameter: 6^{11} N/A
and		LOCK
Saures	10' CARPANA	NIA NIA
6 hass	to soreevi	Combination:
		Length cutoff last section:
		Remarke'
K K	0,5' Cup 3302	-39.0'
. V	- 389	34.5
		Time between installation/development:
		Engineer or Geologist: <u>JKD</u>

antenant in	
Contractor I	ÿ.

MONITORING WELL CONSTRUCTION DETAILS

eather: Partly Clou	ndy, Slight breeze 65°	
ell No.: MW4	6	
ate: 6/30/20	Time Started: 5	15 Time Completed: 4:45 pm
		ф.,
	r	WFLI DATA.
		WELL DATA.
		Pipe Type: Schedule 40 pvc
		Total Depth (ft has): 29.5
		Well Screen Interval (feet): 19 3- 29.3
		Top of Well Screep (ft hgs): 19.3
		Slot size: (.)
		Casing Connection: threaded
		Depth below surface: 0.5 N/A
asprint	0.	5 Casing stickup: N/A
pengravel		
		PACKING MATERIAL:
		Depth below ground surface:
1 thenes		From To
wamp		Seil Catheren III. 20
	Solid Riser	Soli Cuttings: <u>77.0</u> Sand (20-40):
650/ 420		Bentonite chips: 16.6 11.6
- daman -		Sand (201470): 29.5 _16.6
2.5 bass		
Bentonife		MONUMENT:
		Flush Mount A Post D
1	192	Monument Diameter: (O'') N/A \Box
	11.5	× ***
Sand		LOCK:
7645	10' Screen	Type: NIA
0		Combination:
		Length cutoff last section:
		Remarks:
	29.3	
L.L	JU.L Cap 39-	
-	-1.5	· · · · · · · · · · · · · · · · · · ·
		Time between installation/development:
		Engineer or Geologist:



asphalt

0.2

1 .

Shannon & Wilson, Inc.

MONITORING WELL CONSTRUCTION DETAILS

Job No:	101293	Project:	IES	502-			
Weather:	sunny, light	breeze					
Well No .:	_MW47						
Date:	7/1/2020	Time Started:	9:5	50	Time Completed:	11:30	

WELL DATA:

Pipe Type: schedule 40 PUL	
Diameter: 2"	
Total Depth (ft bgs): 26.9'	
Well Screen Interval (feet): 2-6:	7-16,7'
Top of Well Screen (ft bgs):	.7'
Slot size: 0.)"	
Casing Connection: threaded	
Depth below surface: 0.5'	N/A 🗆
Casing stickup:	N/A

PACKING MATERIAL:

(.)		
9.4' - Sgal Hzo betanik 25hus	solid riser	Soil Cuttin Sand (20-4 Bentonite of Sand (20-4) 0 - 7 <u>MONUM</u>
14.6	盘16.7	Flush Mour Monument Monument
5 hags	slotted pvC	LOCK: Type: Combination Length cuto
l	26.7' D.Z.cap 26.9'	Remarks:

expandable plug 0.5

	Depth below g	ground surface:
	From	To
Soil Cuttings:	9.4	1.5
Sand (20-40): Bentonite chips:	14.6	9.4
Sand (20-40) :	26.9	14.6

MENT:

Flush Mount	Post 🗆		,
Monument height:		N/A	ſ
Monument Diameter:	6"	N/A 🗆	Į

Type: WIA		
Combination:		
Length cutoff last section:	3.3'	
Remarks.		

Time between installation/development: SKD Engineer or Geologist:

Page ___ of ____



MONITORING WELL CONSTRUCTION DETAILS

Job No:	101793	Project /	JE5501			
Weather	hot senny		<u>v = 0, 1 = 0</u>			
Well No.:	MW46					
Date:	7/1/2020	Time Started	: 1:25	Time Completed:	2:30	

WELL DATA:

Pipe Type: _ schedule 40 1	puc
Diameter: 2"	
Total Depth (ft bgs): 26.	5'
Well Screen Interval (feet): 16	-26'
Top of Well Screen (ft bgs):	.0
Slot size: 0, ["	
Casing Connection: _ Hrade.	1
Depth below surface: 0.6'	N/A 🗆
Casing stickup:	N/A



Depth below	ground surface
From	To
2.3	9.4
8.4	13.6
13.6	26,5
	Depth below From 2.3 3.4 13.6

Flush Mount	Post 🛛	
Monument height:		N/A X
Monument Diameter:	(0"	N/A 🗆

LOCK:

LOCK.	/ 1	
Type:	NA	
Combinatio	on:	
Length cuto	off last section	1:

Remarks:

Time between installation/development:

SKD

Engineer or Geologist:

Page ____ of ____



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-		
Selfan and	6-	5

MONITORING WELL CONSTRUCTION DETAILS

Shannon a	& Wilson, Inc.							2
Job No:	101293	Project:	WES	5021	-			
Weather:	too hot	•			*		· · ·	2011 1
Well No.:	MW 49	· · · · · ·					• • •	
Date:	7/1/2020	Time Star	ted:	1:25		Time Complete	ed: 6:10)



WELL DATA:

Pipe Type: _schedul	c 40	PV	C
Diameter: Z"	14		
Total Depth (ft bgs):	29	.0	
Well Screen Interval (f	eet):	28,	5-18.5
Top of Well Screen (ft	bgs):	19	1:5
Slot size:			
Casing Connection:	thre	aded	
Depth below surface:	0.3	3'	N/A 🗆
Casing stickup:			N/A

PACKING MATERIAL:

-	Depth below g	ground surface: <u>To</u>
Soil Cuttings:	12.1	1.8
Sand (20-40): Bentonite chips: Sand (20-40):	17.0	12.1
10-20		

MONUMENT:

Flush Mount	Post 🗆		
Monument height:		N/A	
Monument Diameter:		N/A	\Box

LOCK:

Type:	NIA	
Combina	ation:	
Length c	utoff last secti	ion.

Remarks:

Time between installation/development: _ Engineer or Geologist: ______KD____

5:15 switch to pull MW39 5:45 pulled all 30' I bay bortonite



WELL DEVELOPMENT LOG

Job No: 32-1-20040	Location: 6010 old S	Eward HWY Weather: _	60° Rain
Concern:	Well No.: MW-45		1
Develop Date: 7/17/20	Time Started: 0 9 55	Time Completed:	1215
	PURGING DATA		
Measuring Point (MP): Rop of PV	Casing Top of Steel Protective Casing	g / Other:	

Time of Depth Measurement:0 °	310	
Diameter of Casing: 1" □ 2"]	pi 🛛	
Total Depth of Well Below MP:	34.06	_
Depth-to-Water (DTW) Below MP:	26.Bl	_
Water Column in Well:	7.25	(Total Depth of Well Below MP - DTW Below MP)
Gallons per foot:	0.14	
Gallons in Well:	1.16	(Water Column in Well x Gallons per foot)
Three Well Volumes:	3.48	(Gallons in Well x 3)
Gallons Purged:	5.70	

DEVELOPMENT DATA

Odor:	None			Color:	Bown/ Gre	y - Silte	1	
DTW	Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)	
30.09 32.95 33,56	0930 0948 1050	1.5 3.5 4.0	10.2 89 11.5	<u>442</u> <u>364</u> <u>347</u>	5.9B 6.06 7.12	60 117 174	71000 71000 71000	
33.47 33.41 33.32	1037 1123 1123 1123 1123	4,5 4,75 m <u>X 5.05</u> 5.30	Purged 10.2 10.2 13.6 1207	Dry -= 4409 391 383 402	Awart R 5,68 6,96 7,21 6.72	echarge * 146154 -99 141 -151	0001< 0001< 0001 < 6001 5	(purged Dy) (purged Dry) purged dry)

	Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)]
	1	0915-0920 (5)	1.5	0925-0930 (5)	
	2	0935-0940 (5)	2.0	0943-0948 (5)	
	3	0450 - 0455 (5)	0.5	0958 -1000 (2)	(purged Dry)
	4	.1030-1035 (5)	0.5	1036 - 1037 (2)	(pirged Dr
	5	1055 - 1100 (5)	0,25	102-1103 CIV	(purged Dry)
	6	1129-1134 (5)	0.30	1136-1137 (1)	Burged My
Evacua	tion Method	Proactive Pump / Other: Win	, whale Duble Surge Block:	3'	

Remarks: Q 32.40 - 1030 (DTW), DTW - 32.61 @ 1055, DTW - 32.51 @ 1123

DRU -32.70 @ 1155

Sampling Personnel: AJR

Page $_$ of $^{\mathcal{V}}$



WELL DEVELOPMENT LOG

Job No:	32-1-2004	Location: 6010	oid servicerd	HWY Weather:	60°
Concern:		Well No.:	MW-45	£	
Date:	7/17/20	Time Started:	0855	Time Completed:	1215

DEVELOPMENT DATA CONTINUED

	Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	рН: (S.U.)	ORP: (mV)	Turb: (ntu)
	Surging	Surgino	TIME	GAL	Pura	in Time	
	7	1155	1128	0.25	1154	noo	
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				·			
		·					
Remarks:							-
Sampling Pe	rsonnel:		-	-			

Page of



Shannon & Wilson, Inc.

WELL DEVELOPMENT LOG

Job No: 32-1-20040	Location: 6010	old servind	HWY Weather:	63 "	cloudy
Concern:	Well No.:	V-46			
Develop Date: 7/17/20 Tir	ne Started: 1218		Time Completed:	1530	
	PURGIN	G DATA			
Measuring Point (MP): Top of PVC C	asing / Top of Steel Prot	ective Casing / O	ther:		
Time of Depth Measurement: 1220)				
Diameter of Casing: 1" □ 2" 🛱					
Tetal Dauth of Wall Dalary MD:	2011				

Total Depth of Well Below MP:	29.11	
Depth-to-Water (DTW) Below MP:	25.52	
Water Column in Well:	3,59	(Total Depth of Well Below MP - DTW Below MP)
Gallons per foot:	0.11/2	
Gallons in Well:	0,57	(Water Column in Well x Gallons per foot)
Three Well Volumes:	1.72	(Gallons in Well x 3)
Gallons Purged:	46	

DEVELOPMENT DATA

Odor:	POL 00	100		Color:	Com - "	Dilty		
DRO	Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	9 pH: (S.U.)	ORP: (mV)	Turb: (ntu)	
25.54	1239	3,0	10.6	924	6.71	-47	21000	
25.59	12.55	8.0	10.5	960	7.63	-109	724.7	
25.56	1311	14.5	11.0	964	7.83	-96	360.B	
25.54	1326	18.0	11.4	943	7.99	-72	682.3	
25.54	1342	22.0	11.2	985	7.02	- 87	542.5	
25.54	12400	25,75	12.8	932	7.68	-90	830.9	
25.54	1418	29,50	11.8	996	7.24	-8Z	670.8	
25.55	1434	33,50	10.5	962	7.01	-61	597.6	

	Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
	1	1227-1232 (5)	3.0	1234-1239 (5)
	2	1243-1248 (5)	5.0	1250-1255 (5)
	3	1258 - 1303 (5)	6,5	1306 - 1311(5)
	4	1313-1318 (5)	3.5	1321-1326 (5)
	5	1330 - 1335 (5)	4.0	1337 - 1342(5)
	6	1246 - 1251	3.75	1255 - 1400
Evacua	tion Method:	Proactive Pump / Other: Mly	whale Surge Block:	2'

Remarks:

Sampling Personnel: _____A



WELL DEVELOPMENT LOG

Job No:	32-1-20040	Location: _(6010 20	L seword	1 Hux	Weather:	63.0	clarky	
Concern:		Well No.:	Mw	1-410					
Date:	7/17/20	Time Started	1: 121	6		Time Completed	:	1530	

DEVELOPMENT DATA CONTINUED

DITLE	Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	рН: (S.U.)	ORP: (mV)	Turb: (ntu)
25.55	1451	38.00	10.0	939	7.44	- 85	474.1
25.54	1507	42.00	10.3	944	7.27	- 86	715.3
25.54	1520	46.00	10.6	952	7.36	-96	125.0
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D or 1•							
Kemarks:							

Sampling Personnel:



Concern:

Date:

WELL DEVELOPMENT LOG Adductional Surging/ Ringing Data Shannon & Wilson, Inc. Location: 6010 old Loward HW/Weather: 63° claudy Job No: 32-1-20040 Well No.: $\underline{MW-4b}$ Time Started: $\underline{1218}$ Time Completed: $\underline{1630}$ 7/17/20

	DEVELOPMENT DATA CONTINUED						
√ Time:	Gallons:	Temp:	Sp. Cond.: (m8/cm)	pH.	ORP: (mV)	Turb: (ntu)	
Suraina	Surging	Time	GAL	Purgin	9 Time		
7	1406 -	1411(5)	3,75	1413-	1418 1	-)	
B	1422 -	1427(5)	4.00	VE1429 -	1434	(ς)	
9	1439 -	14445)	4,50	1446 -	14511	5)	
10	14510 -	-15016	4.00	1502 -	1507	(5)	
11	1510 -	1513(5)	4.00	1515 -	1520	(\mathcal{S})	
				-			
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		· · · · · · · · · · · · · · · · · · ·					

Sampling Personnel:

Remarks:



WELL DEVELOPMENT LOG

Job No: 32-1-20040	Location: 6010	ord serviced Awy	Weather: 64°	cloudy
Concern:	Well No .: M	0-47		
Develop Date: 120 120	Time Started: 1045	Time C	completed: 1340	
	PURGING	G DATA		
Measuring Point (MP): Fop of PVC	Casing / Top of Steel Prote	ctive Casing / Other:		
Time of Depth Measurement: 105	0			
Diameter of Casing: 1" □ 2"	¢\$			
Total Depth of Well Below MP:	26.56			
Depth-to-Water (DTW) Below MP:	22-27			
Water Column in Well:	4.29	(Total Depth of V	Vell Below MP - DTW	Below MP)
Gallons per foot.	0.14			

Gallons per foot: Gallons in Well: Three Well Volumes: Gallons Purged:

DEVELOPMENT DATA

0.69

2.07 55.0 (Water Column in Well x Gallons per foot)

(Gallons in Well x 3)

Odor:	. We	ine		Color:	mm /b	nun- Sil	5
brio	Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)
22.51	1111	1.5	9.8	379	8,10	268	51000
22,39	1145	6.25	10.8	389	7.92	7100 D	2100D
22.36	1200	12.25	10.7	397	8,14	851	736.0
22-29	1234	21.25	10,8	396	7.40	H1210007:76	461.5
22.31	1250	34,25	9.6	400	0.35	823	642,5
22.35	1312	45.25	12.8	410	6.94	804	425.9
	1330	55,0	11.6	426	7.26	829	375.6

Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
1	1106 - 1105	1.5	(106-1111 G)
2	1135-1140	4.75	1140-1145 (5)
3	1149-1154	6.0	1155 - 1200 (57
4	12-23 1213-1220	9.0	1229-1234 (5)
5	1236-1239	13.0	1241 - 1250 (9)
6	258-1301	11.0	1307 - 1312 (10)
uation Metho	d: Proactive Pump 70ther: Main	Whall Surge Blo	ck: 31 1320-13

Remarks:

Sampling Personnel:

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

PDF

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WELL DEVELOPMENT LOG

Job No: Concern: _	32-1-	20040	Location Well No	$\frac{1}{1000} = \frac{1}{1000} = 1$) <u>seriend</u> 18	HWY. Weathe	er: <u>55°</u>	am
Develop Da	ale. <u></u>		με Statted Ρ	UPCINC D	II	me Completed	1. 100 L	
			<u>+</u> >			s.		
Measuring I	Point (MP): I	op of PVC Ca	asing / Top of	Steel Protective	Casing / Othe	er:		
Time of De	pth Measurem	$\frac{1}{2} = \frac{2}{2} = \frac{2}{2}$	2					
Diameter of	Casing: 1		or a					
Depth to W	oter (DTW) B	w IVIE	ALIN					
Water Colu	mn in Well.		a aí)	- (Total Denth	of Well Belo	w MP - DTW	Below MP)
Gallons per	foot:		0.1	(y				
Gallons in V	Vell:		0.7	84	- (Water Colu	mn in Well x (Gallons per foo	t)
Three Well	Volumes:		2,2	5	(Gallons in V	Vell x 3)	I	
Gallons Purg	ged:		V.	3		,		15
	-				•			
	6.4		DEVE	ELOPMENT	DATA	•	•	
Odor:	. No(rl .		Color:	Bung Si	ity .		
DIRO	Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)	
23.15	0443	0.75	9.6	558	8.53	451	>1000	
2550	0957	1.5	9.7	417	8.74	434	00015	Burged Drin
15 4b	1036	2.0	9,5	503	8.28	298	>1000	award Dry.
95,10	nto 1128	3.1	11.2	501	7.94	206	21000	pured Din
20,21	1215	4.3	10,3	528	7.83	406	21000	purged Dhy
23 31					r			

Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
1	0930-0935 (3)	c.75	6938-0943 (5)
2	0947-0952(5)	0.75	0953-0957 (4)
3	1028 - 1033 (5)	0.50	1033 -1036 (2)
4	1121 - 1126 (5)		1127- 1128 (5
5	1209 - 1212 (3)	1.2	1213-1215
6		•	

purged Dry purged D purper

Evacuation Method: Proactive Pump / Other: Min, Whale Surge Block: 2'

Remarks: 11- 24,51 @ 1025. Drw 21.10 @ 1120

Sampling Personnel:

ASR

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Page 🚺 of ___



WELL DEVELOPMENT LOG

Shannon & Wilson, Inc.	6010 0	id seward thuy.	
Job No: 32-1-20040	Location: MW=	49 Weather:	65° sinny
Concern:	Well No.: Mw-	49	
Develop Date: $\frac{7}{2^{0}}$	Sime Started: MCH355	1345 Time Completed:	AL 1405 1605
	PURGING D	ATA	
Measuring Point (MP): Top of PVC	Casing / Top of Steel Protective	Casing / Other:	
Time of Depth Measurement:135	6		
Diameter of Casing: 1" □ 2" Ø	P A A A A A A A A A A A A A A A A A A A		
Total Depth of Well Below MP:	27.22	_	
Depth-to-Water (DTW) Below MP:	21.14	_	
Water Column in Well:	6.08	(Total Depth of Well Below I	MP - DTW Below MP)
Gallons per foot:	the 0.97 0.16	_	
Gallons in Well:	0.97	(Water Column in Well x Gal	lons per foot)

(Gallons in Well x 3)

Gallons Purged:

Three Well Volumes:

DEVELOPMENT DATA

2.91

Odor:	· N01	N.		Color:	- Op	y/broi	wh ~	511-42	
4	Time:	Gallons:	Temp:	Sp. Cond.:	pH:	ORP :	Turb:	0	
DTO			(°C)	(mS/cm)	(S.U.)	(mV)	(ntu)		
24.87	1411	4.0	12.2	525	8.01	227	>1000		
26.59	1425	5:75	10-3	477	8.48	328	> 1002		
27.00	1442	7.75	11.6	469	8.40	401	21000	*purged Dry K	-
26.96	1500	10.0	8.9	456	8.3)	289	71000	& purget Digoe	
27.02	1519	12:30.5	10.5	466	8.44	316	21000	pirged Dry.	
26.94	1538	14.25	9.9	422	8.72	357	001<	Apurged Purgo	
27.93	1554	16,50	11.9	474	8,06	404		purfied Dig os	_

	Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
	1	1358 - 140 (3)	4.0	1401-1411 (10)
	2	1413-1416 (3)	AR 1275 \$.01.75	1420 - 1425 (5)
	3	1427- 1430 (3)	2.0	1432 - # 1442 (10)
· .	4	1452- 1455 (3)	2.25	1458-1500 (4)
	5	1509- 1512 (3)	2.0	1513- 1518 CS
	6	(529 - 1532 (3)	2,25	(533- 1538 (S)
Evacua	tion Method	: Proactive Pump / Other: _ Wini	What Surge Block:	3(550-(554 (5)) 4
Remark	s: Dtw	-23.45 @ 1450.	DTW 24.22 @ 150	8. DW 24.10 Q 1528;
DT	w @ -	24.00 @ 1545		5
Samplin	ng Personnel	: AUR		

Accession and some source install							
	LOW-FLOW W	ATER SAN	PLING	LOG			
Shannon & Wilson, Inc.			II LING	100			
101293	K Vloch	10 Spilled	Highz mr.		(13° r		
JOD NO. CE MAN	Location: $\frac{\varphi(0)}{\varphi(0)} = 0$	FLOVUR		atner:	<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	unny	
Date: $\mathcal{F}(20)(\mathcal{X})$	Time Started: /	600	Ti	ne Complet	tad. 16	D5:	
Develop Date:	Develop End Time	C.	11	1 hour break	c)	0	
		DWATER			9		
Time of Denth Measurement:	U. O	Date of D	Depth Measu	rement:	71.	20/20	
Measuring Point (MP): Top of PV	IC Casing / Top of Steel	Protective Cas	sing / Other	·		/ -	
Diameter of Casing:	\mathcal{Z}^{ji}	Well Scre	en Interval				
Total Depth of Well Below MP:	31.99	Product T	hickness, it	noted:		MOV	10
Depth-to-Water (DTW) Below M	P: 24.68						<u> </u>
Water Column in Well:	7.31	(Total De	pth of Well	Below MP	- DTW Bel	ow MP)	
Gallons per foot:	0.16						
Gallons in Well:	1.17	(Water Co	olumn in W	ell x Gallon	s per foot)		
2	PUR	GING DAT	A				
Date Purged:	Time Started:		Tim	e Complete	d:		
Three Well Volumes:	(Gallons i	n Well x 3)		1	·····	,	-
Gallons Purged:	Depth of	Pump (general	lly 2 ft fron	bottom): _			
Max. Drawdown (generally 0.3 ft)	•	Pump Ra	te:		_		
Well Purged Dry:	Yes 🛛 No 🗆	(If yes, use	e Well Purg	ed Dry Log	()		
e: Gallons: Pump Rate D	TW Drawdown	Temp: S	Sp. Cond.:	DO:	pH:	ORP:	Т
(L/min): (ft]	BMP): (ft):	(°C)	(uS/cm)	(mg/L)	(S.U.)	(mV)	(ľ
	<u> </u>						
· · · · · ·							
		i					
·		<u> </u>					
	SAMP	LING DAT	A				
Odor:	·	_ Color:					
Sample Designation:		_ Time / Dat	e:				
QC Sample Designation:	· ·	_ Time / Dat	e:				_
QA Sample Designation:		_ Time / Date	e:				
Evacuation Method: Submersible I Sampling Method: Submersible Pu	Pump / Other:						
- The second sec	anufacturer/Model Num	ber					
Water Quality Instruments Used/M							
Water Quality Instruments Used/M Calibration Info (Time, Ranges, etc.							
Water Quality Instruments Used/M Calibration Info (Time, Ranges, etc Remarks:)						
Water Quality Instruments Used/M Calibration Info (Time, Ranges, etc Remarks:)						-

N F



	Shannon & V	Wilson, Inc.	•							
	Job No: 10	1293	Locati	on: 6010	old Scul	and Hulf W	eather:	le le °	Sunny	
	Well No.:	MW-4	2						, Ir	
	Date:7/2	18120	Time S	started:	1325	Т	ime Comple	eted:	1515	
	Develop Date	:	Develo	p End Time:	:	(2	24 hour brea	k)		
			INITL	AL GROU	NDWATE	R LEVEL	DATA			
	Time of Dept	h Measuremer	it: 133	2	Date of	of Depth Mea	surement:	7/2	8120	
	Measuring Po	int (MP) Top	of PVC Casing	Top of Ste	eel Protective	Casing / Othe	er:		-	,
	Diameter of C	Casing:	2'	\	Well	Screen Interva	ıl:			
	Total Depth o	f Well Below	MP:34	42	Produ	ct Thickness,	if noted:			
	Depth-to-Wat	er (DTW) Bel	ow MP: <u>੨</u> ५	97						
	Water Column	n in Well:		7.95	(Total	Depth of We	ll Below MF	P - DTW Be	low MP)	
	Gallons per fo	oot:		0.10						
	Gallons in We	ell:		1.24	(Wate	Column in V	Vell x Gallo	ns per foot)		
				PUI	RGING DA	TA				
	Date Purged:	7128/20	Tim	e Started:	337	Ti	ne Complete	ed:) L	155	
	Three Well Vo	olumes:	3.81	(Gallon	s in Well x 3					-
	Gallons Purge	d:{{{\it E}}}	·- 0	Depth	of Pump (gen	erally 2 ft fro	m bottom): _	N2 8		
	Max. Drawdov	wn (generally	0.3 ft):	0.78.	Pump	Rate:	0.4-	0.5		
	Well Purged D	Dry:	· Yes □	No 15K	(If yes	use Well Pu	ged Dry Log	g)		
Time	: Gallons:	Pump Rate	DTW	Drawdown	Temp:	Sp. Cond.:	DO:	pH:	ORP:	Turb:
17:10	07	(L/min):	(ft BMP):	(ft):		(uS/cm) いて名	(mg/L)	(S.U.) ≤ 07	(mV)	(NTU)
1390	2 DIT	A-H	21.+5	D1+0	10.40	450	0.01	1100	242.5	27.28
1377	1.12	011	27 77	e.24	1.04	440	1.01	C AD	212:3	77.17
1252	$\frac{1}{2}$	0.4	27.70	0.73	1) IN E	567	120	<u>D.</u> 00	1721	20.46
1307	2.4	011	27.70	0.73	10.90	117	01TO	515	175.2	14 22
1407	2.12	0.4	27.712	0.73	10.10	Del	0.00	526	1111 2	13.74
1-10 1	~~~		at 10	01/2	10.01	_151_	0,53	5.20	114.5	
			1 00	SAM	PLING DA	ATA				
	Odor:	NEAVEV	E For	- odor	Color:	21	ear			
	Sample Design	ation:	101293-	Mid 42	Time /	Date: <u>145</u>	>	7/28/2	.0	_
	QC Sample De	signation:			Time /	Date:	<u> </u>			_
	QA Sample De	signation:			Time / [Date:		~		_ ,
	Evacuation Me	thod: Submer	sible Pump / Ot	her: 1	nin when	1				
	Sampling Meth	od: Submersi	ble Pump / Oth	er:	mini v	Lell				
	Water Quality I	Instruments Us	sed/Manufactur	er/Model Nu	mber	1S1 + 12	DLOD FF	°W		
	Calibration Info	o (Time, Rang	es, etc)	0830	04	712	8/20			
	Remarks:									-
-		1	rA i	2						
	Sampling Perso	nnel:	L CASING VC	LUMES (G	AL/FT) 1":	= 0 04 2" =	0.16 4" =	0.65	-	
b		AN	NULAR SPAC	E VOLUME	E (GAL/FT):	4" casing and	2" well = 0	.23		
3 			e 1			0				

Shannon & Wilson, Inc.

Continued from previous page

Job No:	101293	Location:	6010 ord	sew ard	1/w7 Site:	6010	ord	Leward	Hary
Well No.:	MW-42								
Date:	- 7/20/20								

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (fţ):	Temp: (°C)	Sp. Cond (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Turb: (NTU)
1412	3.2	0.4	27.50	0.53	11,20	762	0.44	530	109.5	13.27 RUG
1422	M3, 4.0	0.9	27.41	0.44	14.38	784	0.38	6.02	60.1	0.20
1425	4,4	0.4	27.50	0.53	12.30	838	0.33	6.33	49.0	8.74
1232	4.8	0.4	27.50	0.53	11.48	643	1.34	6-11	52.9	8.02
1442	5.6	D.U	27.50	0.53	11.70	022	0,43	6-06	67.D	7.94
1445	5.8	0.4	27.50	0.53	11.74	817	0.38	6.04	61.4	7.98
1448	(G + Ô	0.4	27.50	0.53	11.76	BIR	0,32	6.04	64.8	7.74
							<u></u>			
			·							
				4						
-					*					
						<u> </u>				
		•								
-	Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Tu (N)	rb։ ՐՍ)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10)%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or	<5 NTU

(.

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

, iii S	hannon & V	Wilson, Inc.	LOV	W-FLOW	WATER SA	AMPLING	<u>LOG</u>			
Jo W	b No: <u> C</u> ell No.: _	1293 MW45	Locat	ion: 6010 c	old Seward	Hwy W	eather:	2° 54	nny	
Da Da	ate: 7 / evelop Date	<u>/28/2020</u>	Time Deve	Started: <u> </u> lop End Time	1:50	Т (2	Time Comple 24 hour brea	eted: <u>12</u> k)	30	
	Ĩ		INITI	AL GROU	NDWATE	R LEVEL	DATA			
Ti	me of Deptl	h Measuremen	it://: d	10	Date of	of Depth Mea	surement:	7/28)	
M	easuring Po	int (MP): Cop	of PVC Cash	g / Top of Sto	el Protective	Casing / Othe	er:			
Di	ameter of C	asing: f Woll Polow		21 20	Well S	Screen Interva	al:			
10 De	otal Depth 0	er (DTW) Bel	WP:	21.20 26 BI	Ploduo	et Thickness,		· ·		
W	ater Colum	n in Well:	ow mit	7.39	(Total	Depth of We	ell Below MI	P - DTW Bel	ow MP)	
Ga	llons per fo	oot:		0.16	` `				,	
Ga	llons in We	211:		1.18	(Water	Column in V	Well x Gallo	ns per foot)		
Br	1=26.8	31		DI		TA				
		7/0-		<u>ru</u>		<u>IA</u>	<i>a</i> .			
Da	te Purged:	1/28		me Started:		Ti	me Complete	ed:		
Th	ree Well Vo	d.	2.29	(Gallor Denth	s in Well X 3)	anally 2 ft fro	in leattern).	29.0.	F+	
Ga Ma	nons ruige	u. vn (generally (0 3 ft).	_ Depui	OI Fump (gen Pump	Rate.		~ 1.0		
We	ell Purged D)rv:	Yes 5	No 🗆	(If yes,	use Well Pu	rged Dry Lo	g) 12:24	5	
'ime:	Gallons:	Pump Rate	DTW	Drawdown	Temp:	Sp. Cond.:	DO:	pH:	ORP:	Turb:
		(L/min):	(ft BMP):	(ft):	(°C)	(uS/cm)	(mg/L)	(S.U.)	(mV)	(NTU)
2:03	0.1	0.1	27.74	0.93	15.70	334	8.39	6.71	51	<u>95.98</u>
:06	0.2	0.1	27.86	1.05	<u>15.77</u>	305	8.03	6.77	65	93.4
:09	0.3	0.1	27.91	1.10	16.27	297	7.56	6.85	79	100.9
:12	0.4	0.1	20.12	1.3	16.61	275	1.35	6.84	70	207-0
:/5	0.5	0.1	28.31	1.56	16.24	KIT C	8.46	6.96	10	2144
!20	0.6	0.1	2.30	10°						
				SAM	PLING DA	ATA				
Odd	or: <u>N</u>	one			Color:	Clear	•			
San	ple Design	ation:			Time /]	Date:				
QC	Sample De	signation:			Time /]	Date:	/			
QA	Sample De	signation:			1 ime / J	Date:				
Eva	cuation Me	thod: Submer	sible Pump / (Other: Sin	ke hhal	<u>بو</u> ۱.				
Sam	iping Meth	oa: Submersi	ole Pump / Ot		ue una			1. 1		
Wat	er Quality I	Instruments Us	sed/Manufactu	rer/Model Nu	mber Ho	riber t	1 un/b	idimet		_
Cali	bration Info	o (Time, Range	es, etc)9	:30	7/28					
Ren	narks:	<u>_</u>								
Sam	pling Perso	nnel: 251								_
		11707	I CLOBIC V		AT /ET). 1"	-0.04 $2"$	0.16 4"	0.65		



Shannon & Wilson, Inc.

