2017 LANDFARM AND GROUNDWATER MONITORING REPORT

2262 VAN HORN ROAD FAIRBANKS, ALASKA

April 2018

Prepared for:

Cymbaluk Investments, LLC

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ACRONYMS AND ABBREVIATIONS

AAC ..... Alaska Administrative Code
ADEC..... Alaska Department of Environmental Conservation
AST..... aboveground storage tank
bgs..... below ground surface
DRO..... diesel range organics
IDW..... investigation-derived waste
mg/kg..... milligrams per kilogram
mg/l..... milligrams per liter
PID..... photo-ionization detector
ppm..... parts per million
Rescon ..... Rescon Alaska, LLC
SCL..... soil cleanup level
SGS ..... SGS North America, Inc
TPECI ..... Travis Peterson Environmental Consulting, Inc.
UST ..... underground storage tank
YSI..... YSI 556 meter

1. INTRODUCTION

Rescon Alaska, LLC (Rescon) has prepared this landfarm and groundwater monitoring report to detail environmental services performed at 2262 Van Horn Road located in Fairbanks, Alaska on behalf of Cymbaluk Investments, LLC. A site location map of the property is presented in Figure 1. The Alaska Department of Environmental Conservation (ADEC) maintains a record of the property in the Contaminated Sites database under File Number 102.38.178. Rescon has performed remedial environmental activities at the property since 2014 to address an area of diesel-contaminated soil along the eastern side of the property. This report presents the field activities, observations, and analytical results from the monitoring effort performed at the site in October 2017.

1.1. Site Description

The legal description for the subject property is UMB01, Block 1 of the Van Horn Industrial Park. The property is located at the northeast corner of the Van Horn Road, Peger Road intersection, as shown on Figures 1 and 2. The subject parcel is a mostly rectangular shaped lot with a portion of the southwest corner cut off by a municipal drainage ditch bordering the Van Horn/Peger Road intersection. The property is tenanted by a Kenworth Alaska franchise, a dealership and service shop for diesel engine vehicles. One existing structure is present at the center of the property utilized for vehicle sales and service. The remainder of the lot is paved with asphalt, as shown on Figure 2.

The elevation of the property is approximately 445 feet above mean sea level with little observable topographic relief across the site. The water table at the site is approximately 6 to 10 feet below ground surface (bgs), with water table fluctuations on the order of 2 to 5 feet seasonally as influenced by changes in water levels of the Tanana and Chena Rivers. A 2014 groundwater elevation assessment performed on the wells on the subject site and the adjacent property at 2250 Van Horn Road concluded that groundwater flow in the area was generally to the east.

1.2. Site History

A subsurface soil investigation was conducted at the property in June 2003 by Travis Peterson Environmental Consulting, Inc., (TPECI) to support the sale of the property. At that time, a single rectangular structure was present along the eastern portion of the property. The field effort was conducted to investigate the potential for petroleum contamination in the soil from two underground storage tanks (USTs) and one aboveground storage tank (AST) located to the west of the building on the property.

Two environmental soil borings were advanced near the three storage tanks. A third boring was placed at the northeast corner of the lot. The borings were advanced to ten feet bgs. TPECI collected soil from each of the borings at the ground surface, at 5 feet

bgs, and at 10 feet bgs to screen for petroleum contamination. The soil was screened for the presence of hydrocarbon concentrations using a photoionization detector (PID).

The PID device measures the presence of volatile concentrations in parts per million (ppm). It is typically used concurrently with analytical samples to detect soil impacted with petroleum contamination. Due to the inherent variability of the device and characteristics of petroleum contamination it is generally only used as a screening tool to guide investigations. Nevertheless, in place of collection of analytical samples, TPECI assigned a screening level benchmark of 20 ppm to determine if the contaminant concentrations exceeded ADEC regulatory cleanup criteria for petroleum hydrocarbons. The PID screenings exceeded the 20-ppm benchmark, (indicating the presence of soil contamination) in the surface samples of the two borings adjacent to the fuel tanks. TPECI concluded that the impacted soil was likely from a surface spill and not the result of a release (or releases) from one of the two USTs or AST onsite and therefore did not submit the samples for laboratory analysis. No further investigation or delineation of the detected contamination was performed at that time.

In 2012, Rescon performed an excavation on the adjacent property to the east at 2250 Van Horn Road (herein, "the 2250 property") to remove diesel-range organics (DRO) contamination in the vadose zone soil from 2 to 8 feet bgs. The DRO contaminated soil, which was impacting the groundwater, was located at the northwest corner of the 2250 property and extended west to the property boundary with the subject site.

The 2012 excavation effort on the 2250 property removed approximately 190 cubic yards of diesel-impacted soils. The excavation extended up to the property line with the subject site. The approximate extents of the excavation are shown on Figure 4. Soil samples collected from the sidewall of the excavation along the property boundary indicated that the impacted soil was also present at similar depths on the subject site (Rescon, 2014).

Rescon conducted a groundwater monitoring effort on the 2250 property in the fall of 2013, one year after the excavation effort. The results of the monitoring effort found that the groundwater was still impacted with DRO and that the groundwater flow direction was to the northeast. The northeasterly groundwater flow direction indicated that the source of the groundwater contamination was likely on the subject property (Rescon, 2014).

In 2014, Rescon continued excavation of DRO contaminated soil in the vadose zone along the eastern edge of the subject property. The approximate extents of the excavation are shown on Figure 4. Approximately 300 cubic yards of contaminated soil were removed from the excavation and placed in a designated landfarm treatment area northeast of the site. The excavation efforts were ceased along the northern edge due to uncertainty of the extent of contamination in that direction. Confirmation samples were collected from the sidewalls and floor of the excavation. DRO was detected at concentrations exceeding the ADEC soil cleanup level (SCL) in the southeast corner of the excavation and along the north excavation wall. The excavation was backfilled with clean fill and resurfaced with asphalt (Rescon, 2016).

To define the vertical and lateral extent of remaining contamination, Rescon installed eight soil borings to 10 feet bgs. Contamination was found to extend approximately 50 feet north of the 2014 excavation extent and to range vertically from 3 to 8 feet bgs.

Three monitoring wells (MW-13, MW-14, and MW-15) were installed on the 2262 Van Horn property to augment the existing well network. Groundwater monitoring was conducted in October 2014 to assess contaminant concentrations and the groundwater gradient. DRO concentrations exceeded the ADEC groundwater cleanup level in 2 wells (MW-11 on the 2250 property and MW-15 on the subject property). The measured groundwater elevations confirmed that the gradient flowed to the east at the site (Rescon, 2016).

The results of landfarm sampling in the fall of 2014 indicated that the treated soil was below the target SCL of 500 milligrams per kilogram (mg/kg). The landfarmed soil was utilized on the two properties owned by Wise Enterprises, LLC for leveling and grading purposes.

In 2015, Rescon continued the DRO-contaminated-soil excavation north from the terminus of the 2014 excavation and extended approximately 50 feet by 60 feet to reach clean soil. The excavation was extended vertically from the surface until contamination was no longer observed. Confirmation soil samples were collected from the excavation floor and sidewalls at the completion of the excavation effort. DRO concentrations were below the 250 mg/kg ADEC SCL in all samples (Rescon, 2016).

Approximately 350 cubic yards of contaminated soil were removed from the excavation and placed in a designated landfarm treatment area on the nearby Bloom Enterprises, Inc. (Bloom) property at 2443 Arvilla Street, southwest of the site. The approximate extents of the excavation are shown on Figure 4. In October 2015, following two months of landfarming treatment, three composite soil samples plus one duplicate were collected from approximately six inches below the surface grade of the landfarm cell. Concentrations of DRO were detected in all three composite samples as well as the duplicate sample, at concentrations above the respective ADEC SCL of 250 mg/kg. As a result, the soil was left in place for further landfarming treatment (Rescon, 2016).

One monitoring well (MW-16) was installed at the southwest corner of building 2265 to evaluate potential down-gradient impact and to augment the existing groundwater well network. Groundwater monitoring was conducted in October 2015 to evaluate contaminant concentrations. Groundwater samples were collected from each of the seven groundwater-monitoring wells for analysis of DRO. Concentrations of DRO were detected below ADEC cleanup levels in all seven monitoring wells (Figure 4) (Rescon, 2016).

Groundwater monitoring activities were performed again in 2016, and the analytical results indicated an increase in DRO concentrations at each of the wells at the site. DRO was detected in each of the seven monitoring wells and exceeded the ADEC cleanup level at monitoring wells MW-11 and MW-15. The concentration of DRO in these two monitoring wells increased by approximately five times the levels reported in 2015. Rescon also collected analytical soil samples from the landfarm treatment area in 2016

using a multi-incremental sampling approach. Results from the soil sampling activities indicated that the top 12-inches of soil in the landfarm treatment area met the ADEC cleanup level of 250 mg/kg. The top 12-inches of soil was approved by ADEC to be utilized for grading purposes on the 2448 Arvilla Street Property (Rescon, 2017).

1.3. Contaminants of Potential Concern

The results of investigative and remedial activities at the site and the adjacent property indicate that the onsite contamination is the result of a diesel fuel release. Soil and groundwater samples have been collected from both the subject site and the 2250 property for analysis of DRO, residual range organics, gasoline range organics, benzene, toluene, ethylbenzene, and xylenes and polycyclic aromatic hydrocarbons. DRO is the only contaminant compound to be detected in either media above the respective ADEC cleanup criteria. As a result, DRO is the contaminant of potential concern for the site.

1.4. Project Objective

The objective of this cleanup effort was to continue to monitor the groundwater at the site and the adjacent 2250 property for evidence of DRO impact and to assess the remedial progress of landfarming treatment on the diesel impacted soil at the Bloom property.

1.5. Project Activities

The 2017 project field activities conducted to accomplish the project objectives are outlined below:

1. Collection of soil samples from the landfarm treatment area to assess remediation progress.
2. Collection of analytical groundwater samples.

1.6. Regulatory Framework

The regulatory framework to guide the execution of this project was developed under consideration of the following regulations and guidance documents:

- 18 Alaska Administrative Code (AAC) 75, ADEC Oil and Other Hazardous Substances Pollution Control, dated November 2016 (ADEC, 2016)
- 18 AAC 78, ADEC Underground Storage Tank Regulations, dated December 2016 (ADEC, 2015)

The soil cleanup criteria for this project were determined using ADEC's Method 2 for soil (under 40 inch zone, migration to groundwater) as outlined in ADEC regulations (18 AAC 75.341, Tables B1 and B2). The groundwater samples were evaluated using the ADEC groundwater cleanup levels listed in Table C of 18 AAC 75.345.

2. FIELD ACTIVITIES

Rescon performed landfarm and groundwater monitoring activities at the site in October 2017 in accordance with 2015 Cleanup Plan (Rescon, 2015). The fieldwork was performed by Ryan Burich, a Qualified Environmental Professional as defined in 18 AAC 75.333 (ADEC, 2016). A photo log depicting field activities can be found in Appendix A. Copies of the project field notes and groundwater monitoring forms are included in Appendix B.

2.1. Landfarm Monitoring

2.1.1. Landfarm Construction and Maintenance

The landfarm cell was constructed on the nearby Bloom property to the southwest (Figure 2) to treat the DRO-impacted soils removed from the excavation. The Bloom property is enclosed by chain-link fencing to control site access. The landfarm is situated in a low-traffic area of the property that is not readily crossed by site personnel. Rescon placed signage along the edge of the landfarm area to inform onsite personnel and restrict unauthorized vehicle and foot traffic in the treatment area.