Continued from previous page

Job No:	 Location:	 _Site:	
Well No.:			
Date:			

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (fţ):	Temp: (°C)	Sp. Cond (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Turb: (NTU)
12.25	1.0	Well Pu	ged Dr	7						· · · ·
									<u> </u>	
										•
							-			
· · · ·			·							
-										
						-				
			4							
	· Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Tur (NT	b: U)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10	%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or -	<5 NTU

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.



WELL PURGED DRY LOG

Job No: 101293	Location: 6610	old seward Hut	Weather:	WO° Sun	hy
Concern:	Well No.:	MW-45			
Date: <u>7/28/20</u>	Time Started:	1530	Time Complete	d: <u>1550</u>	

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement:	1150	Date of Depth Measurement:	7128/20
Measuring Point (MP): Top of PV	C Casing / Top of Steel Pr	otective Casing / Other:	- i e
Diameter of Casing:	2``	Well Screen Interval:	
Total Depth of Well Below MP:	34.20	Product Thickness, if noted:	
Depth-to-Water (DTW) Below MP	: 26,81		
Water Column in Well:	7.39	(Total Depth of Well Below M	IP - DTW Below MP)
Gallons per foot:	D.14		
Gallons in Well:	1.18	(Water Column in Well x Gall	ons per foot)

PURGING DATA

	$\underline{101}$	UIIU DAI	$\underline{\mathbf{A}}$
Date Purged: 7/28/20	Time Started:	1534	$\underline{\qquad} Time Completed: \frac{\hbar z}{550} + \frac{539}{550}$
80% Recovery Water Column:	5.91	(Water C	olumn in Well x 0.8)
80% Recovery DTW:	28.29	(Initial D	TW + (Water Col. – 80% Recovery Water Col.)

Time Well Purged Dry	Time Well Was 80% Recovered	DTW	Pump Rate
1225	1530	27.56	0,4

FIELD PARAMETERS AT TIME OF SAMPLING

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft BMP):	Temp: (°C)	Sp. Cond.: (uS/cm)	рН: (S.U.)	ORP: (mV)	Turb: (NTU)
1539	6.25	1 AFR	28.11	-1.3	17.59	2:48	6.75	6	330,6
		0.1		SAMPLING	DATA				
Odor: Samp QC S QA S Evacu Samp	le Designatio ample Design ample Design ation Methoo ling Method:	on: nation: nation: d: Whale Pump/E Whale Pump/E	<u>93 - 144</u>	Co <u> </u>	lor: ne / Date: ne / Date: ne / Date: 	9my - 1 1540 	7/29/2	0	
Rema	rks:								-
Samp	ling Personne	el: WI ANNUI	H ELL CASING LAR SPACE	/ Id T Volumes (gal volume (gal/f	//FT): 1" = 0. T): 4" casing	.04 2" = 0.16 and 2" well =	0.23		-



Job No: 101293	Location: 6010	old Seward	Hwy We	ather: 6	0° mos	ith sur
Well No.: MW44	·)			, –
Date: 7/28/2020	Time Started:	0:40	Ti	me Comple	ted:	37
Develop Date:	_ Develop End Time:		(2-	4 hour breal	c)	
	INITIAL GROU	NDWATER	LEVEL	DATA		
Time of Depth Measurement:	10:40	Date of I	Depth Meas	arement:	7/2	8
Measuring Point (MP): Top of P	VC Casing / Top of Ste	el Protective Ca	asing / Other	:	~	
Diameter of Casing:	28.91	Well Scr	reen Interval	:		
Depth-to-Water (DTW) Below M	$\frac{25.10}{12}$	Flouuci	THICKHESS, I	. <u> </u>		
Water Column in Well:	3.43	(Total D	epth of Well	Belów MP	- DTW Bel	ow MP)
Gallons per foot:	0.16	**** *********************************	•		1	÷
Gallons in Well:	0.55	(Water C	Column in W	ell x Gallor	is per foot)	
	PUF	RGING DAT	TA			
Date Purged: 7/28/202	20 Time Started:	10:43	Tim	e Complete	d: //:2	17
Three Well Volumes:6	5 (Gallons	s in Well x 3)		L		
Gallons Purged: 2.5	Depth of	of Pump (genera	ally 2 ft fron	r bottom): _	27.50	7 ++
Max. Drawdown (generally 0.3 ft		Pump Ra	ate: D	Z.		
well Purged Dry:	Yes LI No L	(If yes, us	se well Purg	ged Dry Log	() •	0.55
ne: Gallons: Pump Rate (L/min): (ft	BMP): (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	рН: (S.U.)	ORP: (mV)
50 0.4 0.2 2	5.54 0.01	11.77	823	7.7(6.55	- 52
<u>53 D.5 6.2</u> 2	5.54 0.01	11.8(820	7.46	6.55	-53
6 0.75 0.2 2	5.54 0.01	1.62	823	6.50	6.58	-64
$\frac{1}{7}$ $\frac{1}{10}$ $\frac{0.2}{2}$ $\frac{2}{2}$		11.55	875	1.25	6.00	-65
5 1.50 0.2 20	5,54 12.51	1.28	82R	5.18	6.60	-70
	SAM	PLING DA'I				
Odor: <u>Sultinous</u> Si	Mell 192 - NAL 411	Color:	Clea	20 7	120	
OC Sample Designation:	13- MW46	Time / Da Time / Da	nte:		0~1	
QA Sample Designation:	/	Time / Da	ite:			
Evacuation Method: Submersible	Pump / Other: Single	e Whate				
Sampling Method: Submersible P	ump / Other: Sung	e whate				
We to a Orality In the Internet IT 10	V Ianufacturer/Model Nur	mber Horit	a +	Turbid	meter	
water Quality Instruments Used/N		120				
Calibration Info (Time, Ranges, et	c) 9:30 7/	~ 0				
Calibration Info (Time, Ranges, et Remarks:	c) 9:30 7 /	28				
Calibration Info (Time, Ranges, et Remarks:	c) 9:30 7 /					

J



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Continued from previous page

Jo W Da	b No: _ [ell No.: _ ate: _	Location: 6010 012 Jener 2 Hasite: MW46 7/28/2020								
Time: 10:08 11:11 11:14 11:17	Gallons: .75 2.0 2.25 2.5	Pump Rate (L/min): 6.2 6.2 6.2 0.2 0.2	DTW (ft BMP): 25.54 25.54 25.54 25.54	Drawdown (ft): 0.0 (0.0 (0.0 (Temp: (°C) <u>1</u> 1.29 [1.35 [1.4] [1.45	Sp. Cond (uS/cm) 82.6 82.3 82.1 82.1	DO (mg/L) 5.89 5.77 5.61 5.46	pH: (S.U.) 6.60 6.61 6.61	ORP: (mV) -71 -71 -72 -73	Turb: (NTU) SH.77 28.68 28.61 28.61
				<u></u>			·			
		•					·			
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			. <u></u> ,					- 		. <u></u>
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			· · · ·							
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										·
	· · · · · · · · · · · · · · · · · · ·					<u></u>				
				<u></u>						
	· Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Tu (N	rb: ΓU)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±1	0%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or	<5 NTU

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

			LOV	W-FLOW	WATER SA	AMPLING	LOG			
	Shannon & V	Vilson, Inc.		•				~ 7		
J	Job No: [O]	243	_ Locat	ion: 601	O old ser	ward Huy Wa	eather:	5 7 por	tly clou	rdy
V	Well No.:	<u>1w47</u>			7	,				
I	Date:/•	28/2020	_ Time	Started:	7:30	T	ime Comple	eted: 10	:25	
Ι	Develop Date	:	Devel	op End Time		(2	24 hour brea	ık)		
			INITI	AL GROU	NDWATE	R LEVEL	DATA			
Т	Time of Depth	n Measuremen	t: 9 .	32	Date of	of Depth Meas	surement:	7/28	3	
Ν	Measuring Poi	int (MP): Hop	of PVC Casir	Z / Top of Ste	eel Protective	Casing / Othe	er:			•
Ι	Diameter of C	asing:		2"	Well S	Screen Interva	ıl:			
, T	Total Depth of	f Well Below]	MP:	26.65	Produ	ct Thickness,	if noted:			· 、
Γ	Depth-to-Wate	er (DTW) Belo	ow MP:	22.39					,	
V	Water Column	in Well:		4.26	(Total	Depth of We	ll Below Ml	P - DTW Be	low MP)	Х.,
e c	Ballons per fo	ot:	·	0.16	· · · · · · · · · · · · · · · · · · ·			•	· • .	*
G	Ballons in We	11:		.68	(Wate	r Column in V	Vell x Gallo	ns per foot)		
	BM: 2	2.39		PU	RGING DA	АТА				
Г	ate Purged.	7/28	Tir	ne Started	9:41	Tir	ne Complet	ed: 10'	15	
т Т	hree Well Vo	lumes.	2 04	Gallon	s in Well x 3	II	ne compiet	. <u>10</u> .		
G	allons Purged	1: 2.2	2.01	Ountri Depth	of Pump (gen	erally 2 ft fro	m-bottom):	24.40	\$4	
N	fax. Drawdov	vn (generally ().3 ft): b	.0(Pump	Rate:	0.2			
W	Vell Purged D	nv:	Yes D	No V	(If ves.	use Well Pur	ged Dry Lo	g)		
Time:	Gallons:	Pump Rate	DTW	Drawdown	Temp:	Sp. Cond.:	DO:	pH:	ORP:	Turb:
	O an on of	(L/min):	(ft BMP):	(ft):	(°C)	(uS/cm)	(mg/L)	(S.U.)	(mV)	(NTU)
9:44	0.25	0.2	<i>22.4</i> 0	0.01	13.22	461	7.61	5.56	230	288.
9:47	0.50	0.2	22.40	0.01	2.40	463	7.65	5.63	228	269.3
9:50	0.75	0.2	22.40	0.01	11.37	457	7.85	5.75	225	-253.3
9:53	1.00	0.2	22.40	0.01	11.29	456	7.37	5.83	223	154.3
9:56	1.20	0.2	22.40	0.01	11.19	457	7.13	5.89	221	119.6
9:59	1.50	0.2	22.40	0.01	11.34	452	6.22	601	216	78.52
				SAM	PLING DA	АТА				
0	dor: N			01111	Color:		Lunco	re la		
Sa	uor. <u> </u>	ation: 16	1793-1	1247	Color.	Date O IF	15	7/28		
00	C Sample Design	signation:			Time / Time / T	Date:				
	A Sample De	signation:	/		Time /]	Date:				
×× 17	requestion Met	thad Submar	vible Dumn / (thar Sin	le Lathal	•				
EV Sa	mpling Meth	od: Submersil	ole Pump / Of	her:	te what	le				
u.	ater Quality I	netrumente I la	ed/Manufactu	rer/Model M	mber Ho	riba 17	Turbidie	neter		
Ŵ	ator Quality I				7/2e			U ,		-
Ca	unoration info	o (1 ime, Kange	es, etc)	1.30	1120					-
Re	marks:	4								
			-							
Sa	mpling Person	nnel: ZJ	I CARDICI		AT /ET), 1"	-0.04 2"-	0.16 4.2 -	0.65		
		WEL AN	NULAR SPA	CE VOLUMES (G.	E(GAL/FT)	$-0.04 2^{\circ} =$ 4" casing and	2° well = 0	.23		
		2 31 1			- (and and				


LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Continued from previous page

Jo W	b No: ell No.:	101293 MW4	<u> </u>	Location:		Site:				
Da	ate: _	7/28/2	2020							
Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Turb: (NTU)
10:02	1.70	0.2	22.40	0.01	10.70	453	5.45	6.07	213	38.05
10:05	1.90	0.2	22.40	0.01	10.86	451	5.67	6.10	212	25.50
10:08	2.0 2.2	0.2	<u>22.40</u> 22.40	0.01	10.90	<u>448</u> 449	5.41	6.12	212 211	17.75
										<u></u>
	·									•
<u></u>		<u> </u>						-		
		<u></u>								
									· .	
							,			
								B-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		
									-	
			·		·					······
	Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Tu (N	ırb: TU)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±1	0%
EPA	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or	<5 NTU

(Jan. 2010)

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

A STATISTICS.	
William Came	빗 털 털

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 101243	Location: 6010 old Seward 4wy	Weather: <u>B7° cloudy</u>
Well No.: MW-48		-
Date: $7/28/20$	Time Started: 0640	Time Completed: 1020
Develop Date:	Develop End Time:	(24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement:	845	Date of Depth Measurement: $\frac{7/28}/20$	
Measuring Point (MP): (Top of PVC	Casing/ Top of Steel Pro	otective Casing / Other:	
Diameter of Casing:	211	Well Screen Interval:	
Total Depth of Well Below MP:	25.90	Product Thickness, if noted:	
Depth-to-Water (DTW) Below MP:	21.12		
Water Column in Well:	4.78	(Total Depth of Well Below MP - DTW Below MP)	
Gallons per foot:	0,16		
Gallons in Well:	0.76	(Water Column in Well x Gallons per foot)	

PURGING DATA

]	Date Purged:	7/28/20	Ti	me Started:	858	Tin	ne Complet	ed:\อิ\	D	
,	Three Well Vo	olumes:	2.28	(Gallons	s in Well x 3)					
(Gallons Purge	d: 2,4	5	Depth of	of Pump (g en	erally 2 ft from	n bottom):	~23		
1	Max. Drawdov	wn (generally (0.3 ft):	0-10	Pump	Rate:	- 0.2			
,	Well Purged D	Dry:	Yes D] No 🖾	(If yes,	use Well Pur	ged Dry Lo	g)		
Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	рН: (S.U.)	ORP: (mV)	Turb: (NTU)
0908	0.6	0.2	21-20	0.08	8.36	666	2.77	4.89	167.3	513.8
0913	0.75	0,1	21.22	0,10	8.32	624	0.72	4.95	193.9	339,3
0918	0,90	0.1	21.22	0.10	8.30	622	0.60	4.14	255.7	323,2
0923	1.1	0.1	21-22	0.17	8,44	615	0.55	3,57	263.6	205-1
0928	1.3	0.l	21.20	0.08	8.39	613	0.61	3.61	246.4	137.8
0933	1,5	0.1	21.20	80.0	8.31	612	0.53	3.70	219.0	103.0

SAMPLING DATA

Odor: None	Color:	Uear							
Sample Designation: 101293 - MW48	Time / Date:	1005	7/28/20						
QC Sample Designation:	Time / Date:								
QA Sample Designation:	Time / Date:								
Evacuation Method: Submersible Pump/Other: Mini Whatk Sampling Method: Submersible Pump/Other: Mini What									
Water Quality Instruments Used/Manufacturer/Model Number	r 451 556	+	MILVO TPW						
Calibration Info (Time, Ranges, etc) @ 830 cm	7/28/20								
Remarks:			· · · · · · · · · · · · · · · · · · ·						
Sampling Personnel: AJR		-							

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65 ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Continued from previous page

Job No:	101293	Location: 6010	old sewind	HwySite:	6010	odd	Servia M	1twy
Well No.:	mw-48							
Date:	7/20/ 20							

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp:	Sp. Cond (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Turb: (NTU)
0938	1,70	0-1	21.20	0.08	8.22	612	0.53	3.74	208,2	72,64
0943	1,90	Drl	21.20	0,08	8,27	610	0.54	3.83	190.2	56.81
0946	2.0	0.1	21.20	6.08	8.23	610	0.60	3,88	179.9	40,99
0949	2.1	D ~ 1	21.20	0.08	8.19	609	. 0.60	3,94	168.8	31.50
0452	2,2	01	21.20	80.0	8.22	608	0.02	3.48	160.1	30.85
0955	2.3	0.1	21.20	80.0	8.20	608	0.56	4.04	AR 400 148,4	19.88
0958	2.4	0,1	21.20	0.08	8.18	608	0.51	4.10	146,4	18.70
1003	2.5	0.)	21-20	80.0	8,15	608	0,46	4.11	141.6	16,41
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			· · ·	·						
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			-							
				·						
-								<u> </u>		
				L						
	· Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Ти (NТ	rb: TU)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10	9%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or	<5 NTU

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 101293	Location: 6010 old Eward Hwy	Weather: 63° party	cland y
Well No.:49			
Date: $7/28/20$	Time Started: <u>1026</u>	Time Completed: 1195	
Develop Date:	Develop End Time:	(24 hour break)	

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement:	1017	Date of Depth Measurement: <u>7/28/20</u>
Measuring Point (MP): Top of PVC	Casing / Top of Steel Pro	otective Casing / Other:
Diameter of Casing:	2"	Well Screen Interval:
Total Depth of Well Below MP:	28.04	Product Thickness, if noted:
Depth-to-Water (DTW) Below MP:	21-85	
Water Column in Well:	6.19	(Total Depth of Well Below MP - DTW Below MP)
Gallons per foot:	0.16	
Gallons in Well:	0.99	(Water Column in Well x Gallons per foot)

PURGING DATA

	Date Purged:	7/20/20	Tii	ne Started:	030	Tir	ne Complete	ed:Z	9	
	Three Well Volumes: $2 + 9 + - (Gallons in Well x 3)$									
	Gallons Purged: $3.$ Depth of Pump (generally 2 ft from bottom): 2 2 $3.$ D									
	Max. Drawdov	wn (generally ().3 ft):	0.56.	Pump	Rate:	2.2-0	. 5		
	Well Purged D	Dry:	Yes [] No 🔀	(If yes,	use Well Pur	ged Dry Log	g) -		
Time	Gallons:	Pump Rate	DTW	Drawdown	Temp:	Sp. Cond.:	DO:	թ H ։	ORP:	Turb:
		(L/min):	(ft BMP):	(ft):	(°C)	(uS/cm)	(mg/L)	(S.U.)	(mV)	(NTU)
1035	0.70	0.5	22.41	0,56	7.39	507	1.01	7.50	132.3	290.4
1040	1.00	0,2	22.32	0.47	9.13	572	0.73	6.17	100.3	296.6
1045	1.25	0.2	22.28	0.43	9.95	Soa	0.58	6.30	162.1	197,1
1050	1.50	0.2	22.25	0.40	10.27	504	0.49	6.61	141,7	110.1
1055	1,70	0.2	22.31	0.46	10.01	504	0.45	6.83	131.0	81.48
1100	2.0	0.2	22.35	0.50	9.09	50 S	0,45	6.77	135-0	46.44

SAMPLING DATA

Odor:	None		Color:	chenr		•			
Sample De	signation:	101293-MW49	Time / Date:	1123	7128/20				
QC Sample	Designation:	~	Time / Date:	<u> </u>					
QA Sample	e Designation:	~	Time / Date:						
Bracuation Method: Submersible Pump / Other: <u>Mini what</u> Sampling Method: Submersible Pump / Other: <u>Mini what</u>									
Water Qual	ity Instruments	Used/Manufacturer/Model Nur	nber <u>951</u>	+ MILINU	TPW				
Calibration	Info (Time, Rai	nges, etc) Ø 30	In 7128/	65					
Remarks: _	Exceeded	drawdown after	first 5 vine	sf purg	ing				
Sampling P	ersonnel:	HJR			1				
	W	FLL CASING VOLUMES (GA	L/FT: 1" = 0.04	2" = 0.16 4'	" = 0.65				

ANNULAR SPACE VOLUME (GAL/F1): $1^{n} = 0.04$ $2^{n} = 0.16$ $4^{n} = 0.03$ ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Continued from previous page

Jo W Da	b No: /ell No.: ate:	101293 MW-49 7120/	9 29 29	Location: <u>bb</u> [) old Qu.	<u>ard Au</u> Site:	<u>(</u> 00) V	old f	Ward to	wy.
Time: 1105	Gallons: $\frac{2.25}{2.50}$	Pump Rate (L/min): <u>c, 2</u> c, 2	DTW (ft BMP): אז, זה אז, זה	Drawdown (ft): 0.50	Temp: (°C) 8、ほり 8、ほり	Sp. Cond (uS/cm) 5'マリ - 50 ろ	DO (mg/L) ひ, 니 의	рН: (S.U.) 6.61 6.46	ORP: (mV) 145-3	Turb: (NTU) <u>24,53</u> \२.44
1115	a.75 2.90 3.1	0.2 0.2 0.2	22,35 22,34 22,34	0,50	8.63 8.69	502 503 602	0.50 0.44 0.47	6.40	152.7	17.85 12.85 10.58
		·								
· · · · · · · · · · · · · · · · · · ·				,				· · · · · · · · · · · · · · · · · · ·		
					·					
	· Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	 (N1	·b: ·U)
ADEC Aay 2010)	3 to 5	⁻ 100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10	%
EPA	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or	<5 NTU

(Jan. 2010)

(May

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

A CONTRACTOR OF THE OWNER		1,248	13
State 1			
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-46.4

LOW-FLOW WATER SAMPLING LOG

101.2	on, me.	1.1.		1.1				
Job No: 10 2	<u>45</u> Locat		Old Sewal	<u>a Hu</u> ry W	eather:	2° sun	ny .	
Well No.:	<u>W1K</u> 28/2020 Time	Storted.	12.20	, г	ime Comple	ted. 14	:40	
Date:		lon End Time	13.30	1	24 hour brea	180. / /	10	
Develop Date.	Dove		•	(.	24 11001 0100	· ·		
	INITI	AL GROU	JNDWATE	<u>R LEVEL</u>	DATA	- /		
Time of Depth M	easurement: 13:	30	Date o	f Depth Mea	surement: _	7/28		
Measuring Point ((MR): Top of PVC Casil	ין Top of Sto יי	eel Protective	Casing / Othe	er:			
Diameter of Casin	ig:	22 23	Well S	creen Interva	if noted:			
Depth-to-Water (1	DTW) Below MP	22 87	IIOduk	i mexiless,	II IIOICU		•	•
Water Column in	Well:	9.51	(Total	Depth of We	ll Below MI	· • - DTW Bel	ow MP)	
Gallons per foot:		0.16	· · · · · · · · · · · · · · · · · · ·	F				
Gallons in Well:	· · · · · · · · · · · · · · · · · · ·	1.52	(Water	Column in V	Well x Gallo	ns per foot)	• *	*
BM:22	. 82							
		\mathbf{PU}	RGING DA	TA				
Date Purged:	7/28 Ti	me Started:	13:40	Ti	me Complet	ed: <u>14:</u>	30	
Three Well Volum	nes: <u>4.56</u>	(Gallor	ns in Well x 3)			OF A	•	
Gallons Purged:	1.55	Depth	of Pump (gen	crally 2 ft fro	m-bottom):	25		
Max. Drawdown ((generally 0.3 ft):	0.17	Pump	Rate:	15 1			
Well Purged Dry:	Yes L		(If yes,	use Well Pu	rged Dry Lo	g)		
ime: Gallons: Pi	ump Rate DTW	Drawdown	Temp:	Sp. Cond.:	DO:	рН: (S U)	ORP:	Turb (NTU
43 0.75	(1.7) (1.8) (1.	6.16	14.38		(mg/L) 2.47	6.55	8 5	(34)
41. 6.50	D.Z 22.98	0.16	15.21	1360	1.83	6.58	27	167.
:49 0.65	0.2 22.99	0.17	14.85	1.380	1.48	6.59	20	59.2
:52 0.70	0.2 22.98	0.16	15.25	1,380	1.27	6.59	17	35.
.55 0.80	0.2 22.99	D.17	14.65	1,400	1.18	6.60	14	23.
58 0.95 0	0.2 22.99	0.17	14.64	1,420	1.04	6.61	11	19-6
		SAM	IPLINC DA	ТА				
Odor: Cont	Sumell	SAI	Color:	Tan	Brown			
Sample Designatio		3-MW1	R Time /]	Date: 14	:15	7/28		
OC Sample Design	nation: 101293	-NW10	Time / J	Date: 14:	95	7/28		
QA Sample Desigr	nation:	~	Time /]	Date:	~			
Evacuation Method	d: Submersible Pump /	Other: 50	nale whe	Se				
Sampling Method:	Submersible Pump / Or	her: 5m	gle wh	nte				
Water Quality Instr	ruments Used/Manufact	arer/Model Nu	umber Ho	iba t	Turbi	limety	r	
Calibration Info (T	ime, Ranges. etc) 9	:30 -	7/28					_
Remarks:	· · · · · · · · · · · · · · · · · · ·					6-8-2-5-8-00-9		-
	· · ·							
Sampling Personne	1: 231							
	-	the second se	the second s		the second s	the second se		



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Continued from previous page

Jo W D	ob No: Vell No.: ate:	01293- MW15 7/29	L	Location: (CO	D old Serve	A Hugite:				
Time: [4:01 [4:04 [4:07 [4:07	Gallons: 1.1 1.25 (.40 1.55	Pump Rate (L/min): 0.2 0.2 0.2 0.2	DTW (ft BMP): 22.98 22.98 22.98 22.98 22.98	Drawdown (ft): <u>0.16</u> 0.16 0.16	Temp: (°C) <u> 4.55</u> <u> 4.58</u> <u> 4.23</u> <u>4</u> .38	Sp. Cond (uS/cm) [,430 [,440 [,450 [,430	DO (mg/L) 1.00 0.95 0.95 0.92 0.86	pH: (S.U.) (6.60 (6.61 (6.63	ORP: (mV) / 0 9 8 5	Turb: (NTU) 16.21 15.86 10-01 14.66
-										
			<u> </u>					·		
										1

									-	,
					-					
										Western and a second
<u></u>			·							
	· Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	рН: (S.U.)	ORP: (mV)	Tu: (N)	rb: `U)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10	9%
EPA	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or	<5 NTU

(Jan. 2010)

> EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

APPENDIX D

DISPOSAL RECEIPTS

101293-001

*** IN CASE OF EMERGENCY CALL 800-899-4672 *** NON-HAZARDOUS WASTE MANIFEST

153187-PARK

Pleas	e print	or type (Form designed for use on elite (1	2 pltch) typewriter)									
		NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. VSQG			Manifest Document No.	153187A	2.	Page 1 of 1			
	3. 9 FOF 6010 ANC	9. Generators Name and Mailing Address FORMER WILLIAMS EXPRESS STORE #5021 6010 OLD SEWARD HWY ANCHORAGE, AK 99518 4. Generator's Phone (
	5. Tr	5. Transporter 1 Company Name 6. US EPA ID Number A. State Transporter's ID										
	NRC	CÁLÁSKA LÍC	ľ	AKR000004184		B. Transporter 1	Phone 907-20	8-1558				
_	7. Tr	ransporter 2 Company Name	8,	US EPA ID Number		C. State Transpo	orter's ID					
						D. Transporter 2	Phone					
	9. D	esignated Facility Name and Site Address	10.	US EPA ID Number		E. State Facility	s ID					
	NRO 2020 ANO	C ALASKA LLC 0 VIKING DRIVE CHORAGE, AK 99501		AKR000004184	_	F. Facility's Pho	¹⁰ 907-258-1	558				
	11.1	WASTE DESCRIPTION			Cor	ntainers	13.		14.			
1	HM	1			No.	Туре	Quantity		Wt./Vol.			
	- 8	MATERIAL NOT REGULATEI	D BY D.O.T.		ય	DM	280	0	Р			
G E N	-b	MATERIAL NOT REGULATE	BY D.O.T.	~		DM			Р			
ER	Ū.											
Ť					_				2			
R	u.											
	G. A	dultional Descriptions for Materials Listed Above				H. Handling Cod	es for Wastes Li	ted Above				
	I) E/ 2) E/	A0708 ADEC REPORTABLE A0302 IDW DECON WATER	CONTAMINATED SO / GROUNDWATER	⊃IL →	D	30727						
	15. 8	Special Handling Instructions and Additional Infor	mation									
	S pa of	hipper's Certification: This is to ackaged, marked and labeled, the Department of Transporta	o certify that the abov and are in proper cor tion	e-named materials ndition for transporta	are prope ation acco	rly classifie ording to the	d, describe applicable	ed, e regulati	ons			
	1											
	16. (GENERATOR'S CERTIFICATION: I hereby certi n proper condition for transport. The materials de	y that the contents of this shipmen scribed on this manifest are not su	t are fully and accurately describled to federal hazardous was	ibed and are in the regulations.	all respects						
									Date			
	Print	ted/Typed Name		Signature 1				Month	Day Year			
	S	Stephanie Day		KAKA		_		6	30 2020			
Ţ	17.	Transporter 1 Acknowledgement of Receipt of M	aterials	1110					Date			
R	Print	ted/Typed Name		Signature	E	1	. ~	Month	Day Year			
S	<	Roycons	CALY TR	Kac	1	-de	C 10	> 6	30 200			
õ	18.	Transporter ZAcknowledgement of Receipt of M	atorials	\mathcal{O}				· ·	Date			
Ï	Print	ted/Typed Name		Signature				Month	Day Year			
R												
FA	19. [Discrepancy indication Space										
Ċ												
	20. F	Facility Owner or Operator: Certification of receip	t of the waste materials covered by	this manifest, except as noted	in Item 19.				2001.04			
1	~								Date			
T Y	Prin	Advityped Name	asley	Signature	w	Beas	ley	Month	Pay Year			
С	=14	© 2002 LABEL MASTER (800) 621-5	808 www.labelmaster.cor	n			Œ	USING SOVBEAN	NK SOY INK			

NON-HAZARDOUS WASTE



CERTIFICATE OF DISPOSAL/RECYCLE

GENERATOR:	
------------	--

FORMER WILLIAMS EXPRESS STORE #5021 6010 OLD SEWARD HWY ANCHORAGE, AK 99518

DISPOSAL FACILITY: NRC ALASKA LLC 2020 VIKING DRIVE ANCHORAGE, AK 99501

EPA ID NUMBER: VSQG MANIFEST/DOCUMENT #: 153187A DATE OF DISPOSAL/RECYCLE: JUL-02-2020

LINE	WASTE DESCRIPTION	CONTAINERS	TYPE	QUANTITY	UOM
1	ADEC REPORTABLE CONTAMINATED SOIL	4	DM	2800	Р
2	IDW DECON WATER / GROUNDWATER	0	DM	0	Р

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

PREPARED BY:			
DA AR. O.		JUL 0 2 2020	
SIGNATURE: Tallulas Rasley	DATE:		_

425 Outer Springer Loop Road - Palmer, AK 99645 - (907) 258-1558 - Fax (907) 746-3651 - Toll Free (\$77) 375-5040



ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION **DIVISION OF SPILL PREVENTION AND RESPONSE Contaminated Sites and Prevention Preparedness and Response Programs**

Contaminated Media Transport and Treatment or Disposal Approval Form

DEC HAZARD/SPILL ID # NAME OF CONTAMINATED SITE OR SPILL								
24042 Former Williams Express Store #5021								
CONTAMINATED SITE OR	SPILL LOCATION	– AD	DRESS OR OTHER A	PPROPRIATE DESCRIPTIO)N			
	60	10 0	ld Seward Highway					
CURRENT PHYSICAL LOCA	ATION OF MEDIA		SOURCE OF THE O (DAY TANK, WASH	CONTAMINATION I BAY, FIRE TRAINING PIT	, LUST, ETC.)			
in-situ	1			USTs				
CONTAMINANTS OF CONC	ERN	ESTI	MATED VOLUME	ATED VOLUME DATE(S) GENERATED				
GRO/DRO/VOCs/	/PAHs	Siz	x 55-gallon drums	June 30 and July	1, 2020			
POST TREATMENT ANALY	SIS REQUIRED (su	ich as	GRO, DRO, RRO, VOC	s, metals, PFAS, and/or Chlorin	ated Solvents)			
COMMENTS OR OTHER IM Contaminated soil will be Grandview Idaho, an EPA	PORTANT INFORM consolidated at A approved Subt	MAT NR(title (ION C Alaska Anchorag C landfill for final d	je facility, then manifeste isposal.	ed to			

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER	
NRC Alaska	2020 Viking Drive, Anchorage, AK	
RESPONSIBLE PARTY	ADDRESS/PHONE NUMBER	
Williams	One Williams CTR, Tulsa, OK 74172	
WASTE MANAGEMENT CO. / ORGANIZER	ADDRESS/PHONE NUMBER	
NRC Alaska	2020 Viking Drive, Anchorage, AK	

*Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.

Dan P. McMahon

Name of the Person Requesting Approval (printed)

Dan P. McMahon ou, email=dxm@shanwii.com, c=US Date: 2020.06.17 16:07:28 -08:00'

Signature

Title/Association

Senior Associate

6/17/2020 Date

907-433-3223 Phone Number

--DEC USE ONLY------

Based on the information provided, ADEC approves transport of the above mentioned material. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Grant Lidren

DEC Project Manager Name (printed)

Ud Zau

Signature

Project Manager Title 6/18/2020

EPS IV

229-4969

Date

Phone Number

*** IN CASE OF EMERGENCY CALL 800-899-4672 *** NON-HAZARDOUS WASTE MANIFEST

153187-PARK

Pleas	e print or type (Form designed for use on elite (2 pitch) typewriter)					
	NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. VSQG		Manifest Document No. 4	153187B	2.1	Page 1 of 1
	3. Generator's Name and Mailing Address FORMER WILLIAMS EXPRESS 6010 OLD SEWARD HWY ANCHORAGE, AK 99518	86					
	5. Transporter 1 Company Name NRC ALASKA LLC	58-1558					
	7. Transporter 2 Company Name	8. US EPA ID Number	ſ	C. State Transpo D. Transporter 2	orter's ID Phone		
	9. Designated Facility Name and Site Address	10. US EPA ID Number		E. State Facility's	s ID		
	2020 VIKING DRIVE ANCHORAGE, AK 99501	AKR000004184		F. Facility's Phor	[™] 907-258-	1558	
	11. WASTE DESCRIPTION		Co No.	ntainers Type	13. Total Quanti	v	14. Unit Wt./Vol.
	MATERIAL NOT REGULATE	D BY D.O.T.	6	DM	4	600	Р
GEN	MATERIAL NOT REGULATE	DBY-D.O.T.		DM			Р
ERAT							
0 R	d						
	- G. Additional Descriptions for Materials Listed Above			H. Handling Cod	les for Wastes Li	ted Above	
	I) EA0708 ADEC REPORTABLE 3) EA0302 - IDW DECON WATER	CONTAMINATED SOIL	D	30728			
	15. Special Handling Instructions and Additional Info	rmation					
	Shipper's Certification: This is t packaged, marked and labeled, of the Department of Transporta	o certify that the above-named materials are and are in proper condition for transportation ation	e prope on acco	rly classifie ording to the	d, describ e applicabl	ed, e regulatio	ons
	TARA						A
	16. GENERATOR'S CERTIFICATION: I hereby cert In proper condition for transport. The materials d	ify that the contents of this shipment are fully and accurately described ascribed on this manifest are not subject to federal hazardous waste re	d and are in egulations.	all respects			
	Printed/Typed Name	Signature	\sim	/		Month 7	Date Day Year { 2020
TRA	17. Transporter 1 Acknowledgement of Receipt of N	laterials				Month	Date Day Year
12×SP-O□	18. Cransporter 2 Acknowledgement of Receipt of N	laterials Rot C=	Tr	isdAL	५ त	R 7	1 てめて U Date
ŤER	Printed/Typed Name	SIgnature				Month	Day Year
F A C	19. Discrepancy Indication Space						
	20. Facility Owner or Operator: Certification of receip	ot of the waste materials covered by this manifest, except as noted in it	tem 19.	R.			Date
Ť	Printed speed Name	easley Fattin	H	Beas	ley	Month	
С	F14 © 2002 LABELMASTER ® (800) 621-	5808 www.labelmaster.com			Œ	PRINTED ON RECYCLED	PAPER

NON-HAZARDOUS WASTE



CERTIFICATE OF DISPOSAL/RECYCLE

FORMER WILLIAMS EXPRESS STORE #5021 6010 OLD SEWARD HWY ANCHORAGE, AK 99518

DISPOSAL FACILITY: NRC ALA 2020 VIK

NRC ALASKA LLC 2020 VIKING DRIVE ANCHORAGE, AK 99501

EPA ID NUMBER:VSQGMANIFEST/DOCUMENT #:153187BDATE OF DISPOSAL/RECYCLE: JUL-02-2020

LINE	WASTE DESCRIPTION	CONTAINERS	TYPE	QUANTITY	<u>UOM</u>
1	ADEC REPORTABLE CONTAMINATED SOIL	6	DM	4000	P
2	IDW DECON WATER / GROUNDWATER	0	DM	0	Р

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

PREPARED BY:		
SIGNATURE: Patrice & Beasley	DATE:	JUL 0 2 2020

425 Outer Springer Loop Road - Palmer, AK 99645 - (907) 258-1558 - Fax (907) 746-3651 - Toll Free (\$77) 375-5040



ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF SPILL PREVENTION AND RESPONSE Contaminated Sites and Prevention Preparedness and Response Programs

Contaminated Media Transport and Treatment or Disposal Approval Form

DEC HAZARD/SPILL ID # NAME OF CONTAMINATED SITE OR SPILL						
24042 Former Williams Express Store #5021						
CONTAMINATED SITE OR SPILL LOCATION - ADDRESS OR OTHER APPROPRIATE DESCRIPTION						
	601	0 Old Seward Highway				
CURRENT PHYSICAL LOCATION OF MEDIA (DAY TANK, WASH BAY, FIRE TRAINING PIT,						
in-situ USTs						
CONTAMINANTS OF CONC	ERNE	STIMATED VOLUME	DATE(S) GENERATED			
GRO/DRO/VOCs/PAHs Six 55-gallon drums June 30 and Ju			June 30 and July	1, 2020		
POST TREATMENT ANALY	SIS REQUIRED (such	h as GRO, DRO, RRO, VOCs	, metals, PFAS, and/or Chlorin	ated Solvents)		
COMMENTS OR OTHER IMPORTANT INFORMATION Contaminated soil will be consolidated at NRC Alaska Anchorage facility, then manifested to Grandview Idaho, an EPA approved Subtitle C landfill for final disposal.						

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER	
NRC Alaska	2020 Viking Drive, Anchorage, AK	
RESPONSIBLE PARTY	ADDRESS/PHONE NUMBER	
Williams	One Williams CTR, Tulsa, OK 74172	
WASTE MANAGEMENT CO. / ORGANIZER	ADDRESS/PHONE NUMBER	
NRC Alaska	2020 Viking Drive, Anchorage, AK	

*Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.

Dan P. McMahon	Senior Asso	ciate
Name of the Person Requesting Approval (printed)	Title/Association	
Dan P. McMahon DN: cn=Dan P. McMahon, o=Shannon & Wilson, ou, email=dxm@shanwil.com, c=US Date: 2020.06 17 16:07:28 - 08007	6/17/2020	907-433-3223
Signature	Date	Phone Number
DEC US	SE ONLY	
Based on the information provided, ADEC approves trans	sport of the above mentioned	material. The Responsible

Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Grant Lidren

DEC Project Manager Name (printed)

Ud Zan

Signature

EPS IV

Project Manager Title 6/18/2020

229-4969

Date

Phone Number

Rev. 01/2020

*** IN CASE OF EMERGENCY CALL 800-899-4672 *** NON-HAZARDOUS WASTE MANIFEST

153187-PARK

C

Plea	se print	or type (Form designed for use on elite (1	2 pitch) typewriter)					
		NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No VSQG			Manifest Document No.	153187C	2, Page 1 of 1
	FOF 6010	MER WILLIAMS EXPRESS	STORE #5021	FORMER WILLIAMS		SS STOR	E #502 1	
3	ANC	HORAGE, AK 99518		ANCHORAGE, AK 99	518		32	
- 24	5. Tr	aneporter 1 Company Name	6,	US EPA ID Number AKR000004184		A. State Trans	porter's ID 1 Phone 907-258-155	8
	7. Tr	ansporter 2 Company Name	8.	US EPA ID Number		C. State Trans	porter's ID	
						D. Transporter	2 Phone	
	9. De NRC	esignated Facility Name and Site Address	10,	US EPA ID Number		E. State Facilit	y's ID	
	2020 ANC) VIKING DRIVE CHORAGE, AK 99501	1	AKR000004184		F. FacIIIty's Ph	^{one} 907-258-1558	
	11. V	VASTE DESCRIPTION			Co	ntainers	13. Total	14. Unit
	HM				No.	Турө	Quantity	Wt./Vol.
	a.	MATERIAL NOT REGULATE	DBY D.O.T.		2	DN	700	Р
GE	b.							
N								
RAT	σ.							
Ö	d.							
n	1							
	G. A	ditional Descriptions for Materials Listed Above			L	H. Handling Co	des for Wastes Listed Abov	э
	I) EA	0302 IDW DECON WATER	/ GROUNDWATER	2	D	81252		
	1							
	15. S	Special Handling Instructions and Additional Infor	mation					
197	SI	hipper's Certification: This is to	certify that the ab	ove-named materials are	e prope	rly classifi	ed, described,	letione
	pa	ckaged, marked and labeled,	and are in proper c	ondition for transportation	on acco	braing to th	le applicable regu	lations
	U				_			
	and a		Y LET LET LE			STAT		V ACT AT
	16. C	ENERATOR'S CERTIFICATION: I hereby certile proper condition for transport. The materials de	y that the contents of this shipm scribed on this manifest are not	nent are fully and accurately described subject to federal hazardous waste re	l and are in egulations.	all respects		
-								Date
	Print	ed/Typed Name		Signature			Mor	th Day Year
	X	Alec Rizzo		1× ag	·		7	20 20
R	(17, 17)	Transporter 1 Acknowledgement of Receipt of M	aterials	Bloodba				Date
A Kos	Ester	Baryped Name	110 TR	Signature A	-	10	R	
P	18.	Transporter 2 Acknowledgement of Receipt of M	aterials	001		the contraction of the contracti	$-C \sim -($	Date
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Ļ	20. F	acility Owner or Operator: Certification of receip	of the waste materials covered	by this manifest, except as noted In it	em 19	\frown	r	Date
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Ŷ	V	Loises Araga	ra .	an	\sim	\prec	7	12/20
С	F14	© 2002 LABELMASTER ® (800) 621-5	808 www.labelmaster.c	om			UBING 20 AND 20	

NON-HAZARDOUS WASTE



CERTIFICATE OF DISPOSAL/RECYCLE

GENERATOR:

FORMER WILLIAMS EXPRESS STORE #5021 6010 OLD SEWARD HWY ANCHORAGE, AK 99518

DISPOSAL FACILITY: NRC ALASKA LLC 2020 VIKING DRIVE ANCHORAGE, AK 99501

EPA ID NUMBER:VSQGMANIFEST/DOCUMENT #:153187CDATE OF DISPOSAL/RECYCLE: JUL-21-2020

LINE	WASTE DESCRIPTION	CONTAINERS	<u>TYPE</u>	QUANTITY	UOM
1	IDW DECON WATER / GROUNDWATER	2	DM	700	Р

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

PREPARED BY: 10 e SIGNATURE: DATE:

JUL 2 1 2020

425 Outer Springer Loop Road - Palmer, AK 99645 - (907) 258-1558 - Fax (907) 746-3651 - Toll Free (877) 375-5040



ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF SPILL PREVENTION AND RESPONSE Contaminated Sites and Prevention Preparedness and Response Programs

Contaminated Media Transport and Treatment or Disposal Approval Form

DEC HAZARD/SPILL ID #	NAME OF CONTAMINATED SITE OR SPILL					
24042	Former Williams Express Store #5021					
CONTAMINATED SITE OR SPILL LOCATION - ADDRESS OR OTHER APPROPRIATE DESCRIPTION						
6010 Old Seward Highway						
CURRENT PHYSICAL LOCATION OF MEDIA (DAY TANK, WASH BAY, FIRE TRAINING PIT, LUST, E'				ONTAMINATION BAY, FIRE TRAINING PIT, LUST, ETC.)		
in-situ	ı		USTs			
CONTAMINANTS OF CONC	ERN	ESTI	MATED VOLUME	DATE(S) GENERATED		
GRO/DRO/VOCs/	/PAHs	Fiv	ive 55-gallon drums July 6 and 7, 2020			
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, VOCs, metals, PFAS, and/or Chlorinated Solvents)						
COMMENTS OR OTHER IM	COMMENTS OR OTHER IMPORTANT INFORMATION					

Water will be processed in a wastewater treatment unit, recovered fuel will be recycled and recovered oil will be managed under 40CFR Part 279 regulations at NRC Alaska Facility (2020 Viking Drive, Anchorage, AK 99501)

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER
NRC Alaska	2020 Viking Drive, Anchorage, AK
RESPONSIBLE PARTY	ADDRESS/PHONE NUMBER
Williams	One Williams CTR, Tulsa, OK 74172
WASTE MANAGEMENT CO. / ORGANIZER	ADDRESS/PHONE NUMBER
NRC Alaska	2020 Viking Drive, Anchorage, AK

*Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.

Dan P. McMahon

Name of the Person Requesting Approval (printed)

Dan P. McMahon ou, email=dxm@shanwii.com, c=US Date: 2020.07 02 13.06:17 - 08'00'

Senior Associate

7/2/2020

Date

Phone Number

907-433-3223

Signature

---DEC USE ONLY--

Based on the information provided, ADEC approves transport of the above mentioned material. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Grant Lidren

DEC Project Manager Name (printed)

201

Signature

Project Manager Title 7/9/2020

Date

FPS IV

229-4969

Phone Number

*** IN CASE OF EMERGENCY CALL 800-899-4672 *** NON-HAZARDOUS WASTE MANIFEST

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153187-PARK

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		NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. VSQG			Manifest Document No.	153187D	2. Page 1 of 1
	FOR 6010 ANC	MER WILLIAMS EXPRESS : OLD SEWARD HWY HORAGE, AK 99518	STORE #5021	FORMER WILLIAMS E 6010 OLD SEWARD H ANCHORAGE, AK 995	EXPRE MVY 518	SS STORI	E #5021	
	4. Ge	enerator's Phone ()						
2	NRC	ALASKA LLC	6.	AKR000004184		A. State Trans	907-258-155	8
						B. Transporter	1 Phone	
	7. Tr	ansporter 2 Company Name	8. I	US EPA ID Number		C. State Trans	2 Phone	
	0.5	sizehed Feellik, Neme and Site Address	10	LIS EBA ID Number		E State Eacilit		
-	NRC		10,	US EFAID Nulliber		L. Otato i acint	y 3 1D	0
	2020 ANC) VIKING DRIVE CHORAGE, AK 99501		AKR000004184		F. Facility's Ph	^{one} 907-258-1558	
10	11. V	VASTE DESCRIPTION	4		Co	ntalners	13.	14.
1	HM				No.	Турө	Quantity	Wt./Vol.
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		fellional Descriptions for Materials Listed Above				H. Hendling Co	odes for Wastes Listed Abov	
					D			
) 64	10302 IDW DECON WATER	GROUNDWATER		D.	1200		
	15. 8	special Handling instructions and Additional Info	rmation					
	SI pa of	nipper's Certification: This is t ackaged, marked and labeled, the Department of Transporta	o certify that the above and are in proper co ation	ve-named materials are ndition for transportatio	e prope on acco	rly classifie ording to th	ed, described, le applicable regu	ations
	17				7/			
	16. C	SENERATOR'S CERTIFICATION: I hereby cert n proper condition for transport. The materials d	ify that the contents of this shipme escribed on this manifest are not s	ent are fully and accurately described subject to federal hazardous waste re	and are in gulations.	all respects		
							[Date
	Print	ed/Typed Name		Signature			Mor	hth Day Year
	(X) Alec Rizzo		(X) and	2		7	02 171
Ţ	17.	Transporter 1 Acknowledgement of Receipt of N	laterials	~L				Date
R	Print	ed/Typed Name		Signature			Mor	nth Day Year
S		David mile	e	1121	~			1172
ò	18.	Transporter 2 Acknowledgement of Receipt of N	laterials					Date
ŤER	Print	ed/Typed Name		Signature			Mor	hth Day Year
F	19. C	Discrepancy Indication Space						
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l L	20. F	acility Owner or Operator: Certification of receip	ot of the waste materials covered b	by this manifest, except as noted In ite	əm 19.		-	
Ī	-				~			Date
Ť	Print	atrice B	easley	Signature)	B	asle	ing Of	th Day Year
С	F14	© 2002 LABEL MASTER ® (800) 621-	5808 www.labelmaster.co	m				

NON-HAZARDOUS WASTE



CERTIFICATE OF DISPOSAL/RECYCLE

GENERATOR:

FORMER WILLIAMS EXPRESS STORE #5021 6010 OLD SEWARD HWY ANCHORAGE, AK 99518

DISPOSAL FACILITY: NRC ALASKA LLC 2020 VIKING DRIVE ANCHORAGE, AK 99501

EPA ID NUMBER:VSQGMANIFEST/DOCUMENT #:153187DDATE OF DISPOSAL/RECYCLE: JUL-20-2020

LINE	WASTE DESCRIPTION	CONTAINERS	TYPE	QUANTITY	<u>UOM</u>
1	IDW DECON WATER / GROUNDWATER	1	DM	430	Р

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

PREPARED BY:	FLB		
SIGNATURE:	Fattilian Beasley	DATE:	JUL 2 0 2020

425 Outer Springer Loop Road - Palmer, AK 99645 - (907) 258-1558 - Fax (907) 746-3651 - Toll Free (877) 375-5040



ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION **DIVISION OF SPILL PREVENTION AND RESPONSE Contaminated Sites and Prevention Preparedness and Response Programs**

Contaminated Media Transport and Treatment or Disposal Approval Form

DEC HAZARD/SPILL ID #	NAME OF CON	NAME OF CONTAMINATED SITE OR SPILL					
24042			Former Williams Ex	kpress Store #5021			
CONTAMINATED SITE OR	SPILL LOCATION	N – AD	DRESS OR OTHER A	PPROPRIATE DESCRIPTION			
	6	010 O	ld Seward Highway				
CURRENT PHYSICAL LOCATION OF MEDIA (DAY TANK, WASH BAY, FIRE TRAINING PIT, LUST, ETC.)							
in-situ USTs							
CONTAMINANTS OF CONC	ERN	ESTI	MATED VOLUME DATE(S) GENERATED				
GRO/DRO/VOCs	/PAHs	Fiv	ive 55-gallon drums July 6 and 7, 2020				
POST TREATMENT ANALY	SIS REQUIRED (s	such as	GRO, DRO, RRO, VOCS	s, metals, PFAS, and/or Chlorinated Solvents)			
COMMENTS OR OTHER IMPORTANT INFORMATION							
Water will be processed in a wastewater treatment unit, recovered fuel will be recycled and recovered oil will be managed under 40CER Part 279 regulations at NRC Alaska Facility (2020 Viking Drive							

Anchorage, AK 99501)

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER
NRC Alaska	2020 Viking Drive, Anchorage, AK
RESPONSIBLE PARTY	ADDRESS/PHONE NUMBER
Williams	One Williams CTR, Tulsa, OK 74172
WASTE MANAGEMENT CO. / ORGANIZER	ADDRESS/PHONE NUMBER
NRC Alaska	2020 Viking Drive, Anchorage, AK

*Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.

Dan P. McMahon

Name of the Person Requesting Approval (printed)

Dan P. McMahon Du, email=dxm@shanwil.com, c=US Date: 2020.07 02 13:06

Title/Association 7/2/2020

Senior Associate

907-433-3223

Date

Phone Number

Signature

-----DEC USE ONLY-----

Based on the information provided, ADEC approves transport of the above mentioned material. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Grant Lidren

DEC Project Manager Name (printed)

24 Zan

Signature

7/9/2020

Date

EPS IV

Project Manager Title

229-4969

Phone Number

*** IN CASE OF EMERGENCY CALL 800-899-4672 *** NON-HAZARDOUS WASTE MANIFEST

. .

NON-HAZARDOUS WASTE

153187-PARK

Pleas	e print or type (Form designed for use on elite (12 pitch) typewriter)					
	NON-HAZARDOUS WASTE MANIFEST 1. Generator's US EPA ID No. VSQG			Manifest Document No.	153187E	2. Page 1 of 1
	3 Generator's Name and Mailing Address FORMER WILLIAMS EXPRESS STORE #5021 FOI 6010 OLD SEWARD HWY 601 ANCHORAGE AK 99518	RMER WILLIAMS EX 0 OLD SEWARD HN CHORAGE, AK 995'	XPRE NY 18	SS STORE	E #502'	
	4. Generator's Phone ()					
	5. Transporter 1 Company Name 6.	US EPA ID Number		A. State Transp	oorter's ID	
	CLIENT DELIVERED			B. Transporter	1 Phone	
	7. Transporter 2 Company Name 8.	US EPA ID Number		C. State Transp	porter's ID	
				D. Transporter	2 Phone	
	9. Designated Facility Name and Site Address 10. NRC ALASKA LLC	US EPA ID Number		E. State Facility	/'s ID	
	2020 VIKING DRIVE ANCHORAGE, AK 99501 Ak	(R000004184		F. Facility's Pho	^{one} 907-258-1558	
	11. WASTE DESCRIPTION		Cor	itainers	13. Total	14. Unit
1	HM		No.	Турө	Quantity	Wt./Vol.
	MATERIAL NOT REGULATED BY D.O.T.		1	DN	371	Р
GEN	- b					
ERA	с,					
TOR						_
				H, Handling Co	odes for Wastes Listed Abov	e
) EA0302 IDW DECON WATER / GROUNDWATER		D	1446		
	,					
	15. Special Handling Instructions and Additional Information					
	Shipper's Certification: This is to certify that the above-r packaged, marked and labeled, and are in proper condition	named materials are tion for transportation	prope n acco	rly classifie rding to th	ed, described, le applicable regu	lations
	of the Department of Transportation					
		-	7.1			
	46 OFMERATORIC CERTIFICATION I have by paddy that the contacts of the chipment of	a fully and accurately described a	and are in	all respects		
	in proper condition for transport. The materials described on this manifest are not subject	t to federal hazardous waste reg	ulations.			
						Date
	Printed/Typed Name	ianature			Mo	nth Day Year
	Alec Bizzo	an			7	29 20
F	Transporter 1 Acknowledgement of Receipt of Materials					Date
Ŕ	Printed/Typed Name s	ignature			Мо	nth <mark>Day</mark> Year
N S	A Her Rizzo	an	_		3	- 29 20
P	18. Transporter 2 Acknowledgement of Receipt of Materials					Date
Ř	Printed/Typed Name S	ignature			Мо	nth Day Year
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FAC	19. Discrepancy Indication Space					
Ĭ	20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this	a manifest, except as noted in iter	m 19.		2	
ļĻ						Date
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CERTIFICATE OF DISPOSAL/RECYCLE

GENERATOR:

FORMER WILLIAMS EXPRESS STORE #5021 6010 OLD SEWARD HWY ANCHORAGE, AK 99518

DISPOSAL FACILITY: NRC AL/ 2020 VIK

NRC ALASKA LLC 2020 VIKING DRIVE ANCHORAGE, AK 99501

EPA ID NUMBER:VSQGMANIFEST/DOCUMENT #:153187EDATE OF DISPOSAL/RECYCLE: JUL-30-2020

LINE	WASTE DESCRIPTION	CONTAINERS	TYPE	QUANTITY	<u>иои</u>
1	IDW DECON WATER / GROUNDWATER	1	DM	371	Р

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

PREPARED BY:	JUL 3 0 2020
SIGNATURE: fatting Beasley	DATE:

425 Outer Springer Loop Road - Palmer, AK 99645 - (907) 258-1558 - Fax (907) 746-3651 - Toll Free (877) 375-5040

SHANNON & WILSON, INC.

APPENDIX E

RESULTS OF ANALYTICAL TESTING BY SGS NORTH AMERICA INC. AND ADEC LABORATORY DATA REVIEW CHECKLISTS



Laboratory Report of Analysis

To: Shannon & Wilson, Inc. 5430 Fairbanks Street, Suite 3 Anchorage, AK 99518 561-2120

Report Number: 1203155

Client Project: 101293 WES5021

Dear Stephanie Dow,

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

Print Date: 07/21/2020 3:34:54PM

SGS North America Inc.

200 West Potter Drive, Anchorage, AK 99518 t 907.562.2343 f 907.561.5301 www.us.sgs.com Results via Engage



Case Narrative

SGS Client: Shannon & Wilson, Inc. SGS Project: 1203155 Project Name/Site: 101293 WES5021 Project Contact: Stephanie Dow

Refer to sample receipt form for information on sample condition.

LCS for HBN 1808714 [VXX/35915 (1568342) LCS

8260D - LCS recovery for 2,2-dichloropropane does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

1203257001MS (1568343) MS

8260D - MS recovery for 2,2-dichloropropane does not meet QC criteria. This analyte was not detected above the LOQ in the parent sample.

1203257001MSD (1568344) MSD

8260D - MSD recovery for 2,2-dichloropropane does not meet QC criteria. This analyte was not detected above the LOQ in the parent sample.

*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: 07/21/2020 3:34:55PM

SGS North America Inc.

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



Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. 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 <<u>http://www.sgs.com/en/Terms-and-Conditions.aspx></u>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 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.
В	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.
Sample summaries which i All DRO/RRO analyses are	nclude a result for "Total Solids" have already been adjusted for moisture content.

Print Date: 07/21/2020 3:34:57PM

Note:

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



Samp	le Sum	mary
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<u>Client Sample ID</u>	Lab Sample ID	<u>Collected</u>	Received	Matrix
101293-B45S8	1203155001	06/30/2020	07/02/2020	Soil/Solid (dry weight)
101293-B46S8	1203155002	06/30/2020	07/02/2020	Soil/Solid (dry weight)
101293-B47S4	1203155003	07/01/2020	07/02/2020	Soil/Solid (dry weight)
101293-B48S5	1203155004	07/01/2020	07/02/2020	Soil/Solid (dry weight)
101293-B49S6	1203155005	07/01/2020	07/02/2020	Soil/Solid (dry weight)
101293-STB	1203155006	06/30/2020	07/02/2020	Soil/Solid (dry weight)

Method 8270D SIM (PAH) AK101 SW8021B AK102 AK101 SM21 2540G SW8260D

Method Description 8270 PAH SIM Semi-Volatiles GC/MS AK101/8021 Combo. (S) AK101/8021 Combo. (S) Diesel Range Organics (S) Gasoline Range Organics (S) Percent Solids SM2540G

VOC 8260 (S) Field Extracted

Print Date: 07/21/2020 3:34:58PM



Detectable	Results	Summary
------------	---------	---------

Client Sample ID: 101293-B45S8			
Lab Sample ID: 1203155001	Parameter	Result	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	8.63J	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.992J	mg/Kg
Client Sample ID: 101293-B46S8			
Lab Sample ID: 1203155002	Parameter	Result	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	8.38J	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.67J	mg/Kg
Volatile GC/MS	Benzene	233	ug/Kg
	Ethylbenzene	16.9J	ug/Kg
	P & M -Xylene	24.8J	ug/Kg
	Toluene	16.3J	ug/Kg
Client Sample ID: 101293-B47S4			
Lab Sample ID: 1203155003	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	9.86J	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.11J	mg/Kg
Client Sample ID: 101293-B48S5			
Lab Sample ID: 1203155004	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	8.36J	mg/Kg

Print Date: 07/21/2020 3:34:59PM

SGS North America Inc.