The stockpiled soils were spread over the landfarm area roughly 90 x 100 feet, in a lift ranging from 12 to 30-inches in thickness. The landfarm construction was kept to as shallow of a lift as possible to promote volatilization and to increase oxygen infiltration into the lower levels of soil. However, due to space limitations and a sloping of the ground on the southwest corner of the landfarm, a lift of up to 30 inches had to be constructed for a portion of the landfarm.

The landfarm cells were tilled a minimum of once per month to provide the oxygen to promote aerobic biodegradation of the contaminants. Additionally, the tilling of the soils regularly brings fresh soil to the surface where contaminants can volatilize and degrade through exposure to ultraviolet light.

The Bloom property owner authorized the use of their lot for landfarming the impacted soil with the understanding that when the soil concentrations meet the approved cleanup criteria, it could be utilized for grading purposes on the 2448 Arvilla Street property. Sampling results from the 2016 monitoring effort showed DRO concentrations in the top 12-inches of soil met the ADEC SCL of 250 mg/kg. ADEC approved the use of the top 12-inches of soil for grading purposes and it was removed. Additionally, the tiller being used for turning the soils was only able to influence a 12-inch lift, so the removal of the top 12-inches of soil was required in order to continue treatment of the remaining lift of soil (below 1-foot bgs).

2.1.2. Soil Sampling

Rescon collected soil samples from the landfarm in October 2017. Per ADEC's request, multi incremental (MI) samples were collected in accordance with the Interstate Technology Regulatory Council's *Incremental Sampling Methodology Guidance* (ITRC, 2012). Figure 3 displays the multi incremental sample layout at the landfarm.

The following steps were used for MI sampling:

3. The decision unit was defined.
4. The landfarm was divided into four equally sized quadrants.
5. Each quadrant was gridded into a minimum of 30 (increment) locations. Since samples were collected after tilling the landfarm, sample locations were distributed horizontally, not vertically.
6. A random number generator was used to select 8 increment locations from each quadrant.
7. The 8 increments from each quadrant (32 total) were composited into a sample container.
8. A duplicate and a triplicate sample were collected 3 feet to the north and 3 feet to the west, respectively, from each primary sampling location in each quadrant.
9. Immediately following sample collection, the containers were placed into a cooler with sufficient gel ice to maintain a temperature of 4° ± 2°C during transport to the laboratory under COC procedures.
10. Following the ADEC guidance document for non-volatile analyses (DRO – Method AK102), samples were submitted to SGS Environmental where they were dried, sieved to 2 millimeters, and sub-sampled appropriately.

2.2. Landfarm Treatment Goals

The ADEC Method 2, Under 40-inch zone, Migration to groundwater cleanup level for soil is 250 mg/kg DRO. Originally ADEC approved a DRO cleanup level of 500 mg/kg for the landfarm soils. However, due to the location of the landfarm on an offsite property, ADEC determined that the soil must be remediated to levels below the migration to groundwater cleanup level of 250 mg/kg.

2.3. Groundwater Monitoring

2.3.1. Groundwater Monitoring Program

The groundwater-monitoring program consisted of the collection of analytical samples for DRO analysis from the seven monitoring wells on site:

- 2250 Van Horn Rd: MW-10, MW-11, and MW-12
- 2262 Van Horn Rd: MW-13, MW-14, and MW-15
- 2265 Standard: MW-16

Purging of each well was performed in accordance with low-flow sampling techniques as outlined in the ADEC Field Sampling Guidance (ADEC, 2017). The groundwater was pumped to the surface using a variable speed submersible centrifugal pump and dedicated tubing. At the surface, the tubing was connected to a flow-through cell for measurement of water quality parameters using a YSI 556 meter (YSI). Groundwater quality parameters were monitored continuously with the YSI during purging. The pump speed was set to maintain a minimum water level drawdown of less than one tenth of a meter (< 0.1 m or < 0.33 feet). In accordance with low-flow sampling requirements, the monitoring wells were purged until three consecutive readings of water quality parameters, collected 3-5 minutes apart, met the following stability criteria:

- ± 3% for temperature (minimum of ± 0.2 °C),
- ± 0.1 for pH,
- ± 3% for conductivity,
- ± 10 mv for redox potential, and
- ± 10% for dissolved oxygen.

All groundwater quality measurements and field observations were documented on the groundwater monitoring data sheets, which are provided in Appendix B.

2.3.2. Groundwater Sampling

Rescon collected the groundwater samples for laboratory analysis following stabilization of the water quality parameters. Groundwater samples were collected for analysis of DRO concentrations. Samples were collected into laboratory-provided clean one-liter amber jars containing hydrochloric acid preservative. Once the containers were appropriately filled, the containers were capped, labeled and immediately placed into a cooler with sufficient ice to maintain the sample temperatures at 4° ± 2°C until delivery to the analytical laboratory.

One field duplicate sample was collected from well MW-15 for monitoring field quality control purposes. The groundwater samples were submitted to SGS North America, Inc. (SGS), an ADEC-approved laboratory, under proper chain of custody procedures.

2.4. Investigation Derived Waste

The investigation derived waste (IDW) generated during the 2017 field events consisted of purge and decontamination water, disposable sampling equipment and personal protective equipment. The purge and decontamination water generated during the groundwater-sampling event was placed into a 55-gallon open-topped steel drum, appropriately labeled as non-hazardous waste, and staged onsite.

The remaining IDW, including disposable sample gloves, spent Ziploc bags, sample tubing, and miscellaneous paper waste was bagged and taped shut and placed into waste receptacles for disposal at the Fairbanks Municipal Landfill.

3. RESULTS

The analytical results for the landfarm soil samples are presented in Table 1, and the groundwater analytical results are presented in Table 2 and Figure 4, respectively. The laboratory report for the analytical samples collected during the October 2016 field event is included in Appendix C. The ADEC Laboratory Data Review Checklist for each report is also included in Appendix C. The results from each sampling event are summarized below.

3.1. July 2016 Landfarm Sampling Results

The MI samples collected from the landfarm treatment area were submitted to the laboratory for analysis of DRO using AK Method 102. The results from the 2017 sampling effort are included in Table 1. Concentrations of DRO were detected in the primary, duplicate, and triplicate samples, with concentrations ranging from 103 mg/kg to 134 mg/kg. All results were below the SCL of 250 mg/kg.

3.2. October 2017 Groundwater Monitoring Results

Groundwater samples were collected from the seven site monitoring wells for analysis of DRO concentrations. The groundwater sample results were compared to the ADEC groundwater cleanup levels listed in Table C of ADEC's 18 AAC 75, Oil and Other Hazardous Substances Pollution Control, updated in November 2017. The 2017 sample results are shown in Table 2, as well as displayed along with the historical monitoring results for each well on Figure 4.

The 2017 results, as shown on Figure 4, indicate a decrease in DRO concentrations at each of the wells at the site from levels previously reported in 2016. Detectable concentrations of DRO were reported in six of the seven monitoring wells, with the concentrations at MW-11 (2.88 milligrams per liter [mg/l]) and MW-15 (1.91 mg/l) exceeding the ADEC cleanup level of 1.5 mg/l. Monitoring wells MW-11 and MW-15 are located at the down- and up-gradient edges of the original source area, respectively.

3.2.1. Mann-Kendall Statistical Trend Analysis

Rescon performed a statistical trend analysis using the historical and current groundwater analytical results to identify possible trends in the contaminant concentrations at the site. The Mann-Kendall test is a non-parametric test, which means it does not assume a distribution and is resistant to the influence of outliers. The test compares later-measured values to each earlier-measured value and assumes a null hypothesis of no trend unless the data indicates the alternative. The test was performed on monitoring wells MW-11 and MW-15 (the two monitoring wells with contaminant concentrations exceeding groundwater cleanup levels). The results from the Mann-Kendall test indicate that there is likely no trend in the contaminant concentrations at monitoring wells MW-11 and MW-15. The Mann-Kendall tables for MW-11 and MW-15 are included in Appendix E.

4. CONCLUSIONS AND RECOMMENDATIONS

Rescon conducted the landfarm and groundwater sampling efforts in 2017 to monitor the remedial progress of the DRO-contaminated soil and groundwater associated with the subject property. A summary of the findings and recommendations for the site is provided below.

4.1. Landfarm Sampling

Rescon collected analytical samples from the landfarmed soil in October 2017. The samples were collected using a MI sampling approach, which can accurately determine the average representative concentration of contaminants within a defined area. The results from the monitoring effort indicate that the tilled soil was below the SCL of 250 mg/kg. It is recommended that this soil be approved for use for grading and backfilling purposes at the nearby Bloom Enterprises property at 2443 Arvilla Street.

4.2. Groundwater Monitoring

Analytical samples collected from the seven monitoring wells at the site were submitted to SGS for analysis of DRO. Concentrations of DRO were lower than the levels reported in 2016, however DRO concentrations still exceeded the ADEC Table C cleanup levels in monitoring wells MW-11 and MW-15. All other monitoring wells sampled in 2017 exhibited DRO concentrations below ADEC cleanup levels.

Monitoring well locations MW-10, MW-12, MW-13 and MW-14 have each exhibited concentrations of DRO below ADEC cleanup levels for four consecutive sampling events. MW-16 has exhibited concentrations of DRO below cleanup levels for three consecutive sampling events. As a result, Rescon recommends removing these monitoring wells (MW-10, MW-13, MW-14, and MW-16) from the groundwater-sampling program, with the exception of MW-12, which is down-gradient from MW-11 and MW-15. It is not recommended that these monitoring wells be decommissioned, as they may become useful if site conditions change or additional monitoring becomes necessary. Continued monitoring should, however, be performed at monitoring well locations MW-11 and MW-15, as well as MW-12, until contaminant concentrations reduce to levels below ADEC groundwater cleanup levels.

5. REFERENCES

ADEC, 2017. *Field Sampling Guidance*. August.

ADEC, 2016.18 Alaska Administrative Code (AAC) Chapter 75 – *Oil and hazardous Substances Pollution Control*. November.

ADEC, 2015, 18 AAC 78*, ADEC Underground Storage Tank Regulations*. June.

Interstate Technology Regulatory Council (ITRC), 2012. *Incremental Sampling Methodology Guidance.* February.

Rescon Alaska, LLC. (Rescon), 2017. *2016 Landfarm and Groundwater Monitoring Report*, 2262 Van Horn Road, Fairbanks, Alaska. February.

Rescon, 2016. *2015 Remedial Excavation and Groundwater Monitoring Report*, 2262 Van Horn Road, Fairbanks, Alaska. January 26.

Rescon, 2015. *2015 Cleanup Plan, Final*, 2262 Van Horn Road, Fairbanks, Alaska. May, 29.

Rescon, 2014. *Excavation and Investigation Report, Final*, 2262 Van Horn Road, Fairbanks, Alaska. December 16.

TABLES

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Table 1
2017 Landfarm Sample Results
Soil From Excavation
Cymbaluk Investments, LLC
Fairbanks, Alaska

	Analyte:	Diesel Range Organics
	Analytical Method:	AK102
	Unit:	mg/kg
	ADEC Cleanup Level:	250 [1]
Sample ID	**Date Sampled**	**Analytical Result**
LF-1-2017	10/12/17	**134**
LF-1-D-2017	10/12/17	**103**
LF-1-T-2017	10/12/17	**114**

Notes and Abbreviations:

[1] 18 AAC 75, Table B2, Method Two, Soil Cleanup Level, Under 40-inch Zone, Migration to Groundwater (January 2016).

Bolded values are reported detected results.