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



Results of 101293-B45S8							
Client Sample ID: 101293-B45S8 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155001 Lab Project ID: 1203155	C R M S	ollection D eceived Da atrix: Soil/ olids (%):9 ocation:	ate: 06/30/2 ate: 07/02/2 Solid (dry we 1.4	20 10:24 0 16:30 eight)			
Results by Semivolatile Organic Fuel	S						
<u>Parameter</u> Diesel Range Organics	<u>Result Qual</u> 8.63 J	<u>LOQ/CL</u> 21.7	<u>DL</u> 6.74	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/16/20 13:51
Surrogates							
5a Androstane (surr)	90.8	50-150		%	1		07/16/20 13:51
Batch Information							
Analytical Batch: XFC15656 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 07/16/20 13:51 Container ID: 1203155001-A			Prep Batch: Prep Methor Prep Date/T Prep Initial \ Prep Extrac	XXX43422 d: SW3550C ime: 07/09/2 Wt./Vol.: 30.2 t Vol: 5 mL	0 10:01 03 g		

Print Date: 07/21/2020 3:35:01PM

J flagging is activated

SGS	

Results of 101293-B45S8							
Client Sample ID: 101293-B45S8 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155001 Lab Project ID: 1203155		C R M S La	ollection Da eceived Da latrix: Soil/S olids (%):91 ocation:	ate: 06/30/2 ite: 07/02/2 Solid (dry we 1.4	20 10:24 0 16:30 eight)		
Results by Volatile Fuels			_				
Parameter Gasoline Range Organics	<u>Result Qual</u> 0.992 J	<u>LOQ/CL</u> 2.82	<u>DL</u> 0.847	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/08/20 04:18
Surrogates							
4-Bromofluorobenzene (surr)	85.9	50-150		%	1		07/08/20 04:18
Batch Information							
Analytical Batch: VFC15221 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/08/20 04:18 Container ID: 1203155001-B		F F F F	Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	VXX35906 : SW5035A me: 06/30/2 /t./Vol.: 58.1 Vol: 30.003	0 10:24 33 g 5 mL		
						Allowable	
Parameter Bonzono	Result Qual	<u>LOQ/CL</u> 14_1	<u>DL</u> 4.52	<u>Units</u>	DF 1	<u>Limits</u>	Date Analyzed
Ethylbenzene	14.1 U	28.2	4.52 8.81	ug/Kg ug/Ka	1		07/08/20 04:18
o-Xylene	14.1 U	28.2	8.81	ug/Kg	1		07/08/20 04:18
P & M -Xylene	28.3 U	56.5	16.9	ug/Kg	1		07/08/20 04:18
Toluene	14.1 U	28.2	8.81	ug/Kg	1		07/08/20 04:18
Xylenes (total)	42.4 U	84.7	25.8	ug/Kg	1		07/08/20 04:18
Surrogates							
1,4-Difluorobenzene (surr)	92.6	72-119		%	1		07/08/20 04:18
Batch Information							
Analytical Batch: VFC15221 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 07/08/20 04:18 Container ID: 1203155001-B		F F F	Prep Batch: Prep Method Prep Date/Til Prep Initial W Prep Extract	VXX35906 : SW5035A me: 06/30/2 /t./Vol.: 58.1 Vol: 30.003	0 10:24 33 g 5 mL		
Print Date: 07/21/2020 3:35:01PM						l flaggin	a is activated

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Results of 101293-B46S8

Client Sample ID: **101293-B46S8** Client Project ID: **101293 WES5021** Lab Sample ID: 1203155002 Lab Project ID: 1203155 Collection Date: 06/30/20 14:59 Received Date: 07/02/20 16:30 Matrix: Soil/Solid (dry weight) Solids (%):90.6 Location:

Results by Polynuclear Aromatics GC/MS

						Allowable	
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u>	Date Analyzed
1-Methylnaphthalene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
2-Methylnaphthalene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Acenaphthene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Acenaphthylene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Anthracene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Benzo(a)Anthracene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Benzo[a]pyrene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Benzo[b]Fluoranthene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Benzo[g,h,i]perylene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Benzo[k]fluoranthene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Chrysene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Dibenzo[a,h]anthracene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Fluoranthene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Fluorene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Indeno[1,2,3-c,d] pyrene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Naphthalene	10.8 U	21.6	5.40	ug/Kg	1		07/10/20 13:43
Phenanthrene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Pyrene	13.5 U	27.0	6.75	ug/Kg	1		07/10/20 13:43
Surrogates							
2-Methylnaphthalene-d10 (surr)	80.7	58-103		%	1		07/10/20 13:43
Fluoranthene-d10 (surr)	81.9	54-113		%	1		07/10/20 13:43

Batch Information

Analytical Batch: XMS12123 Analytical Method: 8270D SIM (PAH) Analyst: DSD Analytical Date/Time: 07/10/20 13:43 Container ID: 1203155002-A Prep Batch: XXX43423 Prep Method: SW3550C Prep Date/Time: 07/09/20 11:49 Prep Initial Wt./Vol.: 22.991 g Prep Extract Vol: 5 mL

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Results of 101293-B46S8							
Client Sample ID: 101293-B46S8 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155002 Lab Project ID: 1203155		C R M S L	ollection D eceived Da atrix: Soil/s olids (%):9 ocation:	ate: 06/30/2 ate: 07/02/2 Solid (dry wo 0.6	20 14:59 20 16:30 eight)		
Results by Semivolatile Organic Fu	els						
<u>Parameter</u> Diesel Range Organics	<u>Result Qual</u> 8.38 J	<u>LOQ/CL</u> 22.0	<u>DL</u> 6.84	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/16/20 14:01
Surrogates							
5a Androstane (surr)	88.8	50-150		%	1		07/16/20 14:01
Batch Information Analytical Batch: XFC15656 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 07/16/20 14:01 Container ID: 1203155002-A		I I I I	Prep Batch: Prep Methor Prep Date/T Prep Initial V Prep Extract	XXX43422 d: SW3550C ime: 07/09/2 Vt./Vol.: 30.C t Vol: 5 mL	0 10:01 23 g		

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Results of 101293-B46S8							
Client Sample ID: 101293-B46S8 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155002 Lab Project ID: 1203155	C R M S	ollection Da eceived Da latrix: Soil/S olids (%):90 pocation:					
Results by Volatile Fuels							
Parameter Gasoline Range Organics	<u>Result Qual</u> 2.67 J	<u>LOQ/CL</u> 3.27	<u>DL</u> 0.981	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/08/20 05:12
Surrogates							
4-Bromofluorobenzene (surr)	70	50-150		%	1		07/08/20 05:12
Batch Information							
Analytical Batch: VFC15221 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/08/20 05:12 Container ID: 1203155002-B		i i i i i i i i i i i i i i i i i i i	Prep Batch: Prep Method Prep Date/Ti Prep Initial V Prep Extract	VXX35906 I: SW5035A ime: 06/30/2 Vt./Vol.: 50.0 Vol: 29.688	0 14:59)71 g 5 mL		

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Results of 101293-B46S8

Client Sample ID: **101293-B46S8** Client Project ID: **101293 WES5021** Lab Sample ID: 1203155002 Lab Project ID: 1203155

Collection Date: 06/30/20 14:59 Received Date: 07/02/20 16:30 Matrix: Soil/Solid (dry weight) Solids (%):90.6 Location:

Results by Volatile GC/MS

						Allowable	
Parameter	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
1,1,1,2-Tetrachloroethane	13.1 U	26.2	8.11	ug/Kg	1		07/09/20 16:15
1,1,1-Trichloroethane	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
1,1,2,2-Tetrachloroethane	1.31 U	2.62	0.811	ug/Kg	1		07/09/20 16:15
1,1,2-Trichloroethane	0.525 U	1.05	0.327	ug/Kg	1		07/09/20 16:15
1,1-Dichloroethane	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
1,1-Dichloroethene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
1,1-Dichloropropene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
1,2,3-Trichlorobenzene	32.7 U	65.4	19.6	ug/Kg	1		07/09/20 16:15
1,2,3-Trichloropropane	1.31 U	2.62	0.811	ug/Kg	1		07/09/20 16:15
1,2,4-Trichlorobenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
1,2,4-Trimethylbenzene	32.7 U	65.4	19.6	ug/Kg	1		07/09/20 16:15
1,2-Dibromo-3-chloropropane	65.5 U	131	40.6	ug/Kg	1		07/09/20 16:15
1,2-Dibromoethane	0.655 U	1.31	0.406	ug/Kg	1		07/09/20 16:15
1,2-Dichlorobenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
1,2-Dichloroethane	1.31 U	2.62	0.811	ug/Kg	1		07/09/20 16:15
1,2-Dichloropropane	6.55 U	13.1	4.06	ug/Kg	1		07/09/20 16:15
1,3,5-Trimethylbenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
1,3-Dichlorobenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
1,3-Dichloropropane	6.55 U	13.1	4.06	ug/Kg	1		07/09/20 16:15
1,4-Dichlorobenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
2,2-Dichloropropane	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
2-Butanone (MEK)	164 U	327	102	ug/Kg	1		07/09/20 16:15
2-Chlorotoluene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
2-Hexanone	65.5 U	131	40.6	ug/Kg	1		07/09/20 16:15
4-Chlorotoluene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
4-Isopropyltoluene	65.5 U	131	32.7	ug/Kg	1		07/09/20 16:15
4-Methyl-2-pentanone (MIBK)	164 U	327	102	ug/Kg	1		07/09/20 16:15
Acetone	164 U	327	102	ug/Kg	1		07/09/20 16:15
Benzene	233	16.4	5.10	ug/Kg	1		07/09/20 16:15
Bromobenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
Bromochloromethane	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
Bromodichloromethane	1.31 U	2.62	0.811	ug/Kg	1		07/09/20 16:15
Bromoform	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
Bromomethane	13.1 U	26.2	8.11	ug/Kg	1		07/09/20 16:15
Carbon disulfide	65.5 U	131	40.6	ug/Kg	1		07/09/20 16:15
Carbon tetrachloride	8.20 U	16.4	5.10	ug/Kg	1		07/09/20 16:15
Chlorobenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15

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Results of 101293-B46S8

Client Sample ID: **101293-B46S8** Client Project ID: **101293 WES5021** Lab Sample ID: 1203155002 Lab Project ID: 1203155

Collection Date: 06/30/20 14:59 Received Date: 07/02/20 16:30 Matrix: Soil/Solid (dry weight) Solids (%):90.6 Location:

Results by Volatile GC/MS

						Allowable	
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Chloroethane	131 U	262	81.1	ug/Kg	1		07/09/20 16:15
Chloroform	2.62 U	5.23	0.811	ug/Kg	1		07/09/20 16:15
Chloromethane	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
cis-1,2-Dichloroethene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
cis-1,3-Dichloropropene	8.20 U	16.4	5.10	ug/Kg	1		07/09/20 16:15
Dibromochloromethane	3.27 U	6.54	0.811	ug/Kg	1		07/09/20 16:15
Dibromomethane	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
Dichlorodifluoromethane	32.7 U	65.4	19.6	ug/Kg	1		07/09/20 16:15
Ethylbenzene	16.9 J	32.7	10.2	ug/Kg	1		07/09/20 16:15
Freon-113	65.5 U	131	40.6	ug/Kg	1		07/09/20 16:15
Hexachlorobutadiene	13.1 U	26.2	8.11	ug/Kg	1		07/09/20 16:15
Isopropylbenzene (Cumene)	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
Methylene chloride	65.5 U	131	40.6	ug/Kg	1		07/09/20 16:15
Methyl-t-butyl ether	65.5 U	131	40.6	ug/Kg	1		07/09/20 16:15
Naphthalene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
n-Butylbenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
n-Propylbenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
o-Xylene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
P & M -Xylene	24.8 J	65.4	19.6	ug/Kg	1		07/09/20 16:15
sec-Butylbenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
Styrene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
tert-Butylbenzene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
Tetrachloroethene	8.20 U	16.4	5.10	ug/Kg	1		07/09/20 16:15
Toluene	16.3 J	32.7	10.2	ug/Kg	1		07/09/20 16:15
trans-1,2-Dichloroethene	16.4 U	32.7	10.2	ug/Kg	1		07/09/20 16:15
trans-1,3-Dichloropropene	8.20 U	16.4	5.10	ug/Kg	1		07/09/20 16:15
Trichloroethene	3.27 U	6.54	1.96	ug/Kg	1		07/09/20 16:15
Trichlorofluoromethane	32.7 U	65.4	19.6	ug/Kg	1		07/09/20 16:15
Vinyl acetate	65.5 U	131	40.6	ug/Kg	1		07/09/20 16:15
Vinyl chloride	0.525 U	1.05	0.327	ug/Kg	1		07/09/20 16:15
Xylenes (total)	49.0 U	98.1	29.8	ug/Kg	1		07/09/20 16:15
Surrogates							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		07/09/20 16:15
4-Bromofluorobenzene (surr)	102	55-151		%	1		07/09/20 16:15
Toluene-d8 (surr)	96.2	85-116		%	1		07/09/20 16:15

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Results of 101293-B46S8

Client Sample ID: **101293-B46S8** Client Project ID: **101293 WES5021** Lab Sample ID: 1203155002 Lab Project ID: 1203155

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20083 Analytical Method: SW8260D Analyst: KAJ Analytical Date/Time: 07/09/20 16:15 Container ID: 1203155002-B Collection Date: 06/30/20 14:59 Received Date: 07/02/20 16:30 Matrix: Soil/Solid (dry weight) Solids (%):90.6 Location:

Prep Batch: VXX35915 Prep Method: SW5035A Prep Date/Time: 06/30/20 14:59 Prep Initial Wt./Vol.: 50.071 g Prep Extract Vol: 29.6885 mL

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Results of 101293-B47S4							
Client Sample ID: 101293-B47S4 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155003 Lab Project ID: 1203155		C R M S	ollection D eceived D atrix: Soil/ olids (%):9 ocation:	ection Date: 07/01/20 09:01 eived Date: 07/02/20 16:30 rix: Soil/Solid (dry weight) ds (%):92.2 ation:			
Results by Semivolatile Organic Fuels	;						
<u>Parameter</u> Diesel Range Organics	<u>Result Qual</u> 9.86 J	<u>LOQ/CL</u> 21.4	<u>DL</u> 6.63	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/16/20 14:11
Surrogates							
5a Androstane (surr)	91.5	50-150		%	1		07/16/20 14:11
Batch Information Analytical Batch: XFC15656 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 07/16/20 14:11 Container ID: 1203155003-A		I I I I I	Prep Batch: Prep Metho Prep Date/T Prep Initial \ Prep Extrac	XXX43422 d: SW3550C ïme: 07/09/2 Nt./Vol.: 30.4 t Vol: 5 mL	0 10:01 38 g		

Print Date: 07/21/2020 3:35:01PM

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Results of 101293-B47S4							
Client Sample ID: 101293-B47S4 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155003 Lab Project ID: 1203155		C R M S La	ollection Da eceived Da latrix: Soil/S olids (%):92 pocation:	ate: 07/01/2 te: 07/02/2 Solid (dry we 2.2	20 09:01 0 16:30 eight)		
Results by Volatile Fuels			_				
Parameter Gasoline Range Organics	<u>Result</u> Qual 1.11 J	<u>LOQ/CL</u> 2.98	<u>DL</u> 0.894	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/08/20 05:30
Surrogates							
4-Bromofluorobenzene (surr)	85.4	50-150		%	1		07/08/20 05:30
Batch Information							
Analytical Batch: VFC15221 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/08/20 05:30 Container ID: 1203155003-B		F F F F	Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	VXX35906 : SW5035A me: 07/01/2 /t./Vol.: 52.9 Vol: 29.111	0 09:01 65 g 5 mL		
						Allowable	
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Benzene	7.45 U	14.9 20.9	4.//	ug/Kg	1		07/08/20 05:30
	14.90	29.0 29.8	9.30	ug/Kg	1		07/08/20 05:30
P & M -Xvlene	29.8 U	29.0 59.6	9.30 17 9	ug/Kg	1		07/08/20 05:30
Toluene	14.9 U	29.8	9.30	ug/Kg	1		07/08/20 05:30
Xylenes (total)	44.7 U	89.4	27.2	ug/Kg	1		07/08/20 05:30
Surrogates							
1,4-Difluorobenzene (surr)	93.3	72-119		%	1		07/08/20 05:30
Batch Information							
Analytical Batch: VFC15221 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 07/08/20 05:30 Container ID: 1203155003-B		F F F F	Prep Batch: Prep Method Prep Date/Til Prep Initial W Prep Extract	VXX35906 : SW5035A me: 07/01/20 /t./Vol.: 52.9 Vol: 29.111	0 09:01 65 g 5 mL		
Print Date: 07/21/2020 3:35:01PM						l flaggin	n is activated

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Results of 101293-B48S5							
Client Sample ID: 101293-B48S5 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155004 Lab Project ID: 1203155		C R M S L	ollection D eceived Da atrix: Soil/ blids (%):8 bocation:	llection Date: 07/01/20 12:30 ceived Date: 07/02/20 16:30 trix: Soil/Solid (dry weight) lids (%):82.6 cation:			
Results by Semivolatile Organic Fue	els						
Parameter Diesel Range Organics	<u>ResultQual</u> 8.36 J	<u>LOQ/CL</u> 23.9	<u>DL</u> 7.42	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/16/20 14:21
Surrogates							
5a Androstane (surr)	92	50-150		%	1		07/16/20 14:21
Batch Information							
Analytical Batch: XFC15656 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 07/16/20 14:21 Container ID: 1203155004-A		F F F	Prep Batch: Prep Method Prep Date/T Prep Initial V Prep Extract	XXX43422 d: SW3550C ime: 07/09/2 Vt./Vol.: 30.3 : Vol: 5 mL	0 10:01 376 g		

Print Date: 07/21/2020 3:35:01PM

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Results of 101293-B48S5							
Client Sample ID: 101293-B48S5 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155004 Lab Project ID: 1203155		C R M Si La	ollection Da eceived Da atrix: Soil/s olids (%):8 ocation:	ate: 07/01/2 ate: 07/02/2 Solid (dry we 2.6	20 12:30 0 16:30 eight)		
Results by Volatile Fuels							
Parameter Gasoline Range Organics	<u>Result Qual</u> 1.81 U	<u>LOQ/CL</u> 3.63	<u>DL</u> 1.09	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/08/20 06:23
Surrogates							
4-Bromofluorobenzene (surr)	74.2	50-150		%	1		07/08/20 06:23
Batch Information							
Analytical Batch: VFC15221 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/08/20 06:23 Container ID: 1203155004-B		F F F F	Prep Batch: Prep Method Prep Date/Ti Prep Initial V Prep Extract	VXX35906 d: SW5035A ime: 07/01/2 Vt./Vol.: 58.9 Vol: 35.272	0 12:30 11 g 5 mL		
						Allowable	
Parameter Ponzono	Result Qual	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u> ₁	<u>Limits</u>	Date Analyzed
Ethylbenzene	9.05 U 18 1 U	36.3	5.60 11.3	ug/Kg ug/Kg	1		07/08/20 06:23
o-Xvlene	18.1 U	36.3	11.3	ug/Kg	1		07/08/20 06:23
P & M -Xylene	36.3 U	72.5	21.8	ug/Kg	1		07/08/20 06:23
Toluene	18.1 U	36.3	11.3	ug/Kg	1		07/08/20 06:23
Xylenes (total)	54.5 U	109	33.1	ug/Kg	1		07/08/20 06:23
Surrogates							
1,4-Difluorobenzene (surr)	93.7	72-119		%	1		07/08/20 06:23
Batch Information							
Analytical Batch: VFC15221 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 07/08/20 06:23 Container ID: 1203155004-B		F F F F	Prep Batch: Prep Methoc Prep Date/Ti Prep Initial V Prep Extract	VXX35906 d: SW5035A ime: 07/01/20 Vt./Vol.: 58.9 Vol: 35.2725	0 12:30 11 g 5 mL		
Print Date: 07/21/2020 3:35:01PM						J flaggin	g is activated

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Results of 101293-B49S6							
Client Sample ID: 101293-B49S6 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155005 Lab Project ID: 1203155		Collection Date: 07/01/2 Received Date: 07/02/20 Matrix: Soil/Solid (dry we Solids (%):89.5 Location:			20 16:02 20 16:30 eight)		
Results by Semivolatile Organic Fuels	5						
<u>Parameter</u> Diesel Range Organics	<u>Result Qual</u> 11.2 U	<u>LOQ/CL</u> 22.3	<u>DL</u> 6.92	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/16/20 14:31
Surrogates							
5a Androstane (surr)	78.1	50-150		%	1		07/16/20 14:31
Batch Information Analytical Batch: XFC15656 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 07/16/20 14:31 Container ID: 1203155005-A			Prep Batch: Prep Methor Prep Date/T Prep Initial V Prep Extrac	XXX43422 d: SW3550C ïime: 07/09/2 Nt./Vol.: 30.0 t Vol: 5 mL	0 10:01 '34 g		

Print Date: 07/21/2020 3:35:01PM

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Results of 101293-B49S6							
Client Sample ID: 101293-B49S6 Client Project ID: 101293 WES5021 Lab Sample ID: 1203155005 Lab Project ID: 1203155		C R M Si Lo	ollection Da eceived Da atrix: Soil/S olids (%):89 ocation:	ate: 07/01/2 hte: 07/02/2 Solid (dry we 9.5	20 16:02 0 16:30 eight)		
Results by Volatile Fuels							
Parameter Gasoline Range Organics	<u>Result Qual</u> 1.18 U	<u>LOQ/CL</u> 2.36	<u>DL</u> 0.708	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/08/20 06:41
Surrogates							
4-Bromofluorobenzene (surr)	49.8 *	50-150		%	1		07/08/20 06:41
Batch Information							
Analytical Batch: VFC15221 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/08/20 06:41 Container ID: 1203155005-B		F F F F	Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	VXX35906 I: SW5035A me: 07/01/2 Vt./Vol.: 78.6 Vol: 33.253	0 16:02 79 g mL		
						Allowable	
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Benzene	5.90 U	11.8	3.78	ug/Kg	1		07/08/20 06:41
Ethylbenzene	11.8 U	23.6	7.37	ug/Kg	1		07/08/20 06:41
o-Xylene	11.8 U	23.6	7.37	ug/Kg	1		07/08/20 06:41
P & M -Xylene	23.6 U	47.2	14.2	ug/Kg	1		07/08/20 06:41
Toluene	11.8 U	23.6	7.37	ug/Kg	1		07/08/20 06:41
Xylenes (total)	35.4 U	70.8	21.5	ug/Kg	1		07/08/20 06:41
Surrogates							
1,4-Difluorobenzene (surr)	93.5	72-119		%	1		07/08/20 06:41
Batch Information							
Analytical Batch: VFC15221 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 07/08/20 06:41 Container ID: 1203155005-B		F F F F	Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	VXX35906 I: SW5035A me: 07/01/2 Vt./Vol.: 78.6 Vol: 33.253	0 16:02 79 g mL		

Print Date: 07/21/2020 3:35:01PM

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Results of **101293-STB** Client Sample ID: **101293-STB** Client Project ID: **101293 WES5021** Lab Sample ID: 1203155006 Lab Project ID: 1203155

Received Date: 07/02/20 16:30 Matrix: Soil/Solid (dry weight) Solids (%):

Location:

Collection Date: 06/30/20 10:24

Results by Volatile Fuels

<u>Parameter</u> Gasoline Range Organics	<u>Result Qual</u> 1.25 U	<u>LOQ/CL</u> 2.51	<u>DL</u> 0.754	<u>Units</u> mg/Kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/08/20 00:26
Surrogates							
4-Bromofluorobenzene (surr)	82.3	50-150		%	1		07/08/20 00:26
Batch Information							
Analytical Batch: VFC15221		F	Prep Batch: \	/XX35906			
Analytical Method: AK101		F	Prep Method:	SW5035A	0 40 04		
Analyst: ALJ		F	Prep Date/ I in	ne: 06/30/2	0 10:24		
Container ID: 1203155006-A		F	Prep Initial VVI	./voi.: 49.7 /ol: 25 ml	rg		
Container ID. 1203133000-A		Г		VOI. ZJIIL			

Print Date: 07/21/2020 3:35:01PM

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Results of 101293-STB

Client Sample ID: **101293-STB** Client Project ID: **101293 WES5021** Lab Sample ID: 1203155006 Lab Project ID: 1203155 Collection Date: 06/30/20 10:24 Received Date: 07/02/20 16:30 Matrix: Soil/Solid (dry weight) Solids (%): Location:

Results by Volatile GC/MS

						Allowable	
<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
1,1,1,2-Tetrachloroethane	10.1 U	20.1	6.24	ug/Kg	1		07/09/20 14:20
1,1,1-Trichloroethane	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
1,1,2,2-Tetrachloroethane	1.00 U	2.01	0.624	ug/Kg	1		07/09/20 14:20
1,1,2-Trichloroethane	0.403 U	0.805	0.251	ug/Kg	1		07/09/20 14:20
1,1-Dichloroethane	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
1,1-Dichloroethene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
1,1-Dichloropropene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
1,2,3-Trichlorobenzene	25.1 U	50.3	15.1	ug/Kg	1		07/09/20 14:20
1,2,3-Trichloropropane	1.00 U	2.01	0.624	ug/Kg	1		07/09/20 14:20
1,2,4-Trichlorobenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
1,2,4-Trimethylbenzene	25.1 U	50.3	15.1	ug/Kg	1		07/09/20 14:20
1,2-Dibromo-3-chloropropane	50.5 U	101	31.2	ug/Kg	1		07/09/20 14:20
1,2-Dibromoethane	0.505 U	1.01	0.402	ug/Kg	1		07/09/20 14:20
1,2-Dichlorobenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
1,2-Dichloroethane	1.00 U	2.01	0.704	ug/Kg	1		07/09/20 14:20
1,2-Dichloropropane	5.05 U	10.1	3.12	ug/Kg	1		07/09/20 14:20
1,3,5-Trimethylbenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
1,3-Dichlorobenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
1,3-Dichloropropane	5.05 U	10.1	3.12	ug/Kg	1		07/09/20 14:20
1,4-Dichlorobenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
2,2-Dichloropropane	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
2-Butanone (MEK)	126 U	251	78.5	ug/Kg	1		07/09/20 14:20
2-Chlorotoluene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
2-Hexanone	50.5 U	101	31.2	ug/Kg	1		07/09/20 14:20
4-Chlorotoluene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
4-Isopropyltoluene	50.5 U	101	25.1	ug/Kg	1		07/09/20 14:20
4-Methyl-2-pentanone (MIBK)	126 U	251	78.5	ug/Kg	1		07/09/20 14:20
Acetone	126 U	251	78.5	ug/Kg	1		07/09/20 14:20
Benzene	6.30 U	12.6	3.92	ug/Kg	1		07/09/20 14:20
Bromobenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
Bromochloromethane	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
Bromodichloromethane	1.00 U	2.01	0.624	ug/Kg	1		07/09/20 14:20
Bromoform	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
Bromomethane	10.1 U	20.1	6.24	ug/Kg	1		07/09/20 14:20
Carbon disulfide	50.5 U	101	31.2	ug/Kg	1		07/09/20 14:20
Carbon tetrachloride	6.30 U	12.6	3.92	ug/Kg	1		07/09/20 14:20
Chlorobenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20

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Results of 101293-STB

Client Sample ID: 101293-STB Client Project ID: 101293 WES5021 Lab Sample ID: 1203155006 Lab Project ID: 1203155

Collection Date: 06/30/20 10:24 Received Date: 07/02/20 16:30 Matrix: Soil/Solid (dry weight) Solids (%): Location:

Results by Volatile GC/MS

						<u>Allowable</u>	
<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Chloroethane	101 U	201	62.4	ug/Kg	1		07/09/20 14:20
Chloroform	2.01 U	4.02	1.01	ug/Kg	1		07/09/20 14:20
Chloromethane	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
cis-1,2-Dichloroethene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
cis-1,3-Dichloropropene	6.30 U	12.6	3.92	ug/Kg	1		07/09/20 14:20
Dibromochloromethane	2.52 U	5.03	1.51	ug/Kg	1		07/09/20 14:20
Dibromomethane	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
Dichlorodifluoromethane	25.1 U	50.3	15.1	ug/Kg	1		07/09/20 14:20
Ethylbenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
Freon-113	50.5 U	101	31.2	ug/Kg	1		07/09/20 14:20
Hexachlorobutadiene	10.1 U	20.1	6.24	ug/Kg	1		07/09/20 14:20
Isopropylbenzene (Cumene)	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
Methylene chloride	50.5 U	101	31.2	ug/Kg	1		07/09/20 14:20
Methyl-t-butyl ether	50.5 U	101	31.2	ug/Kg	1		07/09/20 14:20
Naphthalene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
n-Butylbenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
n-Propylbenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
o-Xylene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
P & M -Xylene	25.1 U	50.3	15.1	ug/Kg	1		07/09/20 14:20
sec-Butylbenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
Styrene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
tert-Butylbenzene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
Tetrachloroethene	6.30 U	12.6	3.92	ug/Kg	1		07/09/20 14:20
Toluene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
trans-1,2-Dichloroethene	12.6 U	25.1	7.85	ug/Kg	1		07/09/20 14:20
trans-1,3-Dichloropropene	6.30 U	12.6	3.92	ug/Kg	1		07/09/20 14:20
Trichloroethene	2.52 U	5.03	1.51	ug/Kg	1		07/09/20 14:20
Trichlorofluoromethane	25.1 U	50.3	15.1	ug/Kg	1		07/09/20 14:20
Vinyl acetate	50.5 U	101	31.2	ug/Kg	1		07/09/20 14:20
Vinyl chloride	0.403 U	0.805	0.251	ug/Kg	1		07/09/20 14:20
Xylenes (total)	37.7 U	75.4	22.9	ug/Kg	1		07/09/20 14:20
Surrogates							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		07/09/20 14:20
4-Bromofluorobenzene (surr)	95.9	55-151		%	1		07/09/20 14:20
Toluene-d8 (surr)	95.8	85-116		%	1		07/09/20 14:20

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Results of 101293-STB

Client Sample ID: **101293-STB** Client Project ID: **101293 WES5021** Lab Sample ID: 1203155006 Lab Project ID: 1203155

Collection Date: 06/30/20 10:24 Received Date: 07/02/20 16:30 Matrix: Soil/Solid (dry weight) Solids (%): Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20083 Analytical Method: SW8260D Analyst: KAJ Analytical Date/Time: 07/09/20 14:20 Container ID: 1203155006-A Prep Batch: VXX35915 Prep Method: SW5035A Prep Date/Time: 06/30/20 10:24 Prep Initial Wt./Vol.: 49.71 g Prep Extract Vol: 25 mL

Print Date: 07/21/2020 3:35:01PM

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Method Blank								
Blank ID: MB for HBN 1 Blank Lab ID: 1567887	1808603 [SPT/11071]	Matrix: Soil/Solid (dry weight)						
QC for Samples: 1203155001, 1203155002	2, 1203155003, 1203155004, 1203	3155005						
Results by SM21 25400	3							
<u>Parameter</u> Total Solids	<u>Results</u> 100	LOQ/CL	<u>DL</u>	<u>Units</u> %				
Batch Information								
Analytical Batch: SPT Analytical Method: SM Instrument: Analyst: AEQ Analytical Date/Time:	11071 //21 2540G 7/7/2020 5:30:00PM							

Print Date: 07/21/2020 3:35:02PM

SGS	

Puplicate Sample ID: 1203108008 Duplicate Sample ID: 1507889 Analysis Date: 07/07/2020 17:30 Matrix: Soli/Solid (dry weight) QC for Samples: Matrix: Soli/Solid (dry weight) Results by SM21 2540G Matrix: Soli/Solid (dry weight) MAKE Original Duplicate MAKE Original Duplicate MAKE Original Duplicate Total Solids 95.3 95.2 Analysical Bach: SP111071 Analysical Bach: SP111071 Analysic: AEO Analysic: AEO						
Original Sample ID: 1203108008 Analysis Date: 07/07/2020 17:30 Matrix: Soil/Solid (dry weight) Matrix: Soil/Solid (dry weight) C for Samples: Image: Solid Solid (dry weight) Matrix: Soil/Solid (dry weight) Image: Solid (dry weight) Analycal Matrix: Solid (dry weight) Image: Solid (dry weight) Analycal Matrix: Solid (dry weight) Image: Solid (dry weight) Instrument: Analycal Matrix: AEO Image: Solid (dry weight) Matrix: AEO Image: Solid (dry weight) Print Date: Instrument: Analycal Matrix: AEO Image: Solid (dry weight) Print Date: Instrument: Analycal Matrix: AEO Image: Solid (dry weight) </td <td>Duplicate Sample Summar</td> <td>У</td> <td></td> <td></td> <td></td> <td></td>	Duplicate Sample Summar	У				
OC for Samples: Results by SM21 2540G MAME Original Duplicate Units RPD (%) RPD (L Total Solids 95.3 95.2 % 0.17 (< 15) Eatch Information Analytical Batch: SPT 11071 Analytical Method: SM21 2540G Instrument: Analyst: AED Put Date: 077217020 3:5502PM	Original Sample ID: 120310 Duplicate Sample ID: 1567)8008 889		Analysis Date: Matrix: Soil/Sol	07/07/2020 17:30 lid (dry weight)	
Results by SM21 2540G <u>MAME</u> <u>Original</u> <u>Duplicale</u> <u>Units</u> <u>RPD (%)</u> <u>RPD (L)</u> Total Solidis 96.3 95.2 % 0.17 (<15)	QC for Samples:					
Results by SM21 25406 MME Original Duplicate Units RPD (%) RPD (L) Total Solids 95.3 95.2 % 0.17 (<15)						
Results by SM21 2540G MAME Original Duplicate Units RPD (%) RPD CL Total Solids 95.3 95.2 % 0.17 (<15)						
NAME Original Duplicate Units RPD (%) RPD CL Total Solids 95.3 95.2 % 0.17 (<15)	Results by SM21 2540G					
MAKE Unginal Duplicate Units RED(%) RED(%) Total Solids 95.3 95.2 % 0.17 (<15)						
Total Solids 95.3 95.2 % 0.17 (<15)	NAME	Original	Duplicate	Units	<u>RPD (%)</u>	<u>RPD CL</u>
Prin Date: 07/21/2020 3:35:03PM	Total Solids	95.3	95.2	%	0.17	(< 15)
Print Date: 07/21/2020 3:35:03PM	Batch Information					
Anafyikati Method: SM21 2540G Instrument: Analyst: AEQ	Analytical Batch: SPT11071					
Instrument: Analyst: AEQ	Analytical Method: SM21 25	40G				
Print Date: 07/21/2020 %35:03PM	Instrument: Analvst: AEQ					
Print Date: 07/21/2020 3:35:03PM						
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Print Date: 07/21/2020 3:35:03PM						
	Print Date: 07/21/2020 3:35:03PM					

Duplicate Sample Summar	у							
Original Sample ID: 12031 Duplicate Sample ID: 1567	34023 890		Analysis Date: 07/07/2020 17:30 Matrix: Soil/Solid (dry weight)					
QC for Samples:								
1203155001, 1203155002,	1203155003, 12031	55004, 1203155005						
Results by SM21 2540G								
NAME	Original	Duplicate	<u>Units</u>	<u>RPD (%)</u>	RPD CL			
Total Solids	90.1	90.0	%	0.08	(< 15)			
Batch Information Analytical Batch: SPT11071 Analytical Method: SM21 25 Instrument: Analyst: AEQ	540G							

I							
Duplicate Sample Summa	ry						
Driginal Sample ID: 12094 Duplicate Sample ID: 1567 QC for Samples: 1203155001, 1203155002,	55004, 1203155005	Analysis Date: 07/07/2020 17:30 Matrix: Soil/Solid (dry weight) 4, 1203155005					
Results by SM21 2540G							
NAME	<u>Original</u>	Duplicate	<u>Units</u>	<u>RPD (%)</u>	RPD CL		
Fotal Solids	82.9	85.4	%	3.00	(< 15)		
Batch Information							
Analytical Batch: SPT11071 Analytical Method: SM21 2 Instrument: Analyst: AEQ	540G						

Print Date: 07/21/2020 3:35:03PM

Method Blank

SG:

Blank ID: MB for HBN 1808635 [VXX/35906] Blank Lab ID: 1567984 Matrix: Soil/Solid (dry weight)

QC for Samples:

1203155001, 1203155002, 1203155003, 1203155004, 1203155005, 1203155006

Results by AK101

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Gasoline Range Organics	1.28J	2.50	0.750	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	97	72-119		%
4-Bromofluorobenzene (surr)	70.1	50-150		%

Batch Information

Analytical Batch: VFC15221 Analytical Method: AK101 Instrument: Agilent 7890A PID/FID Analyst: ALJ Analytical Date/Time: 7/7/2020 11:50:00PM Prep Batch: VXX35906 Prep Method: SW5035A Prep Date/Time: 7/7/2020 6:00:00AM Prep Initial Wt./Vol.: 50 g Prep Extract Vol: 25 mL

Print Date: 07/21/2020 3:35:06PM



Blank Spike ID: LCS for HBN 1203155 [VXX35906] Blank Spike Lab ID: 1567985 Date Analyzed: 07/07/2020 22:39 Spike Duplicate ID: LCSD for HBN 1203155 [VXX35906] Spike Duplicate Lab ID: 1567986 Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155001, 1203155002, 1203155003, 1203155004, 1203155005, 1203155006

Results by AK101									
	E	Blank Spike	(mg/Kg)	S	pike Duplic	ate (mg/Kg)			
<u>Parameter</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	RPD CL
Gasoline Range Organics	12.5	13.0	104	12.5	12.5	100	(60-120)	3.50	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	84.8	85	1.25	83.4	83	(50-150)	1.70	
Batch Information									
Analytical Batch: VFC15221 Analytical Method: AK101				Prep Batch: VXX35906					
Instrument: Agilent 7890A Pli	D/FID			Prep Date/Time: 07/07/2020 06:00					
Analyst: ALJ				Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL					
				Dup	e Init Wt./\	/ol.: 12.5 mg	J/Kg Extract	Vol: 25 mL	

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Blank Spike ID: LCS for HBN 1203155 [VXX35906] Blank Spike Lab ID: 1568001 Date Analyzed: 07/07/2020 23:15 Spike Duplicate ID: LCSD for HBN 1203155 [VXX35906] Spike Duplicate Lab ID: 1568002 Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155001, 1203155002, 1203155003, 1203155004, 1203155005, 1203155006

Results by AK101			_						
	E	Blank Spike (Spike Duplicate (mg/Kg)					
Parameter	<u>Spike</u>	Result	<u>Rec (%)</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	RPD CL
Benzene	1.25	1.25	100	1.25	1.30	104	(75-125)	4.20	(< 20)
Ethylbenzene	1.25	1.18	94	1.25	1.20	96	(75-125)	2.00	(< 20)
o-Xylene	1.25	1.11	89	1.25	1.12	90	(75-125)	1.00	(< 20)
P & M -Xylene	2.50	2.28	91	2.50	2.35	94	(80-125)	2.70	(< 20)
Toluene	1.25	1.30	104	1.25	1.33	106	(70-125)	2.20	(< 20)
Xylenes (total)	3.75	3.39	91	3.75	3.47	92	(78-124)	2.10	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	99.5	100	1.25	101	101	(72-119)	1.90	
Batch Information									
Analytical Batch: VFC15221 Analytical Method: AK101		Prep Batch: VXX35906 Prep Method: SW5035A							

Analytical Batch. VFC15221 Analytical Method: AK101 Instrument: Agilent 7890A PID/FID Analyst: ALJ Prep Batch: VXX35906 Prep Method: SW5035A Prep Date/Time: 07/07/2020 06:00 Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1808635 [VXX/35906] Blank Lab ID: 1567984 Matrix: Soil/Solid (dry weight)

QC for Samples:

1203155001, 1203155002, 1203155003, 1203155004, 1203155005, 1203155006

enzene 6.25U 12.5 4.00 ug/Kg hylbenzene 12.5U 25.0 7.80 ug/Kg Xylene 12.5U 25.0 7.80 ug/Kg & M -Xylene 25.0U 50.0 15.0 ug/Kg bluene 12.5U 25.0 7.80 ug/Kg vlenes (total) 37.5U 75.0 22.8 ug/Kg rrogates rrogates	lameler	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
Ethylbenzene 12.5U 25.0 7.80 ug/Kg p-Xylene 12.5U 25.0 7.80 ug/Kg p & M -Xylene 25.0U 50.0 15.0 ug/Kg Toluene 12.5U 25.0 7.80 ug/Kg Xylenes (total) 37.5U 75.0 22.8 ug/Kg Analytical Batch: VEC15221 Prep Batch: VXX35906 %	Benzene	6.25U	12.5	4.00	ug/Kg
o-Xylene 12.5U 25.0 7.80 ug/Kg P & M -Xylene 25.0U 50.0 15.0 ug/Kg Toluene 12.5U 25.0 7.80 ug/Kg Xylenes (total) 37.5U 75.0 22.8 ug/Kg Surrogates 1,4-Diffluorobenzene (surr) 97 72-119 % Batch Information Prep Batch: VXX35906 YXX35906	Ethylbenzene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene 25.0U 50.0 15.0 ug/Kg Toluene 12.5U 25.0 7.80 ug/Kg Xylenes (total) 37.5U 75.0 22.8 ug/Kg Surrogates 1,4-Difluorobenzene (surr) 97 72-119 % Batch Information Prep Batch: VXX35906 YXX35906	o-Xylene	12.5U	25.0	7.80	ug/Kg
Toluene 12.5U 25.0 7.80 ug/Kg Xylenes (total) 37.5U 75.0 22.8 ug/Kg Surrogates 72-119 % Analytical Batch: VFC15221 Prep Batch: VXX35906	P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Xylenes (total) 37.5U 75.0 22.8 ug/Kg Surrogates 1,4-Difluorobenzene (surr) 97 72-119 % Satch Information Prep Batch: VXX35906	Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates 1,4-Difluorobenzene (surr) 97 72-119 % Batch Information Analytical Batch: VEC15221 Prep Batch: VXX35906	Xylenes (total)	37.5U	75.0	22.8	ug/Kg
1,4-Difluorobenzene (surr) 97 72-119 % Satch Information Analytical Batch: VEC15221 Prep Batch: VXX35906	Surrogates				
Analytical Batch: VFC15221 Prep Batch: VXX35906	1,4-Difluorobenzene (surr)	97	72-119		%
Analytical Method: SW8021B Prep Method: SW5035A Instrument: Agilent 7890A PID/FID Prep Date/Time: 7/7/2020 6:00:00AM Analyst: ALJ Prep Initial Wt./Vol.: 50 g Analytical Date/Time: 7/7/2020 11:50:00PM Prep Initial Wt./Vol.: 50 g	Analytical Batch: VFC1522 Analytical Method: SW802	1 1B PID/FID	Prep Ba Prep Ma Prep Da Prep Ini	atch: VXX35906 ethod: SW5035 ate/Time: 7/7/20 tital Wt./Vol.: 50	A A 920 6:00:00AM g

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Blank Spike ID: LCS for HBN 1203155 [VXX35906] Blank Spike Lab ID: 1568001 Date Analyzed: 07/07/2020 23:15 Spike Duplicate ID: LCSD for HBN 1203155 [VXX35906] Spike Duplicate Lab ID: 1568002 Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155001, 1203155002, 1203155003, 1203155004, 1203155005, 1203155006

Results by SW8021B									
Blank Spil		3lank Spike	(ug/Kg)	Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	<u>Rec (%)</u>	<u>Spike</u>	Result	Rec (%)	CL	<u>RPD (%)</u>	RPD CL
Benzene	1250	1250	100	1250	1300	104	(75-125)	4.20	(< 20)
Ethylbenzene	1250	1180	94	1250	1200	96	(75-125)	2.00	(< 20)
o-Xylene	1250	1110	89	1250	1120	90	(75-125)	1.00	(< 20)
P & M -Xylene	2500	2280	91	2500	2350	94	(80-125)	2.70	(< 20)
Toluene	1250	1300	104	1250	1330	106	(70-125)	2.20	(< 20)
Xylenes (total)	3750	3390	91	3750	3470	92	(78-124)	2.10	(< 20)
urrogates									
1,4-Difluorobenzene (surr)	1250	99.5	100	1250	101	101	(72-119)	1.90	
Batch Information									
Analytical Batch: VFC15221				Pre	p Batch: V	XX35906			
Analytical Method: SW80211	В			Pre	p Method:	SW5035A			
Instrument: Agilent 7890A F	PID/FID			Pre	p Date/Tim	e: 07/07/202	20 06:00		
Analyst: ALJ				Spi	ke Init Wt./\	/ol.: 1250 u	g/Kg Extrac	t Vol: 25 mL	
				Dup	be Init Wt./\	/ol.: 1250 ug	g/Kg Extract	Vol: 25 mL	

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Matrix Spike Summary

Original Sample ID: 1203155003 MS Sample ID: 1568033 MS MSD Sample ID: 1568034 MSD
 Analysis Date:
 07/08/2020
 5:30

 Analysis Date:
 07/08/2020
 5:47

 Analysis Date:
 07/08/2020
 6:05

 Matrix:
 Soil/Solid (dry weight)

QC for Samples: 1203155001, 1203155002, 1203155003, 1203155004, 1203155005, 1203155006

Results by SW8021B			_							
		Mat	trix Spike (ι	ug/Kg)	Spike	e Duplicate	(ug/Kg)			
<u>Parameter</u>	<u>Sample</u>	Spike	Result	<u>Rec (%)</u>	Spike	Result	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	RPD CL
Benzene	7.45U	1280	1280	100	1280	1323	103	75-125	3.30	(< 20)
Ethylbenzene	14.9U	1280	1323	103	1280	1367	107	75-125	3.20	(< 20)
o-Xylene	14.9U	1280	1236	96	1280	1291	101	75-125	4.80	(< 20)
P & M -Xylene	29.8U	2560	2570	100	2560	2668	104	80-125	4.00	(< 20)
Toluene	14.9U	1280	1367	107	1280	1399	109	70-125	2.30	(< 20)
Xylenes (total)	44.7U	3839	3796	99	3839	3970	103	78-124	4.30	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1280	1247	98	1280	1269	99	72-119	0.98	

Batch Information

Analytical Batch: VFC15221 Analytical Method: SW8021B Instrument: Agilent 7890A PID/FID Analyst: ALJ Analytical Date/Time: 7/8/2020 5:47:00AM Prep Batch: VXX35906 Prep Method: AK101 Extraction (S) Prep Date/Time: 7/7/2020 6:00:00AM Prep Initial Wt./Vol.: 52.97g Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1808714 [VXX/35915] Blank Lab ID: 1568341 Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155002, 1203155006

Results by SW8260D

Parameter	<u>Results</u>	LOQ/CL	DL	<u>Units</u>
1,1,1,2-Tetrachloroethane	10.0U	20.0	6.20	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	1.00U	2.00	0.620	ug/Kg
1,1,2-Trichloroethane	0.400U	0.800	0.250	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	1.00U	2.00	0.620	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	0.500U	1.00	0.310	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	1.00U	2.00	0.620	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	50.0U	100	31.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	50.0U	100	25.0	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Acetone	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	1.00U	2.00	0.620	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	10.0U	20.0	6.20	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg

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Method Blank

SG:

Blank ID: MB for HBN 1808714 [VXX/35915] Blank Lab ID: 1568341 Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155002, 1203155006

Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	DL	<u>Units</u>
Chloroform	2.00U	4.00	0.620	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	2.50U	5.00	0.620	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	110	71-136		%
4-Bromofluorobenzene (surr)	100	55-151		%
Toluene-d8 (surr)	97.7	85-116		%

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Method Blank					
Blank ID: MB for HBN 1 Blank Lab ID: 1568341	308714 [VXX/35915]	Matrix	k: Soil/Solid ((dry weight)	
QC for Samples: 1203155002, 1203155006					
Results by SW8260D]			
Parameter	Results	LOQ/CL	DL	<u>Units</u>	
Batch Information					
Analytical Batch: VMS Analytical Method: SW Instrument: VQA 7890, Analyst: KAJ Analytical Date/Time: 7	20083 8260D /5975 GC/MS 7/9/2020 10:14:00AM	Prep Ba Prep Me Prep Da Prep Init Prep Ex	tch: VXX359 hod: SW503 te/Time: 7/9/ tial Wt./Vol.: { tract Vol: 25	15 35A 2020 6:00:00AM 50 g mL	
Analytical Batch: VMS: Analytical Method: SW Instrument: VQA 7890, Analyst: KAJ Analytical Date/Time: 7	20083 8260D '5975 GC/MS 7/9/2020 10:14:00AM	Prep Ba Prep Me Prep Da Prep Inil Prep Ex	tch: VXX359 sthod: SW503 ite/Time: 7/9/ tial Wt./Vol.: { tract Vol: 25	15 35A 2020 6:00:00AM 50 g mL	

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Blank Spike ID: LCS for HBN 1203155 [VXX35915] Blank Spike Lab ID: 1568342 Date Analyzed: 07/09/2020 10:38

Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155002, 1203155006

Results by SW8260D

Blank Spike (ug/Kg)										
<u>Parameter</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	<u>CL</u>						
1,1,1,2-Tetrachloroethane	750	751	100	(78-125)						
1,1,1-Trichloroethane	750	814	108	(73-130)						
1,1,2,2-Tetrachloroethane	750	757	101	(70-124)						
1,1,2-Trichloroethane	750	725	97	(78-121)						
1,1-Dichloroethane	750	716	95	(76-125)						
1,1-Dichloroethene	750	745	99	(70-131)						
1,1-Dichloropropene	750	785	105	(76-125)						
1,2,3-Trichlorobenzene	750	738	98	(66-130)						
1,2,3-Trichloropropane	750	713	95	(73-125)						
1,2,4-Trichlorobenzene	750	779	104	(67-129)						
1,2,4-Trimethylbenzene	750	775	103	(75-123)						
1,2-Dibromo-3-chloropropane	750	740	99	(61-132)						
1,2-Dibromoethane	750	734	98	(78-122)						
1,2-Dichlorobenzene	750	753	100	(78-121)						
1,2-Dichloroethane	750	726	97	(73-128)						
1,2-Dichloropropane	750	829	110	(76-123)						
1,3,5-Trimethylbenzene	750	775	103	(73-124)						
1,3-Dichlorobenzene	750	769	103	(77-121)						
1,3-Dichloropropane	750	728	97	(77-121)						
1,4-Dichlorobenzene	750	771	103	(75-120)						
2,2-Dichloropropane	750	1070	142 *	(67-133)						
2-Butanone (MEK)	2250	2380	106	(51-148)						
2-Chlorotoluene	750	779	104	(75-122)						
2-Hexanone	2250	2320	103	(53-145)						
4-Chlorotoluene	750	790	105	(72-124)						
4-Isopropyltoluene	750	815	109	(73-127)						
4-Methyl-2-pentanone (MIBK)	2250	2160	96	(65-135)						
Acetone	2250	2110	94	(36-164)						
Benzene	750	771	103	(77-121)						
Bromobenzene	750	784	105	(78-121)						
Bromochloromethane	750	702	94	(78-125)						
Bromodichloromethane	750	825	110	(75-127)						
Bromoform	750	766	102	(67-132)						
Bromomethane	750	785	105	(53-143)						

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Blank Spike ID: LCS for HBN 1203155 [VXX35915] Blank Spike Lab ID: 1568342 Date Analyzed: 07/09/2020 10:38

Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155002, 1203155006

Results by SW8260D

	E	3lank Spike	(ug/Kg)	
<u>Parameter</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	
Carbon disulfide	1130	1130	100	
Carbon tetrachloride	750	847	113	
Chlorobenzene	750	752	100	
Chloroethane	750	715	95	
Chloroform	750	703	94	
Chloromethane	750	775	103	
cis-1,2-Dichloroethene	750	729	97	
cis-1,3-Dichloropropene	750	838	112	
Dibromochloromethane	750	739	99	
Dibromomethane	750	748	100	
Dichlorodifluoromethane	750	874	116	
Ethylbenzene	750	757	101	
Freon-113	1130	1260	112	
Hexachlorobutadiene	750	914	122	
Isopropylbenzene (Cumene)	750	795	106	
Methylene chloride	750	837	112	
Methyl-t-butyl ether	1130	1200	106	
Naphthalene	750	742	99	
n-Butylbenzene	750	832	111	
n-Propylbenzene	750	808	108	
o-Xylene	750	781	104	
P & M -Xylene	1500	1540	103	
sec-Butylbenzene	750	802	107	
Styrene	750	794	106	
tert-Butylbenzene	750	781	104	
Tetrachloroethene	750	811	108	
Toluene	750	683	91	
trans-1,2-Dichloroethene	750	775	103	
trans-1,3-Dichloropropene	750	801	107	
Trichloroethene	750	883	118	
Trichlorofluoromethane	750	815	109	
Vinyl acetate	750	932	124	
Vinyl chloride	750	735	98	
Xylenes (total)	2250	2330	103	

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QC for Samples: 120315	for Samples: 1203155002, 1203155006			Matrix: Soil/Solid (dry weight)			
Results by SW8260D		Blank Sniko	(ug/Kg)				
<u>Parameter</u>	Spike	Result	(ug/Ng) <u>Rec (%)</u>	CL			
urrogates							
1,2-Dichloroethane-D4 (surr)	750	100	100	(71-136)			
4-Bromofluorobenzene (surr)	750	100	100	(55-151)			
Toluene-d8 (surr)	750	97.2	97	(85-116)			
Batch Information							
Analytical Batch: VMS20083 Analytical Method: SW8260 Instrument: VQA 7890/5975 Analyst: KAJ	3 D 5 GC/MS			Prep Batch: VXX35915 Prep Method: SW5035A Prep Date/Time: 07/09/2020 06:00 Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL Dupe Init Wt./Vol.: Extract Vol:			

Print Date: 07/21/2020 3:35:16PM



Matrix Spike Summary

Original Sample ID: 1203257001 MS Sample ID: 1568343 MS MSD Sample ID: 1568344 MSD

QC for Samples: 1203155002, 1203155006

Results by SW8260D Matrix Spike (ug/Kg) Spike Duplicate (ug/Kg) Parameter Sample Spike Result Rec (%) Spike Result Rec (%) CL RPD (%) RPD CL 1,1,1,2-Tetrachloroethane 12.8U 793 798 101 793 833 105 78-125 4.40 (< 20) 1,1,1-Trichloroethane 16.0U 793 842 106 793 840 106 73-130 0.27 (< 20) 1,1,2,2-Tetrachloroethane 1.28U 793 782 99 793 792 100 1.30 (< 20) 70-124 3.60 1,1,2-Trichloroethane 0.510U 793 772 97 793 800 101 78-121 (< 20) 1,1-Dichloroethane 16.0U 793 744 94 793 737 93 76-125 0.86 (< 20) 1,1-Dichloroethene 16.0U 793 785 99 793 766 97 70-131 2.50 (< 20) 1,1-Dichloropropene 16.0U 793 811 102 793 814 103 76-125 0.38 (< 20) 1,2,3-Trichlorobenzene 32.0U 793 785 99 793 826 104 66-130 5.10 (< 20)1,2,3-Trichloropropane 1.28U 793 731 92 793 743 94 73-125 1.50 (< 20) 1,2,4-Trichlorobenzene 16.0U 793 819 103 793 855 108 67-129 4.30 (< 20) 1,2,4-Trimethylbenzene 32.0U 793 803 101 793 835 105 75-123 3.90 (< 20) 752 98 1,2-Dibromo-3-chloropropane 64.0U 793 95 793 778 61-132 3.40 (< 20) 1.2-Dibromoethane 0.640U 793 773 98 793 803 101 78-122 3.80 (< 20) 1,2-Dichlorobenzene 16.0U 793 774 98 793 792 100 78-121 2.30 (< 20) 793 756 95 793 743 73-128 1.2-Dichloroethane 1.28U 94 1.90 (< 20) 1.2-Dichloropropane 6.40U 793 860 108 793 861 108 76-123 0.11 (< 20) 1,3,5-Trimethylbenzene 16.0U 793 785 99 793 822 104 73-124 4.60 (< 20) 793 798 101 793 809 102 1,3-Dichlorobenzene 16.0U 77-121 1.40 (< 20) 1,3-Dichloropropane 6.40U 793 763 96 793 791 100 77-121 3.70 (< 20) 1,4-Dichlorobenzene 16.0U 793 804 101 793 811 102 75-120 0.82 (< 20)* 1123 * 2,2-Dichloropropane 16.0U 793 1135 143 793 141 67-133 1.30 (< 20) 2-Butanone (MEK) 160U 2380 2447 103 2380 2469 104 51-148 1.10 (< 20) 2-Chlorotoluene 16.0U 793 796 100 793 824 104 75-122 3.40 (< 20) 64.0U 2380 2392 101 2380 2469 104 3.20 2-Hexanone 53-145 (< 20) 101 4-Chlorotoluene 16.0U 793 801 793 822 104 72-124 2.60 (< 20) 4-Isopropyltoluene 793 843 106 881 64.0U 793 111 73-127 4.40 (< 20) 2214 4-Methyl-2-pentanone (MIBK) 160U 2380 93 2380 2247 95 65-135 1.70 (< 20) 160U 2380 Acetone 2147 90 2380 2136 90 36-164 0.83 (< 20) Benzene 8.00U 793 799 101 793 810 102 77-121 1.50 (< 20) Bromobenzene 16.0U 793 804 101 793 812 102 78-121 0.94 (< 20) Bromochloromethane 16.0U 793 731 92 793 715 90 78-125 2.10 (< 20) Bromodichloromethane 857 1.28U 793 108 793 845 107 75-127 1.30 (< 20) 806 102 829 67-132 2.80 Bromoform 16.0U 793 793 104 (< 20) Bromomethane 12.8U 793 842 106 793 808 102 53-143 4.20 (< 20)Carbon disulfide 1190 1201 101 1190 95 5.30 64.0U 1135 63-132 (< 20) Carbon tetrachloride 8.00U 793 881 111 793 879 0.28 111 70-135 (< 20) Chlorobenzene 16.0U 789 100 793 806 2.10 793 102 79-120 (< 20)

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Analysis Date: 07/09/2020 14:36 Analysis Date: 07/09/2020 11:20 Analysis Date: 07/09/2020 11:36 Matrix: Soil/Solid (dry weight)



Matrix Spike Summary

Original Sample ID: 1203257001 MS Sample ID: 1568343 MS MSD Sample ID: 1568344 MSD

QC for Samples: 1203155002, 1203155006

Analysis Date: 07/09/2020 14:36 Analysis Date: 07/09/2020 11:20 Analysis Date: 07/09/2020 11:36 Matrix: Soil/Solid (dry weight)

Results by SW8260D			_							
		Mat	trix Spike (ug/Kg)	Spike	e Duplicate	e (ug/Kg)			
<u>Parameter</u>	<u>Sample</u>	Spike	Result	<u>Rec (%)</u>	Spike	Result	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	RPD CL
Chloroethane	128U	793	821	104	793	733	92	59-139	11.40	(< 20)
Chloroform	1.01J	793	732	92	793	722	91	78-123	1.30	(< 20)
Chloromethane	16.0U	793	830	105	793	784	99	50-136	5.80	(< 20)
cis-1,2-Dichloroethene	16.0U	793	770	97	793	730	92	77-123	5.30	(< 20)
cis-1,3-Dichloropropene	8.00U	793	879	111	793	878	111	74-126	0.01	(< 20)
Dibromochloromethane	3.20U	793	775	98	793	803	101	74-126	3.50	(< 20)
Dibromomethane	16.0U	793	779	98	793	765	97	78-125	1.70	(< 20)
Dichlorodifluoromethane	32.0U	793	962	121	793	909	115	29-149	5.70	(< 20)
Ethylbenzene	16.0U	793	791	100	793	813	103	76-122	2.90	(< 20)
Freon-113	64.0U	1190	1335	112	1190	1313	110	66-136	1.50	(< 20)
Hexachlorobutadiene	12.8U	793	998	126	793	968	122	61-135	3.10	(< 20)
Isopropylbenzene (Cumene)	16.0U	793	816	103	793	857	108	68-134	4.80	(< 20)
Methylene chloride	64.0U	793	771	97	793	755	95	70-128	2.00	(< 20)
Methyl-t-butyl ether	64.0U	1190	1279	107	1190	1268	107	73-125	0.53	(< 20)
Naphthalene	16.0U	793	780	98	793	816	103	62-129	4.70	(< 20)
n-Butylbenzene	16.0U	793	862	109	793	903	114	70-128	4.60	(< 20)
n-Propylbenzene	16.0U	793	821	104	793	870	110	73-125	5.80	(< 20)
o-Xylene	16.0U	793	813	103	793	835	105	77-123	2.70	(< 20)
P & M -Xylene	32.0U	1591	1602	101	1591	1657	105	77-124	3.50	(< 20)
sec-Butylbenzene	16.0U	793	813	102	793	864	109	73-126	6.20	(< 20)
Styrene	16.0U	793	826	104	793	842	106	76-124	1.90	(< 20)
tert-Butylbenzene	16.0U	793	788	99	793	841	106	73-125	6.60	(< 20)
Tetrachloroethene	8.00U	793	853	108	793	902	114	73-128	5.70	(< 20)
Toluene	16.0U	793	717	90	793	746	94	77-121	4.00	(< 20)
trans-1,2-Dichloroethene	16.0U	793	800	101	793	802	101	74-125	0.20	(< 20)
trans-1,3-Dichloropropene	8.00U	793	839	106	793	878	111	71-130	4.50	(< 20)
Trichloroethene	3.20U	793	903	114	793	922	116	77-123	2.10	(< 20)
Trichlorofluoromethane	32.0U	793	872	110	793	838	106	62-140	4.00	(< 20)
Vinyl acetate	64.0U	793	976	123	793	972	123	50-151	0.42	(< 20)
Vinyl chloride	0.510U	793	786	99	793	753	95	56-135	4.40	(< 20)
Xylenes (total)	48.0U	2380	2414	102	2380	2492	105	78-124	3.20	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		793	779	98	793	754	95	71-136	3.20	
4-Bromofluorobenzene (surr)		1324	1052	80	1324	1067	81	55-151	1.40	
Toluene-d8 (surr)		793	776	98	793	795	100	85-116	2.40	