ADEC = Alaska Department of Environmental Conservation

mg/kg = milligrams per kilogram

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Table 2
2017 Groundwater Sample Analytical Results
Cymbaluk Investments, LLC
Fairbanks, Alaska

	Sample ID:	MW-10-2017	MW-11-2017	MW-12-2017	MW-13-2017	MW-14-2017	MW-15-2017	FD-1-2017 (Duplicate of MW15)	MW-16-2017
	Date:	10/13/17	10/13/17	10/13/17	10/13/17	10/13/17	10/12/17	10/12/17	10/13/17
Analyte	**Analytical Method**	**ADEC Groundwater Cleanup Level[1]**	**all units in mg/l**						
Diesel Range Organics	AK102	1.5	**0.594 J**	**2.88**	**0.416 J**	**0.438 J**	**0.281 J**	**1.91**	**1.89**	0.302 U

Notes and Abbreviations:

[1] 18 AAC 75, Table C, ADEC Groundwater Cleanup Levels (January 2016).

Bolded values are reported detected results.

Bolded red and underlined values are detected results that exceed ADEC cleanup levels.

ADEC = Alaska Department of Environmental Conservation

mg/l = milligrams per liter

J = estimated value, detected below the reporting limit

U = Non-detect

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FIGURES

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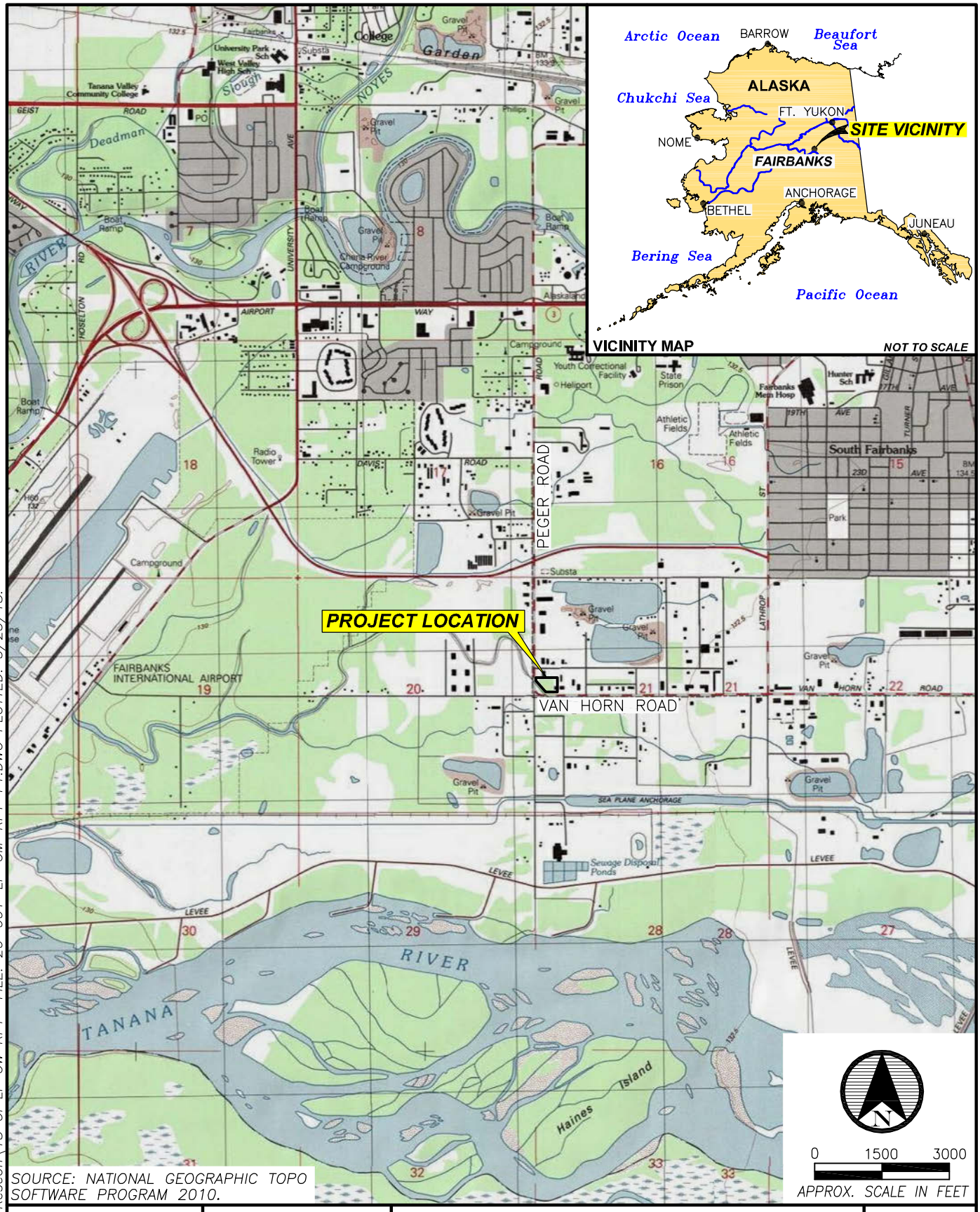

SOURCE: NATIONAL GEOGRAPHIC TOPO SOFTWARE PROGRAM 2010.

PATH 18 Dwgs\18 Rescon\18 CI LF GW RPT FILE: 20-001-LF-GM-RPT-F1.DWG PLOTTED: 3/23/18.

DATE: MARCH 2018
REV.: –
CHKD: K.A.
DRAWN: C.E.H.
PROJ. No.: 20-001

RESCON alaska
1120 HUFFMAN ROAD
SUITE 24-431
ANCHORAGE ALASKA 99515
907-317-2473

SITE LOCATION MAP

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2262 VAN HORN ROAD
Fairbanks, Alaska

FIGURE
1

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PATH 18 Dwgs\18 Rescon\18 CI LF GW RPT FILE: 20-001-LF-GM-RPT-F2.DWG PLOTTED: 3/23/18.

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DRAWN: C.E.H.
PROJ. No.: 20-001

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SUITE 24-431
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907-317-2473

SITE PLAN

2017 LANDFARM AND GROUNDWATER MONITORING REPORT
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2262 VAN HORN ROAD
Fairbanks, Alaska

FIGURE
2

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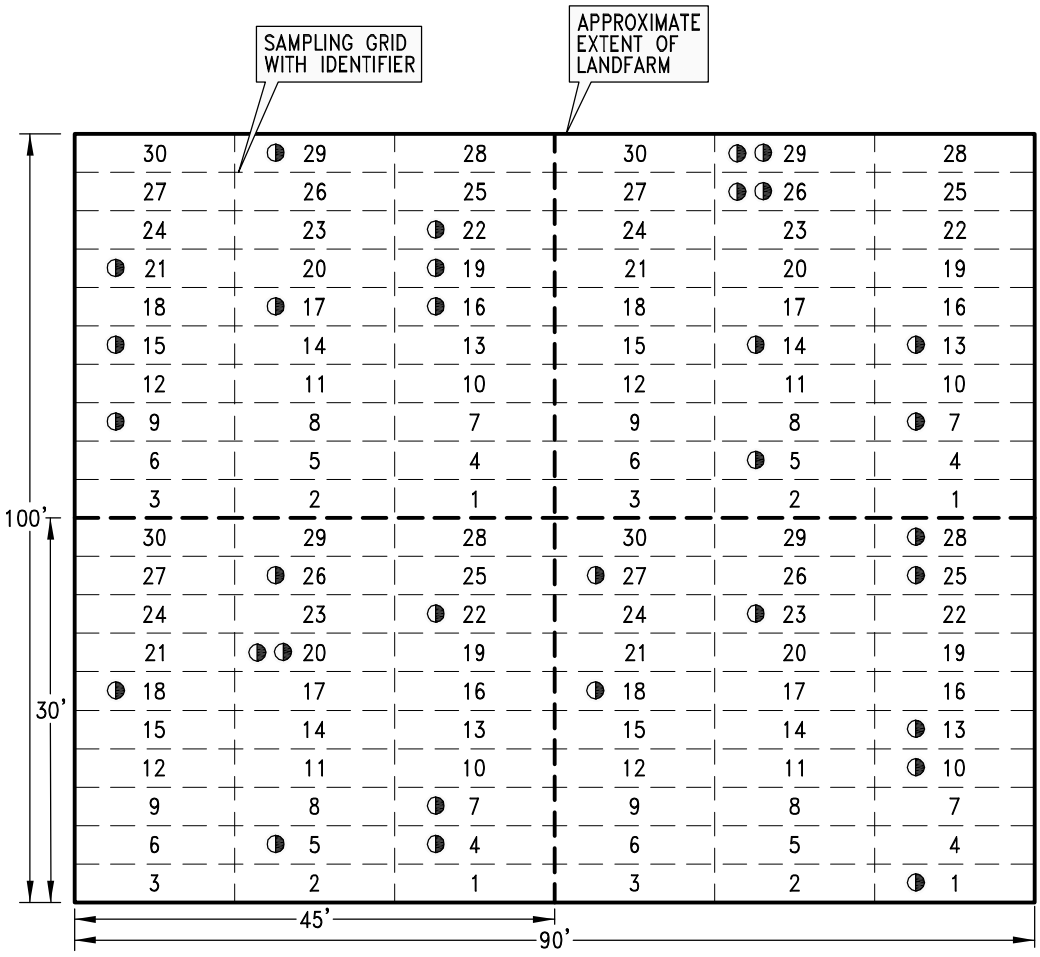

GRAVEL ROAD

LEGEND

◑ MULTI-INCREMENTAL SAMPLE LOCATION

DRO DIESEL-RANGE ORGANICS

NOTE: SEE TABLE 1 FOR SAMPLING RESULTS.

N

NOT TO SCALE

DATE: MARCH 2018
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2017 LANDFARM DRO SAMPLING LOCATIONS

2017 LANDFARM AND GROUNDWATER MONITORING REPORT
CYMBALUK INVESTMENTS, LLC
2262 VAN HORN ROAD
Fairbanks, Alaska

FIGURE

3

PATH 18 Dwgs\18 Rescon\18 CI LF GW RPT FILE: 20-001-LF-GM-RPT-F3.DWG PLOTTED: 3/23/18.