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Results by SW8260D Matrix Spike (%) Spike Duplicate (%) Parameter Sample Spike Result Rec (%) Spike Result Rec (%) CL Batch Information Analytical Batch: VMS20083 Prep Batch: VXX35915 Prep Method: Vol. Extraction SW8260 Field Instrument: VQA 7890/5975 GC/MS Prep Date/Time: 7/9/2020 6:00:00AM Prep Initial Wt./vol.: 52.59g Analytical Date/Time: 7/9/2020 11:20:00AM Prep Extract Vol: 25.00mL		
Parameter Sample Spike Result Rec (%) Spike Result Rec (%) CL Batch Information Analytical Batch: VMS20083 Prep Batch: VXX35915 Prep Method: Vol. Extraction SW8260 Field Analytical Method: SW8260D Prep Date/Time: 7/9/2020 6:00:00AM Prep Date/Time: 7/9/2020 6:00:00AM Instrument: VQA 7890/5975 GC/MS Prep Initial Wt./Vol.: 52.59g Prep Initial Wt./Vol.: 52.59g Analytical Date/Time: 7/9/2020 11:20:00AM Prep Extract Vol: 25.00mL Prep Extract Vol: 25.00mL		
Batch InformationAnalytical Batch: VMS20083Prep Batch: VXX35915Analytical Method: SW8260DPrep Method: Vol. Extraction SW8260 FieldInstrument: VQA 7890/5975 GC/MSPrep Date/Time: 7/9/2020 6:00:00AMAnalyst: KAJPrep Initial Wt./Vol.: 52.59gAnalytical Date/Time: 7/9/2020 11:20:00AMPrep Extract Vol: 25.00mL	<u>RPD (%)</u>	RPD CL
	Extracted L	

Print Date: 07/21/2020 3:35:17PM

Method Blank					
Blank ID: MB for HBN 180 Blank Lab ID: 1568098)8666 [XXX/43422]	Matrix	: Soil/Solid (d	lry weight)	
QC for Samples: 1203155001, 1203155002, 1	203155003, 1203155004, 120315	55005			
Results by AK102					
Parameter	<u>Results</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	
Diesel Range Organics	6.60J	20.0	6.20	mg/Kg	
Surrogates					
5a Androstane (surr)	95.3	60-120		%	
Batch Information					
Analytical Batch: XFC15	656	Prep Ba	tch: XXX4342	2	
	12	Prep Me	thod: SW3550	C	
Analytical Method: AK10					
Analytical Method: AK10 Instrument: Agilent 7890	B F	Prep Da Brop Init	te/Time: 7/9/2	020 10:01:46AM	

Print Date: 07/21/2020 3:35:18PM



Blank Spike ID: LCS for HBN 1203155 [XXX43422] Blank Spike Lab ID: 1568099 Date Analyzed: 07/16/2020 13:32 Spike Duplicate ID: LCSD for HBN 1203155 [XXX43422] Spike Duplicate Lab ID: 1568100 Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155001, 1203155002, 1203155003, 1203155004, 1203155005

<u>arameter</u> iesel Range Organics rrogates a Androstane (surr)	<u>Spike</u> 833	<u>Result</u> 663	<u>Rec (%)</u>	Spike					
iesel Range Organics rrogates a Androstane (surr)	833	663			Result	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	<u>RPD Cl</u>
rrogates a Androstane (surr)			80	833	665	80	(75-125)	0.25	(< 20)
a Androstane (surr)									
	16.7	102	102	16.7	102	102	(60-120)	0.43	
atch Information									
Analytical Batch: XFC15656 Analytical Method: AK102 Instrument: Agilent 7890B F Analyst: CDM				Pre Pre Pre Spil Dup	o Batch: XX o Method: o Date/Time ke Init Wt./V e Init Wt./V	KX43422 SW3550C e: 07/09/202 /ol.: 833 mg /ol.: 833 mg	0 10:01 /Kg Extract /Kg Extract \	Vol: 5 mL /ol: 5 mL	

Print Date: 07/21/2020 3:35:21PM

Method Blank

Blank ID: MB for HBN 1808681 [XXX/43423] Blank Lab ID: 1568167

QC for Samples: 1203155002

Results by 8270D SIM (PAH)

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
2-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
Acenaphthene	12.5U	25.0	6.25	ug/Kg
Acenaphthylene	12.5U	25.0	6.25	ug/Kg
Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo[a]pyrene	12.5U	25.0	6.25	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	6.25	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	6.25	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	6.25	ug/Kg
Chrysene	12.5U	25.0	6.25	ug/Kg
Dibenzo[a,h]anthracene	12.5U	25.0	6.25	ug/Kg
Fluoranthene	12.5U	25.0	6.25	ug/Kg
Fluorene	12.5U	25.0	6.25	ug/Kg
Indeno[1,2,3-c,d] pyrene	12.5U	25.0	6.25	ug/Kg
Naphthalene	10.0U	20.0	5.00	ug/Kg
Phenanthrene	12.5U	25.0	6.25	ug/Kg
Pyrene	12.5U	25.0	6.25	ug/Kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	85	58-103		%
Fluoranthene-d10 (surr)	83.4	54-113		%

Batch Information

Analytical Batch: XMS12123 Analytical Method: 8270D SIM (PAH) Instrument: SVA Agilent 780/5975 GC/MS Analyst: DSD Analytical Date/Time: 7/10/2020 10:59:00AM Prep Batch: XXX43423 Prep Method: SW3550C Prep Date/Time: 7/9/2020 11:49:55AM Prep Initial Wt./Vol.: 22.5 g Prep Extract Vol: 5 mL

Matrix: Soil/Solid (dry weight)

Print Date: 07/21/2020 3:35:22PM

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Blank Spike ID: LCS for HBN 1203155 [XXX43423] Blank Spike Lab ID: 1568168 Date Analyzed: 07/10/2020 11:20

Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155002

Results by 8270D SIM (PAH)

	E	Blank Spike	(ug/Kg)	
<u>Parameter</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	<u>CL</u>
1-Methylnaphthalene	111	114	103	(43-111)
2-Methylnaphthalene	111	117	105	(39-114)
Acenaphthene	111	104	93	(44-111)
Acenaphthylene	111	112	100	(39-116)
Anthracene	111	113	102	(50-114)
Benzo(a)Anthracene	111	95.5	86	(54-122)
Benzo[a]pyrene	111	122	110	(50-125)
Benzo[b]Fluoranthene	111	120	108	(53-128)
Benzo[g,h,i]perylene	111	121	109	(49-127)
Benzo[k]fluoranthene	111	110	99	(56-123)
Chrysene	111	107	96	(57-118)
Dibenzo[a,h]anthracene	111	129	116	(50-129)
Fluoranthene	111	108	97	(55-119)
Fluorene	111	107	96	(47-114)
Indeno[1,2,3-c,d] pyrene	111	136	123	(49-130)
Naphthalene	111	105	95	(38-111)
Phenanthrene	111	108	98	(49-113)
Pyrene	111	103	93	(55-117)
urrogates				
2-Methylnaphthalene-d10 (surr)	111	89.3	89	(58-103)
Fluoranthene-d10 (surr)	111	84.2	84	(54-113)

Batch Information

Analytical Batch: XMS12123 Analytical Method: 8270D SIM (PAH) Instrument: SVA Agilent 780/5975 GC/MS Analyst: DSD Prep Batch: XXX43423 Prep Method: SW3550C Prep Date/Time: 07/09/2020 11:49 Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL Dupe Init Wt./Vol.: Extract Vol:

Print Date: 07/21/2020 3:35:24PM



Matrix Spike Summary

Original Sample ID: 1209420003 MS Sample ID: 1568169 MS MSD Sample ID: 1568170 MSD Analysis Date: 07/10/2020 12:41 Analysis Date: 07/10/2020 13:02 Analysis Date: 07/10/2020 13:22 Matrix: Soil/Solid (dry weight)

QC for Samples: 1203155002

Results by 8270D SIM (PAH)

		Mat	rix Spike (ι	ug/Kg)	Spike	e Duplicate	(ug/Kg)			
<u>Parameter</u>	<u>Sample</u>	Spike	Result	<u>Rec (%)</u>	Spike	Result	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	RPD CL
1-Methylnaphthalene	13.4U	119	111	93	119	114	95	43-111	3.00	(< 20)
2-Methylnaphthalene	13.4U	119	114	95	119	117	98	39-114	3.20	(< 20)
Acenaphthene	13.4U	119	103	87	119	105	88	44-111	2.10	(< 20)
Acenaphthylene	13.4U	119	111	93	119	113	95	39-116	2.60	(< 20)
Anthracene	13.4U	119	113	95	119	116	97	50-114	2.70	(< 20)
Benzo(a)Anthracene	13.4U	119	94.3	79	119	97.7	82	54-122	3.60	(< 20)
Benzo[a]pyrene	13.4U	119	119	101	119	124	104	50-125	3.10	(< 20)
Benzo[b]Fluoranthene	13.4U	119	118	99	119	124	104	53-128	5.30	(< 20)
Benzo[g,h,i]perylene	13.4U	119	116	98	119	121	101	49-127	3.20	(< 20)
Benzo[k]fluoranthene	13.4U	119	108	90	119	109	91	56-123	0.89	(< 20)
Chrysene	13.4U	119	104	87	119	108	90	57-118	3.30	(< 20)
Dibenzo[a,h]anthracene	13.4U	119	125	105	119	129	108	50-129	3.10	(< 20)
Fluoranthene	13.4U	119	107	90	119	111	93	55-119	3.90	(< 20)
Fluorene	13.4U	119	107	90	119	110	92	47-114	3.00	(< 20)
Indeno[1,2,3-c,d] pyrene	13.4U	119	132	111	119	137	114	49-130	3.10	(< 20)
Naphthalene	10.8U	119	102	86	119	105	88	38-111	2.50	(< 20)
Phenanthrene	13.4U	119	107	90	119	110	92	49-113	2.50	(< 20)
Pyrene	13.4U	119	103	86	119	106	89	55-117	3.30	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		119	96.6	81	119	100	84	58-103	3.50	
Fluoranthene-d10 (surr)		119	94.2	79	119	97.5	82	54-113	3.50	

Batch Information

Analytical Batch: XMS12123 Analytical Method: 8270D SIM (PAH) Instrument: SVA Agilent 780/5975 GC/MS Analyst: DSD Analytical Date/Time: 7/10/2020 1:02:00PM Prep Batch: XXX43423 Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml Prep Date/Time: 7/9/2020 11:49:55AM Prep Initial Wt./Vol.: 22.57g Prep Extract Vol: 5.00mL

Print Date: 07/21/2020 3:35:25PM

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Laboratory 345 Page of Laboratory 345														
Geotechnical and Environmental Consultants					Attn: Jush'n									
400 N. 34th Street, Suite 100 2043 Westport Center Drive 2705 Saint Andrews Loop Seattle, WA 98103 St. Louis, MO 63146-3564 Pasco, WA 99301-3378 (206) 632-8020 (314) 699-9660 (509) 946-6309				Analysis Parameters/Sample Container Description (include preservative if used)										
2355 Hill Road Fairbanks, AK 99709 (907) 479-0600	airbanks Street, Suite 3 rage, AK 99518 561-2120)			/	AT IN	Leville	Gai (~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	๙ /				
3990 Collins Way, Suite 100 1321 E Lake Oswego, OR 97035 Denvel (503) 223-6147 (303) 8	3annock Street, Suite 200 r, CO 80204 :25-3800		Data					ST A	A Start	,a				
Sample Identity	Lab No.	Time	Sampled	65 6	v U	Σ	<u> </u>	<u>ڳ</u>	<u>/</u> /		Remarks/Matrix			
107293-84558	LAD	10:24	6/30/2020	X	×			<u> </u>	╞───┤─	2	Soil Sample			
101293- B4658	2AB	14:59	6 30/2020	X		X	×	X	X	2	Soil Sample			
101293-84754	3AB	09:01	7/1/2020	X	X	X	ļ			2	Soil Sample			
101293-84855	(TAB')	12:30	7/1/2020	X	X	<u>x</u>				2	Soil Sample			
101293-34956	(JAB)	16:02	7/1/2020	X	X	Х			<u> </u>	2	Doil Sample			
101293-STR	(GA)		7/1/2020				X		X	<u> </u>	Lab trip blank			
				$\uparrow \uparrow$										
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Deckerk Information	Com	Ne Recei	nt	Belin	quishe	d Bv:	1.	Relina	uished By	: 2.	Relinquished By: 3.			
Project Information Sample Receipt				Signature 1 & Time: 4:32PM				Signature: Time:			gnature: Time:			
Project Number: 10/E12 Inter Number of Containers				Printer Notes Data: 7/7/7/7/7/ Printe				inted Name: Date:			nted Name: Date:			
Contact: SKD Received Good Cond./Cold				Shanne Date: 14200										
Ongoing Project? Yes 🗶 No 🗌 Delivery Method:				Company:				ompany:		Cc	ompany:			
Sampler: SKD	(attach shipping	g bill, if any)		>4	11		X	D	ad Dec		Received By: 2			
Instructions				Rece	ived B	y: Time:	A.	nature:	Time:	Sig	$\begin{array}{c} \text{Index} \mathbf{D} \mathbf{y} \\ \text{gnature:} \\ \text{Time:} \\ \underline{ (_2, 30) } \\ \end{array}$			
Requested Turnaround Time: Stadard				oignature:						/k	à			
Special Instructions:				Printed Name: Date:			Pr	inted Name:	Date:	Pr	Printed Name: Date: 07/02/13 Revery Kabingon			
Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report Yellow - w/shipment - for consignee files				Company:			Co	ompany		Cr L	-CCD23 Alosent			
Pink - Shannon & Wil 19-91/UR										<u> </u>	No4835049			

F-19-91/UR

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363	1	2031	55	1 <u>2</u> 0 <u>3</u> 1 <u>5</u> 5				
	Review Criteria	Condition (Yes,	No, N/A	Exce	ptions Noted below			
<u>Chai</u>	<u>n of Custody / Temperature Requi</u>	rements	١	(es Exemption pe	rmitted if sample	er hand carries/delivers.		
	Were Custody Seals intact? Note # &	location N/A	absent					
	COC accompanied sa	amples? Yes						
DOD: We	re samples received in COC corresponding o	coolers? N/A						
	N/A **Exemption permitted if	ected <8 ho	urs ago, or for sam	nples where chill	ing is not required			
Tempe	erature blank compliant* (i.e., 0-6 °C afte	er CF)? Yes	Cooler ID	1	@	4.6 °C Therm. ID: D23		
<i></i>			Cooler ID	:	@	°C Therm. ID:		
If samples received without documented instead & "COOLI	nilled" will	Cooler ID	:	@	°C Therm. ID:			
		Cooler ID	:	@	°C Therm. ID:			
*//		Cooler ID	:	@	°C Therm. ID:			
~/1	1>6°C, were samples collected <8 hours	s ago? N/A	l					
	If <0°C, were sample containers ice	e free? N/A						
Note: Identify cont	ainers received at non-compliant tempe	rature .					_	
	Use form FS-0029 if more space is n	needed.						
Holding Time	I Documentation / Sample Condition R	equirements	Note: Refer	to form F-083 "Samp	le Guide" for speci	fic holding times.		
	Were samples received within holding	g time? Yes						
Do samples match	COC** (i.e.,sample IDs,dates/times colle	ected)? Yes					_	
**Note: If times	s differ <1hr, record details & login per C	OC.	Ï					
***Note: If sample information	on containers differs from COC, SGS will default to	COC information						
Were analytical reques	sts clear? (i.e., method is specified for ar	nalyses Yes						
with	multiple option for analysis (Ex: BTEX,	Metals)						
			1	N/A ***Exemption	permitted for me	etals (e.g,200.8/6020A).		
Were proper contain)used? Yes							
			I					
	Volatile / LL-Hg Rec	quirements						
vvere Trip Blar	iks (i.e., VOAs, LL-Hg) in cooler with sal							
were all water VOA	Vials free of headspace (i.e., bubbles S							
Note to	Client: Any "No", answer above indicates no	on-compliance	with standa	ard procedures and	d may impact da	ta quality.		
	Addition	al notes (if a	pplicable):				


Sample Containers and Preservatives

Container Id	<u>Preservative</u>	Container Condition	Container Id	<u>Preservative</u>	<u>Container</u> Condition
1203155001-A 1203155001-B 1203155002-A 1203155002-B 1203155003-A	No Preservative Required Methanol field pres. 4 C No Preservative Required Methanol field pres. 4 C No Preservative Required	ОК ОК ОК ОК			
1203155003-B 1203155004-A 1203155004-B 1203155005-A 1203155005-B 1203155006-A	Methanol field pres. 4 C No Preservative Required Methanol field pres. 4 C No Preservative Required Methanol field pres. 4 C Methanol field pres. 4 C	ОК ОК ОК ОК ОК			

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.

LABORATORY DATA REVIEW CHECKLIST

Completed by: Jessa Tibbetts

Title: Monitoring Well Installation and 2020 Groundwater Monitoring, Williams Express Site No. 5021, 6010 Old Seward Highway, Anchorage, Alaska **Date:** September 2020

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc. Laboratory Report Number: 1203155 Laboratory Report Date: 7/21/2020

Contaminated Site Name: Former Williams Express Store #5021 **ADEC File Number:** 2100.26.030 **Hazard Identification Number:** 24042

(**NOTE**: *NA* = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

1. Laboratory

- a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses? Yes/ No / NA Comments:
- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
 Yes / No NA
 Comments: The samples were not transferred to another "network" laboratory or sub-contracted to an alternate laboratory.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?
 Yes / No / NA Comments:
- **b.** Correct analyses requested? **Yes** / **No** / **NA** Comments:

3. <u>Laboratory Sample Receipt Documentation</u>

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
 Yes / No / NA
 Comments: *The cooler temperature blank was 4.6° Celsius.*

- b. Sample preservation acceptable acidified waters, Methanol preserved VOC soil (GRO, BTEX, VOCs, etc.)? Yes/ No / NA Comments:
- c. Sample condition documented broken, leaking (MeOH), zero headspace (VOC vials)?
 Ves/ No / NA 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 / NA Comments: No discrepancies were noted.
- e. Data quality or usability affected? Comments:

4. Case Narrative

- a. Present and understandable? Yes/ No / NA Comments:
- **b.** Discrepancies, errors or QC failures noted by the lab? **Yes** / **No** / **NA** Comments:
 - For Method 8260D LCS recovery for 2,2-dichlorpropane does not meet QC criteria. This analyte was not detected in the associated project samples.
 - For Method 8260D MS/MSD recoveries for 2,2-dichlorpropane do not meet QC criteria. This analyte was not detected in the associated project samples.
- c. Were all corrective actions documented? Yes / No NA Comments:
- **d.** What is the effect on data quality/usability, according to the case narrative? Comments: *The case narrative did not comment on the data quality/usability.*

5. <u>Sample Results</u>

- a. Correct analyses performed/reported as requested on COC? (Ves) No / NA Comments:
- **b.** All applicable holding times met? **Yes**/ **No** / **NA** Comments:
- **c.** All soils reported on a dry weight basis? **Yes**/ **No** / **NA** Comments:

- **d.** Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes No/ NA** Comments: *The LOQ for 11,2,3-trichloropropane, 1,2-dibromoethane, and dibromochloromethane are greater than its respective ADEC Table C cleanup level.*
- e. Data quality or usability affected? Comments: The data cannot be used to determine whether or not concentrations of 1,2,3-trichloropropane, 1,2-dibromoethane, and dibromochloromethane are present at concentrations less than the LOQ but greater than the ADEC Method Two cleanup levels.

6. <u>QC Samples</u>

a. Method Blank

- One method blank reported per matrix, analysis, and 20 samples?
 Yes/ No / NA Comments:
- **ii.** All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes No / NA

Comments: Although less than the LOQ, estimated (J-flagged) concentrations of the following GRO and DRO were detected in project samples.

- *GRO* (1.28 mg/kg) was detected in the method blank associated with Samples B45S8, B46S8, B47S4, B48S5, B49S6, and STB.
- DRO (6.60 mg/kg) was detected in the method blank associated with Samples B45S8, B46S8, B47S4, B48S5, and B49S6.
- **iii.** If above LOQ or project specified objectives, what samples are affected? Comments: *See above*
- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? **Yes**/ No / NA

Comments: Project samples with estimated GRO and DRO concentrations less than the LOQ, therefore the results have been flagged "B" and reported as non-detect at the LOQ in the report tables of the Shannon & Wilson report. Samples B48S5, B49S6, and STB did not contain concentrations of GRO greater than the LOQ and Sample B49S6 did not contain concentrations of DRO greater than the LOQ, therefore the method blank detections do not affect the sample and no flag is required.

v. Data quality or usability affected? Comments: *See above*.

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

- i. Organics One LCS/LCSD reported per matrix, analysis, and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846) (Yes) / No / NA Comments:
- ii. Metals/Inorganics One LCS and one sample duplicate reported per matrix, analysis and 20 samples? Yes / No NA Comments:
- iii. Accuracy All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) Yes No/ NA Comments: The LCS recovery for 2,2-dichlorpropane (142%) does not meet QC criteria (biased high)
- iv. Precision All relative percent differences (RPDs) 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) (Ves) No / NA Comments:
- v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments: *All project samples are potentially affected.*
- vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
 Yes / No NA
 Comments: 2,2-dichlorpropane was not detected in the associated samples, therefore flagging is not required.
- vii. Data quality or usability affected? Comments: See above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Note: Leave blank if not required for project

- Organics One MS/MSD reported per matrix, analysis, and 20 samples?
 Yes / No / NA Comments:
- ii. Metals/Inorganics One MS and one MSD reported per matrix, analysis and 20 samples? Yes / No NA Comments:

- iii. Accuracy All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) Yes No/ NA Comments: *MS/MSD recoveries for 2,2-dichlorpropane (143%/141%) do not meet QC criteria (biased high)*.
- iv. Precision All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from MS/MSD, and/or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) Yes/ No / NA Comments:
- v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments: *All project samples are potentially affected.*
- vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
 Yes No/ NA
 Comments: 2,2-dichlorpropane was not detected in the parent samples, therefore

Comments: 2,2-dichlorpropane was not detected in the parent samples, therefore flagging is not required.

vii. Data quality or usability affected? Comments: See above.

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 / NA 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; all other analyses see the laboratory report pages) Yes No NA Comments: *The 4-bromoflorobenzene (GRO surrogate) recovery for Sample B49S6 was 49.8 %.*
- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? (ves) No / NA Comments: The Sample B49S6 GRO result is flagged "J-" to indicate the sample result may be biased low.
- **iv.** Data quality or usability affected? Comments: *See above*.

- e. Trip Blank Volatile analyses only (GRO, BTEX, VOCs, etc.)
 - i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? **Ves**/ **No** / **NA** Comments:
 - ii. Is the cooler used to transport the trip blank and volatile samples clearly indicated on the COC? Yes No NA Comments: Only one cooler was used to transport the samples.
 - iii. All results less than LOQ and project specified objectives? Yes / No / NA Comments:
 - **iv.** If above LOQ or project specified DQOs, what samples are affected? Comments:
 - v. Data quality or usability affected? Comments: *See above*.

f. Field Duplicate

- i. One field duplicate submitted per matrix, analysis and 10 project samples?
 Yes No/ NA
 Comments: *Per our ADEC-approved workplan a field duplicate was not collected.*
- ii. Were the field duplicates submitted blind to the lab? Yes / No (NA) Comments:
- iii. Precision All relative percent differences (RPDs) less than specified project objectives? (Recommended: 30% for water, 50% for soil) Yes / No /NA Comments:
- **iv.** Data quality or usability affected? Comments: *See above*.
- **g.** Decontamination or Equipment Blank (if not applicable, a comment stating why must be entered below).

Yes (No) / NA Comments: A decontamination or equipment blank was not included in our ADEC-approved work plan.

 All results less than LOQ and project specified objectives?
 Yes / No NA Comments:

- **ii.** If above LOQ or project specified objectives, what samples are affected? Comments:
- iii. Data quality or usability affected? Comments:

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

a. Defined and appropriate? Yes / No / NA Comments: A key is provided on Page 3 of the SGS Laboratory Report.



Laboratory Report of Analysis

To: Shannon & Wilson, Inc. 5430 Fairbanks Street, Suite 3 Anchorage, AK 99518 (907)433-3223

Report Number: 1203746

Client Project: 101293 6010 Old Seward Highway

Dear Dan McMahon,

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

Print Date: 08/17/2020 9:31:58AM

SGS North America Inc.

200 West Potter Drive, Anchorage, AK 99518 t 907.562.2343 f 907.561.5301 www.us.sgs.com Results via Engage



Case Narrative

SGS Client: Shannon & Wilson, Inc. SGS Project: 1203746 Project Name/Site: 101293 6010 Old Seward Highway Project Contact: Dan McMahon

Refer to sample receipt form for information on sample condition.

101293-MW42 (1203746001) PS

8021B - Reported values for ethylbenzene and p&m xylene are above the calibration range. The sample was analyzed past hold at a dilution and results confirm.

101293-MW46 (1203746003) PS

AK101 - Surrogate recovery does not meet QC criteria due to matrix interference.

101293-MW1R (1203746007) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.

101293-MW10R (1203746008) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.

*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: 08/17/2020 9:32:00AM

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	Report o	of Manual Integration	ns	
Laboratory ID	Client Sample ID	Analytical Batch	<u>Analyte</u>	<u>Reason</u>
SW8021B				
1203746001	101293-MW42	VFC15264	o-Xylene	BLC
			-	
Manu	al Integration Reason Code Descriptions			
Code	Description			
0	Original Chromatogram			
M	Modified Chromatogram			
BIG	Closed baseline dap			
RP	Reassign peak name			
PIR	Pattern integration required			
IT OD	Included tail			
RSD	opiit peak Removed split peak			
FPS	Forced peak start/stop			
BLC	Baseline correction			
PNF	Peak not found by software			
All DF	RO/RRO analysis are integrated per SOP.			

Print Date: 08/17/2020 9:32:01AM



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 <<u>http://www.sgs.com/en/Terms-and-Conditions.aspx></u>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 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.
В	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.
Sample summaries which i All DRO/RRO analyses are	nclude a result for "Total Solids" have already been adjusted for moisture content. e integrated per SOP.

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Note:

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Samp	le Sum	mary
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Client Sample ID	Lab Sample ID	Collected	Received	<u>Matrix</u>
101293-MW42	1203746001	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)
101293-MW45	1203746002	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)
101293-MW46	1203746003	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)
101293-MW47	1203746004	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)
101293-MW48	1203746005	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)
101293-MW49	1203746006	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)
101293-MW1R	1203746007	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)
101293-MW10R	1203746008	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)
101293-WTB	1203746009	07/28/2020	07/29/2020	Water (Surface, Eff., Ground)

Method AK101 SW8021B AK102 AK103 Method Description AK101/8021 Combo.