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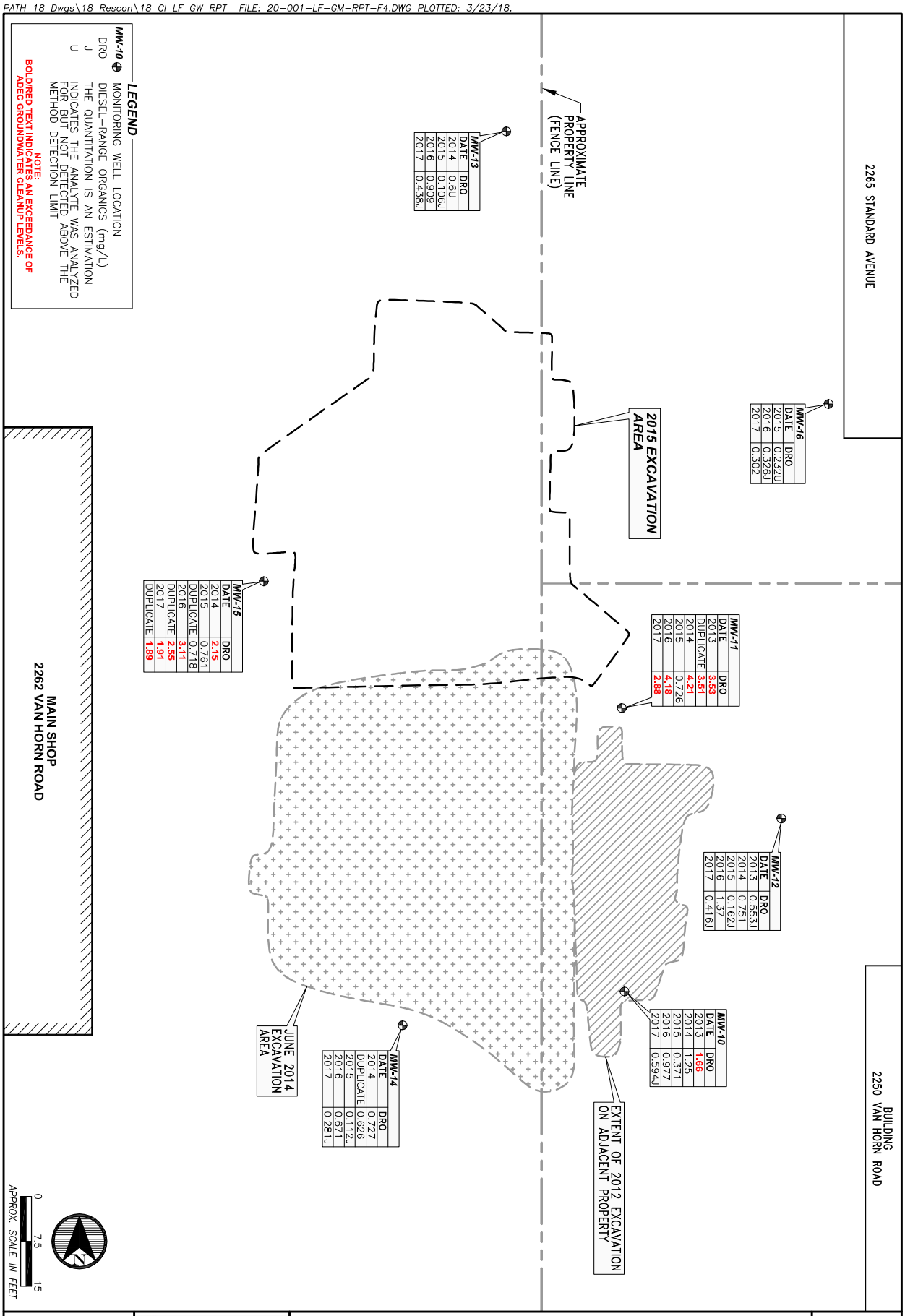
PATH 18 Dwgs\18 Rescon\18 CI LF GW RPT FILE: 20-001-LF-GM-RPT-F4.DWG PLOTTED: 3/23/18.



DATE: MARCH 2018
REV.: -
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DRAWN: C.E.H.
PROJ. No.: 20-001

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GROUNDWATER SAMPLING RESULTS

2017 LANDFARM AND GROUNDWATER MONITORING REPORT
CYMBALUK INVESTMENTS, LLC
2262 VAN HORN ROAD
Fairbanks, Alaska

FIGURE
4

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APPENDIX A

Photograph Log

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PHOTOGRAPH 1: GROUNDWATER SAMPLE LOCATION MW-10; LOOKING NORTH. 10/13/2017.

PHOTOGRAPH 2: GROUNDWATER SAMPLE LOCATION MW-11. 10/13/2017.

PHOTOGRAPH 3: GROUNDWATER SAMPLE LOCATION MW-12; LOOKING SOUTH. 10/13/2017.

PHOTOGRAPH 13: GROUNDWATER SAMPLE LOCATION MW-13. 10/13/2017.

PHOTOGRAPH 5: GROUNDWATER SAMPLE LOCATION MW-14; LOOKING NORTH. 10/13/2017.

PHOTOGRAPH 6: GROUNDWATER SAMPLE LOCATION MW-15. 10/13/2017.

PHOTOGRAPH 7: GROUNDWATER SAMPLE LOCATION MW-16; LOOKING NORTH. 10/13/2017.

PHOTOGRAPH 8: LANDFARM CONDITIONS. 10/13/2017.

APPENDIX B

Field Notes

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39°F Kenworth FBXS (1)
Partly Cloudy
Wind 1mph NE R. BURICH 10/12/17

0830 Rescan @ ANC airport
0940 Depart ANC.
1040 Arrive FBXS. Rent truck. Pick up equipment, supplies, and sample kit from TTT, Arctic Fire, and SGS, respectively.
1215 Lunch
1315 @ Kenworth site. Check in with site personnel.
1330 Calibrate YSI.
1430 Set up sampling equipment @ well MW15. Collect DTW measurement. Place impeller pump @ ~ 0.6' below the water surface. Purge water through the YSI flow through cell until parameters stabilize.
1535 Collect groundwater sample for DRO analysis. * see sample data sheet for info.
1550 Set up sampling equipment @ well MW13. Collect DTW measurement, Place pump @ ~ 0.6' below the water surface.

Scale: 1 square = _____ Rite in the Rain

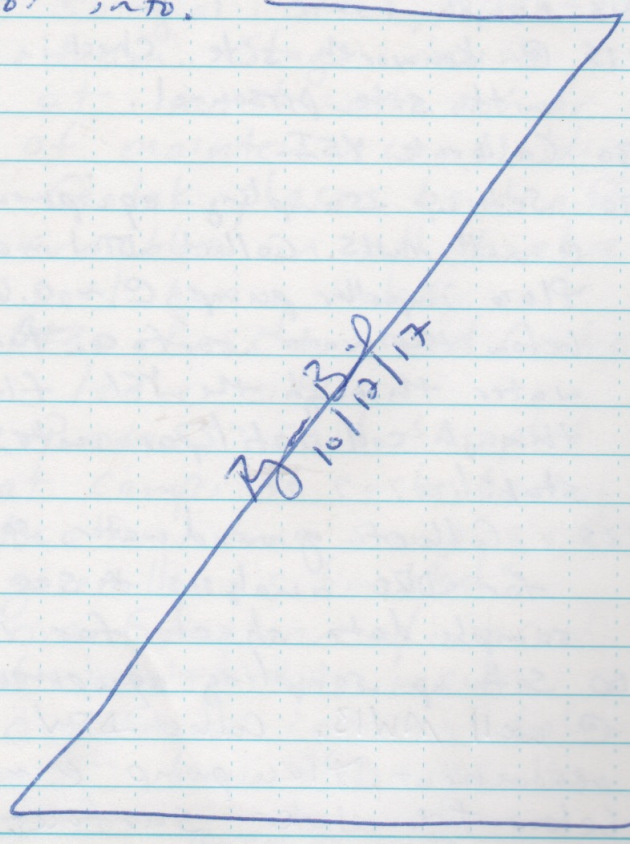
(2) Kenworth FBXS

10/12/17 R. Burich

Purge water through the YSI flow-through cell until parameters stabilize.

1645, Collect groundwater sample for DH2O analysis.

* see sample data sheet for info.



Scale: 1 square = _____

Kenworth FBXS (3)
R. BURICH 10/12/17

1730 Rescon arrives at Bloom property to collect multi-incremental samples from the landform. Divided landfarm into 4 quadrants. Divided each quadrant into 30 possible sample locations. A random # generator (Excel) was used to select 8 sample locations in each quadrant. An equivalent volume of soil was collected from each of the 8 sample locations in each quadrant. All soil from each quadrant was combined and homogenized. A duplicate and triplicate sample were collected from each sample location (duplicate collect 3' North of primary; triplicate collected 3' West of primary). All samples submitted for DRO analysis.

Scale: 1 square = _____

Rite in the Rain

41°F Kenworth FBXS (4)
Partly Cloudy R. BURICH 10/13/17
No wind

1000 - Rescan onsite.
1040 - Set up on well MW16. Collect DTW measurement. Place pump at 0.6' below the water surface. Purge water through the YSI flow-through cell until parameters stabilize.
1130 - Collect groundwater sample for DRO analysis. *See sample data sheet for info.
1145 - Set up on well MW11. Collect DTW measurement. Place pump at 0.6' below the water surface. Purge water through the YSI flow-through cell until parameters stabilize.
1230 - Collect groundwater sample for DRO analysis. * See sample data sheet for info.

BJB 10/13/17

Scale: 1 square = _____ Rite in the Rain.

(5) Kenworth F8X5

10/13/17 R. BURICH

1230 - Set up on well MW12. Collect DTW measurement. Place pump @ 0.6' below the water surface. Purge water through the YSI flow-through cell until parameters stabilize.

1310 Collect groundwater sample for DRO analysis.

* See sample data sheet for info.

1325 - Set up on well MW10. Collect DTW measurement. Place pump @ 0.6' below the water surface. Purge water through the YSI flow-through cell until parameters stabilize.

1400 Collect groundwater sample for DRO analysis.

* See sample data sheet for info.

RJB 10/13/17

Scale: 1 square = _____

Kenworth FBXS (6)

R. Burich 10/13/17

1415 Collect ground water sample from MW14. This well was previously purged dry on 10/12/17. A sample was not collected on 10/12/17, as well recovery was very slow.

1545 Lower YSI sensor assembly into the well to collect water quality parameters, as there wasn't enough water (slow recovery) to run through the flow-through cell.

1610 Set up on well MW13. Collect DTW measurement. Place pump at 0.6' below the water surface. Purge water through the flow though cell on YSI.

1645 Collect groundwater sample for D20 analysis.

Scale: 1 square = _____ Rite in the Rain

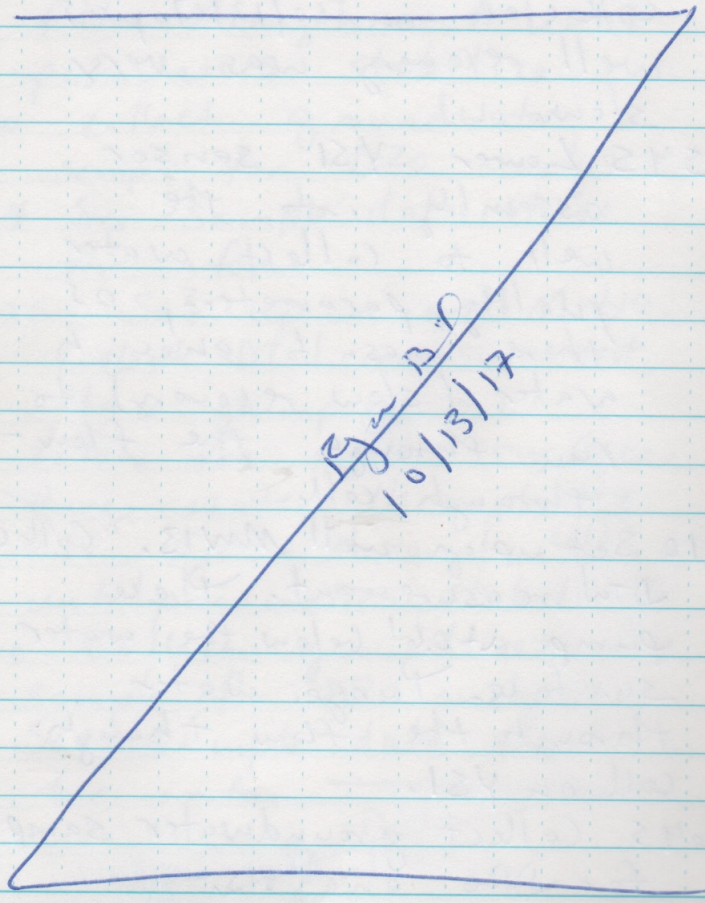
(7)

10/13/17

Kenworth F8X5
R. BURICH

1715 Label purge water drum and place near the northeastern side of the building.

1730 Rescon offsite.



Scale: 1 square = _____

GROUNDWATER SAMPLE DATA SHEET

Project Number: 20-001
Project Name: Kenworth Alaska/FBXS Welding
Client: Marshall Cymbaluk
Sampler: RB
Sample Location (ie. MW1): MW1S
Sample ID: MW1S-2017
Date Sample Collected: 10/12/17
Time sampled: 1535

Well Information

Groundwater: Yes
Casing Diameter (in): 2"
Other: —
—
a) Depth to Water (ft): 8.37
b) Depth to Bottom (ft): 11.08
c) Water Column (ft): b - a = c
d) Pump Depth (ft): 9.00
e) Casing Volume: [3.14ft X (0.0069ft) X (Cft)] X 7.48 =

FIELD MEASUREMENTS

Time	Volume (gallons)	pH (+/- 0.1)	Conductivity (mS) +/- 3%	Temperature (+/- 2 C)	Color	Turbidity	Redox (+/- 10 mv)	DO (+/- 10%)	DTW
1504	—	5.36	0.321	7.37	Amber	Clear	92.4	2.09	—
1507	750 ml	5.41	0.319	7.03	"	"	68.9	0.99	8.53
1510	1500 ml	5.72	0.327	6.83	Amber-Cl	"	59.0	0.69	8.49
1513	2250 ml	5.84	0.331	6.84	"	"	45.4	0.53	"
1516	3000 ml	5.91	0.331	6.84	"	"	42.3	0.39	"
1519	3750 ml	5.98	0.331	6.96	"	"	37.0	0.35	"
1522	4500 ml	6.03	0.331	7.04	"	"	34.4	0.31	"
1525	5250 ml	6.13	0.329	6.90	"	"	24.2	0.27	"
1528	6000 ml	6.17	0.327	6.70	"	"	20.2	0.24	"
1531	6750 ml	6.19	0.325	6.65	"	"	18.0	0.25	"

Total Volume Purged: ml X 0.000264=
Free Product (y/n): N
Odor: None
Sheen (y/n): N

Purge Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Sample Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Well Integrity (condition of casing, flush mount sealing properly, cement seal intact, etc.)

Good condition.

Remarks (well recovery, unusual conditions/observations):

Good recovery

Duplicate Sample ID: FD-1 @ 1800
Split Sample ID:

Signed: Ryan Bill
Date: 10/12/17

Signed/reviewer:
Date:

GROUNDWATER SAMPLE DATA SHEET

Project Number: 20-001 | Sample Location (ie. MW1): MW16

Project Name: Kenworth Alaska/FBXS Welding | Sample ID: MW16-2017

Client: Marshall Cymbaluk | Date Sample Collected: 10/13/17

Sampler: RB | Time sampled: 1130

Well Information

Groundwater: Yes | Casing Diameter (in): 2"

Other: — / —

a) Depth to Water (ft): 7.98

b) Depth to Bottom (ft): 11.14

c) Water Column (ft): b - a = c

d) Pump Depth (ft): 8.5'

e) Casing Volume: [3.14ft X(0.0069ft)X(Cft)]X7.48=

FIELD MEASUREMENTS

Time	Volume (gallons)	pH (+/- 0.1)	Conductivity (mS) +/- 3%	Temperature (+/- 2 C)	Color	Turbidity	Redox (+/- 10 mv)	DO (+/- 10%)	DTW
1110	—	6.08	0.409	8.21	Clear	None	120.0	0.79	—
1113	750 ml	6.58	0.394	8.21	"	"	90.8	0.68	8.31
1116	1500 ml	6.68	0.386	8.16	"	"	86.4	0.60	"
1119	2250 ml	6.73	0.382	8.15	"	"	81.5	0.51	"
1122	3000 ml	6.76	0.379	8.14	"	"	79.3	0.45	"
1125	3710 ml	6.77	0.378	8.11	"	"	78.1	0.38	"

Total Volume Purged: ml X 0.000264= | Free Product (y/n): N

Odor: None | Sheen (y/n): N

Purge Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Sample Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Well Integrity (condition of casing, flush mount sealing properly, cement seal intact, etc.)

Good condition

Remarks (well recovery, unusual conditions/observations):

Good recovery

Duplicate Sample ID: —

Split Sample ID: —

Signed: [signature] | Date: 10/13/17

Signed/reviewer: | Date:

GROUNDWATER SAMPLE DATA SHEET

Project Number:	20-001	Sample Location (ie. MW1):	MW11
Project Name:	Kenworth Alaska/FBXS Welding	Sample ID :	MW11-2017
Client	Marshall Cymbaluk	Date Sample Collected	10/13/17
Sampler:	RB	Time sampled:	1220

Well Information

Groundwater:	Yes	Casing Diameter (in):	2"	a) Depth to Water (ft)	7.98
				b) Depth to Bottom (ft):	10.98
Other:	—			c) Water Column (ft):	b - a = c
	—			d) Pump Depth (ft):	8.5
				e) Casing Volume:	[3.14ft X (0.0069ft) X (Cft)] X 7.48 =

FIELD MEASUREMENTS

Time	Volume (gallons)	pH (+/- 0.1)	Conductivity (mS) +/- 3%	Temperature (+/- 2 C)	Color	Turbidity	Redox (+/- 10 mv)	DO (+/- 10%)	DTW
1152	—	6.36	0.385	5.64	Amber	None	64.0	1.46	—
1155	750ml	6.47	0.404	5.58	"	"	55.4	1.40	8.3
1158	1500ml	6.55	0.422	5.54	"	"	47.2	1.05	8.3
1201	2250ml	6.61	0.432	5.44	"	"	43.2	0.94	"
1204	3000ml	6.67	0.434	5.31	"	"	40.2	0.50	"
1207	3750ml	6.73	0.437	5.28	"	"	35.8	0.37	"
1210	4500 ml	6.81	0.438	5.28	"	"	28.5	0.31	"
1213	5250 ml	6.90	0.437	5.30	"	"	18.8	0.24	"
1216	6000ml	6.97	0.436	5.30	"	"	12.5	0.21	"

Total Volume Purged: ml X 0.000264= Free Product (y/n): N

Odor: None Sheen (y/n): N

Purge Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Sample Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Well Integrity (condition of casing, flush mount sealing properly, cement seal intact, etc.)

Good condition.

Remarks (well recovery, unusual conditions/observations):

Good recovery.

Duplicate Sample ID: —

Split Sample ID —

Signed: [signature] Date: 10/13/17

Signed/reviewer: Date:

GROUNDWATER SAMPLE DATA SHEET

Project Number:	20-001	Sample Location (ie. MW1):	MW 12
Project Name:	Kenworth Alaska/FBXS Welding	Sample ID :	MW12-2017
Client	Marshall Cymbaluk	Date Sample Collected	10/13/17
Sampler:	RB	Time sampled:	1310

Well Information

Groundwater:	Yes	Casing Diameter (in):	2"	a) Depth to Water (ft):	8.12
				b) Depth to Bottom (ft):	10.89
Other:	—			c) Water Column (ft):	b - a = c
	—			d) Pump Depth (ft):	8.7
				e) Casing Volume	[3.14ftX(0.0069ft)X(Cft)]X7.48=

FIELD MEASUREMENTS

Time	Volume (gallons)	pH (+/- 0.1)	Conductivity (mS) +/- 3%	Temperature (+/- 2 C)	Color	Turbidity	Redox (+/- 10 mv)	DO (+/- 10%)	DTW
1243	—	6.80	0.350	4.73	Amber	Clear	27.5	1.59	—
1246	750ml	6.87	0.346	4.44	"	"	24.9	1.07	>8.3
1249	1500ml	6.93	0.359	4.57	"	"	16.6	1.07	>8.3
1252	2250ml	7.00	0.364	4.49	"	"	10.4	0.78	>8.3
1253	3000 ml	7.04	0.368	4.43	"	"	7.8	0.62	"
1256	3750 ml	7.07	0.369	4.39	"	"	4.4	0.52	"
1259	4500 ml	7.12	0.370	4.39	"	"	-1.6	0.40	"
1302	5250ml	7.17	0.370	4.38	"	"	-8.1	0.27	"
1305	6000 ml	7.23	0.371	4.44	"	"	-13.7	0.22	"
~~1308~~	~~6750 ml~~				"	"			"

Total Volume Purged: ml X 0.000264= Free Product (y/n): N

Odor: None Sheen (y/n): N

Purge Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Sample Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Well Integrity (condition of casing, flush mount sealing properly, cement seal intact, etc.)

Good condition.

Remarks (well recovery, unusual conditions/observations):

Good recovery.

Duplicate Sample ID: —

Split Sample ID: —

Signed: [signature] Date: 10/13/17

Signed/reviewer: Date:

GROUNDWATER SAMPLE DATA SHEET

Project Number:	20-001	Sample Location (ie. MW1):	MW10
Project Name:	Kenworth Alaska/FBXS Welding	Sample ID :	MW10 - 2017
Client:	Marshall Cymbaluk	Date Sample Collected	10/13/17
Sampler:	RB	Time sampled:	1400

Well Information

Groundwater:	Yes	Casing Diameter (in):	2"	a) Depth to Water (ft):	7.84
				b) Depth to Bottom (ft):	12.64
Other:	—			c) Water Column (ft):	b - a = c
	—			d) Pump Depth (ft):	8.5
				e) Casing Volume:	[3.14ft]X[0.0069ft]X[Cft]]X7.48=

FIELD MEASUREMENTS

Time	Volume (gallons)	pH (+/- 0.1)	Conductivity (mS) +/- 3%	Temperature (+/- 2 C)	Color	Turbidity	Redox (+/- 10 mv)	DO (+/- 10%)	DTW
1335	—	7.19	0.414	6.18	Clear	Clear	10.0	1.30	—
1338	750ml	7.32	0.417	6.24	"	"	-4.0	1.15	7.92
1341	1500ml	7.43	0.420	6.31	"	"	-17.3	0.85	"
1344	2250ml	7.53	0.422	6.30	"	"	-29.8	0.74	"
1347	3000ml	7.60	0.421	6.25	"	"	-38.8	0.58	"
1350	3750ml	7.65	0.420	6.16	"	"	-45.3	0.36	"
1353	4500 ml	7.70	0.419	6.16	"	"	-50.9	0.31	"
1356	5250 ml	7.74	0.419	6.18	"	"	-55.7	0.23	"

Total Volume Purged: ml X 0.000264= Free Product (y/n): N

Odor: None Sheen (y/n): N

Purge Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Sample Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Well Integrity (condition of casing, flush mount sealing properly, cement seal intact, etc.)

Remarks (well recovery, unusual conditions/observations): Good condition, but need new compression cap. Good recovery.

Duplicate Sample ID: —

Split Sample ID:

Signed: [signature] Date: 10/13/17

Signed/reviewer: Date:

GROUNDWATER SAMPLE DATA SHEET

Project Number:	20-001	Sample Location (ie. MW1):	MW14
Project Name:	Kenworth Alaska/FBXS Welding	Sample ID :	MW14-2017
Client:	Marshall Cymbaluk	Date Sample Collected:	10/13/17
Sampler:	RB	Time sampled:	1415

Well Information

Groundwater:	Yes	Casing Diameter (in):	2"	a) Depth to Water (ft):	7.96
				b) Depth to Bottom (ft):	9.41
Other:	—			c) Water Column (ft):	b - a = c
	—			d) Pump Depth (ft):	8.5-9.4' (Sample @ bottom)
				e) Casing Volume	{3.14ftX(0.0069ft)X(Cft)}X1.48=

FIELD MEASUREMENTS

Time	Volume (gallons)	pH (+/- 0.1)	Conductivity (mS) +/- 3%	Temperature (+/- 2 C)	Color	Turbidity	Redox (+/- 10 mv)	DO (+/- 10%)	DTW
1556	—	6.24	0.404	8.36	Grey	Very	10.2	0.70	—

Total Volume Purged: ml X 0.000264= Free Product (y/n): N

Odor: None Sheen (y/n): N

Purge Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Sample Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Well Integrity (condition of casing, flush mount sealing properly, cement seal intact, etc.)