AK101/8021 Combo. DRO/RRO Low Volume Water DRO/RRO Low Volume Water

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Client Sample ID: 101293-MW42			
Lab Sample ID: 1203746001	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1.56	mg/L
-	Residual Range Organics	0.183J	mg/L
Volatile Fuels	Benzene	114	ug/L
	Ethylbenzene	281	ug/L
	Gasoline Range Organics	2.93	mg/L
	o-Xylene	7.40	ug/L
	P & M -Xylene	918	ug/L
	Toluene	1.19	ug/L
	Xylenes (total)	926	ug/L
Client Sample ID: 101293-MW45			
Lab Sample ID: 1203746002	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.212J	mg/L
	Residual Range Organics	0.173J	mg/L
Volatile Fuels	Benzene	0.240J	ug/L
	Ethylbenzene	0.370J	ug/L
	o-Xylene	2.28	ug/L
	P & M -Xylene	3.25	ug/L
	Xylenes (total)	5.53	ug/L
Client Sample ID: 101293-MW46			
Lab Sample ID: 1203746003	Parameter	Result	l Inite
Semivolatile Organic Fuels	Diesel Range Organics	0.333.1	ma/l
	Residual Range Organics	0.215J	ma/l
Volatile Fuels	Benzene	239	ua/l
Volatile i dela	Ethylbenzene	70.5	ua/L
	Gasoline Range Organics	1.21	ma/L
	o-Xvlene	0.950J	ua/L
	P & M -Xylene	190	ug/L
	Toluene	0.480J	ug/L
	Xylenes (total)	191	ug/L
Client Sample ID: 101293-MW47			
Lab Sample ID: 1203746004	Peremeter	Popult	Linito
Volatile Evels	<u>Falanielei</u> Benzene	0 190 1	ua/l
	Bonzono	0.1000	agri
Client Sample ID: 101293-MW49			
Lab Sample ID: 1203746006	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	0.276J	mg/L
	Residual Range Organics	0.243J	mg/L

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Detectable	Results	Summary
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Client Sample ID: 101293-MW1R			
Lab Sample ID: 1203746007	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	8.43	mg/L
	Residual Range Organics	0.448J	mg/L
Volatile Fuels	Benzene	145	ug/L
	Ethylbenzene	507	ug/L
	Gasoline Range Organics	25.3	mg/L
	o-Xylene	3280	ug/L
	P & M -Xylene	4330	ug/L
	Toluene	53.4	ug/L
	Xylenes (total)	11000	ug/L
Client Sample ID: 101293-MW10R			
Lab Sample ID: 1203746008	Parameter	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	8.37	mg/L
-	Residual Range Organics	0.579	mg/L
Volatile Fuels	Benzene	139	ug/L
	Ethylbenzene	494	ug/L
	Gasoline Range Organics	25.3	mg/L
	o-Xylene	3800	ug/L
	P & M -Xylene	5080	ug/L
	Toluene	53.1	ug/L
	Xylenes (total)	8880	ug/L

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SGS	

Client Sample ID: 101293-MW42 Client Sample ID: 101293-MW42 Client Project ID: 101293 6010 Old Se Lab Sample ID: 1203746001 Lab Project ID: 1203746							
Results by Semivolatile Organic Fuels	5						
Parameter Diesel Range Organics	<u>Result</u> Qual 1.56	<u>LOQ/CL</u> 0.577	<u>DL</u> 0.173	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 08/07/20 23:10
Surrogates	00.4	50 450		0/			00/07/00 00 40
5a Androstane (surr)	88.4	50-150		%	1		08/07/20 23:10
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 08/07/20 23:10 Container ID: 1203746001-A			Prep Batch: Prep Method Prep Date/Til Prep Initial W Prep Extract	XXX43539 : SW3520C me: 07/30/2 /t./Vol.: 260 Vol: 1 mL	20 16:53 mL		
<u>Parameter</u> Residual Range Organics	<u>Result</u> Qual 0.183 J	<u>LOQ/CL</u> 0.481	<u>DL</u> 0.144	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	Date Analyzed 08/07/20 23:10
Surrogates							
n-Triacontane-d62 (surr)	83.4	50-150		%	1		08/07/20 23:10
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK103 Analyst: CDM Analytical Date/Time: 08/07/20 23:10 Container ID: 1203746001-A			Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	XXX43539 : SW3520C me: 07/30/2 /t./Vol.: 260 Vol: 1 mL	20 16:53 mL		

Print Date: 08/17/2020 9:32:07AM

J flagging is activated

Results of 101293-MW42 Client Sample ID: 101293-MW42 Client Project ID: 101293 6010 Old Seward Highway Lab Sample ID: 1203746001 Lab Project ID: 1203746							
			Collection Da Received Dat Matrix: Water Solids (%): Location:	ite: 07/28/ te: 07/29/2 ·(Surface,	20 14:50 20 11:39 Eff., Gro	und)	
Results by Volatile Fuels							
Parameter	<u>Result Qual</u>	LOQ/CL	DL	<u>Units</u>	DF	<u>Allowable</u> <u>Limits</u>	Date Analyze
Gasoline Range Organics	2.93	0.100	0.0310	mg/L	1		07/31/20 14:1
urrogates							
4-Bromofluorobenzene (surr)	114	50-150		%	1		07/31/20 14:1
Batch Information							
Analytical Batch: VFC15264 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/31/20 14:11 Container ID: 1203746001-C			Prep Batch: \ Prep Method: Prep Date/Tir Prep Initial W Prep Extract \	VXX36041 SW5030E ne: 07/31/2 t./Vol.: 5 m Vol: 5 mL	8 20 06:00 IL		
Parameter	Result Qual		DI	Units	DF	Allowable	Date Analyze
Benzene	114	0.500	0.150	ug/L	1		07/31/20 14:
Ethylbenzene	281	1.00	0.310	ug/L	1		07/31/20 14:
o-Xylene	7.40	1.00	0.310	ug/L	1		07/31/20 14:
P & M -Xylene	918	2.00	0.620	ug/L	1		07/31/20 14:
Toluene	1.19	1.00	0.310	ug/L	1		07/31/20 14:
Kylenes (total)	926	3.00	0.930	ug/L	1		07/31/20 14:
u rrogates 1 4-Difluorobenzene (surr)	103	77-115		%	1		07/31/20 14
					·		01/01/2011
Analytical Batch: VFC15264 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 07/31/20 14:11 Container ID: 1203746001-C			Prep Batch: V Prep Method: Prep Date/Tir Prep Initial W Prep Extract V	VXX36041 SW5030E ne: 07/31/2 't./Vol.: 5 m Vol: 5 mL	3 20 06:00 IL		

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Results of 101293-MW45							
Client Sample ID: 101293-MW45 Client Project ID: 101293 6010 Old Sev Lab Sample ID: 1203746002 Lab Project ID: 1203746	vard Highway	C R M S	ollection Da eceived Da latrix: Wate olids (%): ocation:	ate: 07/28/ ite: 07/29/2 r (Surface,	20 15:40 20 11:39 Eff., Gro	und)	
Results by Semivolatile Organic Fuels			<u> </u>				
						Allowable	
Parameter	Result Qual	LOQ/CL	DL	<u>Units</u>	DF	Limits	Date Analyzed
Diesel Range Organics	0.212 J	0.577	0.173	mg/L	1		08/07/20 23:20
Surrogates							
5a Androstane (surr)	88.9	50-150		%	1		08/07/20 23:20
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 08/07/20 23:20 Container ID: 1203746002-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 /t./Vol.: 260 Vol: 1 mL	20 16:53 mL		
<u>Parameter</u> Residual Range Organics	<u>Result Qual</u> 0.173 J	<u>LOQ/CL</u> 0.481	<u>DL</u> 0.144	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	Date Analyzed 08/07/20 23:20
Surrogates n-Triacontane-d62 (surr)	82.9	50-150		%	1		08/07/20 23:20
Analytical Batch: XFC15679 Analytical Method: AK103 Analyst: CDM Analytical Date/Time: 08/07/20 23:20 Container ID: 1203746002-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 /t./Vol.: 260 Vol: 1 mL	20 16:53 mL		

Print Date: 08/17/2020 9:32:07AM

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- Results of 101293-MW45								
Client Sample ID: 101293-MW45 Client Project ID: 101293 6010 Old Seward Highway Lab Sample ID: 1203746002 Lab Project ID: 1203746			Collection Date: 07/28/20 15:40 Received Date: 07/29/20 11:39 Matrix: Water (Surface, Eff., Ground) Solids (%): Location:					
Results by Volatile Fuels			_					
<u>Parameter</u> Gasoline Range Organics	<u>Result Qual</u> 0.0500 U	<u>LOQ/CL</u> 0.100	<u>DL</u> 0.0310	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 08/03/20 18:19	
Surrogates 4-Bromofluorobenzene (surr)	80.2	50-150		%	1		08/03/20 18:19	
Batch Information								
Analytical Batch: VFC15266 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 08/03/20 18:19 Container ID: 1203746002-E			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 IL			
Parameter	Result Qual	100/01	DI	Units	DF	<u>Allowable</u>	Date Analyzed	
Benzene	0.240 J	0.500	0.150	ug/L	1		08/03/20 18:19	
Ethylbenzene	0.370 J	1.00	0.310	ug/L	1		08/03/20 18:19	
o-Xylene	2.28	1.00	0.310	ug/L	1		08/03/20 18:19	
P & M -Xylene	3.25	2.00	0.620	ug/L	1		08/03/20 18:19	
Toluene	0.500 U	1.00	0.310	ug/L	1		08/03/20 18:19	
Xylenes (total)	5.53	3.00	0.930	ug/L	1		08/03/20 18:19	
Surrogates								
1,4-Difluorobenzene (surr)	87	77-115		%	1		08/03/20 18:19	
Batch Information								
Analytical Batch: VFC15266 Analytical Method: SW8021B Analyst: ALJ			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m	3 20 06:00 IL			

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Results of 101293-MW46							
Client Sample ID: 101293-MW46 Client Project ID: 101293 6010 Old Sev Lab Sample ID: 1203746003 Lab Project ID: 1203746	vard Highway	C R M S L	collection Da deceived Da latrix: Wate olids (%): ocation:	ate: 07/28/: te: 07/29/2 r (Surface,	20 11:20 20 11:39 Eff., Gro	und)	
Results by Semivolatile Organic Fuels							
						A II	
Parameter	Result Qual	LOQ/CL	DL	Units	DF	<u>Allowable</u> Limits	Date Analvzed
Diesel Range Organics	0.333 J	0.556	0.167	mg/L	1		08/07/20 23:30
Sumanataa							
Surrogales	02.8	50 150		0/_	1		08/07/20 23.30
	92.0	50-150		70	I		00/07/20 23.30
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 08/07/20 23:30 Container ID: 1203746003-A			Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	XXX43539 : SW3520C me: 07/30/2 /t./Vol.: 270 Vol: 1 mL	0 16:53 mL		
<u>Parameter</u> Residual Range Organics	<u>Result Qual</u> 0.215 J	<u>LOQ/CL</u> 0.463	<u>DL</u> 0.139	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	Date Analyzed 08/07/20 23:30
Surrogates							
n-Triacontane-d62 (surr)	88.6	50-150		%	1		08/07/20 23:30
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK103 Analyst: CDM Analytical Date/Time: 08/07/20 23:30 Container ID: 1203746003-A			Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	XXX43539 : SW3520C me: 07/30/2 /t./Vol.: 270 Vol: 1 mL	0 16:53 mL		

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Results of 101293-MW46								
Client Sample ID: 101293-MW46 Client Project ID: 101293 6010 Old Seward Highway Lab Sample ID: 1203746003 Lab Project ID: 1203746		way	Ci Ri M Si Lo	und)				
Results by Volatile Fuels) <u> </u>				
Parameter Gasoline Range Organics	<u>Result Qu</u> 1.21	<u>ial</u>	<u>LOQ/CL</u> 0.100	<u>DL</u> 0.0310	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 08/03/20 18:37
Surrogates 4-Bromofluorobenzene (surr)	162	*	50-150		%	1		08/03/20 18:37
Batch Information								
Analytical Batch: VFC15266 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 08/03/20 18:37 Container ID: 1203746003-E			F F F F	Prep Batch: Prep Method Prep Date/Til Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 1L		
Parameter	Result Q	ıal	100/01	וח	Units	DF	<u>Allowable</u>	Date Analyzed
Benzene	239		0.500	0.150	ug/L	1	Linito	08/03/20 18:37
Ethylbenzene	70.5		1.00	0.310	ug/L	1		08/03/20 18:37
o-Xylene	0.950 J		1.00	0.310	ug/L	1		08/03/20 18:37
P & M -Xylene	190		2.00	0.620	ug/L	1		08/03/20 18:37
Toluene	0.480 J		1.00	0.310	ug/L	1		08/03/20 18:37
Xylenes (total)	191		3.00	0.930	ug/L	1		08/03/20 18:37
Surrogates								
1,4-Difluorobenzene (surr)	105		77-115		%	1		08/03/20 18:37
Batch Information								
Analytical Batch: VFC15266 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 08/03/20 18:37 Container ID: 1203746003-E			F F F F	Prep Batch: Prep Method Prep Date/Til Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 1L		

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Results of 101293-MW47 Client Sample ID: 101293-MW47 Client Project ID: 101293 6010 Old Sew Lab Sample ID: 1203746004 Lab Project ID: 1203746	vard Highway	C R M S	Collection Da Received Da Matrix: Wate Colids (%):	ate: 07/28/ ite: 07/29/2 r (Surface,	20 10:15 20 11:39 Eff., Gro	und)	
Results by Semivolatile Organic Fuels		Ľ					
						Allowable	
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Limits	Date Analyzed
Diesel Range Organics	0.288 U	0.577	0.173	mg/L	1		08/07/20 23:40
Surrogates		50 450		0/			00/07/00 00 40
5a Androstane (surr)	90.9	50-150		%	1		08/07/20 23:40
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 08/07/20 23:40 Container ID: 1203746004-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 /t./Vol.: 260 Vol: 1 mL	20 16:53 mL		
Parameter Residual Range Organics	<u>Result Qual</u> 0.240 U	<u>LOQ/CL</u> 0.481	<u>DL</u> 0.144	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 08/07/20 23:40
Surrogates							
n-Triacontane-d62 (surr)	84.1	50-150		%	1		08/07/20 23:40
Batch Information Analytical Batch: XFC15679 Analytical Method: AK103 Analyst: CDM Analytical Date/Time: 08/07/20 23:40 Container ID: 1203746004-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 /t./Vol.: 260 Vol: 1 mL	20 16:53 mL		

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Results of 101293-MW47							
Client Sample ID: 101293-MW47 Client Project ID: 101293 6010 Old Seward Highway Lab Sample ID: 1203746004 Lab Project ID: 1203746			Collection Da Received Da Matrix: Water Solids (%): Location:	ate: 07/28/ te: 07/29/2 r (Surface,	20 10:15 20 11:39 Eff., Grou	und)	
Results by Volatile Fuels							
<u>Parameter</u> Gasoline Range Organics	<u>Result</u> Qual 0.0500 U	<u>LOQ/CL</u> 0.100	<u>DL</u> 0.0310	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzec</u> 08/03/20 18:55
Surrogates 4-Bromofluorobenzene (surr)	77.7	50-150		%	1		08/03/20 18:5
Batch Information							
Analytical Batch: VFC15266 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 08/03/20 18:55 Container ID: 1203746004-E			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 IL		
Parameter Benzene	Result Qual	<u>LOQ/CL</u> 0 500	<u>DL</u> 0.150	<u>Units</u> ua/l	DF 1	<u>Allowable</u> <u>Limits</u>	Date Analyzec
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/20 18:5
o-Xylene	0.500 U	1.00	0.310	ug/L	1		08/03/20 18:5
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		08/03/20 18:5
Toluene	0.500 U	1.00	0.310	ug/L	1		08/03/20 18:5
Xylenes (total)	1.50 U	3.00	0.930	ug/L	1		08/03/20 18:5
urrogates 1.4-Difluorobenzene (surr)	88	77-115		%	1		08/03/20 18:5
Potch Information							
Analytical Batch: VFC15266 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 08/03/20 18:55 Container ID: 1203746004-E			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 IL		

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Results of 101293-MW48							
Client Sample ID: 101293-MW48 Client Project ID: 101293 6010 Old Se Lab Sample ID: 1203746005 Lab Project ID: 1203746	ward Highway	C F N S	Collection Da Received Da Matrix: Wate Solids (%): Location:	ate: 07/28/ ite: 07/29/2 r (Surface,	20 10:05 20 11:39 Eff., Gro	und)	
Results by Semivolatile Organic Fuels	;						
			-				
Parameter	Result Qual		וח	Unite	DE	Allowable	Date Analyzed
Diesel Range Organics		0.600	0.180	ma/l	1	LIIIIIIS	08/08/20 00:10
Dieser Hange Organies	0.000 0	0.000	0.100	iiig/L			00/00/20 00.10
Surrogates							
5a Androstane (surr)	93.9	50-150		%	1		08/08/20 00:10
Batch Information							
Analytical Batch: XFC15679			Prep Batch:	XXX43539			
Analytical Method: AK102			Prep Method	: SW3520C	0 16.52		
Analysi. CDM Analytical Date/Time: 08/08/20 00:10			Prep Initial W	/t /Vol · 250	ml		
Container ID: 1203746005-A			Prep Extract	Vol: 1 mL			
						Allowable	
<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Limits	Date Analyzed
Residual Range Organics	0.250 U	0.500	0.150	mg/L	1		08/08/20 00:10
Surrogates							
n-Triacontane-d62 (surr)	90.4	50-150		%	1		08/08/20 00:10
	50.4	00-100		70			00/00/20 00.10
Batch Information							
Applytical Batch: XEC15670			Drop Batch:	XXX/3530			
Analytical Batch: Ar C13079 Analytical Method: AK103			Prep Method	: SW3520C			
Analyst: CDM			Prep Date/Ti	me: 07/30/2	20 16:53		
Analytical Date/Time: 08/08/20 00:10			Prep Initial W	/t./Vol.: 250	mL		
Container ID: 1203746005-A			Prep Extract	Vol: 1 mL			

Results of 101293-MW48							
Client Sample ID: 101293-MW48 Client Project ID: 101293 6010 Old Seward Highway Lab Sample ID: 1203746005 Lab Project ID: 1203746			Collection Da Received Da Matrix: Water Solids (%): Location:	und)			
Results by Volatile Fuels							
<u>Parameter</u> Gasoline Range Organics	<u>Result Qual</u> 0.0500 U	<u>LOQ/CL</u> 0.100	<u>DL</u> 0.0310	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyze</u> 08/03/20 19:1
urrogates 4-Bromofluorobenzene (surr)	77 7	50-150		%	1		08/03/20 10.1
	11.1	00-100		70	ļ		00/00/20 10.1
Analytical Batch: VFC15266 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 08/03/20 19:13 Container ID: 1203746005-E			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 IL		
Parameter Benzene	Result Qual	LOQ/CL	<u>DL</u> 0.150	<u>Units</u>	DF 1	<u>Allowable</u> <u>Limits</u>	Date Analyze
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/20 19:1
p-Xylene	0.500 U	1.00	0.310	ug/L	1		08/03/20 19:1
⊃ & M -Xylene	1.00 U	2.00	0.620	ug/L	1		08/03/20 19:
Toluene	0.500 U	1.00	0.310	ug/L	1		08/03/20 19:
Xylenes (total)	1.50 U	3.00	0.930	ug/L	1		08/03/20 19:1
urrogates 1,4-Difluorobenzene (surr)	87.2	77-115		%	1		08/03/20 19: ⁻
Batch Information							
Analytical Batch: VFC15266 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 08/03/20 19:13 Container ID: 1203746005-E			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 IL		

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Results of 101293-MW49							
Client Sample ID: 101293-MW49 Client Project ID: 101293 6010 Old Sev Lab Sample ID: 1203746006 Lab Project ID: 1203746	vard Highway	C F N S L	Collection Da Received Da Matrix: Wate Solids (%): .ocation:	Ilection Date: 07/28/20 11:23 ceived Date: 07/29/20 11:39 atrix: Water (Surface, Eff., Ground) Ilids (%): cation:			
Results by Semivolatile Organic Fuels							
						<u>Allowable</u>	
Parameter Diesel Range Organics	<u>Result Qual</u> 0.276 J	<u>LOQ/CL</u> 0.577	<u>DL</u> 0.173	<u>Units</u> mg/L	<u>DF</u> 1	<u>Limits</u>	<u>Date Analyzed</u> 08/08/20 00:20
Surrogates							
5a Androstane (surr)	97.8	50-150		%	1		08/08/20 00:20
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 08/08/20 00:20 Container ID: 1203746006-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 /t./Vol.: 260 Vol: 1 mL	20 16:53 mL		
Parameter	Result Qual	1.00/01	וח	Units	DE	<u>Allowable</u>	Date Analyzed
Residual Range Organics	0.243 J	0.481	0.144	mg/L	1	Limito	08/08/20 00:20
Surrogates							
n-Triacontane-d62 (surr)	91.9	50-150		%	1		08/08/20 00:20
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK103 Analyst: CDM Analytical Date/Time: 08/08/20 00:20 Container ID: 1203746006-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 : SW3520C me: 07/30/2 /t./Vol.: 260 Vol: 1 mL	20 16:53 mL		

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Results of 101293-MW49							
Client Sample ID: 101293-MW49 Client Project ID: 101293 6010 Old Seward Highway Lab Sample ID: 1203746006 Lab Project ID: 1203746			Collection Da Received Dat Matrix: Water Solids (%): Location:	und)			
Results by Volatile Fuels							
<u>Parameter</u> Gasoline Range Organics	<u>Result</u> Qual 0.0500 U	<u>LOQ/CL</u> 0.100	<u>DL</u> 0.0310	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 08/03/20 19:31
Surrogates							
4-Bromofluorobenzene (surr)	80.3	50-150		%	1		08/03/20 19:31
Batch Information							
Analytical Batch: VFC15266 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 08/03/20 19:31 Container ID: 1203746006-E			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	8 20 06:00 IL		
Daramatar	Regult Quel		DI	Linito	DE	Allowable	Data Analyzad
Benzene	0.250 U	0.500	<u>DL</u> 0.150	ua/L	1	LIIIIIS	08/03/20 19:31
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/20 19:31
o-Xylene	0.500 U	1.00	0.310	ug/L	1		08/03/20 19:3 ⁻
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		08/03/20 19:3 ²
Toluene	0.500 U	1.00	0.310	ug/L	1		08/03/20 19:3
Xylenes (total)	1.50 U	3.00	0.930	ug/L	1		08/03/20 19:3
Surrogates							
1,4-Difluorobenzene (surr)	86.6	77-115		%	1		08/03/20 19:37
Batch Information							
Analytical Batch: VFC15266 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 08/03/20 19:31 Container ID: 1203746006-E			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36043 : SW5030E me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	8 20 06:00 IL		

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Results of 101293-MW1R							
Client Sample ID: 101293-MW1R Client Project ID: 101293 6010 Old Se Lab Sample ID: 1203746007 Lab Project ID: 1203746	ward Highway		Collection Da Received Da Matrix: Wate Solids (%): Location:	ate: 07/28/ ate: 07/29/2 r (Surface,	20 14:15 20 11:39 Eff., Gro	und)	
Results by Semivolatile Organic Fuels	6						
<u>Parameter</u> Diesel Range Organics	<u>Result Qual</u> 8.43	<u>LOQ/CL</u> 0.556	<u>DL</u> 0.167	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	Date Analyzed 08/08/20 00:30
Surrogates							
5a Androstane (surr)	99.5	50-150		%	1		08/08/20 00:30
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 08/08/20 00:30 Container ID: 1203746007-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 Vt./Vol.: 270 Vol: 1 mL	; 20 16:53) mL		
Parameter	Result Qual	100/01	וח	Unite	DE	Allowable	Date Analyzed
Residual Range Organics	0 448 .1	0.463	0 139	ma/l	<u>DF</u> 1	Limits	08/08/20 00:30
	0.1100	0.100	0.100	iiig/L			00,00,20 00.00
Surrogates							
n-Triacontane-d62 (surr)	92.1	50-150		%	1		08/08/20 00:30
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK103 Analyst: CDM Analytical Date/Time: 08/08/20 00:30 Container ID: 1203746007-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 Vt./Vol.: 270 Vol: 1 mL	; 20 16:53) mL		

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Results of 101293-MW1R							
Client Sample ID: 101293-MW1R Client Project ID: 101293 6010 Old Se Lab Sample ID: 1203746007 Lab Project ID: 1203746	ward Highway	(Collection Da Received Da Matrix: Wate Solids (%): _ocation:	ate: 07/28/ te: 07/29/2 r (Surface,	20 14:15 20 11:39 Eff., Grou	und)	
Results by Volatile Fuels							
<u>Parameter</u> Gasoline Range Organics	<u>Result</u> Qual 25.3	<u>LOQ/CL</u> 1.00	<u>DL</u> 0.310	<u>Units</u> mg/L	<u>DF</u> 10	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 07/31/20 19:57
Surrogates							
4-Bromofluorobenzene (surr)	189 *	50-150		%	10		07/31/20 19:57
Batch Information							
Analytical Batch: VFC15264 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/31/20 19:57 Container ID: 1203746007-C			Prep Batch: Prep Method Prep Date/Tin Prep Initial W Prep Extract	VXX36041 : SW5030B me: 07/31/2 /t./Vol.: 5 m Vol: 5 mL	20 06:00 L		
						Allowable	
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Benzene	145	5.00	1.50	ug/L	10		07/31/20 19:57
Ethylbenzene	507	10.0	3.10	ug/L	10		07/31/20 19:57
o-Aylene	3280	20.0	0.20	ug/L	20		08/03/20 15:54
P & M -Aylene	4330	40.0	12.4	ug/L	20		08/03/20 15:54
Xvlenes (total)	11000	30.0	9.30	ug/L ug/l	10		07/31/20 19:57
				9,			
1,4-Difluorobenzene (surr)	111	77-115		%	10		07/31/20 19:57
Batch Information							
Analytical Batch: VFC15266 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 08/03/20 15:54 Container ID: 1203746007-E			Prep Batch: Prep Method Prep Date/Tin Prep Initial W Prep Extract	VXX36043 : SW5030B me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	20 06:00 L		
Analytical Batch: VFC15264 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 07/31/20 19:57 Container ID: 1203746007-C			Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	VXX36041 : SW5030B me: 07/31/2 /t./Vol.: 5 m Vol: 5 mL	20 06:00 L		
Print Date: 08/17/2020 9:32:07AM						Iflaggin	a is activated

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Results of 101293-MW10R							
Client Sample ID: 101293-MW10R Client Project ID: 101293 6010 Old Sev Lab Sample ID: 1203746008 Lab Project ID: 1203746	ward Highway	way Collection Date: 07/28/20 14:35 Received Date: 07/29/20 11:39 Matrix: Water (Surface, Eff., Grou Solids (%): Location:			und)		
Results by Semivolatile Organic Fuels	;						
						Allowable	· · · · · · · · · · · · · · · · · · ·
<u>Parameter</u> Diesel Range Organics	<u>Result Qual</u> 8.37	<u>LOQ/CL</u> 0.556	<u>DL</u> 0.167	<u>Units</u> mg/L	<u>DF</u> 1	<u>Limits</u>	<u>Date Analyzed</u> 08/08/20 00:40
Surrogates							
5a Androstane (surr)	93.4	50-150		%	1		08/08/20 00:40
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK102 Analyst: CDM Analytical Date/Time: 08/08/20 00:40 Container ID: 1203746008-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 /t./Vol.: 270 Vol: 1 mL	20 16:53 mL		
		1.00/01	51		55	Allowable	
Parameter Residual Range Organics	Result Qual 0.579	<u>LOQ/CL</u> 0.463	<u>DL</u> 0.139	<u>Units</u> mg/L	<u>DF</u> 1	<u>Limits</u>	Date Analyzed 08/08/20 00:40
Surrogates							
n-Triacontane-d62 (surr)	91.8	50-150		%	1		08/08/20 00:40
Batch Information							
Analytical Batch: XFC15679 Analytical Method: AK103 Analyst: CDM Analytical Date/Time: 08/08/20 00:40 Container ID: 1203746008-A			Prep Batch: Prep Method Prep Date/Ti Prep Initial W Prep Extract	XXX43539 I: SW3520C me: 07/30/2 /t./Vol.: 270 Vol: 1 mL	20 16:53 mL		

Print Date: 08/17/2020 9:32:07AM

J flagging is activated

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Results of 101293-MW10R							
Client Sample ID: 101293-MW10R Client Project ID: 101293 6010 Old Se Lab Sample ID: 1203746008 Lab Project ID: 1203746	ward Highway	(Collection Da Received Da Matrix: Wate Solids (%): Location:	ate: 07/28/ te: 07/29/2 r (Surface,	20 14:35 20 11:39 Eff., Gro	und)	
Results by Volatile Fuels			_				
<u>Parameter</u> Gasoline Range Organics	<u>Result</u> Qual 25.3	<u>LOQ/CL</u> 1.00	<u>DL</u> 0.310	<u>Units</u> mg/L	<u>DF</u> 10	<u>Allowable</u> <u>Limits</u>	Date Analyzed 07/31/20 20:15
Surrogates							
4-Bromofluorobenzene (surr)	189 *	50-150		%	10		07/31/20 20:15
Batch Information							
Analytical Batch: VFC15264 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/31/20 20:15 Container ID: 1203746008-C			Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	VXX36041 : SW5030B me: 07/29/2 /t./Vol.: 5 m Vol: 5 mL	20 06:00 L		
						Allowable	
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Benzene	139	5.00	1.50	ug/L	10		07/31/20 20:15
	494 3800	10.0 50.0	3.10 15.5	ug/L	10 50		07/31/2020:15
	5080	100	31.0	ug/L	50		08/03/20 16:12
Toluene	53.1	10.0	3.10	ug/L	10		07/31/20 20:15
Xylenes (total)	8880	150	46.5	ug/L	50		08/03/20 16:12
Surrogates							
1,4-Difluorobenzene (surr)	81.5	77-115		%	50		08/03/20 16:12
Batch Information							
Analytical Batch: VFC15266 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 08/03/20 16:12 Container ID: 1203746008-E			Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	VXX36043 : SW5030B me: 08/03/2 /t./Vol.: 5 m Vol: 5 mL	20 06:00 L		
Analytical Batch: VFC15264 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 07/31/20 20:15 Container ID: 1203746008-C			Prep Batch: Prep Method Prep Date/Tii Prep Initial W Prep Extract	VXX36041 : SW5030B me: 07/29/2 /t./Vol.: 5 m Vol: 5 mL	20 06:00 L		
Print Date: 08/17/2020 9:32:07AM						.l flaggin	n is activated

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Client Sample ID: 101293-WTB Collection Date: 07/28/20 08:30 Client Project ID: 1203746009 Received Date: 07/29/20 11:39 Lab Project ID: 1203746 Matrix: Water (Surface, Eff., Ground) Solids (%): Location: Results by Volatile Fuels Ionation: Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed Gasoline Range Organics 0.0500 U 0.100 0.0310 mg/L 1 07/31/20 16:00 Surrogates 4-Bromofluorobenzene (surr) 88.4 50-150 % 1 07/31/20 16:00 Batch Information Analytical Batch: VFC15264 Prep Batch: VXX36041 Prep Date/Time: 07/31/20 06:00 Analytical Date/Time: 07/31/20 16:00 Prep Date/Time: 07/31/20 06:00 Prep Date/Time: 07/31/20 06:00 Analytical Date/Time: 07/31/20 16:00 Prep Extract Vol: 5 mL Prep Extract Vol: 5 mL	Results of 101293-WTB							
Results by Volatile Fuels Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed Gasoline Range Organics 0.0500 U 0.100 0.0310 mg/L 1 07/31/20 16:00 Surrogates 4-Bromofluorobenzene (surr) 88.4 50-150 % 1 07/31/20 16:00 Batch Information Analytical Batch: VFC15264 Prep Batch: VXX36041 Prep Method: SW5030B Prep Date/Time: 07/31/20 16:00 Prep Date/Time: 07/31/20 06:00 Prep Date/Time: 07/31/20 06:00 Analytical Date/Time: 07/31/20 16:00 Prep Initial Wt./Vol.: 5 mL Prep Extract Vol: 5 mL	Client Sample ID: 101293-WTB Client Project ID: 101293 6010 Old Se Lab Sample ID: 1203746009 Lab Project ID: 1203746	ward Highway		Collection Da Received Da Matrix: Water Solids (%): Location:	ate: 07/28/ te: 07/29/2 r (Surface,	20 08:30 20 11:39 Eff., Gro	und)	
Parameter Gasoline Range OrganicsResult Qual 0.0500 ULOQ/CL 0.100DL Units 0.0310Units mg/LDF LimitsAllowable LimitsDate Analyzed 07/31/20 16:00Surrogates 4-Bromofluorobenzene (surr)88.450-150%107/31/20 16:00Batch Information Analytical Batch: VFC15264 Analytical Method: AK101 Analytical Date/Time: 07/31/20 16:00Prep Batch: VXX36041 Prep Date/Time: 07/31/20 06:00 Prep Initial Wt./Vol.: 5 mL Prep Extract Vol: 5 mLPrep Extract Vol: 5 mL	Results by Volatile Fuels							
ParameterResult QualLOQ/CLDLUnitsDFLimitsDate AnalyzedGasoline Range Organics0.0500 U0.1000.0310mg/L107/31/20 16:00Surrogates4-Bromofluorobenzene (surr)88.450-150%107/31/20 16:00Batch InformationAnalytical Batch: VFC15264Prep Batch: VXX36041Analytical Method: AK101Prep Method: SW5030BAnalyst: ALJPrep Date/Time: 07/31/20 16:00Analytical Date/Time: 07/31/20 16:00Prep Initial Wt./Vol.: 5 mLContainer ID: 1203746009-APrep Extract Vol: 5 mL							Allowable	
Gasoline Range Organics0.0500 U0.1000.0310mg/L107/31/20 16:00Surrogates4-Bromofluorobenzene (surr)88.450-150%107/31/20 16:00Batch InformationAnalytical Batch: VFC15264Prep Batch: VXX3604107/31/20 16:00Analytical Method: AK101Prep Method: SW5030BPrep Date/Time: 07/31/20 06:00Analytical Date/Time: 07/31/20 16:00Prep Initial Wt./Vol.: 5 mLContainer ID: 1203746009-APrep Extract Vol: 5 mL	Parameter	<u>Result Qual</u>	LOQ/CL	DL	<u>Units</u>	DF	Limits	Date Analyzed
Surrogates 4-Bromofluorobenzene (surr) 88.4 50-150 % 1 07/31/20 16:00 Batch Information Analytical Batch: VFC15264 Prep Batch: VXX36041 Analytical Method: AK101 Prep Method: SW5030B Analytical Date/Time: 07/31/20 16:00 Prep Date/Time: 07/31/20 06:00 Container ID: 1203746009-A Prep Extract Vol: 5 mL	Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		07/31/20 16:00
4-Bromofluorobenzene (surr) 88.4 50-150 % 1 07/31/20 16:00 Batch Information Analytical Batch: VFC15264 Prep Batch: VXX36041 Prep Method: SW5030B Analytical Method: AK101 Prep Method: SW5030B Prep Date/Time: 07/31/20 06:00 Analytical Date/Time: 07/31/20 16:00 Prep Initial Wt./Vol.: 5 mL Container ID: 1203746009-A Prep Extract Vol: 5 mL	Surrogates							
Batch Information Analytical Batch: VFC15264 Prep Batch: VXX36041 Analytical Method: AK101 Prep Method: SW5030B Analyst: ALJ Prep Date/Time: 07/31/20 06:00 Analytical Date/Time: 07/31/20 16:00 Prep Initial Wt./Vol.: 5 mL Container ID: 1203746009-A Prep Extract Vol: 5 mL	4-Bromofluorobenzene (surr)	88.4	50-150		%	1		07/31/20 16:00
Analytical Batch: VFC15264Prep Batch: VXX36041Analytical Method: AK101Prep Method: SW5030BAnalyst: ALJPrep Date/Time: 07/31/20 16:00Analytical Date/Time: 07/31/20 16:00Prep Initial Wt./Vol.: 5 mLContainer ID: 1203746009-APrep Extract Vol: 5 mL	Batch Information							
	Analytical Batch: VFC15264 Analytical Method: AK101 Analyst: ALJ Analytical Date/Time: 07/31/20 16:00 Container ID: 1203746009-A			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36041 : SW5030E me: 07/31/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 IL		
Allowable							Allowable	
Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed	<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	DL	<u>Units</u>	DF	Limits	Date Analyzed
Benzene 0.250 U 0.500 0.150 ug/L 1 07/31/20 16:00	Benzene	0.250 U	0.500	0.150	ug/L	1		07/31/20 16:00
Ethylbenzene 0.500 U 1.00 0.310 ug/L 1 07/31/20 16:00	Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		07/31/20 16:00
o-Xylene 0.500 U 1.00 0.310 ug/L 1 07/31/20 16:00	o-Xylene	0.500 U	1.00	0.310	ug/L	1		07/31/20 16:00
P & M -Xylene 1.00 U 2.00 0.620 ug/L 1 07/31/20 16:00	P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		07/31/20 16:00
Toluene 0.500 U 1.00 0.310 ug/L 1 07/31/20 16:00	Toluene	0.500 U	1.00	0.310	ug/L	1		07/31/20 16:00
Xylenes (total) 1.50 U 3.00 0.930 ug/L 1 07/31/20 16:00	Xylenes (total)	1.50 U	3.00	0.930	ug/L	1		07/31/20 16:00
Surrogates	Surrogates							
1,4-Difluorobenzene (surr) 93.1 77-115 % 1 07/31/20 16:00	1,4-Difluorobenzene (surr)	93.1	77-115		%	1		07/31/20 16:00
Batch Information	Batch Information							
Analytical Batch: VFC15264Prep Batch: VXX36041Analytical Method: SW8021BPrep Method: SW5030BAnalyst: ALJPrep Date/Time: 07/31/20 16:00Analytical Date/Time: 07/31/20 16:00Prep Initial Wt./Vol.: 5 mLContainer ID: 1203746009-APrep Extract Vol: 5 mL	Analytical Batch: VFC15264 Analytical Method: SW8021B Analyst: ALJ Analytical Date/Time: 07/31/20 16:00 Container ID: 1203746009-A			Prep Batch: Prep Method: Prep Date/Tir Prep Initial W Prep Extract	VXX36041 : SW5030E me: 07/31/2 /t./Vol.: 5 m Vol: 5 mL	3 20 06:00 IL		
Print Date: 08/17/2020 9:32:07AM J flagging is activated	Print Date: 08/17/2020 9:32:07AM		vo Anchor-				J flaggin	g is activated