Good condition.

Remarks (well recovery, unusual conditions/observations):

Poor recovery. Purged dry. *Collected sample following day from bottom of well.

Duplicate Sample ID: —

Split Sample ID: —

Signed: [signature] Date: 10/12/17

Signed/reviewer: Date:

GROUNDWATER SAMPLE DATA SHEET

Project Number:	20-001	Sample Location (ie. MW1):	MW13
Project Name:	Kenworth Alaska/FBXS Welding	Sample ID :	MW13-2017
Client	Marshall Cymbaluk	Date Sample Collected	10/12/17
Sampler:	RB	Time sampled:	1645

Well Information

Groundwater:	Yes	Casing Diameter (in):	2"	a) Depth to Water (ft):	7.98
				b) Depth to Bottom (ft):	11.04
Other:	—			c) Water Column (ft):	b - a = c
	—			d) Pump Depth (ft):	9.9
				e) Casing Volume:	[3.14ft X (0.0069ft) X (Cft)] X 7.48 =

FIELD MEASUREMENTS

Time	Volume (gallons)	pH (+/- 0.1)	Conductivity (mS) +/- 3%	Temperature (+/- 2 C)	Color	Turbidity	Redox (+/- 10 mv)	DO (+/- 10%)	DTW
1619	—	6.33	0.525	9.48	Clear	None	42.9	1.31	—
1622	750 ml	6.41	0.536	9.77	"	"	31.4	0.80	>8.8 (<9.0)
1625	1500 ml	6.43	0.546	10.24	"	"	33.2	0.46	"
1628	2250 ml	6.44	0.551	10.33	"	"	28.6	0.61	"
1631	3000 ml	6.45	0.554	10.29	"	"	24.7	0.52	9.5
1633	3750 ml	6.44	0.554	10.47	"	"	20.8	0.43	9.5
1636	4500 ml	6.45	0.541	10.31	"	"	17.1	0.49	9.5
1639	5250 ml	6.47	0.564	10.34	"	"	13.7	0.46	9.5

Total Volume Purged: ml X 0.000264= Free Product (y/n): N

Odor: None Sheen (y/n): N

Purge Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Sample Method (disposable bailer, peristaltic pump, submersible pump, etc.)

Well Integrity (condition of casing, flush mount sealing properly, cement seal intact, etc.)

Good condition

Remarks (well recovery, unusual conditions/observations):

Good recovery when pump was @ 9.9' btc

Duplicate Sample ID: —

Split Sample ID —

Signed: Ryan Bil Date: 10/12/17

Signed/reviewer: Date:

APPENDIX C

Laboratory Reports and ADEC Laboratory Data Review Checklists

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Laboratory Report of Analysis

To: ResCon Alaska
1120 Huffman Rd Ste 24-431
Anchorage, AK 99515
(907)677-7423

Report Number: **1178505**

Client Project: **Kenworth FBXS 20-001**

Dear Ryan Burich,

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 Forest 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.

Stephen Ede
2017.10.25
10:02:00 -08'00'

Forest Taylor Date
Project Manager
Forest.Taylor@sgs.com

Print Date: 10/24/2017 10:54:29AM

Case Narrative

SGS Client: **ResCon Alaska**
SGS Project: **1178505**
Project Name/Site: **Kenworth FBXS 20-001**
Project Contact: **Ryan Burich**

Refer to sample receipt form for information on sample condition.

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

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are **AK00971 DW Chemistry (Provisionally Certified as of 10/12/2017) & Microbiology (Provisionally Certified as of 9/21/2017)** & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

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

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW10-2017	1178505001	10/13/2017	10/14/2017	Water (Surface, Eff., Ground)
MW11-2017	1178505002	10/13/2017	10/14/2017	Water (Surface, Eff., Ground)
MW12-2017	1178505003	10/13/2017	10/14/2017	Water (Surface, Eff., Ground)
MW13-2017	1178505004	10/12/2017	10/14/2017	Water (Surface, Eff., Ground)
MW14-2017	1178505005	10/13/2017	10/14/2017	Water (Surface, Eff., Ground)
MW15-2017	1178505006	10/12/2017	10/14/2017	Water (Surface, Eff., Ground)
MW16-2017	1178505007	10/13/2017	10/14/2017	Water (Surface, Eff., Ground)
FD-1-2017	1178505008	10/12/2017	10/14/2017	Water (Surface, Eff., Ground)
LF-1-2017	1178505009	10/12/2017	10/14/2017	Solid/Soil (Wet Weight)
LF-1-D-2017	1178505010	10/12/2017	10/14/2017	Solid/Soil (Wet Weight)
LF-1-T-2017	1178505011	10/12/2017	10/14/2017	Solid/Soil (Wet Weight)

Method	Method Description
AK102	Diesel Range Organics (S)
AK102	DRO Low Volume (W)
MI Sub-Sampling ADEC 2009	MI Sampling/Sieving
SM21 2540G	Percent Solids SM2540G

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

Detectable Results Summary

Client Sample ID: **MW10-2017**
Lab Sample ID: 1178505001
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.594J	mg/L

Client Sample ID: **MW11-2017**
Lab Sample ID: 1178505002
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	2.88	mg/L

Client Sample ID: **MW12-2017**
Lab Sample ID: 1178505003
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.416J	mg/L

Client Sample ID: **MW13-2017**
Lab Sample ID: 1178505004
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.438J	mg/L

Client Sample ID: **MW14-2017**
Lab Sample ID: 1178505005
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.281J	mg/L

Client Sample ID: **MW15-2017**
Lab Sample ID: 1178505006
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1.91	mg/L

Client Sample ID: **FD-1-2017**
Lab Sample ID: 1178505008
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1.89	mg/L

Client Sample ID: **LF-1-2017**
Lab Sample ID: 1178505009
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	134	mg/Kg

Client Sample ID: **LF-1-D-2017**
Lab Sample ID: 1178505010
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	103	mg/Kg

Client Sample ID: **LF-1-T-2017**
Lab Sample ID: 1178505011
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	114	mg/Kg

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Results of **MW10-2017**

Client Sample ID: **MW10-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505001
Lab Project ID: 1178505

Collection Date: 10/13/17 14:00
Received Date: 10/14/17 10:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.594	J	0.600	0.180	mg/L	1		10/17/17 03:28
Surrogates								
5a Androstane (surr)	85.7		50-150		%	1		10/17/17 03:28

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/17/17 03:28
Container ID: 1178505001-A

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/17 08:15
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **MW11-2017**

Client Sample ID: **MW11-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505002
Lab Project ID: 1178505

Collection Date: 10/13/17 12:20
Received Date: 10/14/17 10:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2.88		0.625	0.188	mg/L	1		10/17/17 03:49
Surrogates								
5a Androstane (surr)	86.3		50-150		%	1		10/17/17 03:49

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/17/17 03:49
Container ID: 1178505002-A

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/17 08:15
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

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Results of **MW12-2017**

Client Sample ID: **MW12-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505003
Lab Project ID: 1178505

Collection Date: 10/13/17 13:10
Received Date: 10/14/17 10:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.416	J	0.605	0.181	mg/L	1		10/17/17 04:10
Surrogates								
5a Androstane (surr)	84.1		50-150		%	1		10/17/17 04:10

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/17/17 04:10
Container ID: 1178505003-A

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/17 08:15
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **MW13-2017**

Client Sample ID: **MW13-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505004
Lab Project ID: 1178505

Collection Date: 10/12/17 16:45
Received Date: 10/14/17 10:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.438	J	0.615	0.184	mg/L	1		10/17/17 04:30
Surrogates								
5a Androstane (surr)	85.3		50-150		%	1		10/17/17 04:30

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/17/17 04:30
Container ID: 1178505004-A

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/17 08:15
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **MW14-2017**

Client Sample ID: **MW14-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505005
Lab Project ID: 1178505

Collection Date: 10/13/17 14:15
Received Date: 10/14/17 10:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.281	J	0.636	0.191	mg/L	1		10/17/17 04:51
Surrogates								
5a Androstane (surr)	77.2		50-150		%	1		10/17/17 04:51

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/17/17 04:51
Container ID: 1178505005-A

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/17 08:15
Prep Initial Wt./Vol.: 236 mL
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **MW15-2017**

Client Sample ID: **MW15-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505006
Lab Project ID: 1178505

Collection Date: 10/12/17 15:35
Received Date: 10/14/17 10:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.91		0.615	0.184	mg/L	1		10/17/17 05:12
Surrogates								
5a Androstane (surr)	80.8		50-150		%	1		10/17/17 05:12

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/17/17 05:12
Container ID: 1178505006-A

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/17 08:15
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **MW16-2017**

Client Sample ID: **MW16-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505007
Lab Project ID: 1178505

Collection Date: 10/13/17 11:30
Received Date: 10/14/17 10:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.302	U	0.605	0.181	mg/L	1		10/17/17 05:32
Surrogates								
5a Androstane (surr)	80.7		50-150		%	1		10/17/17 05:32

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/17/17 05:32
Container ID: 1178505007-A

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/17 08:15
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **FD-1-2017**

Client Sample ID: **FD-1-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505008
Lab Project ID: 1178505

Collection Date: 10/12/17 18:00
Received Date: 10/14/17 10:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.89		0.647	0.194	mg/L	1		10/17/17 05:53
Surrogates								
5a Androstane (surr)	76.8		50-150		%	1		10/17/17 05:53

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/17/17 05:53
Container ID: 1178505008-A

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/17 08:15
Prep Initial Wt./Vol.: 232 mL
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **LF-1-2017**

Client Sample ID: **LF-1-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505009
Lab Project ID: 1178505

Collection Date: 10/12/17 18:00
Received Date: 10/14/17 10:43
Matrix: Solid/Soil (Wet Weight)
Solids (%):94.5
Location:

Results by **MI Sub-Sampling per ADEC 2009**

Parameter	Date Analyzed
Multi-Incremental Sub Sampling	10/17/17 10:00

Batch Information

Analytical Batch: SPT10349
Analytical Method: MI Sub-Sampling ADEC 2009
Analyst: NIC
Analytical Date/Time: 10/17/17 10:00
Container ID: 1178505009-A

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **LF-1-2017**

Client Sample ID: **LF-1-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505009
Lab Project ID: 1178505

Collection Date: 10/12/17 18:00
Received Date: 10/14/17 10:43
Matrix: Solid/Soil (Wet Weight)
Solids (%):94.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	134		18.8	5.82	mg/Kg	1		10/20/17 18:40
Surrogates								
5a Androstane (surr)	97.4		50-150		%	1		10/20/17 18:40

Batch Information

Analytical Batch: XFC13904
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/20/17 18:40
Container ID: 1178505009-C

Prep Batch: XXX38690
Prep Method: SW3550C
Prep Date/Time: 10/18/17 09:33
Prep Initial Wt./Vol.: 31.967 g
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **LF-1-D-2017**

Client Sample ID: **LF-1-D-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505010
Lab Project ID: 1178505

Collection Date: 10/12/17 18:15
Received Date: 10/14/17 10:43
Matrix: Solid/Soil (Wet Weight)
Solids (%):94.5
Location:

Results by **MI Sub-Sampling per ADEC 2009**

Parameter	Date Analyzed
Multi-Incremental Sub Sampling	10/17/17 10:00

Batch Information

Analytical Batch: SPT10349
Analytical Method: MI Sub-Sampling ADEC 2009
Analyst: NIC
Analytical Date/Time: 10/17/17 10:00
Container ID: 1178505010-A

Results of **LF-1-D-2017**

Client Sample ID: **LF-1-D-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505010
Lab Project ID: 1178505

Collection Date: 10/12/17 18:15
Received Date: 10/14/17 10:43
Matrix: Solid/Soil (Wet Weight)
Solids (%):94.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	103		19.5	6.05	mg/Kg	1		10/20/17 18:51
Surrogates								
5a Androstane (surr)	94.9		50-150		%	1		10/20/17 18:51

Batch Information

Analytical Batch: XFC13904
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/20/17 18:51
Container ID: 1178505010-C

Prep Batch: XXX38690
Prep Method: SW3550C
Prep Date/Time: 10/18/17 09:33
Prep Initial Wt./Vol.: 30.744 g
Prep Extract Vol: 1 mL

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Results of **LF-1-T-2017**

Client Sample ID: **LF-1-T-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505011
Lab Project ID: 1178505

Collection Date: 10/12/17 18:30
Received Date: 10/14/17 10:43
Matrix: Solid/Soil (Wet Weight)
Solids (%):94.3
Location:

Results by **MI Sub-Sampling per ADEC 2009**

Parameter	Date Analyzed
Multi-Incremental Sub Sampling	10/17/17 10:00

Batch Information

Analytical Batch: SPT10349
Analytical Method: MI Sub-Sampling ADEC 2009
Analyst: NIC
Analytical Date/Time: 10/17/17 10:00
Container ID: 1178505011-A

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Results of **LF-1-T-2017**

Client Sample ID: **LF-1-T-2017**
Client Project ID: **Kenworth FBXS 20-001**
Lab Sample ID: 1178505011
Lab Project ID: 1178505

Collection Date: 10/12/17 18:30
Received Date: 10/14/17 10:43
Matrix: Solid/Soil (Wet Weight)
Solids (%):94.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	114		19.5	6.04	mg/Kg	1		10/20/17 19:01
Surrogates								
5a Androstane (surr)	92.2		50-150		%	1		10/20/17 19:01

Batch Information

Analytical Batch: XFC13904
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 10/20/17 19:01
Container ID: 1178505011-C

Prep Batch: XXX38690
Prep Method: SW3550C
Prep Date/Time: 10/18/17 09:33
Prep Initial Wt./Vol.: 30.813 g
Prep Extract Vol: 1 mL

Print Date: 10/24/2017 10:54:35AM

J flagging is activated

Method Blank

Blank ID: MB for HBN 1770455 [SPT/10347]
Blank Lab ID: 1420810

Matrix: Soil/Solid (dry weight)

QC for Samples:
1178505009, 1178505010, 1178505011

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10347
Analytical Method: SM21 2540G
Instrument:
Analyst: CMC
Analytical Date/Time: 10/17/2017 5:33:00PM

Duplicate Sample Summary

Original Sample ID: 1177367004
Duplicate Sample ID: 1420813
QC for Samples:

Analysis Date: 10/17/2017 17:33
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	93.4	93.8	%	0.39	(< 15)

Batch Information

Analytical Batch: SPT10347
Analytical Method: SM21 2540G
Instrument:
Analyst: CMC

Print Date: 10/24/2017 10:54:38AM

Duplicate Sample Summary

Original Sample ID: 1177387001
Duplicate Sample ID: 1420814
QC for Samples:
1178505009, 1178505010, 1178505011

Analysis Date: 10/17/2017 17:33
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	93.6	93.6	%	0.02	(< 15)

Batch Information

Analytical Batch: SPT10347
Analytical Method: SM21 2540G
Instrument:
Analyst: CMC

Print Date: 10/24/2017 10:54:38AM

Method Blank

Blank ID: MB for HBN 1770314 [XXX/38670]
Blank Lab ID: 1420242

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1178505001, 1178505002, 1178505003, 1178505004, 1178505005, 1178505006, 1178505007, 1178505008

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	87.6	60-120		%

Batch Information

Analytical Batch: XFC13893
Analytical Method: AK102
Instrument: HP 7890A FID SV E F
Analyst: JMG
Analytical Date/Time: 10/17/2017 2:05:00AM

Prep Batch: XXX38670
Prep Method: SW3520C
Prep Date/Time: 10/16/2017 8:15:04AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1178505 [XXX38670]
Blank Spike Lab ID: 1420243
Date Analyzed: 10/17/2017 02:26

Spike Duplicate ID: LCSD for HBN 1178505 [XXX38670]
Spike Duplicate Lab ID: 1420244
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1178505001, 1178505002, 1178505003, 1178505004, 1178505005, 1178505006, 1178505007, 1178505008

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	20.0	100	20	20.3	101	(75-125)	1.10	(< 20)
Surrogates									
5a Androstane (surr)	0.4	95.1	95	0.4	95.6	96	(60-120)	0.59	

Batch Information

Analytical Batch: **XFC13893**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E F**
Analyst: **JMG**

Prep Batch: **XXX38670**
Prep Method: **SW3520C**
Prep Date/Time: **10/16/2017 08:15**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1770460 [XXX/38690]
Blank Lab ID: 1420834

Matrix: Soil/Solid (dry weight)

QC for Samples:
1178505009, 1178505010, 1178505011

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	83.7	60-120		%

Batch Information

Analytical Batch: XFC13904
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: JMG
Analytical Date/Time: 10/20/2017 6:09:00PM

Prep Batch: XXX38690
Prep Method: SW3550C
Prep Date/Time: 10/18/2017 9:33:24AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1178505 [XXX38690]
Blank Spike Lab ID: 1420835
Date Analyzed: 10/20/2017 18:19

Spike Duplicate ID: LCSD for HBN 1178505 [XXX38690]
Spike Duplicate Lab ID: 1420836
Matrix: Soil/Solid (dry weight)

QC for Samples: 1178505009, 1178505010, 1178505011

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	159	95	167	162	97	(75-125)	1.70	(< 20)
Surrogates									
5a Androstane (surr)	3.33	91.7	92	3.33	95.5	96	(60-120)	4.00	

Batch Information

Analytical Batch: **XFC13904**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **JMG**

Prep Batch: **XXX38690**
Prep Method: **SW3550C**
Prep Date/Time: **10/18/2017 09:33**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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CHAIN OF CUSTODY RECORD

1178505

Locations Nationwide
Alaska Maryland
New Jersey New York
North Carolina Indiana
West Virginia Kentucky
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Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Section 1

CLIENT: Rescon Alaska

CONTACT: Ryan Burich PHONE NO: 907-341-9305

PROJECT NAME: Kenworth FBXS PROJECT/ PWSID/ PERMIT#: 20-001

REPORTS TO: Ryan Burich E-MAIL: rburich@resconalaska.com

INVOICE TO: Rescon Alaska QUOTE #:

P.O. #: 20-001

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	Preservative HCl	Preservative DRO AK102	REMARKS/ LOC ID
(1) A-B	MW10 - 2017	10/13/17	1400	Water	2	G		X	
(2) A-B	MW11 - 2017	10/13/17	~~1220~~ 1430	Water	2	G		X	
(3) A-B	MW12 - 2017	10/13/17	1310	Water	2	G		X	
(4) A-B	MW13 - 2017	10/12/17	1645	Water	2	G		X	
(5) A-B	MW14 - 2017	10/13/17	1415	Water	2	G		X	
(6) A-B	MW15 - 2017	10/12/17	1535	Water	2	G		X	
(7) A-B	MW16 - 2017	10/13/17	1130	Water	2	G		X	
(8) A-B	FD-1-2017	10/12/17	1800	Water	2	G		X	Field duplicate

Section 5

	Date	Time		
Relinquished By: (1)	10/13/17	1529	Received By:	10/13/17 1529
Relinquished By: (2)	10/13/17	1625	Received By:	
Relinquished By: (3)			Received By:	
Relinquished By: (4)	10/14/17	1043	Received For Laboratory By:	

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements: EDD

Requested Turnaround Time and/or Special Instructions: Standard TAT

Temp Blank °C: 1.9°C

or Ambient [ ]

(See attached Sample Receipt Form)

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

(See attached Sample Receipt Form)

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

ANC TB 2.4 D360 C81F JB

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F083-Kit_Request_and_COC_Templates-Blank
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CHAIN OF CUSTODY RECORD

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Locations Nationwide
Alaska, Maryland, New Jersey, New York, North Carolina, Indiana, West Virgina, Kentucky
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Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Section 1

CLIENT: Rescon Alaska

CONTACT: Ryan Burich PHONE NO: 907-341-9305

PROJECT NAME: Kenworth FBX S PROJECT/ PWSID/ PERMIT#: 20-001

REPORTS TO: Ryan Burich E-MAIL: rburich@resconalaska.com

INVOICE TO: Rescon Alaska QUOTE #: P.O. #: 20-001

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incremental Soils	Preservative: None	DRO AK102	REMARKS/ LOC ID
(9) A-D	LF-1-2017	10/12/17	1800	Soil	1	MI		X	SGS to process these (3) MI soil samples
(10) A-D	LF-1-D-2017	10/12/17	1815	Soil	1	MI		X	
(11) A-D	LF-1-T-2017	10/12/17	1830	Soil	1	MI		X	

Section 5

	Date	Time	
Relinquished By: (1)	10/13/17	1529	Received By: 10/13/17 1529
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	10/14/17	1043	Received For Laboratory By:

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements: EDD

Requested Turnaround Time and/or Special Instructions: Standard TAT

Temp Blank °C: 1.5°C or Ambient [ ]
(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
(See attached Sample Receipt Form)

TB 2.4 D36
CS1F1B

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

F083-Kit_Request_and_COC_Templates-Blank
Revised 2013-03-24

SGS

1178505

FAIRBANKS SAMPLE RECEIPT FORM

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

Review Criteria:	Condition:	Comments/Actions Taken
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No (N/A) (Yes) No N/A	□*Exemption permitted if sampler hand carries/delivers.*
Temperature blank compliant* (i.e., 0-6°C) *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID:_____@ 1.9°C w/Therm. ID: D25 Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note ambient ( ) or chilled ( ). Please check one.	(Yes) No Yes No (N/A) Yes No (N/A)	□*Exemption permitted if chilled & collected <8hrs ago* ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery Method: (Client hand carried) Other:_____	Tracking/AB# : Or see attached Or (N/A)	
→For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): (Bubble) Wrap Separate plastic bags Vermiculite Other:_____	(Yes) No N/A	***Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.***
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No (N/A)	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A) Yes No (N/A)	

Additional notes (if applicable):

Profile #:

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

1178505

SGS

Cooler Packing Form For Fairbanks

Cooler ID 2

Cooler Temperature 2.4 D30

Please list the WOs and associated samples packed in this Cooler

WO #	Samples	Special Notes
1178505	MW10-2017	
	MW11-2017	
	MW12-2017	
	MW13-2017	
	MW14-2017	
	MW15-2017	
	MW16-2017	
	FD-1-2017	
	LF-1-2017	
	LF-1-D-2017	
	LF-1-T-2017	

SGS

1178505

Returned Bottles Inventory

Name of individual returning bottles: Ryan Burich

Date Received: 10/19/17

Client Name: Rescon Alaska

Received by: JS

Project Name: Kenworth

SGS PM: CH

HDPE/Nalgene:	1-L					
	500-ml					
	250-ml or 8-oz					
	125-ml or 4-oz					
	60-ml or 2-oz					
	other					
amber glass:	1-L					
	500-ml					
	250-ml or 8-oz	2				
	125-ml or 4-oz with or without septa	5				
	40-ml VOA vial					
	other					
Subtotal:		7				

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

Amount to Invoice Client $: 28.

WO#: 1178505

e-Sample Receipt Form

SGS Workorder #: **1178505**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1 Front 1 Back
COC accompanied samples?	Yes	
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 2.4 °C Therm. ID: D36
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	Yes	
		N/A ***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	N/A	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1178505001-A	HCL to pH < 2	OK			
1178505001-B	HCL to pH < 2	OK			
1178505002-A	HCL to pH < 2	OK			
1178505002-B	HCL to pH < 2	OK			
1178505003-A	HCL to pH < 2	OK			
1178505003-B	HCL to pH < 2	OK			
1178505004-A	HCL to pH < 2	OK			
1178505004-B	HCL to pH < 2	OK			
1178505005-A	HCL to pH < 2	OK			
1178505005-B	HCL to pH < 2	OK			
1178505006-A	HCL to pH < 2	OK			
1178505006-B	HCL to pH < 2	OK			
1178505007-A	HCL to pH < 2	OK			
1178505007-B	HCL to pH < 2	OK			
1178505008-A	HCL to pH < 2	OK			
1178505008-B	HCL to pH < 2	OK			
1178505009-A	No Preservative Required	OK			
1178505009-B	No Preservative Required	OK			
1178505009-C	No Preservative Required	OK			
1178505009-D	No Preservative Required	OK			
1178505010-A	No Preservative Required	OK			
1178505010-B	No Preservative Required	OK			
1178505010-C	No Preservative Required	OK			
1178505010-D	No Preservative Required	OK			
1178505011-A	No Preservative Required	OK			
1178505011-B	No Preservative Required	OK			
1178505011-C	No Preservative Required	OK			
1178505011-D	No Preservative Required	OK			

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Laboratory Data Review Checklist

Completed by: Kynan Adams

Title: Environmental Scientist Date: 03/20/2018

CS Report Name: Kenworth FBXS Monitoring Report Report Date: 10/24/2017

Consultant Firm: Rescon Alaska, LLC

Laboratory Name: Alaska Analytical Laboratory Laboratory Report Number: 1178505

ADEC File Number: 102.38.178 ADEC RecKey Number:

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ☒Yes ☐No ☐NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      ☐Yes ☐No ☒NA (Please explain.) Comments:

      All samples were analyzed by SGS North America.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ☒Yes ☐No ☐NA (Please explain.) Comments:

   b. Correct analyses requested?
      ☒Yes ☐No ☐NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (6° ± 0° C)?
      ☒Yes ☐No ☐NA (Please explain.) Comments:

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
☒Yes ☐No ☐NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
☒Yes ☐No ☐NA (Please explain.) Comments:

All samples were received intact and in good condition.

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 (Please explain.) Comments:

No discrepancies were noted on the cooler receipt form.

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

There was no effect on data quality or usability.

4. Case Narrative
a. Present and understandable?
☒Yes ☐No ☐NA (Please explain.) Comments:

b. Discrepancies, errors or QC failures identified by the lab?
☐Yes ☒No ☐NA (Please explain.) Comments:

c. Were all corrective actions documented?
☐Yes ☐No ☒NA (Please explain.) Comments:

No additional corrective actions were identified in the case narrative.

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

There was no effect on data quality or usability.

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
☒Yes ☐No ☐NA (Please explain.) Comments:

b. All applicable holding times met?

☒Yes ☐No ☐NA (Please explain.) Comments:

c. All soils reported on a dry weight basis?
☐Yes ☒No ☐NA (Please explain.) Comments:

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
☒Yes ☐No ☐NA (Please explain.) Comments:

e. Data quality or usability affected?
Comments:

There was no effect on data quality or usability.

6. QC Samples
   a. Method Blank
      i. One method blank reported per matrix, analysis and 20 samples?
      ☒Yes ☐No ☐NA (Please explain.) Comments:

      ii. All method blank results less than PQL?
      ☒Yes ☐No ☐NA (Please explain.) Comments:

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

      No analytes were detected in the method blanks.

      iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
      ☐Yes ☐No ☒NA (Please explain.) Comments:

      No data flags were required.

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

      There was no effect on data quality or usability.

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

☒Yes ☐No ☐NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
☐Yes ☐No ☒NA (Please explain.) Comments:

No metals/inorganics analyses were submitted or analyzed for this sample delivery group.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
☒Yes ☐No ☐NA (Please explain.) Comments:

All LCS/LCSD recoveries were within AK method control limits.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
☒Yes ☐No ☐NA (Please explain.) Comments:

All RPDs for LCS/LCSD recoveries were <20%.

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

Not applicable.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
☐Yes ☐No ☒NA (Please explain.) Comments:

No data flags were required.

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

There was no effect on data quality or usability.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?
☒Yes ☐No ☐NA (Please explain.) Comments:

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

☒Yes ☐No ☐NA (Please explain.) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?
☐Yes ☐No ☒NA (Please explain.) Comments:

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

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

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)
☐Yes ☐No ☒NA (Please explain.) Comments:

No volatile analyses were submitted or analyzed for this sample delivery group.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)
☐Yes ☐No ☒NA (Please explain.) Comments:

iii. All results less than PQL?
☐Yes ☐No ☒NA (Please explain.) Comments:

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

No samples were affected.

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

There was no effect on data quality or usability.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
☒Yes ☐No ☐NA (Please explain.) Comments:

ii. Submitted blind to lab?

☒Yes ☐No ☐NA (Please explain.) Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

☒Yes ☐No ☐NA (Please explain.) Comments:

Field duplicate pairs LF-01/LF-02 (soil) and MW-15/FD-1 (water) were analyzed for DRO by AK102. Calculated RPDs for both duplicate pairs were less than the recommended 50% for soils and 30% for waters, respectively.

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

Comments:

There was no effect on data quality or usability.

f. Decontamination or Equipment Blank (If not used explain why).

☐Yes ☐No ☒NA (Please explain.) Comments:

Not required for the project.

i. All results less than PQL?

☐Yes ☐No ☒NA (Please explain.) Comments:

ii. If above PQL, what samples are affected?

Comments:

Not applicable.

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

Comments:

Not applicable.

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

a. Defined and appropriate?

☐Yes ☐No ☒NA (Please explain.) Comments:

APPENDIX D

Mann Kendall Tables

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Kenworth Fairbanks
Mann-Kendall Test for Trend Analysis

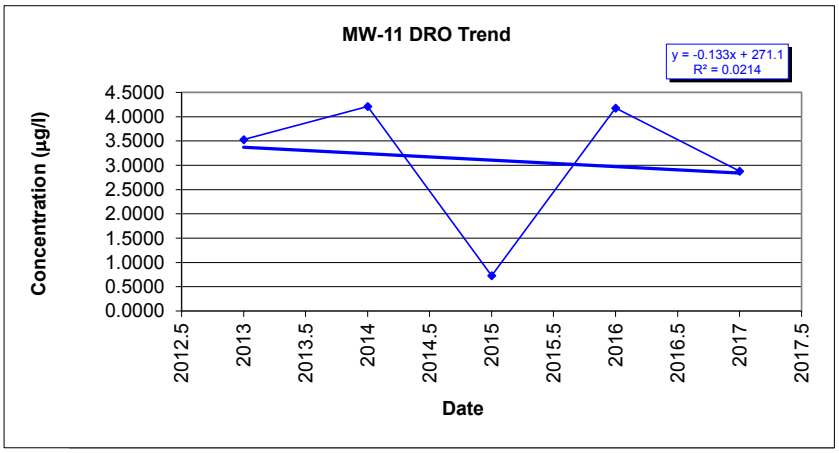
Monitoring Well No.	MW-11
Contaminant	DRO

Monitoring date:	2013	2014	2015	2016	2017					
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10
DRO (mg/L)	**3.5300**	**4.2100**	**0.7260**	**4.1800**	**2.8800**					

Row 1: Compare to Event 1		1	-1	1	-1						0
Row 2: Compare to Event 2			-1	-1	-1						-3
Row 3: Compare to Event 3				1	1						2
Row 4: Compare to Event 4					-1						-1
Row 5: Compare to Event 5											0
Row 6: Compare to Event 6											0
Row 7: Compare to Event 7											0
Row 8: Compare to Event 8											0
Row 8: Compare to Event 9											0

Mann-Kendall Statistic (S) = Total	**-2**
Probability of obtaining Mann-Kendall Statistic (p)	**0.408**
Confidence Level	**<90%**
Coefficient of Variance (CV)	**0.46**

Notes:
– A minimum of four (4) independent sampling events are required for this test to be valid.
– Non-detects are listed as 1/2 of the PQL
– A negative S value with confidence > 90% indicates a decreasing concentration trend.
– A positive S value with confidence > 90% indicates an increasing concentration trend.
– Any S value with confidence < 90% indicates that there is likely no concentration trend.
– The closer to zero the CV is, the less variation in concentrations between sampling events.
– A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Table A18 (Gilbert 1987)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No trend
Mann-Kendall	No trend

Kenworth Fairbanks
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-15
Contaminant	DRO

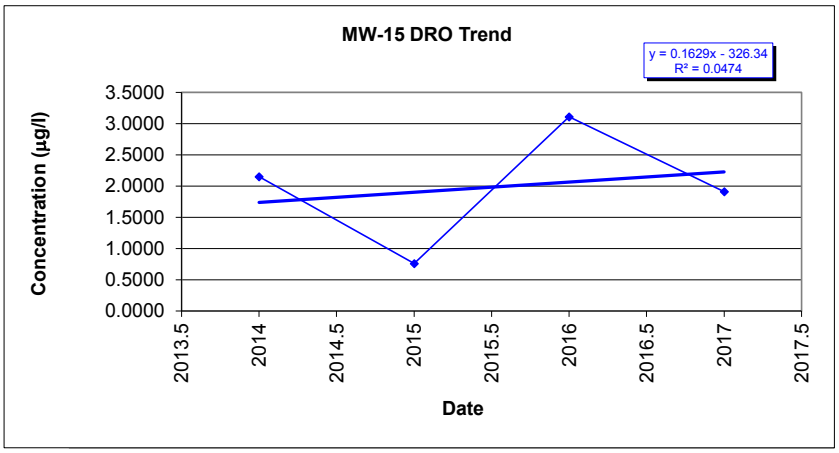
Monitoring date:	2014	2015	2016	2017						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10
DRO (mg/L)	**2.1500**	**0.7610**	**3.1100**	**1.9100**						

Row 1: Compare to Event 1	-1	1	-1							
Row 2: Compare to Event 2		1	1							
Row 3: Compare to Event 3			-1							
Row 4: Compare to Event 4										
Row 5: Compare to Event 5										
Row 6: Compare to Event 6										
Row 7: Compare to Event 7										
Row 8: Compare to Event 8										
Row 8: Compare to Event 9										

-1	
2	
-1	
0	
0	
0	
0	
0	
0	

Mann-Kendall Statistic (S) = Total	**0**
Probability of obtaining Mann-Kendall Statistic (p)	**0.625**
Confidence Level	**<90%**
Coefficient of Variance (CV)	**0.49**

Notes:
– A minimum of four (4) independent sampling events are required for this test to be valid.
– Non-detects are listed as 1/2 of the PQL
– A negative S value with confidence > 90% indicates a decreasing concentration trend.
– A positive S value with confidence > 90% indicates an increasing concentration trend.
– Any S value with confidence < 90% indicates that there is likely no concentration trend.
– The closer to zero the CV is, the less variation in concentrations between sampling events.
– A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Table A18 (Gilbert 1987)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No trend
Mann-Kendall	No trend