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Method Blank					
Blank ID: MB for HBN 18097 Blank Lab ID: 1572564	91 [VXX/36041]	Matrix	: Water (Surfa	ce, Eff., Ground)	
QC for Samples: 1203746001, 1203746007, 120	3746008, 1203746009				
Results by AK101					
<u>Parameter</u>	<u>Results</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L	
Surrogates					
4-Bromofluorobenzene (surr)	88.3	50-150		%	
Batch Information					
Analytical Batch: VFC15264	ļ	Prep Bat	ch: VXX36041		
Analytical Method: AK101		Prep Me	3		
Instrument: Agilent 7890A PID/FID		Prep Dat	020 6:00:00AM		
Analyst: ALJ Analytical Date/Time: 7/31/2020 11:37:00AM		Prep Init Prep Ext	ial Wt./Vol.: 5 m ract Vol: 5 ml	۱L	
Analytical Date/Time. 1791/2	.020 11.07.00AM				



Blank Spike Summary

Blank Spike ID: LCS for HBN 1203746 [VXX36041] Blank Spike Lab ID: 1572567 Date Analyzed: 07/31/2020 12:30 Spike Duplicate ID: LCSD for HBN 1203746 [VXX36041] Spike Duplicate Lab ID: 1572568 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1203746001, 1203746007, 1203746008, 1203746009

Results by AK101									
	ł	Blank Spike	e (mg/L)	S	pike Dupli	cate (mg/L)			
<u>Parameter</u>	Spike	Result	<u>Rec (%)</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	<u>CL</u>	<u>RPD (%)</u>	RPD CL
Gasoline Range Organics	1.00	1.20	120	1.00	1.18	118	(60-120)	2.20	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	96	96	0.0500	95.9	96	(50-150)	0.10	
Batch Information									
Analytical Batch: VFC15264 Analytical Method: AK101				Prep Prep	Datch: V	XX36041 SW5030B	0.00.00		
Analyst: ALJ	D/FID			Prep Spik Dup	e Init Wt./\ e Init Wt./\	/ol.: 1.00 mg	g/L Extract \ g/L Extract \ g/L Extract V	Vol: 5 mL ′ol: 5 mL	

Print Date: 08/17/2020 9:32:11AM

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Method Blank

Blank ID: MB for HBN 1809791 [VXX/36041] Blank Lab ID: 1572564 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1203746001, 1203746008, 1203746009

Results by SW8021B Results LOQ/CL Parameter DL Units Benzene 0.250U 0.500 0.150 ug/L Ethylbenzene 0.500U 1.00 0.310 ug/L o-Xylene 0.500U 1.00 0.310 ug/L ug/L P & M -Xylene 1.00U 2.00 0.620 0.500U ug/L Toluene 1.00 0.310 1.50U Xylenes (total) 3.00 0.930 ug/L Surrogates 1,4-Difluorobenzene (surr) 93.9 77-115 % **Batch Information**

Analytical Batch: VFC15264 Analytical Method: SW8021B Instrument: Agilent 7890A PID/FID Analyst: ALJ Analytical Date/Time: 7/31/2020 11:37:00AM Prep Batch: VXX36041 Prep Method: SW5030B Prep Date/Time: 7/31/2020 6:00:00AM Prep Initial Wt./Vol.: 5 mL Prep Extract Vol: 5 mL

Print Date: 08/17/2020 9:32:13AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1203746 [VXX36041] Blank Spike Lab ID: 1572565 Date Analyzed: 07/31/2020 12:12 Spike Duplicate ID: LCSD for HBN 1203746 [VXX36041] Spike Duplicate Lab ID: 1572566 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 120

1203746001, 1203746007, 1203746008, 1203746009

<u>Parameter</u>		Blank Spike	e (ug/L)	S	Spike Dupli	cate (ug/L))		
	Spike	Result	Rec (%)	Spike	<u>Result</u>	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	RPD CI
Benzene	100	109	109	100	112	112	(80-120)	2.50	(< 20)
Ethylbenzene	100	105	105	100	106	106	(75-125)	0.92	(< 20)
o-Xylene	100	98.0	98	100	99.6	100	(80-120)	1.70	(< 20)
P & M -Xylene	200	203	101	200	204	102	(75-130)	0.81	(< 20)
Toluene	100	114	114	100	113	113	(75-120)	0.53	(< 20)
Xylenes (total)	300	301	100	300	304	101	(79-121)	1.10	(< 20)
urrogates									
1,4-Difluorobenzene (surr)	50	98.8	99	50	101	101	(77-115)	2.30	

Analytical Batch: VFC15264 Analytical Method: SW8021B Instrument: Agilent 7890A PID/FID Analyst: ALJ Prep Batch: VXX36041 Prep Method: SW5030B Prep Date/Time: 07/31/2020 06:00 Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

Print Date: 08/17/2020 9:32:15AM
SGS

rrix: Water (Surface, Eff., Ground) 07, 1203746008
07, 1203746008
<u>DL</u> <u>Units</u>
0.0310 mg/L
%
3atch: VXX36043
vlethod: SW5030B
Date/Time: 8/3/2020 6:00:00AM
nitial Wt./Vol.: 5 mL
Extra

Print Date: 08/17/2020 9:32:18AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1203746 [VXX36043] Blank Spike Lab ID: 1572616 Date Analyzed: 08/03/2020 12:42 Spike Duplicate ID: LCSD for HBN 1203746 [VXX36043] Spike Duplicate Lab ID: 1572617 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1203746002, 1203746003, 1203746004, 1203746005, 1203746006, 1203746007, 1203746008

Results by AK101			_						
	F	Blank Spike	e (mg/L)	mg/L) Spike Duplicate (mg/L)					
Parameter	Spike	Result	<u>Rec (%)</u>	Spike	<u>Result</u>	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	RPD CL
Gasoline Range Organics	1.00	0.958	96	1.00	0.925	93	(60-120)	3.40	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	86.5	87	0.0500	80.6	81	(50-150)	7.10	
Batch Information									
Analytical Batch: VFC15266				Prep	Batch: V	XX36043			
Instrument: Agilent 7890 PID/FID				Prep Date/Time: 08/03/2020 06:00					
Analyst: ALJ				Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL					
				Dup	e Init Wt./V	/ol.: 1.00 mg	g/L Extract V	ol: 5 mL	

Print Date: 08/17/2020 9:32:20AM

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Method Blank

Blank ID: MB for HBN 1809798 [VXX/36043] Blank Lab ID: 1572613 Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1203746002, 1203746003, 1203746004, 1203746005, 1203746006, 1203746007, 1203746008

Results by SW8021B					
Parameter	Results	LOQ/CL	<u>DL</u>	<u>Units</u>	
Benzene	0.250U	0.500	0.150	ug/L	
Ethylbenzene	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	
Foluene	0.500U	1.00	0.310	ug/L	
Kylenes (total)	1.50U	3.00	0.930	ug/L	
urrogates					
I,4-Difluorobenzene (surr)	86.5	77-115		%	
atch Information					
Analytical Batch: VFC1526	6	Prep Ba	tch: VXX36043	_	
Analytical Method: SW802	1B	Prep Me	ethod: SW5030	B	
Analyst: AL.	ID/FID	Prep Da Pren Ini	tial Wt /Vol · 5 r	20 6:00:00AM nl	
Analytical Date/Time: 8/3/2	020 11:48:00AM	Prep Ex	tract Vol: 5 mL		

Print Date: 08/17/2020 9:32:22AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1203746 [VXX36043] Blank Spike Lab ID: 1572614 Date Analyzed: 08/03/2020 12:24 Spike Duplicate ID: LCSD for HBN 1203746 [VXX36043] Spike Duplicate Lab ID: 1572615 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1203746002, 1203746003, 1203746004, 1203746005, 1203746006, 1203746007, 1203746008

		Blank Spike (ug/L)			Spike Dupli	cate (ug/L)			
<u>Parameter</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>	CL	<u>RPD (%)</u>	RPD CL
Benzene	100	116	116	100	112	112	(80-120)	3.60	(< 20)
Ethylbenzene	100	114	114	100	109	109	(75-125)	4.50	(< 20)
o-Xylene	100	112	112	100	106	106	(80-120)	5.20	(< 20)
P & M -Xylene	200	227	113	200	215	108	(75-130)	5.10	(< 20)
Toluene	100	118	118	100	113	113	(75-120)	4.20	(< 20)
Xylenes (total)	300	338	113	300	321	107	(79-121)	5.10	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	50	103	103	50	101	101	(77-115)	1.70	

Analytical Batch: VFC15266 Analytical Method: SW8021B Instrument: Agilent 7890 PID/FID Analyst: ALJ Prep Batch: VXX36043 Prep Method: SW5030B Prep Date/Time: 08/03/2020 06:00 Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

Print Date: 08/17/2020 9:32:25AM

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Method Blank

Blank ID: MB for HBN 1809591 [XXX/43539] Blank Lab ID: 1571753 Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1203746001, 1203746002, 1203746003, 1203746004, 1203746005, 1203746006, 1203746007, 1203746008

Results by AK102 LOQ/CL <u>Units</u> Parameter **Results** DL **Diesel Range Organics** 0.300U 0.600 0.180 mg/L Surrogates 5a Androstane (surr) 90.9 60-120 % **Batch Information** Analytical Batch: XFC15679 Prep Batch: XXX43539 Analytical Method: AK102 Prep Method: SW3520C Instrument: Agilent 7890B R Prep Date/Time: 7/30/2020 4:53:47PM Analyst: CDM Prep Initial Wt./Vol.: 250 mL Analytical Date/Time: 8/7/2020 8:29:00PM Prep Extract Vol: 1 mL

Print Date: 08/17/2020 9:32:27AM



Blank Spike Summary									
Blank Spike ID: LCS for HBN Blank Spike Lab ID: 1571754 Date Analyzed: 08/07/2020]	Spi [XX Spi Ma	ke Duplica X43539] ke Duplica trix: Wate	nte ID: LCS nte Lab ID: r (Surface,	D for HBN 1 1571755 Eff., Ground	203746)			
QC for Samples: 12037460 12037460	746003, 120	3746004,	120374600	05, 12037460	006, 1203746	007,			
Results by AK102									
		Blank Spike	(mg/L)	5	Spike Duplic	cate (mg/L)			
<u>Parameter</u>	Spike	Result	<u>Rec (%)</u>	<u>Spike</u>	Result	<u>Rec (%)</u>	<u>CL</u>	<u>RPD (%)</u>	RPD CL
Diesel Range Organics	20	18.3	92	20	18.8	94	(75-125)	2.20	(< 20)
Surrogates									
5a Androstane (surr)	0.4	104	104	0.4	107	107	(60-120)	3.10	
Batch Information									
Analytical Batch: XFC15679 Analytical Method: AK102 Instrument: Agilent 7890B R Analyst: CDM				Pre Pre Spil Dup	p Batch: X2 p Method: p Date/Timo ke Init Wt./V be Init Wt./V	XX43539 SW3520C e: 07/30/202 /ol.: 20 mg/L /ol.: 20 mg/L	0 16:53 - Extract Vo - Extract Vol:	l: 1 mL : 1 mL	

Print Date: 08/17/2020 9:32:29AM

SGS

Method Blank

Blank ID: MB for HBN 1809591 [XXX/43539] Blank Lab ID: 1571753 Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1203746001, 1203746002, 1203746003, 1203746004, 1203746005, 1203746006, 1203746007, 1203746008

Results by AK103 LOQ/CL <u>Units</u> Parameter **Results** DL **Residual Range Organics** 0.250U 0.500 0.150 mg/L Surrogates n-Triacontane-d62 (surr) 87.9 60-120 % **Batch Information** Analytical Batch: XFC15679 Prep Batch: XXX43539 Analytical Method: AK103 Prep Method: SW3520C Instrument: Agilent 7890B R Prep Date/Time: 7/30/2020 4:53:47PM Analyst: CDM Prep Initial Wt./Vol.: 250 mL Analytical Date/Time: 8/7/2020 8:29:00PM Prep Extract Vol: 1 mL

Print Date: 08/17/2020 9:32:31AM



Blank Spike Summary Blank Spike ID: LCS for HBN 1203746 [XXX43539] Spike Duplicate ID: LCSD for HBN 1203746 Blank Spike Lab ID: 1571754 [XXX43539] Spike Duplicate Lab ID: 1571755 Date Analyzed: 08/07/2020 20:40 Matrix: Water (Surface, Eff., Ground) QC for Samples: 1203746001, 1203746002, 1203746003, 1203746004, 1203746005, 1203746006, 1203746007, 1203746008 Results by AK103 Blank Spike (mg/L) Spike Duplicate (mg/L) Parameter Spike Rec (%) Spike Rec (%) CL RPD (%) RPD CL Result Result **Residual Range Organics** 20 17.9 89 20 18.1 90 (60-120) 0.95 (< 20) Surrogates n-Triacontane-d62 (surr) 0.4 88.7 0.4 91.5 92 3.00 89 (60-120) **Batch Information** Analytical Batch: XFC15679 Prep Batch: XXX43539 Analytical Method: AK103 Prep Method: SW3520C Instrument: Agilent 7890B R Prep Date/Time: 07/30/2020 16:53 Analyst: CDM Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 08/17/2020 9:32:33AM

		· · · · · · · · · · · · · · · · · · ·					SGS N	North Amer	ica Inc.		
Shannon & Wilson, Inc. 5430 Fairbanks Street, Suite 3 Anchorage, Alaska 99518 (907) 561-2120 Fax (206) 695-6777				e 3 8	GRO- AK101	BTEX- EPA Method 8021B	DRO/RRO- AK102/ AK103	120	03746		
				Total							-
Date	14.50	TINE	Sample ID 101203_MW/42	Containers	v	v	v				
7/28/2020	14:50	()AG	101293-WW42			A V					
7/28/2020	15:40		101293-WW45			X	X				
7/28/2020	11:20	3ANE	101293-IVI VV 40	5	- <u>X</u>	X	X				
7/28/2020	10:15	14AE	101293-MW4/	5	X	X	X				
7/28/2020	10:05	ISAE	101293-MW48	. 5	X	X	X				
7/28/2020	11:23	GAE	101293-MW49	5	X	Х	X				
7/28/2020	14:15	(7AE)	101293-MW1R	5	X	_ X	X			_	
7/28/2020	14:35	SAE)	101293-MW10R	5	x	X	X				
7/28/2020	8:30	(9A)	101293-WTB	1 Box	X	Х					
Relinquished	By:		Relinquished By:		세국부	Project Informa	tion	an a			
Signature:	an		Signature:			Project Number: 101293					
Print Name: 🖌	Alec Rizz	<i>v</i>	Print Name:	<u> </u>		Project Name: 6010 Old Seward Highway					
Company: Sha	annon & Wilsor	n, Inc.	Company:			Contact: Dan Me	Mahon/ Alec	Rizzo			
Date: 7/20	y/20		Date:			Sampler:	AJR				
Time: 1139	Ś	alana menala menana ana an	Time		NE BAR STATE	Special Instruction	ns:		1 (d. 1947) - Stage Joseph Constant	and Canada and Canada 201	C. 20. 25
Received By:			Received By:	- n ma	n de la della L	Sample Receip	it	<u> </u>			
Signature:			Signature: Multi	u Allen	-	Shipped Via:	Hand Deli	vered			
Print Name:			Print Name: Michell	e Albarran		Cooler T	otano II	<u> 4 mizzal</u>	21 257		
Company:	\leftarrow	/	Company: SOS	<u></u>		Somple Moter	Water	Arrival:	5.1 D>7		
Date:	<u> </u>		Time: 1/29			10 Working DAY	TAT, Terraha	se TF3 File Form	nat		

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e-Sam<u>ple Receipt Form</u>

I

	e-Sam	ріе кесеір			_		
262	SGS Workorder #:	1	20374	46			
Re	view Criteria	Condition (Yes	, No, N/A	Exc	eptions Not	ed below	
Chain o	f Custody / Temperature Requi	irements	Ye	s Exemption pe	rmitted if sampl	ler hand carries/delivers.	-
	Were Custody Seals intact? Note # &	location N/A	absent				-
	COC accompanied s	amples? Yes					-
DOD: Were s	amples received in COC corresponding	coolers? N/A					-
	N/A **Exemption permitted if	f chilled & colle	ected <8 hour	s ago, or for sam	ples where chi	lling is not required	
Temperat	ure blank compliant* (i.e., 0-6 °C afte	er CF)? Yes	Cooler ID:	1	@	3.1 °C Therm. ID: D57	
			Cooler ID:		@	°C Therm. ID:	
If samples received without a	temperature blank, the "cooler temperature" wil	ll be	Cooler ID:		@	°C Therm. ID:	
be n	oted if neither is available.		Cooler ID:		@	°C Therm. ID:	
			Cooler ID:		@	°C Therm. ID:	
*lf >6	°C, were samples collected <8 hours	s ago? N/A					
		. <u></u>					
	If <0°C, were sample containers ic	e free? N/A					
Note: Identify contained	ers received at non-compliant tempe	erature.					_
	Use form FS-0029 if more space is r	needed.					
Holding Time / D	ocumentation / Sample Condition R	equirements	Note: Refer to	form F-083 "Samp	le Guide" for spec	ific holding times.	
V	Vere samples received within holdin	g time? Yes		•	•		_
Do samples match CO	C** (i.e.,sample IDs,dates/times coll	ected)? Yes					
**Note: If times dif	fer <1hr, record details & login per C	COC.	Ĩ				
***Note: If sample information on co	ontainers differs from COC, SGS will default to	COC information	n				
Were analytical requests of	clear? (i.e., method is specified for a	nalyses Yes					
with mu	Itiple option for analysis (Ex: BTEX,	Metals)	Ĩ				
				***Exemption	permitted for m	etals (e.g,200.8/6020A).	
Were proper container	s (type/mass/volume/preservative***	*)used? Yes					
			Ĩ				
	Volatile / LL-Hg Rec	quirements					
Were Trip Blanks	(i.e., VOAs, LL-Hg) in cooler with sa	mples? Yes					
Were all water VOA via	l <mark>s free</mark> of headspace (i.e., bubbles ≤	6mm)? Yes					
Were all	soil VOAs field extracted with MeOH	I+BFB? N/A					
Note to Clie	nt: Any "No", answer above indicates no	on-compliance	with standard	d procedures and	d may impact da	ata quality.	
	Addition	al notes (if a	applicable).				
	Addition						



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	Container Condition	<u>Container Id</u>	<u>Preservative</u>	<u>Container</u> Condition
1203746001-A	No Preservative Required	ок			
1203746001-B	No Preservative Required	ОК			
1203746001-C	HCL to pH < 2	OK			
1203746001-D	HCL to pH < 2	OK			
1203746001-E	HCL to pH < 2	OK			
1203746002-A	No Preservative Required	OK			
1203746002-B	No Preservative Required	OK			
1203746002-C	HCL to pH < 2	OK			
1203746002-D	HCL to pH < 2	OK			
1203746002-E	HCL to pH < 2	OK			
1203746003-A	No Preservative Required	OK			
1203746003-B	No Preservative Required	OK			
1203746003-C	HCL to pH < 2	ОК			
1203746003-D	HCL to pH < 2	ОК			
1203746003-E	HCL to pH < 2	ОК			
1203746004-A	No Preservative Required	OK			
1203746004-B	No Preservative Required	ОК			
1203746004-C	HCL to pH < 2	ОК			
1203746004-D	HCL to pH < 2	OK			
1203746004-E	HCL to pH < 2	OK			
1203746005-A	No Preservative Required	ОК			
1203746005-B	No Preservative Required	ОК			
1203746005-C	HCL to pH < 2	ОК			
1203746005-D	HCL to pH < 2	ОК			
1203746005-E	HCL to pH < 2	ОК			
1203746006-A	No Preservative Required	ОК			
1203746006-B	No Preservative Required	ОК			
1203746006-C	HCL to $pH < 2$	ОК			
1203746006-D	HCL to $pH < 2$	ОК			
1203746006-E	HCL to pH < 2	ОК			
1203746007-A	No Preservative Required	ОК			
1203746007-B	No Preservative Required	ОК			
1203746007-C	HCL to $pH < 2$	ОК			
1203746007-D	HCL to pH < 2	ОК			
1203746007-E	HCL to $pH < 2$	ОК			
1203746008-A	No Preservative Required	ОК			
1203746008-B	No Preservative Required	ОК			
1203746008-C	HCL to $pH < 2$	ОК			
1203746008-D	HCL to $pH < 2$	OK			
1203746008-E	HCL to $pH < 2$	ОК			
1203746009-A	HCL to pH < 2	ОК			
1203746009-B	HCL to $pH < 2$	ОК			
1203746009-C	HCL to $pH < 2$	ОК			

Container Id

<u>Preservative</u>

<u>Container</u> Condition <u>Container Id</u>

<u>Preservative</u>

Container Condition

Container Condition Glossary

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

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

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

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

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.

LABORATORY DATA REVIEW CHECKLIST

Completed by: Jessa Tibbetts **Title:** Monitoring Well Installation and 2020 Groundwater Monitoring, Williams Express Site No. 5021, 6010 Old Seward Highway, Anchorage, Alaska **Date:** September 2020

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc. Laboratory Report Number: 1203746 Laboratory Report Date: 8/17/2020

Contaminated Site Name: Former Williams Express Store #5021 **ADEC File Number:** 2100.26.030 **Hazard Identification Number:** 24042

(**NOTE**: *NA* = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

1. Laboratory

- a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses? Yes/ No / NA
 Comments:
- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
 Yes / No NA
 Comments: The samples were not transferred to another "network" laboratory or sub-contracted to an alternate laboratory.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?
 Yes / No / NA Comments:
- **b.** Correct analyses requested? **Yes**/ **No** / **NA** Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
 Yes / No / NA
 Comments: *The cooler temperature blank was 3.1° Celsius.*

- b. Sample preservation acceptable acidified waters, Methanol preserved VOC soil (GRO, BTEX, VOCs, etc.)? Yes/ No / NA Comments:
- c. Sample condition documented broken, leaking (MeOH), zero headspace (VOC vials)?
 Ves/ No / NA 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 / NA Comments: No discrepancies were noted.
- e. Data quality or usability affected? Comments: *See above*.

4. Case Narrative

- a. Present and understandable? Yes/ No / NA Comments:
- **b.** Discrepancies, errors or QC failures noted by the lab? **Yes**/**No**/**NA** Comments:
 - For Method 8021B In Sample MW42, the reported value for ethylbenzene and p&m xylene were above calibration range. The sample was analyzed past hold time at a dilution and confirm the results.
 - For Method AK101 In Sample MW46, the surrogate recovery does not meet QC criteria due to matrix interference.
 - For Method AK101 In Samples MW1R and MW10R, surrogate recovery for 4bromofluorobenzene did not meet QC criteria due to matrix interference.
- c. Were all corrective actions documented? Yes No / NA Comments:
- **d.** What is the effect on data quality/usability, according to the case narrative? Comments: *See above*.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC? (Ves)/ No / NA Comments:
- **b.** All applicable holding times met? **Yes** / **No** / **NA** Comments:

- **c.** All soils reported on a dry weight basis? **Yes / No / NA** Comments: Soil samples were not collected as part of this data package.
- d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? Yes / No / NA Comments:
- e. Data quality or usability affected? Comments:

6. <u>QC Samples</u>

a. Method Blank

- One method blank reported per matrix, analysis, and 20 samples?
 Yes/ No / NA Comments:
- ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
 Ves No / NA Comments:
- iii. If above LOQ or project specified objectives, what samples are affected? Comments: *NA*
- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
 Yes / No NA Comments:
- v. Data quality or usability affected? Comments:

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

- i. Organics One LCS/LCSD reported per matrix, analysis, and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846) (Yes) No / NA Comments:
- ii. Metals/Inorganics One LCS and one sample duplicate reported per matrix, analysis and 20 samples? Yes / No NA Comments:

- iii. Accuracy All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) Yes/ No / NA Comments:
- iv. Precision All relative percent differences (RPDs) 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) (ves) No / NA Comments:
- v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments:
- vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
 Yes / No / NA Comments:
- vii. Data quality or usability affected? Comments:

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Note: Leave blank if not required for project

- Organics One MS/MSD reported per matrix, analysis, and 20 samples?
 Yes/ No / NA Comments:
- ii. Metals/Inorganics One MS and one MSD reported per matrix, analysis and 20 samples? Yes / No NA Comments:
- iii. Accuracy All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) Yes/ No / NA Comments:
- iv. Precision All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from MS/MSD, and/or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) (Ves) No / NA Comments:

- v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments:
- vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
 Yes / No NA
 Comments:
- vii. Data quality or usability affected? 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 / NA 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; all other analyses see the laboratory report pages) Yes / No NA Comments: AK 101 - Surrogate 4-Bromofluorobenzene recovery (biased high) did not meet QC

AK 101 - Surrogate 4-Bromofluorobenzene recovery (biased high) did not meet QC criteria in Samples MW46, MW1R, and MW10R.

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? Yes/ No / NA Comments: GRO results for Samples MW46, MW1R, and MW10R are considered biased high and flagged "J+" in Table 5 of this report.
- **iv.** Data quality or usability affected? Comments: *See above*.
- e. Trip Blank Volatile analyses only (GRO, BTEX, VOCs, etc.)
 - One trip blank reported per matrix, analysis and for each cooler containing volatile samples? Yes/ No / NA
 Comments:
 - ii. Is the cooler used to transport the trip blank and volatile samples clearly indicated on the COC? Yes No NA Comments: Only one cooler was used to transport the samples.
 - iii. All results less than LOQ and project specified objectives? Yes / No / NA Comments:

- **iv.** If above LOQ or project specified DQOs, what samples are affected? Comments:
- v. Data quality or usability affected? Comments: *See above*.

f. Field Duplicate

- One field duplicate submitted per matrix, analysis and 10 project samples?
 Yes No/ NA
 Comments: Sample MW10R is a duplicate of Sample MW1R.
- ii. Were the field duplicates submitted blind to the lab? (ves) No / NA Comments:
- iii. Precision All relative percent differences (RPDs) less than specified project objectives? (Recommended: 30% for water, 50% for soil) Yes / No / NA Comments:
- **iv.** Data quality or usability affected? Comments: *See above*.
- **g.** Decontamination or Equipment Blank (if not applicable, a comment stating why must be entered below).

Yes (No/ NA Comments: A decontamination or equipment blank was not included in our ADEC-approved work plan.

- All results less than LOQ and project specified objectives?
 Yes / No NA Comments:
- **ii.** If above LOQ or project specified objectives, what samples are affected? Comments:
- **iii.** Data quality or usability affected? Comments:

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

a. Defined and appropriate? Yes / No / NA Comments: A key is provided on Page 4 of the SGS Laboratory Report.

APPENDIX F

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

101293-001

C. Attachment to and part of Report 101293-001



Date: September 2020

To: Williams

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland