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Kotzebue Airport Terminal Concrete Excavation Report

Alaska Airlines Kotzebue, Alaska

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Kotzebue Airport Terminal Concrete Excavation Report

Prepared for:

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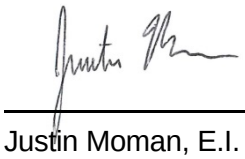
This document has been prepared by SLR International Corporation. The material and data in this report were prepared under the supervision and direction of the undersigned.



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ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADOT & PF	Alaska Department of Transportation and Public Faculties
BTEX	benzene, toluene, ethylbenzene, and xylenes
CSM	Conceptual Site Model
CY	cubic yards
DRO	diesel range organics
GRO	gasoline range organics
mg/kg	milligrams per kilogram
MSWLF	municipal solid waste landfill
PID	photoionization detector
QA	quality assurance
QAR	quality assurance review
QC	quality control
RRO	residual range organics
SLR	SLR International Corporation
TVOC	total volatile organic compound

SUMMARY

SLR International Corporation (SLR) was contracted by Alaska Airlines to provide environmental oversight in support of Alaska Airlines concrete replacement project at the Kotzebue Airport (Figure 1). The work was completed on the interior of the Alaska Airlines terminal building cargo handling area (Figure 2) in the "Kotzebue Airport-Alaska Airlines" Contaminated Site (HazID - 24439 and File Number - 400.26.005). This Site is currently listed as an active in the Alaska Department of Environmental Conservation (ADEC) contaminated sites database. All field work was conducted by a "qualified environmental professional" as defined under Title 18 of the Alaska Administrative Code (AAC) Chapter 75.333(c) (18 AAC 75.333(c)) and consisted of visual and olfactory observations, photoionization detector (PID) scans of in-situ soil, PID analyses of headspace samples, and laboratory analyses of samples collected from stockpiled soils and the excavation extents with suspected hydrocarbon impacts.

Based on screening results, approximately 32 cubic yards (CY) of suspected impacted soil was excavated. The excavated soil was contained in lined Super Sacks, screened to evaluate hydrocarbon impacts, and sampled for disposal characterization. The soil was analyzed for gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), and volatile organic hydrocarbons including benzene, toluene, ethylbenzene, and xylenes (BTEX) at an ADEC approved laboratory.

The excavation extents were screened and samples were collected to determine the extent of hydrocarbon impacts remaining. The lined Super-Sacks containing hydrocarbon-impacted soil were stored in a secured location until characterization could be completed and disposal approved.

The maximum GRO, DRO, and RRO concentrations detected were 10.9 milligrams per kilogram (mg/kg), 780 mg/kg, and 985 mg/kg, respectively. All fuel hydrocarbon results were below the most stringent ADEC Method Two soil cleanup level for the Arctic Zone (ingestion and inhalation exposure pathway)(18 AAC 75.340, Table B2) of 1,400 mg.kg, 12,250 mg/kg, and 13,700 mg/kg, respectively.

The maximum BTEX concentrations were 0.005 mg/kg, 0.141 mg/kg, 0.0612 mg/kg, and 1.62 mg/kg, respectively. All BTEX compound concentrations were several orders of magnitude lower than the ADEC Method Two soil cleanup level for the Arctic Zone (ingestion and inhalation exposure pathway) (18 AAC 75.340, Table B1) as well as the more stringent migration to groundwater water cleanup level.

Alaska Airlines requests ADEC approval to dispose of all excavated soil at the Kotzebue landfill, a permitted Class II municipal solid waste landfill. This request is based on waste characterization analytical results which demonstrate that disposal at the landfill will meet the requirements defined under 18 AAC 60.025(d).

1. INTRODUCTION

SLR International Corporation (SLR) was contracted by Alaska Airlines to provide environmental oversight in support of Alaska Airlines concrete replacement project at the Kotzebue Airport (Figure 1). The work was completed on the interior of Alaska Airlines' terminal building cargo handling area (Figure 2). The terminal building is associated with an Alaska Department of Environmental Conservation (ADEC) active contaminated site designated as "Kotzebue Airport Alaska Airlines" (Hazard Identification Number 24439). The environmental oversight provided by SLR was designed to manage impacted soil, if encountered, but was not planned as a corrective action.

SLR's environmental oversight consisted of screening soil for evidence of hydrocarbons from within the extent of the excavation and stockpiled soil. The screening was conducted by a "qualified environmental professional" as defined under Title 18 of the Alaska Administrative Code (AAC) Chapter 75.333(c) (18 AAC 75.333(c)) and consisted of visual and olfactory observations, photoionization detector (PID) scans of in-situ soil, PID analyses of heated headspace samples, and laboratory analyses. The sample results presented in this report are intended to provide characterization information for disposal.

1.1 SITE LOCATION

The Kotzebue Airport is a state-owned, public use airport located on the corner of Third Ave. and Airport Access Road in Kotzebue, Alaska (66.8848N, 162.5981W) (Figure 1). It is approximately one mile south of the city of Kotzebue, along the coast of the Kotzebue Sound. The airport has two asphalt runways and two gravel runways with an asphalt taxiway and tarmac. The surrounding area is generally flat with some treeless rolling hills.

1.2 PROJECT BACKGROUND

Alaska Airlines was in the process of replacing the concrete slab in the interior of the cargo handling area at their Kotzebue Airport terminal (Figure 2). The existing slab was being replaced in three stages to limit disruption to terminal activities. The center section was replaced first, followed by the eastern section and then the western section. Approximately four to six inches of the soil beneath the existing slab was to be excavated in order to accommodate the new slab design with as much as 12 inches to be removed in areas where new drainage sumps were to be installed. The contractor performing the work reported a fuel-like odor when removing the southernmost portions of both the eastern and western sections of the slab in the second and third stages of the work. The contractor had replaced the central section of the slab in the first stage of the work and the northern portions of both the eastern and western sections were removed and excavated to grade with no odors detected.

Work was stopped until environmental oversight could be arranged to ensure that the excavated soil was managed appropriately and data could be collected for characterization and disposal. The excavated soil was contained in lined Super-Sacks, screened to evaluate hydrocarbon impacts, and samples were collected for analytical testing. The Super Sacks containing

hydrocarbon-impacted soil were stored in a secured location pending characterization and ADEC authorization for disposal.

1.3 PROJECT OBJECTIVES

The objectives for this project were to characterize the soil being excavated in the concrete slab construction area and to manage excavated soils appropriately. To achieve these objectives, the following scope of work was conducted:

- Onsite workers conducted initial visual and olfactory screening of disturbed soil during excavation;
- SLR assisted with additional screening and used a PID to scan underlying soil beneath the removed concrete slab and the breathing zone of the work area for total volatile organic carbon (TVOC);
- The planned excavation of soil was conducted by the contractor and all excavated soils were placed in lined Super-Sacks for containment;
- Samples for heated headspace and analytical testing were collected from the excavation floor and sidewalls in accordance with Draft Field Sampling Guidance (ADEC, 2010); and
- SLR collected composite waste characterization samples from the contained, excavated soil to determine disposal requirements.

1.4 REPORT ORGANIZATION

This report is organized into five sections as follows:

- Section 1 includes a physical description of the site and background information;
- Section 2 lists applicable regulatory criteria;
- Section 3 provides a description of field activities completed;
- Section 4 presents the field and analytical results and a site conceptual model;
- Section 5 presents the report conclusions; and
- Section 6 lists the references cited.

2. REGULATORY CRITERIA

The relevant ADEC regulatory criteria are contained in *Oil and Other Hazardous Substances Pollution Control,* 18 AAC 75, as revised on April 8, 2012. Soil cleanup levels that apply to the Kotzebue Airport are defined by Method Two Arctic Zone, Tables B1 and B2 of 18 AAC 75 (ADEC, 2012). A list of the applicable soil cleanup levels are as follows:

- Benzene at 17 milligrams per kilogram (mg/kg);
- Toluene at 220 mg/kg;
- Ethylbenzene at 110 mg/kg;
- Total xylenes at 63 mg/kg;
- Gasoline Range Organics (GRO) at 1,400 mg/kg;
- Diesel Range Organics (DRO) at 12,500 mg/kg; and
- Residual Range Organics (RRO) at 13,700 mg/kg.

3. FIELD ACTIVITIES

Field activities consisted of soil screening of fuel hydrocarbon impacted soils excavated from beneath the existing concrete slab, as a part of planned facility improvements, and collection of analytical samples for waste characterization. Field activities were completed between August 27th and September 6th, 2015. Field activities were documented in a field logbook (Appendix A) and photographs (Appendix B).

3.1 SOIL FIELD SCREENING

Site construction workers and SLR monitored the excavation area for visual and olfactory signs of contamination. Visual and olfactory observations included the following:

- Observable fuel on the soil or in the excavation. This may appear as sheen on wet surfaces, or as a sheen or floating product on standing water.
- Discolored soil. Impacted soil may appear to be stained black or have a grey color.
- Hydrocarbon odor. Impacted soil may have a gasoline or diesel odor.

If suspected contamination was observed, then SLR conducted further screening.

SLR confirmed contamination and segregated soil as described in Sections 3.2 and 3.3 below.

3.2 SOIL EXCAVATION

The following criteria were used to determine if excavated soil was fuel hydrocarbon impacted:

- Soil to be excavated with no observable evidence of contamination does not require additional screening and was managed as normal excavation spoils.
- Soil to be excavated suspected of being contaminated based on visual and/or olfactory observations will be scanned, *in-situ,* with a PID.
    - Soil with PID *in-situ* scan reading at background levels or below was managed as normal excavation spoils.
    - Soil with PID *in-situ* scan reading above background was managed as fuel hydrocarbon impacted soil and placed into a lined Super-Sack for containment.
- Soil to be excavated with obvious contamination based on visual (sheen or free product) or olfactory (hydrocarbon odor in worker breathing zone) observations was managed as fuel hydrocarbon impacted soil and placed into a lined super-sack for containment.

Based on screening results, approximately 32 cubic yards (CYs) of suspected impacted soil was excavated.

3.3 EXCAVATION AND WASTE CHARACTERIZATION SAMPLING

The excavated soil was placed into lined Super Sacks and stockpiled at the Kotzebue Airport Alaska Airlines Terminal. Stockpiled soil was sampled for waste characterization consistent with ADEC Division of Spill Prevention and Response Contaminated Sites Program *Draft Field Sampling Guidance* Table 2A – Excavated Soil Sample Collection Guide. The completed excavations were sampled for confirmation consistent with ADEC Division of Spill Prevention and Response Contaminated Sites Program *Draft Field Sampling Guidance* Table 2B – Surface/Excavation Base and Excavation Sidewall Soil Sample Collection Guide.

Heated headspace samples were collected from each Super Sack. A total of nine laboratory waste characterization composite samples, including one duplicate, were collected from the excavated soils. The samples were representative of between three to five Super Sacks per composite sample. The number of samples collected exceeded the requirements listed in Table 2A for volumes between 11 and 50 CYs.

A five-foot grid was laid out in each excavation area and heated headspace samples were collected from each node representing 25 square feet of the excavation base. Four laboratory samples were collected from the floor of each excavation, including one duplicate per excavation, for a total of eight confirmation samples. Each excavation area was greater than 250 square feet, but less than 500 square feet. The sampling frequency met the required two samples per initial 250 square feet plus one per additional 250 square feet. Sidewalls were not significantly differentiated from the floor of the excavation and were not sampled.

The soil samples were sent to SGS North America Inc., an ADEC approved laboratory, in Anchorage, Alaska. Samples were analyzed for GRO by Alaska Method 101 (AK 101), DRO by AK 102, RRO by AK 103, and for volatile organic compounds including benzene, toluene, ethylbenzene, and xylenes (BTEX) by United States Environmental Protection Agency Method SW8021B.

3.4 QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance/quality control (QA/QC) procedures were maintained throughout the sampling activities. QA procedures included the analysis of trip blanks and completion of a laboratory Quality Assurance Review (QAR) by qualified SLR staff. The QAR included the completion of an ADEC Laboratory Data Review Checklist for each analytical report. QC procedures included adherence to appropriate sample collection methodology. Any discrepancies associated with the samples collected from the site are identified in the QAR and are described in Section 4.3 of this report. SLR's QAR and completed ADEC Laboratory Data Review Checklist are presented in Appendix D.

3.5 WASTE MANAGEMENT

All samples were collected using sampling equipment that was new and disposable, or was decontaminated between individual samples. Solid waste generated from field activities were disposed of in designated receptacles at the terminal. No hazardous waste was generated

during the field effort. Based on waste characterization analytical results, the ADEC Solid Waste Program will determine required disposal of the soil from the concrete replacement project.

4. FIELD SCREENING AND ANALYTICAL RESULTS

This section describes field screening results, sampling results, key findings, and a summary of the QAR.

4.1 FIELD SCREENING RESULTS

4.1.1 EXCAVATION AREA A (EAST)

During the second stage of the concrete replacement activities, suspected impacted soil was identified, based on olfactory observations by the construction crew. The area of suspected impacted soil was approximately 400 square feet and located in the southeast corner of the terminal building's cargo handling area (Figure 2). Work was stopped until environmental oversight could be arranged. SLR performed in-situ field screening of the undisturbed soils with a PID and determined that soil to be excavated from the area should be managed as fuel hydrocarbon impacted soil with waste characterization samples collected. The highest in-situ reading of 125 parts per million (ppm) was measured at the northern-central portion of the suspected area. In-situ PID readings diminished toward the periphery of the suspected area, but remained above background concentrations. Approximately 14 CY of soil was excavated from the area and placed into lined Super Sacks labeled sequentially SK01 to SK14.

After all soil was excavated from the area to achieve the required grade for the concrete replacement, samples were collected from the excavation floor for heated headspace analysis. Twelve samples were collected at a frequency of 1 per 25 square feet of excavation floor. The highest headspace reading of 32.1 ppm was measured in the northeast portion of the area of suspected impacts. The field screening areas are documented in the field logbook (Appendix A), and the areas of contaminated soil are denoted in Figure 2.

4.1.2 EXCAVATION AREA B (WEST)

During the third stage of the concrete replacement activities, suspected impacted soil was identified, based on staining and olfactory observations by the construction crew. The area of suspected impacted soil was approximately 450 square feet and located in the southwest corner of the terminal building cargo handling area (Figure 2) and extended north several feet. SLR performed in-situ field screening of the undisturbed soils with a PID and determined that soil to be excavated from the area should be managed as fuel hydrocarbon impacted soil with waste characterization samples collected. The highest in-situ reading of 260 ppm was measured in the north-central portion of the suspected area. In-situ PID readings diminished toward the periphery of the suspected area, but remained above background concentrations, except to the west where a discolored seam of soil appeared to extend beneath the existing slab. The maximum PID reading from the discolored soil was 109 ppm.

Due to the elevated PID readings of the in-situ soil and the observed staining in Excavation B, heated headspace samples were collected during the excavation. A total of 16 heated headspace samples were collected and analyzed with a maximum reading of 1,348 ppm in the north-central portion of the suspected area and 922 ppm along the discolored seam described

above. Additional soil was excavated in these areas and backfilled with clean material (PID reading less than 50 ppm) from other portions of the excavation.

Once excavation was completed and the required grade for the concrete replacement was achieved, samples were collected from the excavation floor for heated headspace analysis. Twelve samples were collected at a frequency of 1 per 25 square feet of excavation floor. The highest headspace reading of 39.4 ppm was measured in the northwest portion of the area of suspected impacts. The field screening areas are documented in the field logbook (Appendix A), and the areas of contaminated soil are denoted in Figure 2.

4.2 SOIL ANALYTICAL RESULTS

4.2.1 WASTE CHARACTERIZATION SAMPLES

A total of nine waste characterization samples, including one duplicate, were collected from the Super-Sacks and analyzed for GRO, DRO, and BTEX. Samples from Excavation Area B were also analyzed for RRO. The maximum GRO, DRO, and RRO concentrations detected in excavated soils were 6.55 mg/kg, 780 mg/kg, and 985 mg/kg, respectively. GRO, DRO, and RRO concentrations were below the ADEC Method Two Arctic Zone soil cleanup levels of 1,400 mg/kg, 12,250 mg/kg, and 13,700 mg/kg, respectively.

Benzene was not detected in any of the excavated soil samples. Ethylbenzene, toluene, and xylenes were detected in six samples each with maximum concentrations of 0.0569 mg/kg, 0.0612 mg/kg, and 0.376 mg/kg, respectively. All BTEX concentrations were several orders of magnitude lower than their corresponding ADEC Method Two Arctic Zone soil cleanup levels as well as the more stringent migration to groundwater cleanup level.

A summary of the analytical results and cleanup levels for waste characterization samples are provided in Table 2. The full laboratory results are found in Appendix C.

4.2.2 CONFIRMATION SAMPLES

Four laboratory samples were collected from the floor of each excavation, including one duplicate per excavation, for a total of eight confirmation samples. The samples were analyzed for GRO, DRO, and BTEX. Only samples from Excavation Area B were analyzed for RRO. The maximum concentrations of GRO, DRO, and RRO detected were 10.9 mg/kg, 385 mg/kg, and 388 mg/kg, respectively, and were below their respective ADEC Arctic Zone Method Two cleanup levels.

Benzene was detected in one soil sample collected from Area A, as well as its duplicate, with a maximum concentration of 0.005 mg/kg. Ethylbenzene was detected in three samples tested with a maximum concentration of 0.141 mg/kg. Toluene was detected in four samples with a maximum concentration of 0.0074 mg/kg. Xylenes were detected in three samples with maximum concentration of 1.620 mg/kg. All BTEX concentrations were several orders of magnitude lower than their respective ADEC Arctic Zone Method Two cleanup levels as well as the more stringent migration to groundwater cleanup level.

A summary of the analytical results and cleanup level for confirmation samples are provided in Table 1. The full laboratory results are found in Appendix C.

Four samples (Trench, SW Corner Wall, SW Corner Floor, and C Box) were also collected in conjunction with field screening samples during the excavation at Area B and are not included in the above discussion of results because they represent soil that was excavated and characterized. A summary of the analytical results for these samples are provided in Table 1. The full laboratory results are found in Appendix C.

4.3 ANALYTICAL DATA QUALITY

Overall, the data was deemed acceptable for use. All precision, accuracy, representativeness, comparability, completeness, and sensitivity goals were met by the analytical laboratory, except for minor issues described in the complete QAR and ADEC Laboratory Data Review Checklist, which is included in Appendix D.

5. CONCEPTUAL SITE MODEL

A conceptual site model (CSM) provides a way to describe how people, animals, and plants may come in contact with contaminants. Health risks to humans and the environment cannot exist unless chemicals detected at a given site have the ability to cause an adverse effect *and* come into contact with a human or ecological receptor. The presence of potentially complete pathways alone, however, does not imply the existence of unacceptable risks.

The CSM for this report has been prepared following ADEC guidance (ADEC, 2010) and present exposure pathways for chemicals of potential concern, routes of migration, and potential current and future receptors. ADEC Human Health scoping forms and graphical representations are provided in Appendix F.

There are no current residents at the site. The site has restricted access which precludes any type of recreational activities. The site is paved and heavily used for commercial aviation and as a result provides no ecological habitat. The lack of habitat and access restrictions eliminates any potential for subsistence activities. The only potential receptors at the site are an outdoor commercial worker, construction worker, or site visitor.

Potential exposure media include soil and indoor air. The area is expected to be underlain by permafrost and therefore contaminant migration to groundwater from soil is not considered likely.

Potentially complete pathways include exposure via soil, outdoor air, or indoor air to site commercial workers, construction workers, and site visitors. Although potentially complete, the pathways are likely insignificant due to low concentrations, less than one-tenth the Arctic Zone soil cleanup levels, and the fact that impacted soil is covered by concrete.

6. SOIL DISPOSAL PLAN

Based on composite sample results, contaminant concentrations in 23 of the 32 filled Super Sacks did not exceed any ADEC Method Two soil cleanup level (i.e., Arctic Zone or migration to groundwater) under 18 AAC 75.340, Table B1 and B2.

Results from composite waste characterization samples SK01-10, SK11-14, SK-15-18, SK19-22, SK27-29, and SK30-32, representative of Super Sack numbers 6 through 22 and 27 through 32, reported VOCs, DRO, GRO, and RRO concentrations below the most stringent Method Two soil cleanup level (migration to groundwater) (Table 2).

Results from composite waste characterization samples SK01-05, and SK23-26, representative of Super Sack numbers 1 through 5 and 23 through 26, reported low level hydrocarbon impacts (i.e. below Arctic Zone, but exceeding migration to groundwater ADEC soil cleanup levels) with DRO concentrations of 780 to 294 mg/kg, respectively (Table 2). All other hydrocarbon compounds tested, including VOCs, GRO, and RRO were either not detected above the method limit of detection or the detected concentrations were below the most stringent ADEC Method Two soil cleanup levels. Because the Kotzebue area is underlain by continuous permafrost, the Arctic Zone cleanup levels are most applicable for evaluating disposal options for Super Sack numbers 1 through 5 and 23 through 26.

Several soil disposal options were evaluated, including thermal treatment, onsite land spreading, and use of material as cover at the Kotzebue landfill. Currently no thermal treatment facility is available in Kotzebue. Drake Construction in Kotzebue does own a thermal treatment system, however, it has not been used for several years, and it was impractical to restore it to operable conditions for such a limited volume of soil.

Alaska Airlines contacted the Alaska Department of Transportation and Public Faculties (ADOT & PF) to inquire about land spreading at the airport. ADOT & PF indicated that as a matter of policy, they do not permit land spreading on their properties.

Alaska Airlines also contacted the Kotzebue Landfill, a permitted Class II municipal solid waste facility, regarding disposal. The landfill operator expressed a willingness to accept the soil and use it as cover, with ADEC approval. Based on the limited options for soil disposal in the Kotzebue area, Alaska Airlines requests ADEC approval to dispose of all excavated soil at the Kotzebue landfill.

Upon approval, Alaska Airlines will provide a schedule for transferring the soil and will submit a Transport, Treatment, & Disposal Form for contaminated media to ADEC prior to moving any soil from the Site.

7. CONCLUSIONS

During concrete replacement activities, impacted soil was observed within two small areas (approximately 950 square feet) on the south ends of the excavations where existing concrete was being removed (Figure 2). It was also suspected, based on observations of staining that the impacted soil extended to the west beneath another portion of the building. However, delineation beyond the extent of planned construction was not recommended as part of the concrete replacement project based on the following rationale:

- Only low levels of contamination (i.e., below ADEC Method Two soil cleanup levels) were reported from confirmation and waste samples;
- Based on field screening results, hydrocarbon impacts were detected in both excavation areas described in Section 4.2, impacts are not anticipated beyond the building footprint; and
- Additional delineation during the concrete replacement project would have required excavating beneath portions of the building currently in use and potentially compromising the structural integrity of the building's foundation.

Based on composite sample analytical results, Alaska Airlines request that the ADEC approve disposal of the excavated soil at the Kotzebue landfill, a Class II Municipal Solid Waste Landfill.

8. REFERENCES

Alaska Department of Environmental Conservation (ADEC). 2012. Alaska Administrative Code (18 AAC 75), Oil and Other Hazardous Substances Pollution Control, as amended through April 8, 2012.

ADEC. 2010. *Draft Field Sampling Guidance.* Division of Spill Prevention and Response Contaminated Sites Program. May 2010.

ADEC. 2010. *Policy Guidance on Developing Conceptual Site Models.* Division of Spill Prevention and Response Contaminated Site Program. October 2010.

LIMITATIONS

The services described in this work product were performed in accordance with generally accepted professional consulting principles and practices. No other representations or warranties, expressed or implied, are made. These services were performed consistent with our agreement with our client. This work product is intended solely for the use and information of our client unless otherwise noted. Any reliance on this work product by a third party is at such party's sole risk.

Opinions and recommendations contained in this work product are based on conditions that existed at the time the services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. The data reported and the findings, observations, and conclusions expressed are limited by the scope of work. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this work product.

Environmental conditions that are not apparent may exist at the site. Our professional opinions are based in part on interpretation of data from a limited number of discrete sampling locations and therefore may not be representative of the actual overall site environmental conditions.

This work product presents professional opinions and findings of a scientific and technical nature. The work product shall not be construed to offer legal opinion or representations as to the requirements of, nor the compliance with, environmental laws rules, regulations, or policies of federal, state or local governmental agencies.

FIGURES

0 0.5 1 2 3 mi

SLR

Alaska Airlines
Alaska Airlines Kotzebue - Terminal
Kotzebue, Alaska

Report
Concrete Replacement Soil Excavation

Drawing
Site Location Map

Date October 13, 2015	Scale AS SHOWN	Fig. No. 1
File Name AA Kotz - Soil Excavation	Project No. 108.00104.00071	

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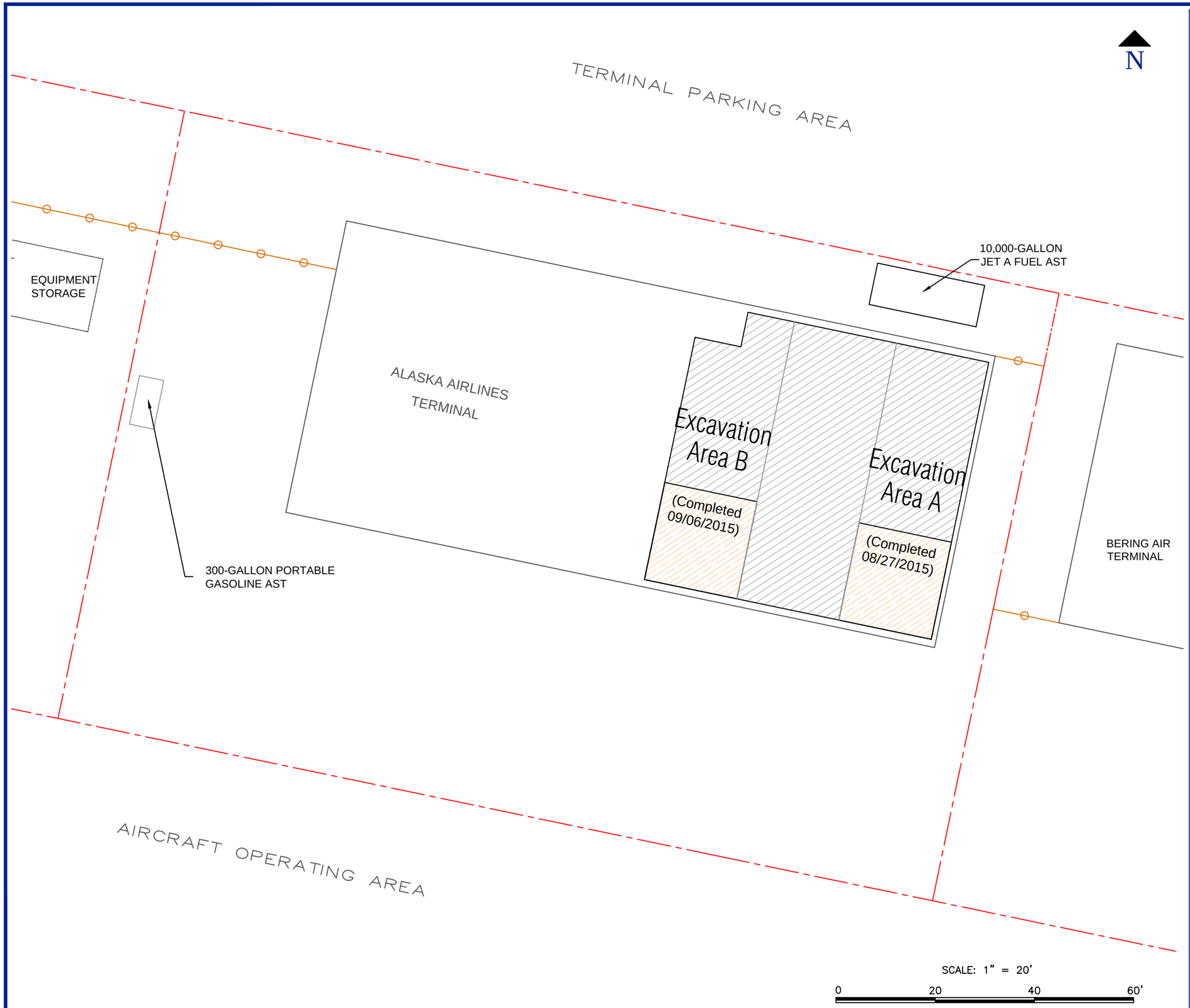


NOTES

CONCRETE SLAB IN CARGO HANDLING AREA IN BUILDING INTERIOR REMOVED/REPLACED IN THREE SECTIONS.

MIDDLE SECTION EXHIBITED NO SIGN OF IMPACTED SOIL, AS OBSERVED BY CONSTRUCTION CREW DURING REMOVAL.

LEGEND

- PROPERTY BOUNDARY
- FENCE – CHAIN LINK
- FACILITY/FEATURE
- CONCRETE REPLACEMENT EXCAVATION AREA
- AREA OF IMPACTED SOIL REMOVED

Alaska Airlines
Alaska Airlines Kotzebue - Terminal
Kotzebue, Alaska

Report
Concrete Replacement Soil Excavation

Drawing
Site Plan Map

Date October 13, 2015	Scale AS SHOWN	Fig. No. 2
File Name AA Kotz - Soil Excavation	Project No. 108.00104.00071	

SLR

TABLES

Table 1 - 2015 Soil Analytical Results
Alaska Airlines Kotzebue Hangar Excavation

Compound in milligrams per kilogram (mg/Kg)	Screening Criteria	Sample Locations[2]																													
		Area . Excavation Samples - ² Sáiš'y Section								Area B Confirmation Samples - Western Section								Area A Confirmation Samples - Eastern Section								Trip Blanks					
	18 AAC 75 Method Two Arctic Zone[1]	Trench 05-Sep-15 1155135001		Southwest Corner Wall 05-Sep-15 1155135005		Southwest Corner Floor 05-Sep-15 1155135006		C Box 06-Sep-15 1155135007		Primary: A2 06-Sep-15 1155135010		Duplicate: A5 06-Sep-15 1155135011		B1 06-Sep-15 1155135012		C3 06-Sep-15 1155135013		FL3B 27-Aug-15 1154927005		Primary: FL1C 27-Aug-15 1154927006		Duplicate: FL1CJ 27-Aug-15 1154927008		FL4A 27-Aug-15 1154927007		Trip Blank 05-Sep-15 1155135014		Trip Blank 27-Aug-15 1154927010	
Fuels (AK101, AK102, and AK103)																															
Gasoline Range Organics	1,400	[0.845]	ND	1.4	J	0.859	J	5.19	=	1.2	J	0.944	J	[1.31]	ND	[1.52]	ND, QL	0.603	J	10.9	=, M+	7.39	=	1.54	J	[1.25]	ND	[1.23]	ND		
Diesel Range Organics	12,500	32.8	J	341	=	672	=	76.5	=	43.2	J	47.8	=	[46.3]	ND, M-	9.87	J	[10.6]	ND	385	=	274	=	371	=	--	--	--	--		
Residual Range Organics	13,700	203	=	675	=	774	=	576	=	388	=	308	=	331	=, M-	97	=	--	--	--	--	--	--	--	--	--	--	--	--		
Volatile Organic Compounds (SW8260B)																															
1,1,1,2-Tetrachloroethane	--	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,1,1-Trichloroethane	360	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,1,2,2-Tetrachloroethane	8.1	[0.00422]	ND	[0.00635]	ND	[0.00505]	ND	[0.00338]	ND	[0.00448]	ND	[0.0043]	ND	[0.00655]	ND	[0.0038]	ND	[0.00352]	ND	[0.00565]	ND	[0.00505]	ND	[0.00845]	ND	[0.0063]	ND	[0.00615]	ND		
1,1,2-Trichloroethane	17	[0.00338]	ND	[0.0051]	ND	[0.00405]	ND	[0.0027]	ND	[0.00359]	ND	[0.00344]	ND	[0.00525]	ND	[0.00304]	ND	[0.00281]	ND	[0.0045]	ND	[0.00404]	ND	[0.00675]	ND	[0.00505]	ND	[0.00491]	ND		
1,1-Dichloroethane	900	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,1-Dichloroethene	1.3	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,1-Dichloropropene	--	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,2,3-Trichlorobenzene	--	[0.0169]	ND	[0.0254]	ND	[0.0203]	ND	[0.0135]	ND	[0.0179]	ND	[0.0172]	ND	[0.0261]	ND	[0.0152]	ND	[0.0141]	ND	[0.0225]	ND	[0.0201]	ND	[0.0338]	ND	[0.0251]	ND	[0.0246]	ND		
1,2,3-Trichloropropane	0.26	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,2,4-Trichlorobenzene	41	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,2,4-Trimethylbenzene	49	[0.0169]	ND	[0.0254]	ND	[0.0203]	ND	[0.0135]	ND	[0.0179]	ND	[0.0172]	ND	[0.0261]	ND	[0.0152]	ND	[0.0141]	ND	0.892	=	0.7	=	0.0418	J	[0.0251]	ND	[0.0246]	ND		
1,2-Dibromo-3-chloropropane	--	[0.0338]	ND	[0.051]	ND	[0.0405]	ND	[0.027]	ND	[0.0359]	ND	[0.0344]	ND	[0.0525]	ND	[0.0304]	ND	[0.0281]	ND	[0.045]	ND	[0.0404]	ND	[0.0675]	ND	[0.0505]	ND	[0.0491]	ND		
1,2-Dibromoethane	0.89	[0.00338]	ND	[0.0051]	ND	[0.00405]	ND	[0.0027]	ND	[0.00359]	ND	[0.00344]	ND	[0.00525]	ND	[0.00304]	ND	[0.00281]	ND	[0.0045]	ND	[0.00404]	ND	[0.00675]	ND	[0.00505]	ND	[0.00491]	ND		
1,2-Dichlorobenzene	45	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,2-Dichloroethane	7.1	[0.00338]	ND	[0.0051]	ND	[0.00405]	ND	[0.0027]	ND	[0.00359]	ND	[0.00344]	ND	[0.00525]	ND	[0.00304]	ND	[0.00281]	ND	[0.0045]	ND	[0.00404]	ND	[0.00675]	ND	[0.00505]	ND	[0.00491]	ND		
1,2-Dichloropropane	7.9	[0.00338]	ND	[0.0051]	ND	[0.00405]	ND	[0.0027]	ND	[0.00359]	ND	[0.00344]	ND	[0.00525]	ND	[0.00304]	ND	[0.00281]	ND	[0.0045]	ND	[0.00404]	ND	[0.00675]	ND	[0.00505]	ND	[0.00491]	ND		
1,3,5-Trimethylbenzene	42	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	0.398	=	0.307	=	0.0111	J	[0.0126]	ND	[0.0123]	ND		
1,3-Dichlorobenzene	69	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
1,3-Dichloropropane	--	[0.00338]	ND	[0.0051]	ND	[0.00405]	ND	[0.0027]	ND	[0.00359]	ND	[0.00344]	ND	[0.00525]	ND	[0.00304]	ND	[0.00281]	ND	[0.0045]	ND	[0.00404]	ND	[0.00675]	ND	[0.00505]	ND	[0.00491]	ND		
1,4-Dichlorobenzene	44	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
2,2-Dichloropropane	--	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
2-Butanone (MEK)	23,300	[0.0845]	ND	[0.128]	ND	[0.101]	ND	[0.0675]	ND	[0.0895]	ND	[0.086]	ND	[0.131]	ND	[0.076]	ND	[0.0705]	ND	[0.113]	ND	[0.101]	ND	[0.169]	ND	[0.126]	ND	[0.123]	ND		
2-Chlorotoluene	--	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
2-Hexanone	--	[0.0845]	ND	[0.128]	ND	[0.101]	ND	[0.0675]	ND	[0.0895]	ND	[0.086]	ND	[0.131]	ND	[0.076]	ND	[0.0705]	ND	[0.113]	ND	[0.101]	ND	[0.169]	ND	[0.126]	ND	[0.123]	ND		
4-Chlorotoluene	--	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
4-Isopropyltoluene	--	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	0.00493	J	0.106	=, QN	0.0317	=, QN	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
4-Methyl-2-pentanone (MIBK)	2,100	[0.0845]	ND	[0.128]	ND	[0.101]	ND	[0.0675]	ND	[0.0895]	ND	[0.086]	ND	[0.131]	ND	[0.076]	ND	[0.0705]	ND	[0.113]	ND	[0.101]	ND	[0.169]	ND	[0.126]	ND	[0.123]	ND		
Benzene	17	[0.00422]	ND	[0.00635]	ND	[0.00505]	ND	[0.00338]	ND	[0.00448]	ND	[0.0043]	ND	[0.00655]	ND	[0.0038]	ND	[0.00352]	ND	0.00495	J	0.00383	J	[0.00845]	ND	[0.0063]	ND	[0.00615]	ND		
Bromobenzene	--	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Bromochloromethane	--	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Bromodichloromethane	15	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Bromoform	430	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Bromomethane	21	[0.0675]	ND	[0.102]	ND	[0.081]	ND	[0.054]	ND	[0.0715]	ND	[0.069]	ND	[0.105]	ND	[0.061]	ND	[0.0565]	ND	[0.09]	ND	[0.0805]	ND	[0.135]	ND	[0.101]	ND	[0.098]	ND		
Carbon disulfide	250	[0.0338]	ND	[0.051]	ND	[0.0405]	ND	[0.027]	ND	[0.0359]	ND	[0.0344]	ND	[0.0525]	ND	[0.0304]	ND	[0.0281]	ND	[0.045]	ND	[0.0404]	ND	[0.0675]	ND	[0.0505]	ND	[0.0491]	ND		
Carbon tetrachloride	4.5	[0.00422]	ND	[0.00635]	ND	[0.00505]	ND	[0.00338]	ND	[0.00448]	ND	[0.0043]	ND	[0.00655]	ND	[0.0038]	ND	[0.00352]	ND	[0.00565]	ND	[0.00505]	ND	[0.00845]	ND	[0.0063]	ND	[0.00615]	ND		
Chlorobenzene	200	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Chloroethane	34	[0.0675]	ND	[0.102]	ND	[0.081]	ND	[0.054]	ND	[0.0715]	ND	[0.069]	ND	[0.105]	ND	[0.061]	ND	[0.0565]	ND	[0.09]	ND	[0.0805]	ND	[0.135]	ND	[0.101]	ND	[0.098]	ND		
Chloroform	4.7	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Chloromethane	37	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
cis-1,2-Dichloroethene	190	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
cis-1,3-Dichloropropene	40	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Dibromochloromethane	21	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Dibromomethane	560	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Dichlorodifluoromethane	570	[0.0169]	ND	[0.0254]	ND	[0.0203]	ND	[0.0135]	ND	[0.0179]	ND	[0.0172]	ND	[0.0261]	ND	[0.0152]	ND	[0.0141]	ND	[0.0225]	ND	[0.0201]	ND	[0.0338]	ND	[0.0251]	ND	[0.0246]	ND		
Ethylbenzene	110	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	0.00563	J	0.141	=	0.109	=	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Freon-113	750	[0.0338]	ND	[0.051]	ND	[0.0405]	ND	[0.027]	ND	[0.0359]	ND	[0.0344]	ND	[0.0525]	ND	[0.0304]	ND	[0.0281]	ND	[0.045]	ND	[0.0404]	ND	[0.0675]	ND	[0.0505]	ND	[0.0491]	ND		
Hexachlorobutadiene	3.8	[0.0169]	ND	[0.0254]	ND	[0.0203]	ND	[0.0135]	ND	[0.0179]	ND	[0.0172]	ND	[0.0261]	ND	[0.0152]	ND	[0.0141]	ND	[0.0225]	ND	[0.0201]	ND	[0.0338]	ND	[0.0251]	ND	[0.0246]	ND		
Isopropylbenzene (Cumene)	62	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	0.0466	=	0.0379	=	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Methylene chloride	240	[0.0338]	ND	[0.051]	ND	[0.0405]	ND	[0.027]	ND	[0.0359]	ND	[0.0344]	ND	[0.0525]	ND	[0.0304]	ND	[0.0281]	ND	[0.045]	ND	[0.0404]	ND	[0.0675]	ND	[0.0505]	ND	[0.0491]	ND		
Methyl-t-butyl ether	440	[0.0338]	ND	[0.051]	ND	[0.0405]	ND	[0.027]	ND	[0.0359]	ND	[0.0344]	ND	[0.0525]	ND	[0.0304]	ND	[0.0281]	ND	[0.045]	ND	[0.0404]	ND	[0.0675]	ND	[0.0505]	ND	[0.0491]	ND		
Naphthalene	42	[0.0169]	ND	[0.0254]	ND	[0.0203]	ND	[0.0135]	ND	[0.0179]	ND	[0.0172]	ND	[0.0261]	ND	[0.0152]	ND	[0.0141]	ND	0.0653	=	0.0623	=	0.0219	J	[0.0251]	ND	[0.0246]	ND		
n-Butylbenzene	42	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
n-Propylbenzene	42	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	0.102	=	0.0819	=	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
o-Xylene	--	0.00743	J	[0.0128]	ND	[0.0101]	ND	0.00689	J	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	0.00535	J	0.592	=	0.468	=	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
P & M -Xylene	--	0.0154	J	[0.0254]	ND	[0.0203]	ND	0.027	=	0.0129	J	[0.0172]	ND	[0.0261]	ND	[0.0152]	ND	0.0173	J	1.03	=	0.824	=	[0.0338]	ND	[0.0251]	ND	[0.0246]	ND		
sec-Butylbenzene	41	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	0.023	=	0.0198	J	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Styrene	200	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
tert-Butylbenzene	70	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Tetrachloroethene	15	[0.00422]	ND	[0.00635]	ND	[0.00505]	ND	[0.00338]	ND	[0.00448]	ND	[0.0043]	ND	[0.00655]	ND	[0.0038]	ND	[0.00352]	ND	[0.00565]	ND	[0.00505]	ND	[0.00845]	ND	[0.0063]	ND	[0.00615]	ND		
Toluene	220	0.0353	=	[0.0128]	ND	[0.0101]	ND	0.0236	=	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	0.00532	J	0.0062	J	0.00743	J	0.00706	J	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
trans-1,2-Dichloroethene	240	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
trans-1,3-Dichloropropene	40	[0.00845]	ND	[0.0128]	ND	[0.0101]	ND	[0.00675]	ND	[0.00895]	ND	[0.0086]	ND	[0.0131]	ND	[0.0076]	ND	[0.00705]	ND	[0.0113]	ND	[0.0101]	ND	[0.0169]	ND	[0.0126]	ND	[0.0123]	ND		
Trichloroethene	0.85	[0.00422]	ND	[0.00635]	ND	[0.00505]	ND	[0.00338]	ND	[0.00448]	ND	[0.0043]	ND	[0.00655]	ND	[0.0038]	ND	[0.00352]	ND	[0.00565]	ND	[0.00505]	ND	[0.00845]	ND	[0.0063]	ND	[0.00615]	ND		
Trichlorofluoromethane	990	[0.0169]	ND	[0.0254]	ND	[0.0203]	ND	[0.0135]	ND	[0.0179]	ND	[0.0172]	ND	[0.0261]	ND	[0.0152]	ND	[0.0141]	ND	[0.0225]	ND	0.0123	J	[0.0338]	ND	[0.0251]	ND	[0.0246]	ND		
Vinyl acetate	2,200	[0.0338]	ND	[0.051]	ND	[0.0405]	ND	[0.027]	ND	[0.0359]	ND	[0.0344]	ND	[0.0525]	ND	[0.0304]	ND	[0.0281]	ND	[0.045]	ND	[0.0404]	ND	[0.0675]	ND	[0.0505]	ND	[0.0491]	ND		
Vinyl chloride	6.4	[0.00338]	ND	[0.0051]	ND	[0.00405]	ND	[0.0027]	ND	[0.00359]	ND	[0.00344]	ND	[0.00525]	ND	[0.00304]	ND	[0.00281]	ND	[0.0045]	ND	[0.00404]	ND	[0.00675]	ND	[0.00505]	ND	[0.00491]	ND		
Xylenes (total)[3]	63	0.0228	J	[0.0382]	ND	[0.0304]	ND	0.0339	J	[0.0269]	ND	[0.0258]	ND	[0.0393]	ND	[0.0228]	ND	0.0227	J	1.62	=	1.29	=	[0.0505]	ND	[0.0377]	ND	[0.0368]	ND		
Percent Solids (SM21 2540G)																															
Total Solids	--	93.4	=	86.3	=	90.9	=	94.8	=	94	=	93.1	=	85.9	=	94.5	=	93.1	=	88.1	=	89.5	=	72.6	=	--	--	--	--		

Notes:
1 - The cleanup level corresponds to the most stringent of direct contact or inhalation of soil as listed in 18 AAC 75.341, Tables B1 and B2, Method Two cleanup levels for the Arctic Zone (ADEC, June 17, 2015).
2 - The field sample identification number, date collected, and laboratory sample identification number are provided.
3 - Total values were the summation of detected compounds only. If compounds were not detected, then the highest LOD was listed.

Data Flags

ND	Nondetect, LOD is presented in brackets to the left	=	A detected compound [concentration listed in column to the left]
J	The analyte was positively identified, but the result was between the LOQ and DL; the quantitation was an estimate.	Q	The quantitation was an estimate due to quality control failure. Where applicable, a "H", "L", or "N" was used to indicate possible high, low, or unknown bias.
		M	The concentration was estimated due to matrix effect. Where applicable, "+", or "-" was used to indicate possible high or low bias.

Abbreviations

--	Not applicable or screening criteria does not exixt for this compound	DRO	Diesel Range Organics	RRO	Residual Range Organics
AAC	Alaska Administrative Code	GRO	Gasoline Range Organics	mg/Kg	milligrams per kilogram
ADEC	Alaska Department of Environmental Conservation	LOD	Limit of Detection	VOC	Volatile Organic Compounds
DL	Detection Limit	LOQ	Limit of Quantitation		

Table 2 - 2015 Waste Soil Analytical Results
Alaska Airlines Kotzebue Hangar Excavation

Compound in milligrams per kilogram (mg/Kg)	Screening Criteria		Waste Samples[2]																		Trip Blank			
			Area A (East)								Area B (West)													
	18 AAC 75 Method Two Arctic Zone[1]	18 AAC 75 Under 40-inch Zone Migration to Groundwater	SK01-05 27-Aug-15 1154927001		SK06-10 27-Aug-15 1154927002		SK11-14 27-Aug-15 1154927004		SK11-14J 27-Aug-15 1154927003		SK15-18 05-Sep-15 1155135002		SK19-22 05-Sep-15 1155135003		SK23-26 05-Sep-15 1155135004		SK27-29 06-Sep-15 1155135008		SK30-32 06-Sep-15 1155135009		Trip Blank 05-Sep-15 1155135014		Trip Blank 27-Aug-15 1154927010	
Fuels (AK101, and AK102, and AK103)																								
Gasoline Range Organics	1,400	300	6.55	=	3.05	=	1.23	J	1.44	J	0.675	J	0.656	J	2.12	=	1.52	J	2.85	=	[1.25]	ND	[1.23]	ND
Diesel Range Organics	12,500	250	780	=	234	=	144	=	155	=	26.7	J	28.3	J	294	=	86.1	=	114	=	--	--	--	--
Residual Range Organics	13,700	11,000	--	--	--	--	--	--	--	--	144	=	248	=	985	=	479	=	589	=	--	--	--	--
Volatile Organic Compounds (SW8260B)																								
1,1,1,2-Tetrachloroethane	--	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,1,1-Trichloroethane	360	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,1,2,2-Tetrachloroethane	8.1	--	[0.00409]	ND	[0.00359]	ND	[0.00493]	ND	[0.00467]	ND	[0.00395]	ND	[0.00391]	ND	[0.00418]	ND	[0.00413]	ND	[0.00392]	ND	[0.0063]	ND	[0.00615]	ND
1,1,2-Trichloroethane	17	--	[0.00327]	ND	[0.00288]	ND	[0.00395]	ND	[0.00373]	ND	[0.00316]	ND	[0.00313]	ND	[0.00334]	ND	[0.0033]	ND	[0.00313]	ND	[0.00505]	ND	[0.00491]	ND
1,1-Dichloroethane	900	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,1-Dichloroethene	1.3	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,1-Dichloropropene	--	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,2,3-Trichlorobenzene	--	--	[0.0164]	ND	[0.0144]	ND	[0.0198]	ND	[0.0186]	ND	[0.0158]	ND	[0.0157]	ND	[0.0167]	ND	[0.0165]	ND	[0.0157]	ND	[0.0251]	ND	[0.0246]	ND
1,2,3-Trichloropropane	0.26	--	[0.0082]	ND	0.00488	J	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,2,4-Trichlorobenzene	41	--	[0.0082]	ND	[0.0072]	U	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,2,4-Trimethylbenzene	49	--	0.33	=	0.488	=	0.179	=	0.164	=	0.0117	J	[0.0157]	ND	[0.0167]	ND	[0.0165]	ND	[0.0157]	ND	[0.0251]	ND	[0.0246]	ND
1,2-Dibromo-3-chloropropane	--	--	[0.0327]	ND	[0.0288]	ND	[0.0395]	ND	[0.0374]	ND	[0.0316]	ND	[0.0313]	ND	[0.0334]	ND	[0.033]	ND	[0.0313]	ND	[0.0505]	ND	[0.0491]	ND
1,2-Dibromoethane	0.89	--	[0.00327]	ND	[0.00288]	ND	[0.00395]	ND	[0.00373]	ND	[0.00316]	ND	[0.00313]	ND	[0.00334]	ND	[0.0033]	ND	[0.00313]	ND	[0.00505]	ND	[0.00491]	ND
1,2-Dichlorobenzene	45	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,2-Dichloroethane	7.1	--	[0.00327]	ND	[0.00288]	ND	[0.00395]	ND	[0.00373]	ND	[0.00316]	ND	[0.00313]	ND	[0.00334]	ND	[0.0033]	ND	[0.00313]	ND	[0.00505]	ND	[0.00491]	ND
1,2-Dichloropropane	7.9	--	[0.00327]	ND	[0.00288]	ND	[0.00395]	ND	[0.00373]	ND	[0.00316]	ND	[0.00313]	ND	[0.00334]	ND	[0.0033]	ND	[0.00313]	ND	[0.00505]	ND	[0.00491]	ND
1,3,5-Trimethylbenzene	42	--	0.12	=	0.165	=	0.0701	=	0.0583	=	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,3-Dichlorobenzene	69	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
1,3-Dichloropropane	--	--	[0.00327]	ND	[0.00288]	ND	[0.00395]	ND	[0.00373]	ND	[0.00316]	ND	[0.00313]	ND	[0.00334]	ND	[0.0033]	ND	[0.00313]	ND	[0.00505]	ND	[0.00491]	ND
1,4-Dichlorobenzene	44	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
2,2-Dichloropropane	--	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
2-Butanone (MEK)	23,300	--	[0.082]	ND	[0.072]	ND	[0.0985]	ND	[0.0935]	ND	[0.079]	ND	[0.078]	ND	[0.0835]	ND	[0.0825]	ND	[0.0785]	ND	[0.126]	ND	[0.123]	ND
2-Chlorotoluene	--	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
2-Hexanone	--	--	[0.082]	ND	[0.072]	ND	[0.0985]	ND	[0.0935]	ND	[0.079]	ND	[0.078]	ND	[0.0835]	ND	[0.0825]	ND	[0.0785]	ND	[0.126]	ND	[0.123]	ND
4-Chlorotoluene	--	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
4-Isopropyltoluene	--	--	0.0483	=	0.0575	=	0.0286	=	0.0275	=	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
4-Methyl-2-pentanone (MIBK)	2100	--	[0.082]	ND	[0.072]	ND	[0.0985]	ND	[0.0935]	ND	[0.079]	ND	[0.078]	ND	[0.0835]	ND	[0.0825]	ND	[0.0785]	ND	[0.126]	ND	[0.123]	ND
Benzene	17	0.025	[0.00409]	ND	[0.00359]	ND	[0.00493]	ND	[0.00467]	ND	[0.00395]	ND	[0.00391]	ND	[0.00418]	ND	[0.00413]	ND	[0.00392]	ND	[0.0063]	ND	[0.00615]	ND
Bromobenzene	--	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Bromochloromethane	--	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Bromodichloromethane	15	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Bromoform	430	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Bromomethane	21	--	[0.0655]	ND	[0.0575]	ND	[0.079]	ND	[0.0745]	ND	[0.063]	ND	[0.0625]	ND	[0.067]	ND	[0.066]	ND	[0.0625]	ND	[0.101]	ND	[0.098]	ND
Carbon disulfide	250	--	[0.0327]	ND	[0.0288]	ND	[0.0395]	ND	[0.0374]	ND	[0.0316]	ND	[0.0313]	ND	[0.0334]	ND	[0.033]	ND	[0.0313]	ND	[0.0505]	ND	[0.0491]	ND
Carbon tetrachloride	4.5	--	[0.00409]	ND	[0.00359]	ND	[0.00493]	ND	[0.00467]	ND	[0.00395]	ND	[0.00391]	ND	[0.00418]	ND	[0.00413]	ND	[0.00392]	ND	[0.0063]	ND	[0.00615]	ND
Chlorobenzene	200	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Chloroethane	34	--	[0.0655]	ND	[0.0575]	ND	[0.079]	ND	[0.0745]	ND	[0.063]	ND	[0.0625]	ND	[0.067]	ND	[0.066]	ND	[0.0625]	ND	[0.101]	ND	[0.098]	ND
Chloroform	4.7	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Chloromethane	37	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
cis-1,2-Dichloroethene	190	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
cis-1,3-Dichloropropene	40	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Dibromochloromethane	21	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Dibromomethane	560	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Dichlorodifluoromethane	570	--	[0.0164]	ND	[0.0144]	ND	[0.0198]	ND	[0.0186]	ND	[0.0158]	ND	[0.0157]	ND	[0.0167]	ND	[0.0165]	ND	[0.0157]	ND	[0.0251]	ND	[0.0246]	ND
Ethylbenzene	110	6.9	0.0419	=	0.0569	=	0.0245	=	0.0129	J	0.00664	J	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	0.00705	J	[0.0126]	ND	[0.0123]	ND
Freon-113	750	--	[0.0327]	ND	[0.0288]	ND	[0.0395]	ND	[0.0374]	ND	[0.0316]	ND	[0.0313]	ND	[0.0334]	ND	[0.033]	ND	[0.0313]	ND	[0.0505]	ND	[0.0491]	ND
Hexachlorobutadiene	3.8	--	[0.0164]	ND	[0.0144]	ND	[0.0198]	ND	[0.0186]	ND	[0.0158]	ND	[0.0157]	ND	[0.0167]	ND	[0.0165]	ND	[0.0157]	ND	[0.0251]	ND	[0.0246]	ND
Isopropylbenzene (Cumene)	62	--	0.0175	=	0.0171	=	0.00671	J	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Methylene chloride	240	--	[0.0327]	ND	[0.0288]	ND	[0.0395]	ND	[0.0374]	ND	[0.0316]	ND	[0.0313]	ND	[0.0334]	ND	[0.033]	ND	[0.0313]	ND	[0.0505]	ND	[0.0491]	ND
Methyl-t-butyl ether	440	--	[0.0327]	ND	[0.0288]	ND	[0.0395]	ND	[0.0374]	ND	[0.0316]	ND	[0.0313]	ND	[0.0334]	ND	[0.033]	ND	[0.0313]	ND	[0.0505]	ND	[0.0491]	ND
Naphthalene	42	--	0.215	=	0.134	=	0.0934	=	0.139	=	[0.0158]	ND	[0.0157]	ND	[0.0167]	ND	[0.0165]	ND	[0.0157]	ND	[0.0251]	ND	[0.0246]	ND
n-Butylbenzene	42	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
n-Propylbenzene	42	--	0.0519	=	[0.0072]	ND	0.0284	=	0.0198	=	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
o-Xylene	--	--	0.112	=	0.143	=	0.0614	=	0.0416	=	0.0145	J	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	0.0138	J	[0.0126]	ND	[0.0123]	ND
P & M -Xylene	--	--	0.157	=	0.233	=	0.107	=	0.0603	=	0.0329	=	[0.0157]	ND	0.012	J	[0.0165]	ND	0.0337	=	[0.0251]	ND	[0.0246]	ND
sec-Butylbenzene	41	--	0.0236	=	0.0273	=	0.0118	J	0.0116	J	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Styrene	200	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
tert-Butylbenzene	70	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Tetrachloroethene	15	--	[0.00409]	ND	[0.00359]	ND	[0.00493]	ND	[0.00467]	ND	[0.00395]	ND	[0.00391]	ND	[0.00418]	ND	[0.00413]	ND	[0.00392]	ND	[0.0063]	ND	[0.00615]	ND
Toluene	220	6.5	[0.0082]	ND	0.0134	J	0.0503	=	0.0228	=	0.0612	=	0.00704	J	[0.00835]	ND	[0.00825]	ND	0.0532	=	[0.0126]	ND	[0.0123]	ND
trans-1,2-Dichloroethene	240	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
trans-1,3-Dichloropropene	40	--	[0.0082]	ND	[0.0072]	ND	[0.00985]	ND	[0.00935]	ND	[0.0079]	ND	[0.0078]	ND	[0.00835]	ND	[0.00825]	ND	[0.00785]	ND	[0.0126]	ND	[0.0123]	ND
Trichloroethene	0.85	--	[0.00409]	ND	[0.00359]	ND	[0.00493]	ND	[0.00467]	ND	[0.00395]	ND	[0.00391]	ND	[0.00418]	ND	[0.00413]	ND	[0.00392]	ND	[0.0063]	ND	[0.00615]	ND
Trichlorofluoromethane	990	--	[0.0164]	ND	[0.0144]	ND	[0.0198]	ND	[0.0186]	ND	[0.0158]	ND	[0.0157]	ND	0.0139	J	[0.0165]	ND	[0.0157]	ND	[0.0251]	ND	[0.0246]	ND
Vinyl acetate	2,200	--	[0.0327]	ND	[0.0288]	ND	[0.0395]	ND	[0.0374]	ND	[0.0316]	ND	[0.0313]	ND	[0.0334]	ND	[0.033]	ND	[0.0313]	ND	[0.0505]	ND	[0.0491]	ND
Vinyl chloride	6.4	--	[0.00327]	ND	[0.00288]	ND	[0.00395]	ND	[0.00373]	ND	[0.00316]	ND	[0.00313]	ND	[0.00334]	ND	[0.0033]	ND	[0.00313]	ND	[0.00505]	ND	[0.00491]	ND
Xylenes (total)[3]	63	63	0.268	=	0.376	=	0.168	=	0.102	=	0.0474	=	[0.0234]	ND	[0.0251]	ND	[0.0248]	ND	0.0475	=	[0.0377]	ND	[0.0368]	ND
Percent Solids (SM21 2540G)																								
Total Solids	--	--	86.1	=	88.7	=	85.6	=	84.8	=	92.8	=	91.2	=	93.1	=	93.3	=	93.3	=	--	--	--	--

Notes:
1 - The cleanup level corresponds to the most stringent of direct contact or inhalation of soil as listed in 18 AAC 75.341, Tables B1 and B2, Method Two cleanup levels for the Arctic Zone (ADEC, June 17, 2015).
2 - The field sample identification number, date collected, and laboratory sample identification number are provided.
3 - Total values were the summation of detected compounds only. If compounds were not detected, then the highest LOD was listed.

Data Flags - only a cursory review of waste data was performed. Qualifiers were those assigned by the laboratory.

ND	Nondetect, LOD is presented in brackets to the left	=	A detected compound [concentration listed in column to the left]
J	The analyte was positively identified, but the result was between the LOQ and DL; the quantitation was an estimate.		

Abbreviations

--	Not applicable or screening criteria does not exixt for this compound	DRO	Diesel Range Organics	RRO	Residual Range Organics
AAC	Alaska Administrative Code	GRO	Gasoline Range Organics	mg/Kg	milligrams per kilogram
ADEC	Alaska Department of Environmental Conservation	LOD	Limit of Detection	VOC	Volatile Organic Compounds
DL	Detection Limit	LOQ	Limit of Quantitation		

APPENDIX A

FIELD LOGBOOK

Kotzebue Airport Terminal Concrete Excavation Report

Alaska Airlines
P.O. Box 68900-SEAZE
Seattle, WA 98168-0900

January 2016

SLR

JOB NAME Alaska Airlines - Kotzebue

JOB NO.

CALCULATED BY _____ DATE 8/27/15

CHECKED BY _____ DATE _____

SHEET 1 OF 4

0700 - Arrive onsite. Collect baseline PID measurements & excavation dimensions

0900 - Ground crew locating super sacks

1000 - Ground crew located super sacks

1015 - Commence Excavation in center ground hot spot. Ambient = 1.4 ppm

1130 - SK 01-05 Filled w/ soil from heaviest impacted areas. Ambient = 0.6 ppm

1145 - Composite sample of SK 01-05 collected

1200 - Field screening samples collected from SK 01-05 for heated headspace test

1215 - SK 01 = 122.3 ppm SK 02 = 64.7 ppm SK 03 = 96.5 ppm

SK 04 = 53.2 ppm SK 05 = 76.5 ppm

1330 - Commence removal of remaining slab sections.

1415 - Delineated fuel-contaminated soil to be bagged based on non-responsive PID readings to depth of 4-6" on spacing of 3-4'.

1550 - All soil remaining to stay in excavation. SK 06-14 filled.

1600 - Field Screening samples collected from SK 06-14
Composite samples collected from SK 06-10 & 11-14 (2)

1640 - SK 06 = 7.8 ppm SK 08 = 8.3 ppm SK 09 = 60.6 ppm

SK 09 = 103.3 SK 10 = 36.4 SK 11 = 30.7

SK 12 = 10.5 SK 13 = 8.3 SK 14 = 10.9

1795 FL 1A = 2.6 ppm 1B = 11.7 1C = 18.2

2A = 6.0 2B = 86.9 2C = 32.1

3A = 6.6 3B = 2.3 3C = 8.7

4A = 3.3 4B = 1.7 4C = 3.7

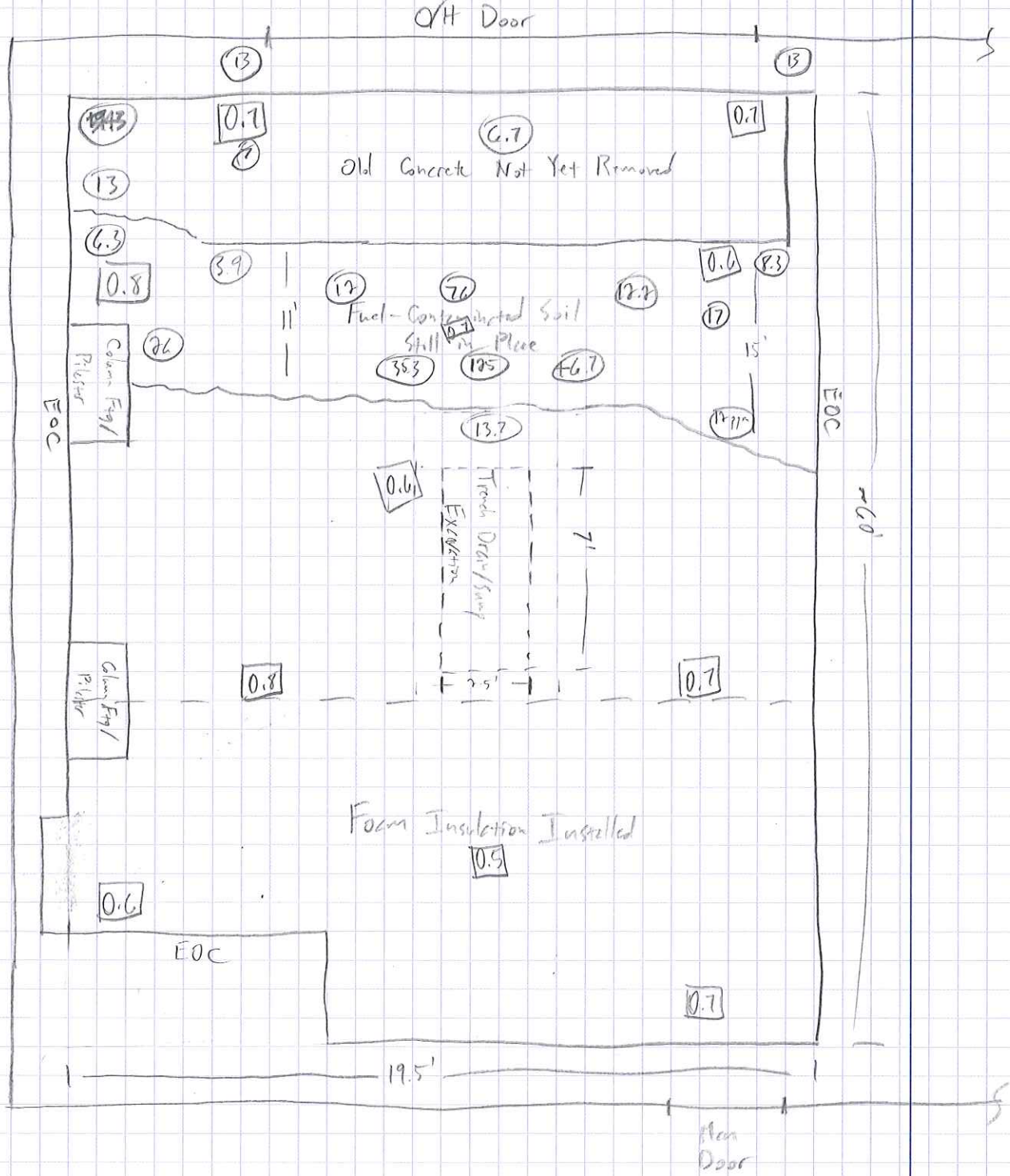
Floor samples collected

SLR

○ - Soil/Ground
□ - Breathing Zone

JOB NAME Alaska Airlines - Kotzebue
JOB NO.
CALCULATED BY _____ DATE 8/27/15
CHECKED BY _____ DATE _____
SHEET 2 OF 4

Baseline @ 0800



SLR

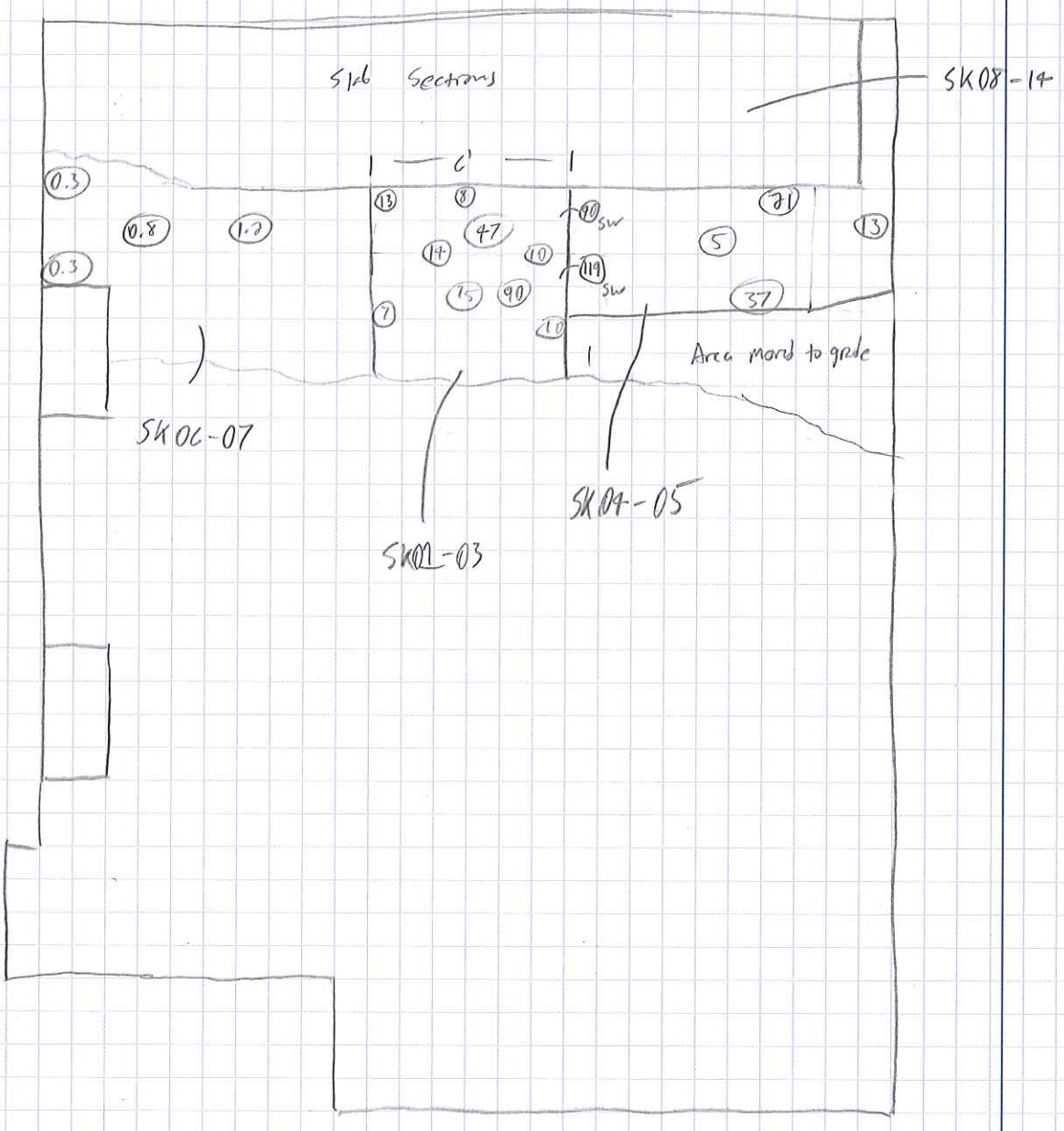
JOB NAME Alaska Airlines - Kotzebue

JOB NO. 191-55185

CALCULATED BY _____ DATE 8/07/15

CHECKED BY _____ DATE _____

SHEET 3 OF 4



SLR

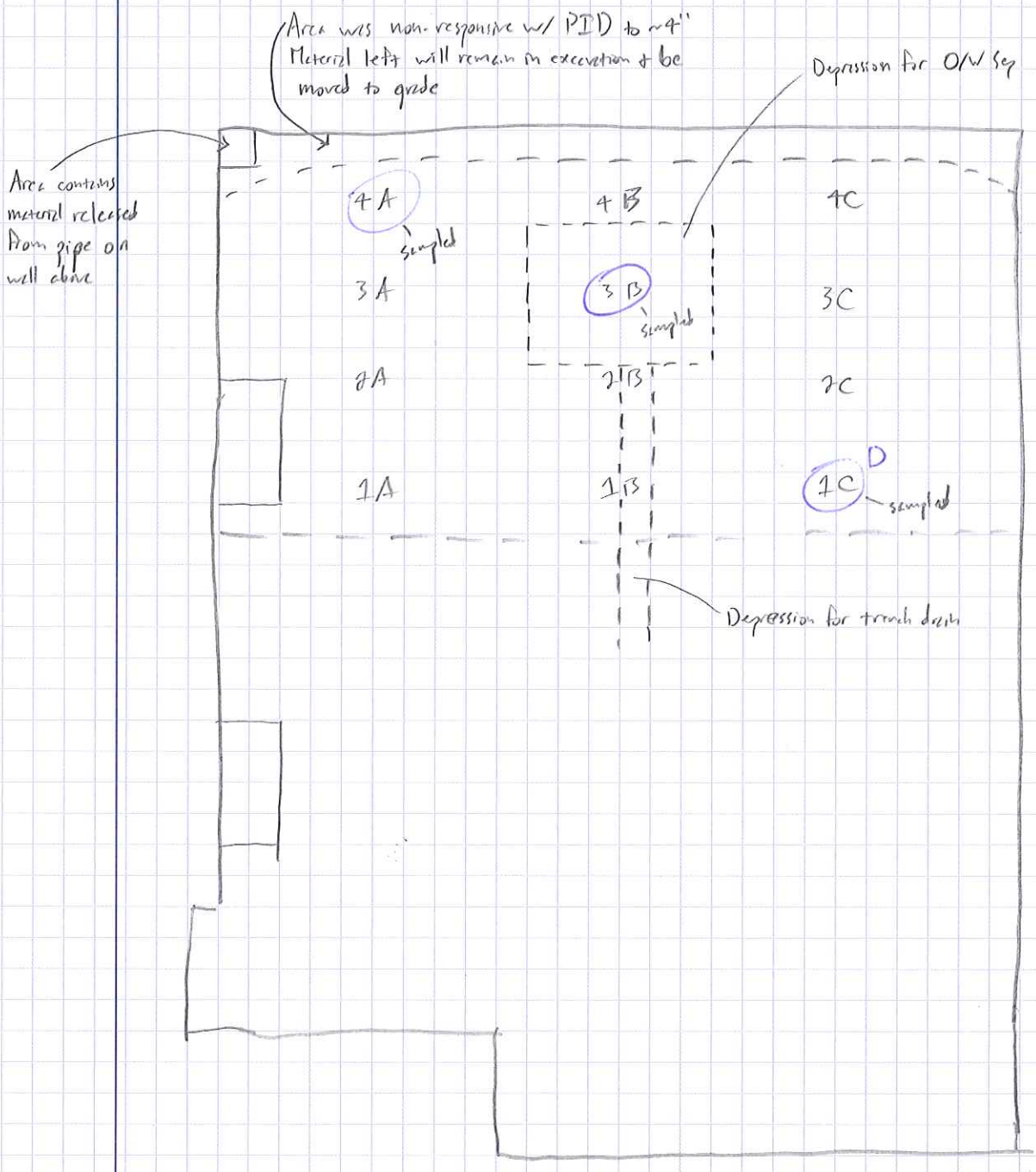
JOB NAME Alaska Airlines - Kotzebue

JOB NO.

CALCULATED BY _____ DATE 8/27/15

CHECKED BY _____ DATE _____

SHEET 4 OF 4



Rite in the Rain®
ALL-WEATHER WRITING PAPER

Name SLR 222-1112

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Project

Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook.
Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation

CONTENTS

PAGE	REFERENCE	DATE
	Trevor 244-1587	
	Mel 503 720 4870	
	Scott 264 6961 / 350-9109	
	Justin 205 902 9851	

9/4/15 A. Knudson

~~1~~ 1600 Leave for Kotzebue

~~1610~~ 1810 arrive meet ~~Trevor~~ Trevor and check gear. All items have arrived. go check into hotel.

9/4/15

Sunny 70°

9/5/15

745 meet with Trevor and Jeremy with

807 calibrate Mini RAE PID 812

100 ppms ISObutlene = 117 ppm

fresh air = 0.0 ppm

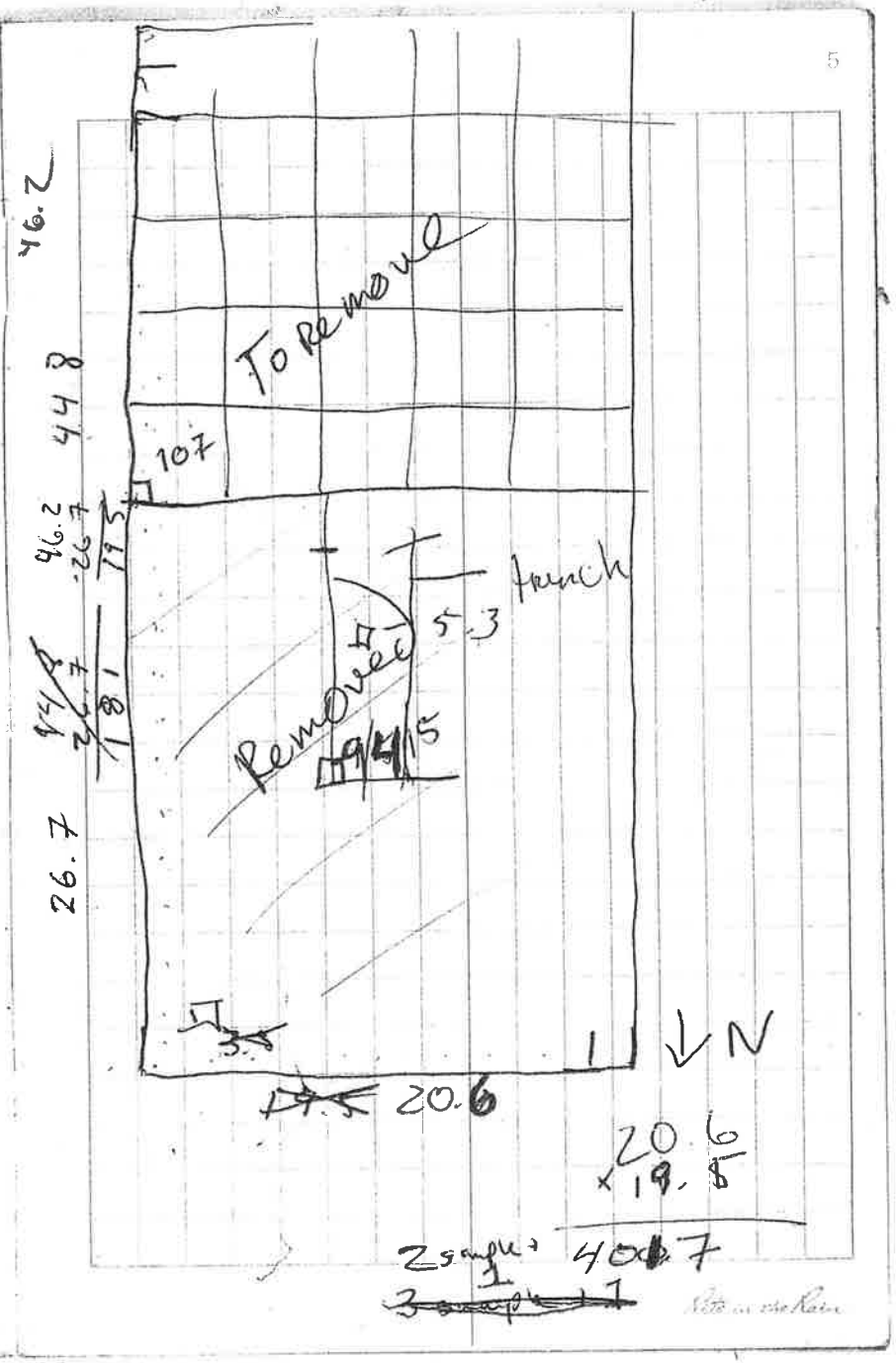
815 tailgate safety meeting

848 took measurement for excavation put ice in freezer

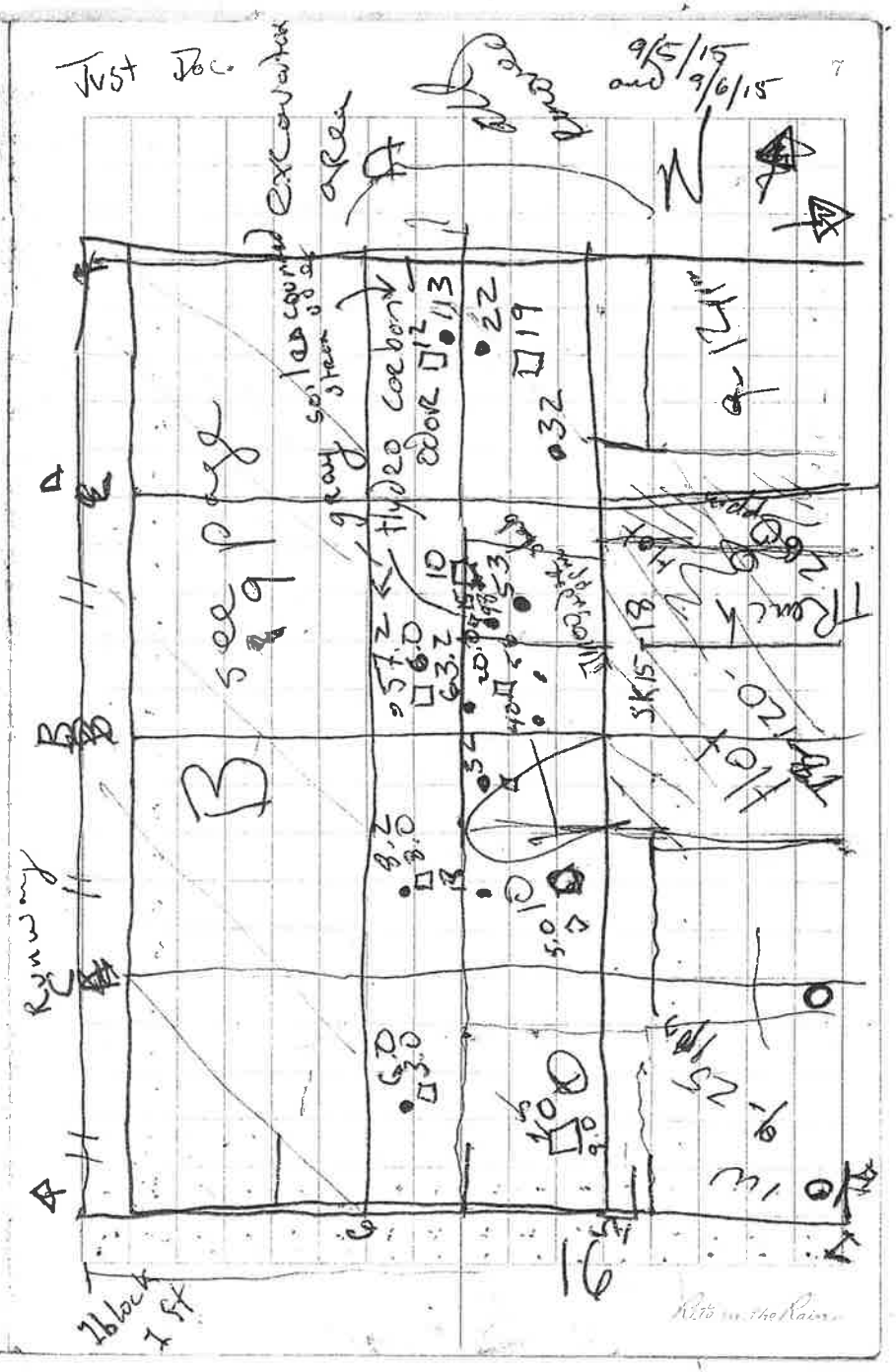
913 waiting for the plane to leave

934 Start excavation.

1000 -11 Trench was dug 4" to shallow pull material from pile. ~~Trench PID range from~~ soil from south end of trench pulled to fill hole, PID range from 79 ppm - 120 ppm. Have ~~need soil from trench~~ New soil in trench, removed and trench ~~buried~~ dug to expose buried which was determined to be a culvert from drainage system for old catchment system. PID results on page 8. Sample was collected from 23.9" feet from North wall of excavation, 7.8' of west wall, 2' bgs.



9/6/15 Note heavy air PID quality from 9/5/15. Because working in warehouse at and active runway a lot of exhaust was present during excavation activities even with all garage doors open and excavator turned off and PID ranged 8.0-20.0 ppm.



8

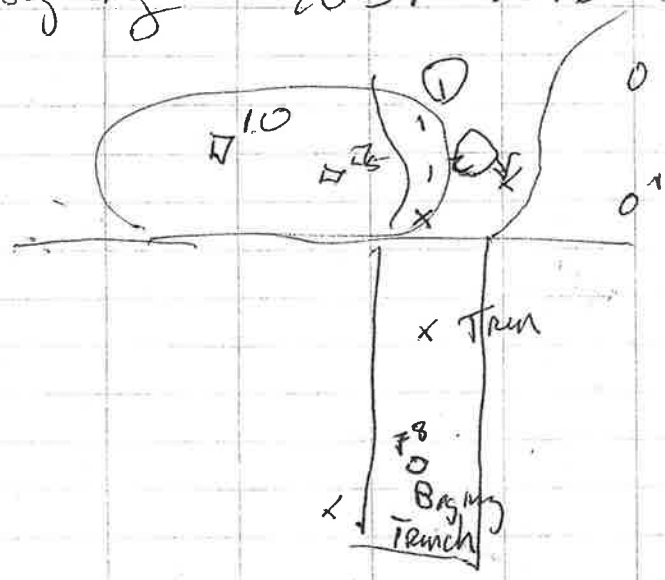
9/5/16

ID	collect	sample	Result
~~IW~~	950	1020	640
Pile 1	958	1021	109
Pile 2	954	1022	136
Trench	1016	1023	121
Begin of Trench	1008	1024	1348

Took trench down 4' more

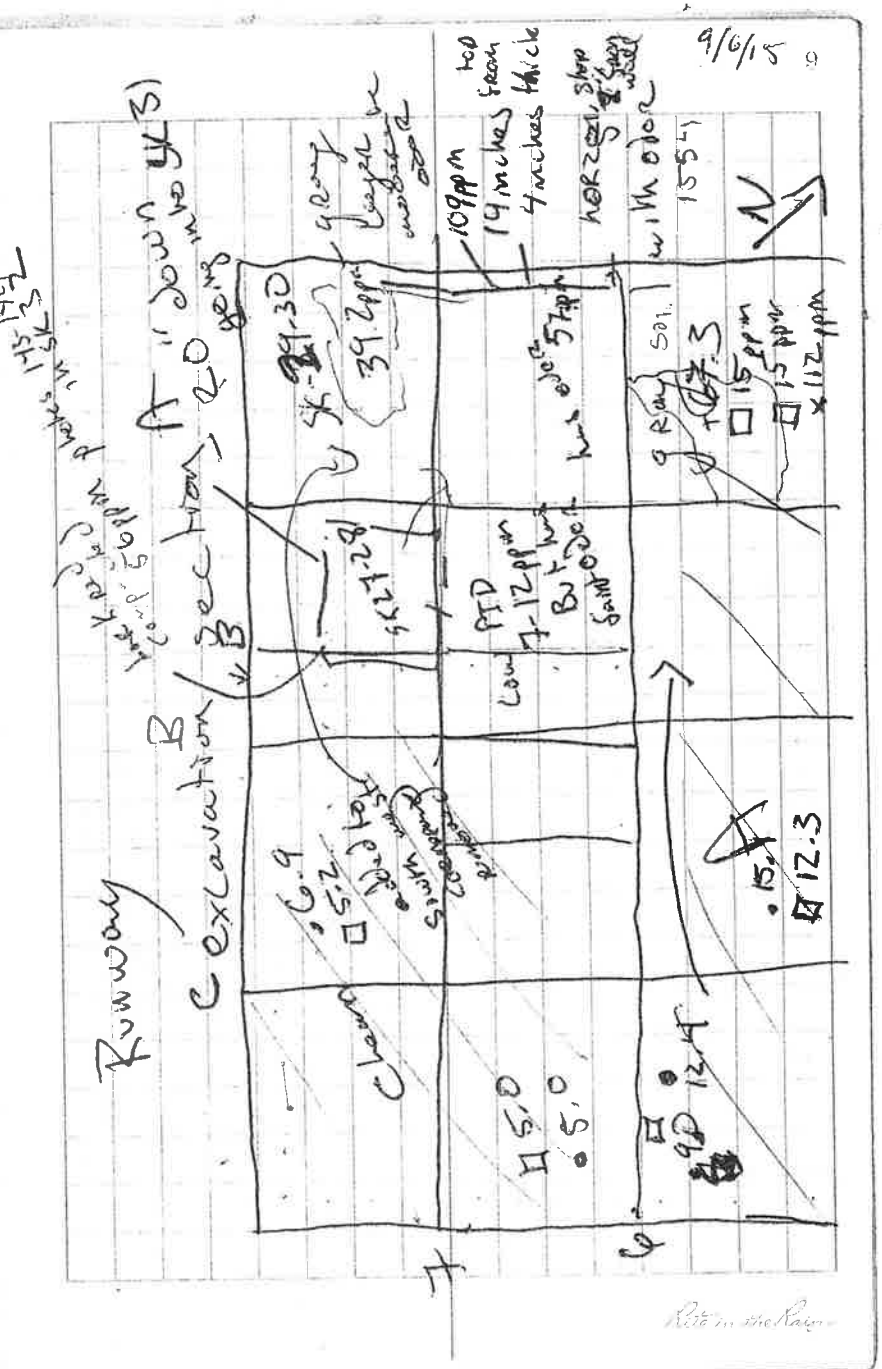
1040 air 6.0 ppm

15.8 End	1035	1048	144
10.0 Barrel middle	1032	1047	108
17.9 Beginning	1031	1046	+444/100



9

9/6/16



4/5/15

1112 unable to communicate with any principles. have trench go down a foot barrel is culvert going to drainage.

1128 just taking PID reading sample and then filling

13.6	Beginning North	1117	1135	100.0
0.0	WB wall	1119	1136	98.2
11.8	culvert	1120	1137	87.0
9.0	Culvert wall	1121	1139	130.00
	End south	1122	1138	236
~~Wall of 7x5~~		E Wall	1121	1139 ~~236~~ 100

E

spoke with Justin it was explained Not chasing just putting back and documenting just sorting soil for disposal

1204 Taking fill from CORNER area where PID Range from 9-12 ppm

1213 Filling Bag with material next to trench 239 PPM Bag 15

9/5/15

1155 Trench was sampled at ~~2' bgs~~ 23.9' from North wall ~~end wall~~ 7.8' from W wall

SE ~~NE~~ soil clear

1245 SK15-18 Filled and trench filled with clean material

127 ppm	SK15	1315	1336	409
77 ppm	SK16	1316	1337	643
187	SK17	1318	1337	347
29	SK18	1319	1338	187

1321 Sample SK15-18 collected

1338 Lunch well Cargo Plane unloads.

1423 stacked back at work

1441 start filling ~~back~~ SK19-SK20

1515 continue filling SK20 open secondary door for venting.

1607 South western CORNER has gray soil that smells hydrocarbon with PID 32-87 ppm taking below grade. going to fill with clean.

south 138" door 51" wall

1641 NW wall 13" down 70ppm, W 1645 1656 1644 912
Sampled smelled of Hydrocarbon

1648 Sampled
122ppm NW South corner door 32" floor
120" door 1= 1646 1655 922

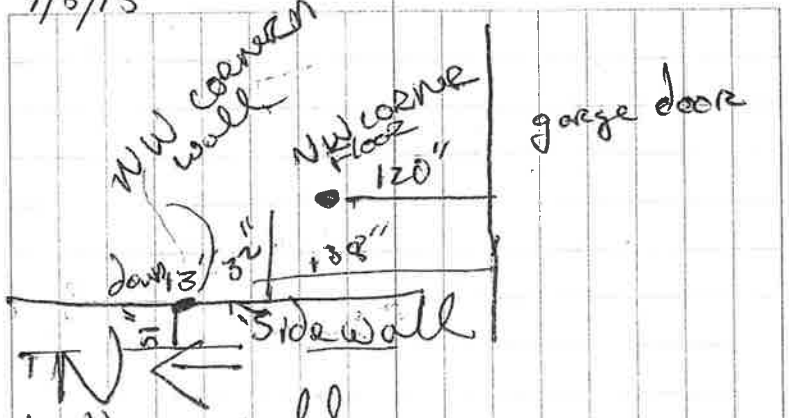
1705 move soil with less than ~~150~~ 50ppm
to ~~North~~ South west corner from
southeast

1720 area is being leveled and
compacted

1730 go to collect
samples from supersacks

AK 9/5/15

9/5/15



	by	collect	Read	Result
1738	SK19	1738	1758	248
Sample	SK20	1738	1759	111
SK19-22	SK21	1739	1800	193
	SK22	1739	1801	477
1749	SK23	1749	1802	1288
Sample	SK24	1749	1802	636
23-26	SK25	1750	1803	357
	SK26	1751	1804	817

1800 Plane Landed area closed for the day.

AK 9/5/15

9/6/15 A. Knudson Range 50

800 calibrate PID
Fresh Air 0.0
Isobutilene 100 ppm = 91 ppm

806 tail gate safety meeting
Delay in start because baggage handers didn't arrive and crew pitch in

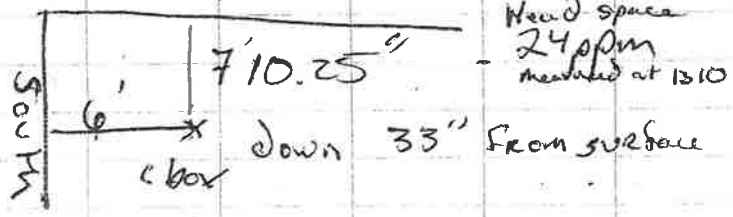
905 plan delayed excavation started.

1000 flight came in hold work

1120

1248 containment box dug

1258 cbox sample taken.
West



1352 removed rest of soil clean.
PID range from 5-6.7 ppm
Air due to exhaust 5.0 ppm

9/6/15

SK27-29 sampled at 1421

8	SK 27	1416	1442	38.2	ppm
7.9	SK 28	1418	1442	40.5	ppm
11.9	SK 29	1418	1443	93.3	ppm
24.7	SK 30	1432	1445	99.3	ppm
59.0	SK 31	1430	1446	161 ppm	*
42.7	SK 32	1429	1447	34.8 ppm	

SK30-32 Sampled at 1433

1450 close up sopre sack

1518 construct grid
take head space

1A	1B	1C

take to worm up in office

1A	A1	1541	1607	13.6
1B	A2	1540	1613	39.4
1C	A3	1538	1614	21.9
2A	A4	1537	1615	0.0
2B	B1	1542	1616	29.6
2C	B2	1549	1616	31.6
3A	B3	1548	1617	31.0
3B	B4	1547	1618	18.6
	C1	1543	1618	31.9
	C2	1545	1619	17.4

9/6/15 continued

AK 9/6/15

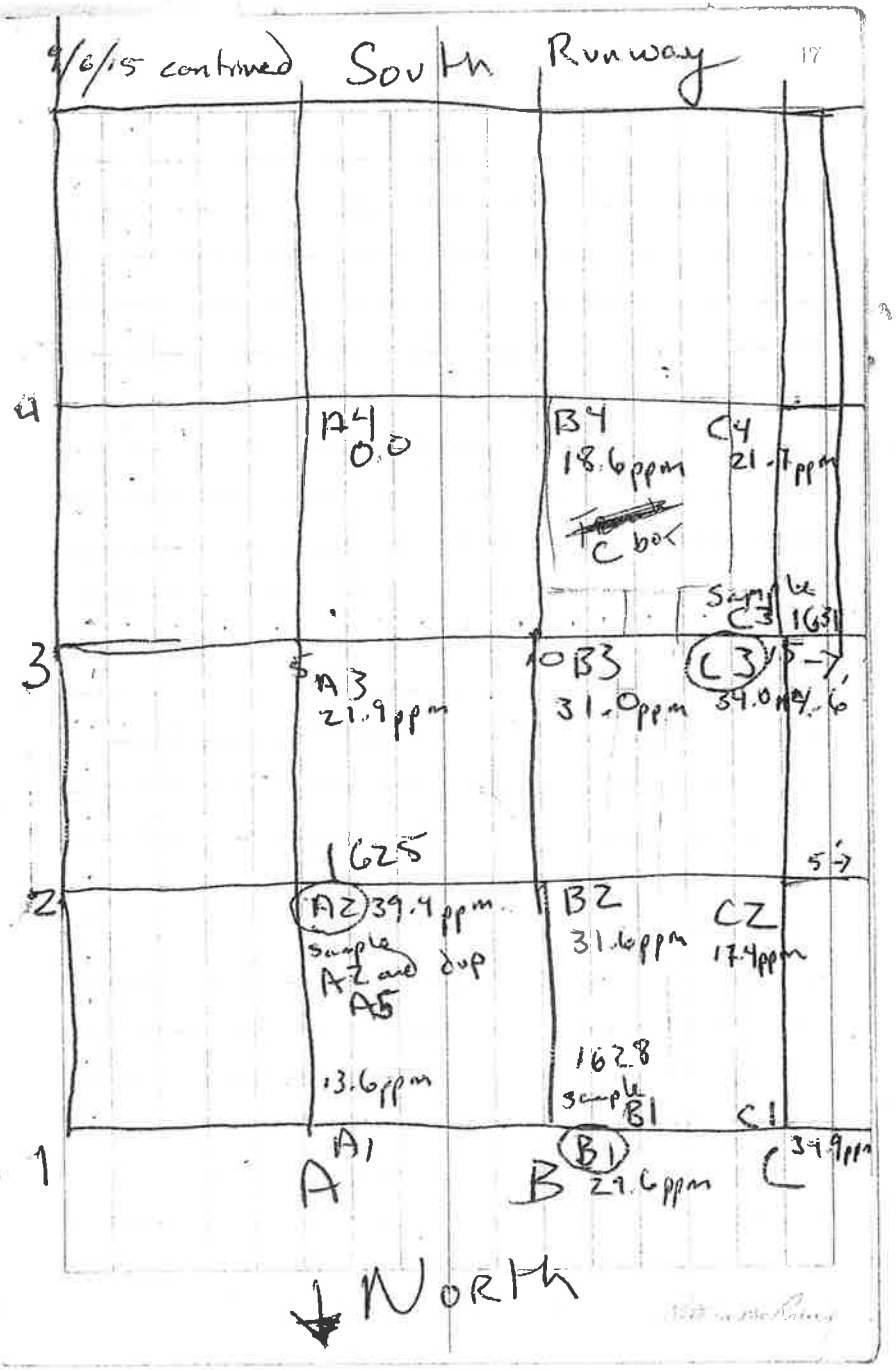
36
4A
4B
4C
C3 1546 1620 34.
C4 1546 1621 21.7

Sample collected

1625 A2 and Dup A5 composited
1628 B1 composited location
1631 C3 loose soil
1700 pack up cooler and gear get on plane & shipped
1900 plane delay due to weather in Nome adjusted to only Anchorage
2130 ARRIVE in Anchorage

AK
9/6/15

South Runway



APPENDIX B

PHOTOGRAPHIC LOG

Kotzebue Airport Terminal Concrete Excavation Report

Alaska Airlines
P.O. Box 68900-SEAZE
Seattle, WA 98168-0900

January 2016

Photo 1: Excavation Area A – Exposed area with fuel hydrocarbon odor.

Photo 2: Excavation Area A – Exposed area with fuel hydrocarbon odor.

Photo 3: Excavation Area A – Initial soil removal.

Photo 4: Excavation Area A – Remaining concrete sectionremoval.

Photo 5: Excavation Area A – Excavation for drainage sump.

Photo 6: Excavation Area B – Exposed area with fuel hydrocarbon odor.

Photo 7: Excavation Area B – Initial soil removal.

Photo 8: Excavation Area B – Excavation for drainage sump.

Photo 9: Excavation Area B – Stained soil with fuel hydrocarbon odor.

Photo 10: Excavated soil contained in lined super-sacks.

APPENDIX C

LABORATORY ANALYTICAL RESULTS

Kotzebue Airport Terminal Concrete Excavation Report

Alaska Airlines
P.O. Box 68900-SEAZE
Seattle, WA 98168-0900

January 2016

Laboratory Report of Analysis

To: SLR Alaska-Anchorage
1800 Blankenship Road Suite 440
West Linn, OR 97068
(503)905-3728

Report Number: **1154927**

Client Project: **Alaska Airlines Kotzebue**

Dear Justin Moman, E.I.,

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

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

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

Sincerely,
SGS North America Inc.

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

Print Date: 09/25/2015 8:40:23AM

Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1154927**
Project Name/Site: **Alaska Airlines Kotzebue**
Project Contact: **Justin Moman, E.I.**

Refer to sample receipt form for information on sample condition.

SK01-05 (1154927001) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (151%) does not meet QC criteria due to matrix interference.

FL1C (1154927006) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (169%) does not meet QC criteria due to matrix interference.

1154727013(1288060MS) (1288061) MS

8260B –MS/MSD recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy.

1154727013(1288060MSD) (1288062) MSD

8260B –MS/MSD recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy.

1154799008(1288556MSD) (1288558) MSD

8260B –MSD recovery for 1,1,2-trichloroethane does not meet QC criteria (124%). Refer to LCS for accuracy.

*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

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8260B				
1154927001	SK01-05	VMS15226	4-Isopropyltoluene	RP
1154927002	SK06-10	VMS15226	4-Isopropyltoluene	RP
1154927003	SK11-14J	VMS15226	4-Isopropyltoluene	RP
1154927004	SK11-14	VMS15226	4-Isopropyltoluene	RP
1154927007	FL4A	VMS15226	4-Isopropyltoluene	RP
1154927008	FL1CJ	VMS15226	4-Isopropyltoluene	RP
1288061	1154727013(1288060MS)	VMS15225	Naphthalene	RP
1288062	1154727013(1288060MSD)	VMS15225	Naphthalene	RP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Print Date: 09/25/2015 8:40:25AM

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 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
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
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
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
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
SK01-05	1154927001	08/27/2015	08/28/2015	Soil/Solid (dry weight)
SK06-10	1154927002	08/27/2015	08/28/2015	Soil/Solid (dry weight)
SK11-14J	1154927003	08/27/2015	08/28/2015	Soil/Solid (dry weight)
SK11-14	1154927004	08/27/2015	08/28/2015	Soil/Solid (dry weight)
FL3B	1154927005	08/27/2015	08/28/2015	Soil/Solid (dry weight)
FL1C	1154927006	08/27/2015	08/28/2015	Soil/Solid (dry weight)
FL4A	1154927007	08/27/2015	08/28/2015	Soil/Solid (dry weight)
FL1CJ	1154927008	08/27/2015	08/28/2015	Soil/Solid (dry weight)
E Sample	1154927009	08/27/2015	08/28/2015	Soil/Solid (dry weight)
Trip Blank	1154927010	08/27/2015	08/28/2015	Soil/Solid (dry weight)

Method	Method Description
AK102	Diesel Range Organics (S)
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8260B	VOC 8260 (S) Field Extracted

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Detectable Results Summary

Client Sample ID: **SK01-05**
Lab Sample ID: 1154927001
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	780	mg/Kg
Gasoline Range Organics	6.55	mg/Kg
1,2,4-Trimethylbenzene	330	ug/Kg
1,3,5-Trimethylbenzene	120	ug/Kg
4-Isopropyltoluene	48.3	ug/Kg
Ethylbenzene	41.9	ug/Kg
Isopropylbenzene (Cumene)	17.5	ug/Kg
Naphthalene	215	ug/Kg
n-Propylbenzene	51.9	ug/Kg
o-Xylene	112	ug/Kg
P & M -Xylene	157	ug/Kg
sec-Butylbenzene	23.6	ug/Kg
Xylenes (total)	268	ug/Kg

Client Sample ID: **SK06-10**
Lab Sample ID: 1154927002
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	234	mg/Kg
Gasoline Range Organics	3.05	mg/Kg
1,2,3-Trichloropropane	4.88J	ug/Kg
1,2,4-Trimethylbenzene	488	ug/Kg
1,3,5-Trimethylbenzene	165	ug/Kg
4-Isopropyltoluene	57.5	ug/Kg
Ethylbenzene	56.9	ug/Kg
Isopropylbenzene (Cumene)	17.1	ug/Kg
Naphthalene	134	ug/Kg
o-Xylene	143	ug/Kg
P & M -Xylene	233	ug/Kg
sec-Butylbenzene	27.3	ug/Kg
Toluene	13.4J	ug/Kg
Xylenes (total)	376	ug/Kg

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Detectable Results Summary

Client Sample ID: **SK11-14J**
Lab Sample ID: 1154927003
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	155	mg/Kg
Gasoline Range Organics	1.44J	mg/Kg
1,2,4-Trimethylbenzene	164	ug/Kg
1,3,5-Trimethylbenzene	58.3	ug/Kg
4-Isopropyltoluene	27.5	ug/Kg
Ethylbenzene	12.9J	ug/Kg
Naphthalene	139	ug/Kg
n-Propylbenzene	19.8	ug/Kg
o-Xylene	41.6	ug/Kg
P & M -Xylene	60.3	ug/Kg
sec-Butylbenzene	11.6J	ug/Kg
Toluene	22.8	ug/Kg
Xylenes (total)	102	ug/Kg

Client Sample ID: **SK11-14**
Lab Sample ID: 1154927004
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	144	mg/Kg
Gasoline Range Organics	1.23J	mg/Kg
1,2,4-Trimethylbenzene	179	ug/Kg
1,3,5-Trimethylbenzene	70.1	ug/Kg
4-Isopropyltoluene	28.6	ug/Kg
Ethylbenzene	24.5	ug/Kg
Isopropylbenzene (Cumene)	6.71J	ug/Kg
Naphthalene	93.4	ug/Kg
n-Propylbenzene	28.4	ug/Kg
o-Xylene	61.4	ug/Kg
P & M -Xylene	107	ug/Kg
sec-Butylbenzene	11.8J	ug/Kg
Toluene	50.3	ug/Kg
Xylenes (total)	168	ug/Kg

Client Sample ID: **FL3B**
Lab Sample ID: 1154927005
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Gasoline Range Organics	0.603J	mg/Kg
4-Isopropyltoluene	4.93J	ug/Kg
Ethylbenzene	5.63J	ug/Kg
o-Xylene	5.35J	ug/Kg
P & M -Xylene	17.3J	ug/Kg
Toluene	6.20J	ug/Kg
Xylenes (total)	22.7J	ug/Kg

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Detectable Results Summary

Client Sample ID: **FL1C**
Lab Sample ID: 1154927006
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	385	mg/Kg
Gasoline Range Organics	10.9	mg/Kg
1,2,4-Trimethylbenzene	892	ug/Kg
1,3,5-Trimethylbenzene	398	ug/Kg
4-Isopropyltoluene	106	ug/Kg
Benzene	4.95J	ug/Kg
Ethylbenzene	141	ug/Kg
Isopropylbenzene (Cumene)	46.6	ug/Kg
Naphthalene	65.3	ug/Kg
n-Propylbenzene	102	ug/Kg
o-Xylene	592	ug/Kg
P & M -Xylene	1030	ug/Kg
sec-Butylbenzene	23.0	ug/Kg
Toluene	7.43J	ug/Kg
Xylenes (total)	1620	ug/Kg

Client Sample ID: **FL4A**
Lab Sample ID: 1154927007
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	371	mg/Kg
Gasoline Range Organics	1.54J	mg/Kg
1,2,4-Trimethylbenzene	41.8J	ug/Kg
1,3,5-Trimethylbenzene	11.1J	ug/Kg
Naphthalene	21.9J	ug/Kg

Client Sample ID: **FL1CJ**
Lab Sample ID: 1154927008
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	274	mg/Kg
Gasoline Range Organics	7.39	mg/Kg
1,2,4-Trimethylbenzene	700	ug/Kg
1,3,5-Trimethylbenzene	307	ug/Kg
4-Isopropyltoluene	31.7	ug/Kg
Benzene	3.83J	ug/Kg
Ethylbenzene	109	ug/Kg
Isopropylbenzene (Cumene)	37.9	ug/Kg
Naphthalene	62.3	ug/Kg
n-Propylbenzene	81.9	ug/Kg
o-Xylene	468	ug/Kg
P & M -Xylene	824	ug/Kg
sec-Butylbenzene	19.8J	ug/Kg
Toluene	7.06J	ug/Kg
Trichlorofluoromethane	12.3J	ug/Kg
Xylenes (total)	1290	ug/Kg

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Results of **SK01-05**

Client Sample ID: **SK01-05**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927001
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):86.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	780		91.2	28.3	mg/Kg	4		09/08/15 23:23
Surrogates								
5a Androstane (surr)	116		50-150		%	4		09/08/15 23:23

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/15 23:23
Container ID: 1154927001-A

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 09/08/15 12:37
Prep Initial Wt./Vol.: 30.576 g
Prep Extract Vol: 1 mL

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Results of **SK01-05**

Client Sample ID: **SK01-05**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927001
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):86.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	6.55		1.64	0.491	mg/Kg	1		09/17/15 22:12
Surrogates								
4-Bromofluorobenzene (surr)	151	*	50-150		%	1		09/17/15 22:12

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/17/15 22:12
Container ID: 1154927001-B

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 08/27/15 11:45
Prep Initial Wt./Vol.: 175.776 g
Prep Extract Vol: 49.4954 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **SK01-05**

Client Sample ID: **SK01-05**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927001
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):86.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,1,1-Trichloroethane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,1,2,2-Tetrachloroethane	4.09	U	8.18	2.55	ug/Kg	1		09/03/15 16:54
1,1,2-Trichloroethane	3.27	U	6.54	2.03	ug/Kg	1		09/03/15 16:54
1,1-Dichloroethane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,1-Dichloroethene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,1-Dichloropropene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,2,3-Trichlorobenzene	16.4	U	32.7	9.82	ug/Kg	1		09/03/15 16:54
1,2,3-Trichloropropane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,2,4-Trichlorobenzene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,2,4-Trimethylbenzene	330		32.7	9.82	ug/Kg	1		09/03/15 16:54
1,2-Dibromo-3-chloropropane	32.7	U	65.4	20.3	ug/Kg	1		09/03/15 16:54
1,2-Dibromoethane	3.27	U	6.54	2.03	ug/Kg	1		09/03/15 16:54
1,2-Dichlorobenzene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,2-Dichloroethane	3.27	U	6.54	2.03	ug/Kg	1		09/03/15 16:54
1,2-Dichloropropane	3.27	U	6.54	2.03	ug/Kg	1		09/03/15 16:54
1,3,5-Trimethylbenzene	120		16.4	5.10	ug/Kg	1		09/03/15 16:54
1,3-Dichlorobenzene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
1,3-Dichloropropane	3.27	U	6.54	2.03	ug/Kg	1		09/03/15 16:54
1,4-Dichlorobenzene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
2,2-Dichloropropane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
2-Butanone (MEK)	82.0	U	164	51.0	ug/Kg	1		09/03/15 16:54
2-Chlorotoluene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
2-Hexanone	82.0	U	164	51.0	ug/Kg	1		09/03/15 16:54
4-Chlorotoluene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
4-Isopropyltoluene	48.3		16.4	5.10	ug/Kg	1		09/03/15 16:54
4-Methyl-2-pentanone (MIBK)	82.0	U	164	51.0	ug/Kg	1		09/03/15 16:54
Benzene	4.09	U	8.18	2.55	ug/Kg	1		09/03/15 16:54
Bromobenzene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Bromochloromethane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Bromodichloromethane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Bromoform	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Bromomethane	65.5	U	131	40.6	ug/Kg	1		09/03/15 16:54
Carbon disulfide	32.7	U	65.4	20.3	ug/Kg	1		09/03/15 16:54
Carbon tetrachloride	4.09	U	8.18	2.55	ug/Kg	1		09/03/15 16:54
Chlorobenzene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Chloroethane	65.5	U	131	40.6	ug/Kg	1		09/03/15 16:54

Results of **SK01-05**

Client Sample ID: **SK01-05**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927001
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):86.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Chloromethane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
cis-1,2-Dichloroethene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
cis-1,3-Dichloropropene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Dibromochloromethane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Dibromomethane	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Dichlorodifluoromethane	16.4	U	32.7	9.82	ug/Kg	1		09/03/15 16:54
Ethylbenzene	41.9		16.4	5.10	ug/Kg	1		09/03/15 16:54
Freon-113	32.7	U	65.4	20.3	ug/Kg	1		09/03/15 16:54
Hexachlorobutadiene	16.4	U	32.7	9.82	ug/Kg	1		09/03/15 16:54
Isopropylbenzene (Cumene)	17.5		16.4	5.10	ug/Kg	1		09/03/15 16:54
Methylene chloride	32.7	U	65.4	20.3	ug/Kg	1		09/03/15 16:54
Methyl-t-butyl ether	32.7	U	65.4	20.3	ug/Kg	1		09/03/15 16:54
Naphthalene	215		32.7	9.82	ug/Kg	1		09/03/15 16:54
n-Butylbenzene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
n-Propylbenzene	51.9		16.4	5.10	ug/Kg	1		09/03/15 16:54
o-Xylene	112		16.4	5.10	ug/Kg	1		09/03/15 16:54
P & M -Xylene	157		32.7	9.82	ug/Kg	1		09/03/15 16:54
sec-Butylbenzene	23.6		16.4	5.10	ug/Kg	1		09/03/15 16:54
Styrene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
tert-Butylbenzene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Tetrachloroethene	4.09	U	8.18	2.55	ug/Kg	1		09/03/15 16:54
Toluene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
trans-1,2-Dichloroethene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
trans-1,3-Dichloropropene	8.20	U	16.4	5.10	ug/Kg	1		09/03/15 16:54
Trichloroethene	4.09	U	8.18	2.55	ug/Kg	1		09/03/15 16:54
Trichlorofluoromethane	16.4	U	32.7	9.82	ug/Kg	1		09/03/15 16:54
Vinyl acetate	32.7	U	65.4	20.3	ug/Kg	1		09/03/15 16:54
Vinyl chloride	3.27	U	6.54	2.03	ug/Kg	1		09/03/15 16:54
Xylenes (total)	268		49.1	14.9	ug/Kg	1		09/03/15 16:54
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		09/03/15 16:54
4-Bromofluorobenzene (surr)	68.4		55-151		%	1		09/03/15 16:54
Toluene-d8 (surr)	93.2		85-116		%	1		09/03/15 16:54

Print Date: 09/25/2015 8:40:29AM

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Results of **SK01-05**

Client Sample ID: **SK01-05**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927001
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):86.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/03/15 16:54
Container ID: 1154927001-B

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 08/27/15 11:45
Prep Initial Wt./Vol.: 175.776 g
Prep Extract Vol: 49.4954 mL

Results of **SK06-10**

Client Sample ID: **SK06-10**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927002
Lab Project ID: 1154927

Collection Date: 08/27/15 16:00
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	234		89.7	27.8	mg/Kg	4		09/08/15 23:33
Surrogates								
5a Androstane (surr)	96.6		50-150		%	4		09/08/15 23:33

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/15 23:33
Container ID: 1154927002-A

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 09/08/15 12:37
Prep Initial Wt./Vol.: 30.14 g
Prep Extract Vol: 1 mL

Results of **SK06-10**

Client Sample ID: **SK06-10**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927002
Lab Project ID: 1154927

Collection Date: 08/27/15 16:00
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.05		1.44	0.431	mg/Kg	1		09/17/15 22:31
Surrogates								
4-Bromofluorobenzene (surr)	108		50-150		%	1		09/17/15 22:31

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/17/15 22:31
Container ID: 1154927002-B

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 08/27/15 16:00
Prep Initial Wt./Vol.: 175.515 g
Prep Extract Vol: 44.7469 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **SK06-10**

Client Sample ID: **SK06-10**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927002
Lab Project ID: 1154927

Collection Date: 08/27/15 16:00
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,1,1-Trichloroethane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,1,2,2-Tetrachloroethane	3.59	U	7.18	2.24	ug/Kg	1		09/03/15 17:10
1,1,2-Trichloroethane	2.88	U	5.75	1.78	ug/Kg	1		09/03/15 17:10
1,1-Dichloroethane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,1-Dichloroethene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,1-Dichloropropene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,2,3-Trichlorobenzene	14.4	U	28.7	8.62	ug/Kg	1		09/03/15 17:10
1,2,3-Trichloropropane	4.88	J	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,2,4-Trichlorobenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,2,4-Trimethylbenzene	488		28.7	8.62	ug/Kg	1		09/03/15 17:10
1,2-Dibromo-3-chloropropane	28.8	U	57.5	17.8	ug/Kg	1		09/03/15 17:10
1,2-Dibromoethane	2.88	U	5.75	1.78	ug/Kg	1		09/03/15 17:10
1,2-Dichlorobenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,2-Dichloroethane	2.88	U	5.75	1.78	ug/Kg	1		09/03/15 17:10
1,2-Dichloropropane	2.88	U	5.75	1.78	ug/Kg	1		09/03/15 17:10
1,3,5-Trimethylbenzene	165		14.4	4.48	ug/Kg	1		09/03/15 17:10
1,3-Dichlorobenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
1,3-Dichloropropane	2.88	U	5.75	1.78	ug/Kg	1		09/03/15 17:10
1,4-Dichlorobenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
2,2-Dichloropropane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
2-Butanone (MEK)	72.0	U	144	44.8	ug/Kg	1		09/03/15 17:10
2-Chlorotoluene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
2-Hexanone	72.0	U	144	44.8	ug/Kg	1		09/03/15 17:10
4-Chlorotoluene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
4-Isopropyltoluene	57.5		14.4	4.48	ug/Kg	1		09/03/15 17:10
4-Methyl-2-pentanone (MIBK)	72.0	U	144	44.8	ug/Kg	1		09/03/15 17:10
Benzene	3.59	U	7.18	2.24	ug/Kg	1		09/03/15 17:10
Bromobenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Bromochloromethane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Bromodichloromethane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Bromoform	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Bromomethane	57.5	U	115	35.6	ug/Kg	1		09/03/15 17:10
Carbon disulfide	28.8	U	57.5	17.8	ug/Kg	1		09/03/15 17:10
Carbon tetrachloride	3.59	U	7.18	2.24	ug/Kg	1		09/03/15 17:10
Chlorobenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Chloroethane	57.5	U	115	35.6	ug/Kg	1		09/03/15 17:10

Results of **SK06-10**

Client Sample ID: **SK06-10**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927002
Lab Project ID: 1154927

Collection Date: 08/27/15 16:00
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Chloromethane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
cis-1,2-Dichloroethene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
cis-1,3-Dichloropropene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Dibromochloromethane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Dibromomethane	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Dichlorodifluoromethane	14.4	U	28.7	8.62	ug/Kg	1		09/03/15 17:10
Ethylbenzene	56.9		14.4	4.48	ug/Kg	1		09/03/15 17:10
Freon-113	28.8	U	57.5	17.8	ug/Kg	1		09/03/15 17:10
Hexachlorobutadiene	14.4	U	28.7	8.62	ug/Kg	1		09/03/15 17:10
Isopropylbenzene (Cumene)	17.1		14.4	4.48	ug/Kg	1		09/03/15 17:10
Methylene chloride	28.8	U	57.5	17.8	ug/Kg	1		09/03/15 17:10
Methyl-t-butyl ether	28.8	U	57.5	17.8	ug/Kg	1		09/03/15 17:10
Naphthalene	134		28.7	8.62	ug/Kg	1		09/03/15 17:10
n-Butylbenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
n-Propylbenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
o-Xylene	143		14.4	4.48	ug/Kg	1		09/03/15 17:10
P & M -Xylene	233		28.7	8.62	ug/Kg	1		09/03/15 17:10
sec-Butylbenzene	27.3		14.4	4.48	ug/Kg	1		09/03/15 17:10
Styrene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
tert-Butylbenzene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Tetrachloroethene	3.59	U	7.18	2.24	ug/Kg	1		09/03/15 17:10
Toluene	13.4	J	14.4	4.48	ug/Kg	1		09/03/15 17:10
trans-1,2-Dichloroethene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
trans-1,3-Dichloropropene	7.20	U	14.4	4.48	ug/Kg	1		09/03/15 17:10
Trichloroethene	3.59	U	7.18	2.24	ug/Kg	1		09/03/15 17:10
Trichlorofluoromethane	14.4	U	28.7	8.62	ug/Kg	1		09/03/15 17:10
Vinyl acetate	28.8	U	57.5	17.8	ug/Kg	1		09/03/15 17:10
Vinyl chloride	2.88	U	5.75	1.78	ug/Kg	1		09/03/15 17:10
Xylenes (total)	376		43.1	13.1	ug/Kg	1		09/03/15 17:10
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		71-136		%	1		09/03/15 17:10
4-Bromofluorobenzene (surr)	84.4		55-151		%	1		09/03/15 17:10
Toluene-d8 (surr)	98.4		85-116		%	1		09/03/15 17:10

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **SK06-10**

Client Sample ID: **SK06-10**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927002
Lab Project ID: 1154927

Collection Date: 08/27/15 16:00
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/03/15 17:10
Container ID: 1154927002-B

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 08/27/15 16:00
Prep Initial Wt./Vol.: 175.515 g
Prep Extract Vol: 44.7469 mL

Results of **SK11-14J**

Client Sample ID: **SK11-14J**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927003
Lab Project ID: 1154927

Collection Date: 08/27/15 16:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	155		93.9	29.1	mg/Kg	4		09/08/15 22:53
Surrogates								
5a Androstane (surr)	109		50-150		%	4		09/08/15 22:53

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/15 22:53
Container ID: 1154927003-A

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 09/08/15 12:37
Prep Initial Wt./Vol.: 30.149 g
Prep Extract Vol: 1 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **SK11-14J**

Client Sample ID: **SK11-14J**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927003
Lab Project ID: 1154927

Collection Date: 08/27/15 16:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.44	J	1.87	0.560	mg/Kg	1		09/17/15 22:50
Surrogates								
4-Bromofluorobenzene (surr)	59.3		50-150		%	1		09/17/15 22:50

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/17/15 22:50
Container ID: 1154927003-B

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 08/27/15 16:15
Prep Initial Wt./Vol.: 151.597 g
Prep Extract Vol: 48.0222 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **SK11-14J**

Client Sample ID: **SK11-14J**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927003
Lab Project ID: 1154927

Collection Date: 08/27/15 16:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,1,1-Trichloroethane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,1,2,2-Tetrachloroethane	4.67	U	9.34	2.91	ug/Kg	1		09/03/15 17:26
1,1,2-Trichloroethane	3.73	U	7.47	2.32	ug/Kg	1		09/03/15 17:26
1,1-Dichloroethane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,1-Dichloroethene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,1-Dichloropropene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,2,3-Trichlorobenzene	18.6	U	37.3	11.2	ug/Kg	1		09/03/15 17:26
1,2,3-Trichloropropane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,2,4-Trichlorobenzene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,2,4-Trimethylbenzene	164		37.3	11.2	ug/Kg	1		09/03/15 17:26
1,2-Dibromo-3-chloropropane	37.4	U	74.7	23.2	ug/Kg	1		09/03/15 17:26
1,2-Dibromoethane	3.73	U	7.47	2.32	ug/Kg	1		09/03/15 17:26
1,2-Dichlorobenzene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,2-Dichloroethane	3.73	U	7.47	2.32	ug/Kg	1		09/03/15 17:26
1,2-Dichloropropane	3.73	U	7.47	2.32	ug/Kg	1		09/03/15 17:26
1,3,5-Trimethylbenzene	58.3		18.7	5.83	ug/Kg	1		09/03/15 17:26
1,3-Dichlorobenzene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
1,3-Dichloropropane	3.73	U	7.47	2.32	ug/Kg	1		09/03/15 17:26
1,4-Dichlorobenzene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
2,2-Dichloropropane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
2-Butanone (MEK)	93.5	U	187	58.3	ug/Kg	1		09/03/15 17:26
2-Chlorotoluene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
2-Hexanone	93.5	U	187	58.3	ug/Kg	1		09/03/15 17:26
4-Chlorotoluene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
4-Isopropyltoluene	27.5		18.7	5.83	ug/Kg	1		09/03/15 17:26
4-Methyl-2-pentanone (MIBK)	93.5	U	187	58.3	ug/Kg	1		09/03/15 17:26
Benzene	4.67	U	9.34	2.91	ug/Kg	1		09/03/15 17:26
Bromobenzene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Bromochloromethane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Bromodichloromethane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Bromoform	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Bromomethane	74.5	U	149	46.3	ug/Kg	1		09/03/15 17:26
Carbon disulfide	37.4	U	74.7	23.2	ug/Kg	1		09/03/15 17:26
Carbon tetrachloride	4.67	U	9.34	2.91	ug/Kg	1		09/03/15 17:26
Chlorobenzene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Chloroethane	74.5	U	149	46.3	ug/Kg	1		09/03/15 17:26

Results of **SK11-14J**

Client Sample ID: **SK11-14J**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927003
Lab Project ID: 1154927

Collection Date: 08/27/15 16:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Chloromethane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
cis-1,2-Dichloroethene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
cis-1,3-Dichloropropene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Dibromochloromethane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Dibromomethane	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Dichlorodifluoromethane	18.6	U	37.3	11.2	ug/Kg	1		09/03/15 17:26
Ethylbenzene	12.9	J	18.7	5.83	ug/Kg	1		09/03/15 17:26
Freon-113	37.4	U	74.7	23.2	ug/Kg	1		09/03/15 17:26
Hexachlorobutadiene	18.6	U	37.3	11.2	ug/Kg	1		09/03/15 17:26
Isopropylbenzene (Cumene)	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Methylene chloride	37.4	U	74.7	23.2	ug/Kg	1		09/03/15 17:26
Methyl-t-butyl ether	37.4	U	74.7	23.2	ug/Kg	1		09/03/15 17:26
Naphthalene	139		37.3	11.2	ug/Kg	1		09/03/15 17:26
n-Butylbenzene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
n-Propylbenzene	19.8		18.7	5.83	ug/Kg	1		09/03/15 17:26
o-Xylene	41.6		18.7	5.83	ug/Kg	1		09/03/15 17:26
P & M -Xylene	60.3		37.3	11.2	ug/Kg	1		09/03/15 17:26
sec-Butylbenzene	11.6	J	18.7	5.83	ug/Kg	1		09/03/15 17:26
Styrene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
tert-Butylbenzene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Tetrachloroethene	4.67	U	9.34	2.91	ug/Kg	1		09/03/15 17:26
Toluene	22.8		18.7	5.83	ug/Kg	1		09/03/15 17:26
trans-1,2-Dichloroethene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
trans-1,3-Dichloropropene	9.35	U	18.7	5.83	ug/Kg	1		09/03/15 17:26
Trichloroethene	4.67	U	9.34	2.91	ug/Kg	1		09/03/15 17:26
Trichlorofluoromethane	18.6	U	37.3	11.2	ug/Kg	1		09/03/15 17:26
Vinyl acetate	37.4	U	74.7	23.2	ug/Kg	1		09/03/15 17:26
Vinyl chloride	3.73	U	7.47	2.32	ug/Kg	1		09/03/15 17:26
Xylenes (total)	102		56.0	17.0	ug/Kg	1		09/03/15 17:26
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		71-136		%	1		09/03/15 17:26
4-Bromofluorobenzene (surr)	79.8		55-151		%	1		09/03/15 17:26
Toluene-d8 (surr)	97.4		85-116		%	1		09/03/15 17:26

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **SK11-14J**

Client Sample ID: **SK11-14J**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927003
Lab Project ID: 1154927

Collection Date: 08/27/15 16:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/03/15 17:26
Container ID: 1154927003-B

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 08/27/15 16:15
Prep Initial Wt./Vol.: 151.597 g
Prep Extract Vol: 48.0222 mL

Results of **SK11-14**

Client Sample ID: **SK11-14**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927004
Lab Project ID: 1154927

Collection Date: 08/27/15 16:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	144		92.7	28.7	mg/Kg	4		09/08/15 23:03
Surrogates								
5a Androstane (surr)	95.2		50-150		%	4		09/08/15 23:03

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/15 23:03
Container ID: 1154927004-A

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 09/08/15 12:37
Prep Initial Wt./Vol.: 30.256 g
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **SK11-14**

Client Sample ID: **SK11-14**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927004
Lab Project ID: 1154927

Collection Date: 08/27/15 16:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.23	J	1.97	0.592	mg/Kg	1		09/17/15 23:28
Surrogates								
4-Bromofluorobenzene (surr)	71.4		50-150		%	1		09/17/15 23:28

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/17/15 23:28
Container ID: 1154927004-B

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 08/27/15 16:10
Prep Initial Wt./Vol.: 128.982 g
Prep Extract Vol: 43.5877 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **SK11-14**

Client Sample ID: **SK11-14**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927004
Lab Project ID: 1154927

Collection Date: 08/27/15 16:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,1,1-Trichloroethane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,1,2,2-Tetrachloroethane	4.93	U	9.87	3.08	ug/Kg	1		09/03/15 18:30
1,1,2-Trichloroethane	3.95	U	7.90	2.45	ug/Kg	1		09/03/15 18:30
1,1-Dichloroethane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,1-Dichloroethene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,1-Dichloropropene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,2,3-Trichlorobenzene	19.8	U	39.5	11.8	ug/Kg	1		09/03/15 18:30
1,2,3-Trichloropropane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,2,4-Trichlorobenzene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,2,4-Trimethylbenzene	179		39.5	11.8	ug/Kg	1		09/03/15 18:30
1,2-Dibromo-3-chloropropane	39.5	U	79.0	24.5	ug/Kg	1		09/03/15 18:30
1,2-Dibromoethane	3.95	U	7.90	2.45	ug/Kg	1		09/03/15 18:30
1,2-Dichlorobenzene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,2-Dichloroethane	3.95	U	7.90	2.45	ug/Kg	1		09/03/15 18:30
1,2-Dichloropropane	3.95	U	7.90	2.45	ug/Kg	1		09/03/15 18:30
1,3,5-Trimethylbenzene	70.1		19.7	6.16	ug/Kg	1		09/03/15 18:30
1,3-Dichlorobenzene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
1,3-Dichloropropane	3.95	U	7.90	2.45	ug/Kg	1		09/03/15 18:30
1,4-Dichlorobenzene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
2,2-Dichloropropane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
2-Butanone (MEK)	98.5	U	197	61.6	ug/Kg	1		09/03/15 18:30
2-Chlorotoluene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
2-Hexanone	98.5	U	197	61.6	ug/Kg	1		09/03/15 18:30
4-Chlorotoluene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
4-Isopropyltoluene	28.6		19.7	6.16	ug/Kg	1		09/03/15 18:30
4-Methyl-2-pentanone (MIBK)	98.5	U	197	61.6	ug/Kg	1		09/03/15 18:30
Benzene	4.93	U	9.87	3.08	ug/Kg	1		09/03/15 18:30
Bromobenzene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Bromochloromethane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Bromodichloromethane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Bromoform	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Bromomethane	79.0	U	158	49.0	ug/Kg	1		09/03/15 18:30
Carbon disulfide	39.5	U	79.0	24.5	ug/Kg	1		09/03/15 18:30
Carbon tetrachloride	4.93	U	9.87	3.08	ug/Kg	1		09/03/15 18:30
Chlorobenzene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Chloroethane	79.0	U	158	49.0	ug/Kg	1		09/03/15 18:30

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Results of **SK11-14**

Client Sample ID: **SK11-14**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927004
Lab Project ID: 1154927

Collection Date: 08/27/15 16:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Chloromethane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
cis-1,2-Dichloroethene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
cis-1,3-Dichloropropene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Dibromochloromethane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Dibromomethane	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Dichlorodifluoromethane	19.8	U	39.5	11.8	ug/Kg	1		09/03/15 18:30
Ethylbenzene	24.5		19.7	6.16	ug/Kg	1		09/03/15 18:30
Freon-113	39.5	U	79.0	24.5	ug/Kg	1		09/03/15 18:30
Hexachlorobutadiene	19.8	U	39.5	11.8	ug/Kg	1		09/03/15 18:30
Isopropylbenzene (Cumene)	6.71	J	19.7	6.16	ug/Kg	1		09/03/15 18:30
Methylene chloride	39.5	U	79.0	24.5	ug/Kg	1		09/03/15 18:30
Methyl-t-butyl ether	39.5	U	79.0	24.5	ug/Kg	1		09/03/15 18:30
Naphthalene	93.4		39.5	11.8	ug/Kg	1		09/03/15 18:30
n-Butylbenzene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
n-Propylbenzene	28.4		19.7	6.16	ug/Kg	1		09/03/15 18:30
o-Xylene	61.4		19.7	6.16	ug/Kg	1		09/03/15 18:30
P & M -Xylene	107		39.5	11.8	ug/Kg	1		09/03/15 18:30
sec-Butylbenzene	11.8	J	19.7	6.16	ug/Kg	1		09/03/15 18:30
Styrene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
tert-Butylbenzene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Tetrachloroethene	4.93	U	9.87	3.08	ug/Kg	1		09/03/15 18:30
Toluene	50.3		19.7	6.16	ug/Kg	1		09/03/15 18:30
trans-1,2-Dichloroethene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
trans-1,3-Dichloropropene	9.85	U	19.7	6.16	ug/Kg	1		09/03/15 18:30
Trichloroethene	4.93	U	9.87	3.08	ug/Kg	1		09/03/15 18:30
Trichlorofluoromethane	19.8	U	39.5	11.8	ug/Kg	1		09/03/15 18:30
Vinyl acetate	39.5	U	79.0	24.5	ug/Kg	1		09/03/15 18:30
Vinyl chloride	3.95	U	7.90	2.45	ug/Kg	1		09/03/15 18:30
Xylenes (total)	168		59.2	18.0	ug/Kg	1		09/03/15 18:30
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		71-136		%	1		09/03/15 18:30
4-Bromofluorobenzene (surr)	88.5		55-151		%	1		09/03/15 18:30
Toluene-d8 (surr)	89.4		85-116		%	1		09/03/15 18:30

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Results of **SK11-14**

Client Sample ID: **SK11-14**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927004
Lab Project ID: 1154927

Collection Date: 08/27/15 16:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/03/15 18:30
Container ID: 1154927004-B

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 08/27/15 16:10
Prep Initial Wt./Vol.: 128.982 g
Prep Extract Vol: 43.5877 mL

Results of **FL3B**

Client Sample ID: **FL3B**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927005
Lab Project ID: 1154927

Collection Date: 08/27/15 17:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.6	U	21.1	6.55	mg/Kg	1		09/08/15 20:44
Surrogates								
5a Androstane (surr)	82.4		50-150		%	1		09/08/15 20:44

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/15 20:44
Container ID: 1154927005-A

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 09/08/15 12:37
Prep Initial Wt./Vol.: 30.512 g
Prep Extract Vol: 1 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL3B**

Client Sample ID: **FL3B**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927005
Lab Project ID: 1154927

Collection Date: 08/27/15 17:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.603	J	1.41	0.422	mg/Kg	1		09/17/15 23:47
Surrogates								
4-Bromofluorobenzene (surr)	109		50-150		%	1		09/17/15 23:47

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/17/15 23:47
Container ID: 1154927005-B

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 08/27/15 17:15
Prep Initial Wt./Vol.: 129.579 g
Prep Extract Vol: 33.9686 mL

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Results of **FL3B**

Client Sample ID: **FL3B**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927005
Lab Project ID: 1154927

Collection Date: 08/27/15 17:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,1,1-Trichloroethane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,1,2,2-Tetrachloroethane	3.52	U	7.04	2.20	ug/Kg	1		09/03/15 18:46
1,1,2-Trichloroethane	2.81	U	5.63	1.75	ug/Kg	1		09/03/15 18:46
1,1-Dichloroethane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,1-Dichloroethene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,1-Dichloropropene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,2,3-Trichlorobenzene	14.1	U	28.2	8.45	ug/Kg	1		09/03/15 18:46
1,2,3-Trichloropropane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,2,4-Trichlorobenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,2,4-Trimethylbenzene	14.1	U	28.2	8.45	ug/Kg	1		09/03/15 18:46
1,2-Dibromo-3-chloropropane	28.1	U	56.3	17.5	ug/Kg	1		09/03/15 18:46
1,2-Dibromoethane	2.81	U	5.63	1.75	ug/Kg	1		09/03/15 18:46
1,2-Dichlorobenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,2-Dichloroethane	2.81	U	5.63	1.75	ug/Kg	1		09/03/15 18:46
1,2-Dichloropropane	2.81	U	5.63	1.75	ug/Kg	1		09/03/15 18:46
1,3,5-Trimethylbenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,3-Dichlorobenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
1,3-Dichloropropane	2.81	U	5.63	1.75	ug/Kg	1		09/03/15 18:46
1,4-Dichlorobenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
2,2-Dichloropropane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
2-Butanone (MEK)	70.5	U	141	43.9	ug/Kg	1		09/03/15 18:46
2-Chlorotoluene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
2-Hexanone	70.5	U	141	43.9	ug/Kg	1		09/03/15 18:46
4-Chlorotoluene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
4-Isopropyltoluene	4.93	J	14.1	4.39	ug/Kg	1		09/03/15 18:46
4-Methyl-2-pentanone (MIBK)	70.5	U	141	43.9	ug/Kg	1		09/03/15 18:46
Benzene	3.52	U	7.04	2.20	ug/Kg	1		09/03/15 18:46
Bromobenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Bromochloromethane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Bromodichloromethane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Bromoform	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Bromomethane	56.5	U	113	34.9	ug/Kg	1		09/03/15 18:46
Carbon disulfide	28.1	U	56.3	17.5	ug/Kg	1		09/03/15 18:46
Carbon tetrachloride	3.52	U	7.04	2.20	ug/Kg	1		09/03/15 18:46
Chlorobenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Chloroethane	56.5	U	113	34.9	ug/Kg	1		09/03/15 18:46

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Results of **FL3B**

Client Sample ID: **FL3B**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927005
Lab Project ID: 1154927

Collection Date: 08/27/15 17:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Chloromethane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
cis-1,2-Dichloroethene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
cis-1,3-Dichloropropene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Dibromochloromethane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Dibromomethane	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Dichlorodifluoromethane	14.1	U	28.2	8.45	ug/Kg	1		09/03/15 18:46
Ethylbenzene	5.63	J	14.1	4.39	ug/Kg	1		09/03/15 18:46
Freon-113	28.1	U	56.3	17.5	ug/Kg	1		09/03/15 18:46
Hexachlorobutadiene	14.1	U	28.2	8.45	ug/Kg	1		09/03/15 18:46
Isopropylbenzene (Cumene)	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Methylene chloride	28.1	U	56.3	17.5	ug/Kg	1		09/03/15 18:46
Methyl-t-butyl ether	28.1	U	56.3	17.5	ug/Kg	1		09/03/15 18:46
Naphthalene	14.1	U	28.2	8.45	ug/Kg	1		09/03/15 18:46
n-Butylbenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
n-Propylbenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
o-Xylene	5.35	J	14.1	4.39	ug/Kg	1		09/03/15 18:46
P & M -Xylene	17.3	J	28.2	8.45	ug/Kg	1		09/03/15 18:46
sec-Butylbenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Styrene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
tert-Butylbenzene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Tetrachloroethene	3.52	U	7.04	2.20	ug/Kg	1		09/03/15 18:46
Toluene	6.20	J	14.1	4.39	ug/Kg	1		09/03/15 18:46
trans-1,2-Dichloroethene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
trans-1,3-Dichloropropene	7.05	U	14.1	4.39	ug/Kg	1		09/03/15 18:46
Trichloroethene	3.52	U	7.04	2.20	ug/Kg	1		09/03/15 18:46
Trichlorofluoromethane	14.1	U	28.2	8.45	ug/Kg	1		09/03/15 18:46
Vinyl acetate	28.1	U	56.3	17.5	ug/Kg	1		09/03/15 18:46
Vinyl chloride	2.81	U	5.63	1.75	ug/Kg	1		09/03/15 18:46
Xylenes (total)	22.7	J	42.2	12.8	ug/Kg	1		09/03/15 18:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	116		71-136		%	1		09/03/15 18:46
4-Bromofluorobenzene (surr)	104		55-151		%	1		09/03/15 18:46
Toluene-d8 (surr)	102		85-116		%	1		09/03/15 18:46

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Results of **FL3B**

Client Sample ID: **FL3B**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927005
Lab Project ID: 1154927

Collection Date: 08/27/15 17:15
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/03/15 18:46
Container ID: 1154927005-B

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 08/27/15 17:15
Prep Initial Wt./Vol.: 129.579 g
Prep Extract Vol: 33.9686 mL

Results of **FL1C**

Client Sample ID: **FL1C**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927006
Lab Project ID: 1154927

Collection Date: 08/27/15 17:20
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	385		180	55.9	mg/Kg	4		09/08/15 23:43
Surrogates								
5a Androstane (surr)	97.9		50-150		%	4		09/08/15 23:43

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/15 23:43
Container ID: 1154927006-A

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 09/08/15 12:37
Prep Initial Wt./Vol.: 15.112 g
Prep Extract Vol: 1 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL1C**

Client Sample ID: **FL1C**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927006
Lab Project ID: 1154927

Collection Date: 08/27/15 17:20
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	10.9		2.25	0.675	mg/Kg	1		09/18/15 00:06
Surrogates								
4-Bromofluorobenzene (surr)	169	*	50-150		%	1		09/18/15 00:06

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/18/15 00:06
Container ID: 1154927006-B

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 08/27/15 17:20
Prep Initial Wt./Vol.: 90.018 g
Prep Extract Vol: 35.7114 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL1C**

Client Sample ID: **FL1C**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927006
Lab Project ID: 1154927

Collection Date: 08/27/15 17:20
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,1,1-Trichloroethane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,1,2,2-Tetrachloroethane	5.65	U	11.3	3.51	ug/Kg	1		09/03/15 17:58
1,1,2-Trichloroethane	4.50	U	9.01	2.79	ug/Kg	1		09/03/15 17:58
1,1-Dichloroethane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,1-Dichloroethene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,1-Dichloropropene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,2,3-Trichlorobenzene	22.5	U	45.0	13.5	ug/Kg	1		09/03/15 17:58
1,2,3-Trichloropropane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,2,4-Trichlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,2,4-Trimethylbenzene	892		45.0	13.5	ug/Kg	1		09/03/15 17:58
1,2-Dibromo-3-chloropropane	45.0	U	90.1	27.9	ug/Kg	1		09/03/15 17:58
1,2-Dibromoethane	4.50	U	9.01	2.79	ug/Kg	1		09/03/15 17:58
1,2-Dichlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,2-Dichloroethane	4.50	U	9.01	2.79	ug/Kg	1		09/03/15 17:58
1,2-Dichloropropane	4.50	U	9.01	2.79	ug/Kg	1		09/03/15 17:58
1,3,5-Trimethylbenzene	398		22.5	7.02	ug/Kg	1		09/03/15 17:58
1,3-Dichlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
1,3-Dichloropropane	4.50	U	9.01	2.79	ug/Kg	1		09/03/15 17:58
1,4-Dichlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
2,2-Dichloropropane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
2-Butanone (MEK)	113	U	225	70.2	ug/Kg	1		09/03/15 17:58
2-Chlorotoluene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
2-Hexanone	113	U	225	70.2	ug/Kg	1		09/03/15 17:58
4-Chlorotoluene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
4-Isopropyltoluene	106		22.5	7.02	ug/Kg	1		09/03/15 17:58
4-Methyl-2-pentanone (MIBK)	113	U	225	70.2	ug/Kg	1		09/03/15 17:58
Benzene	4.95	J	11.3	3.51	ug/Kg	1		09/03/15 17:58
Bromobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Bromochloromethane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Bromodichloromethane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Bromoform	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Bromomethane	90.0	U	180	55.8	ug/Kg	1		09/03/15 17:58
Carbon disulfide	45.0	U	90.1	27.9	ug/Kg	1		09/03/15 17:58
Carbon tetrachloride	5.65	U	11.3	3.51	ug/Kg	1		09/03/15 17:58
Chlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Chloroethane	90.0	U	180	55.8	ug/Kg	1		09/03/15 17:58

Results of **FL1C**

Client Sample ID: **FL1C**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927006
Lab Project ID: 1154927

Collection Date: 08/27/15 17:20
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Chloromethane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
cis-1,2-Dichloroethene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
cis-1,3-Dichloropropene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Dibromochloromethane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Dibromomethane	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Dichlorodifluoromethane	22.5	U	45.0	13.5	ug/Kg	1		09/03/15 17:58
Ethylbenzene	141		22.5	7.02	ug/Kg	1		09/03/15 17:58
Freon-113	45.0	U	90.1	27.9	ug/Kg	1		09/03/15 17:58
Hexachlorobutadiene	22.5	U	45.0	13.5	ug/Kg	1		09/03/15 17:58
Isopropylbenzene (Cumene)	46.6		22.5	7.02	ug/Kg	1		09/03/15 17:58
Methylene chloride	45.0	U	90.1	27.9	ug/Kg	1		09/03/15 17:58
Methyl-t-butyl ether	45.0	U	90.1	27.9	ug/Kg	1		09/03/15 17:58
Naphthalene	65.3		45.0	13.5	ug/Kg	1		09/03/15 17:58
n-Butylbenzene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
n-Propylbenzene	102		22.5	7.02	ug/Kg	1		09/03/15 17:58
o-Xylene	592		22.5	7.02	ug/Kg	1		09/03/15 17:58
P & M -Xylene	1030		45.0	13.5	ug/Kg	1		09/03/15 17:58
sec-Butylbenzene	23.0		22.5	7.02	ug/Kg	1		09/03/15 17:58
Styrene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
tert-Butylbenzene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Tetrachloroethene	5.65	U	11.3	3.51	ug/Kg	1		09/03/15 17:58
Toluene	7.43	J	22.5	7.02	ug/Kg	1		09/03/15 17:58
trans-1,2-Dichloroethene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
trans-1,3-Dichloropropene	11.3	U	22.5	7.02	ug/Kg	1		09/03/15 17:58
Trichloroethene	5.65	U	11.3	3.51	ug/Kg	1		09/03/15 17:58
Trichlorofluoromethane	22.5	U	45.0	13.5	ug/Kg	1		09/03/15 17:58
Vinyl acetate	45.0	U	90.1	27.9	ug/Kg	1		09/03/15 17:58
Vinyl chloride	4.50	U	9.01	2.79	ug/Kg	1		09/03/15 17:58
Xylenes (total)	1620		67.5	20.5	ug/Kg	1		09/03/15 17:58
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		09/03/15 17:58
4-Bromofluorobenzene (surr)	106		55-151		%	1		09/03/15 17:58
Toluene-d8 (surr)	88.3		85-116		%	1		09/03/15 17:58

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL1C**

Client Sample ID: **FL1C**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927006
Lab Project ID: 1154927

Collection Date: 08/27/15 17:20
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/03/15 17:58
Container ID: 1154927006-B

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 08/27/15 17:20
Prep Initial Wt./Vol.: 90.018 g
Prep Extract Vol: 35.7114 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **FL4A**

Client Sample ID: **FL4A**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927007
Lab Project ID: 1154927

Collection Date: 08/27/15 17:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):72.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	371		110	34.1	mg/Kg	4		09/08/15 23:53
Surrogates								
5a Androstane (surr)	113		50-150		%	4		09/08/15 23:53

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/15 23:53
Container ID: 1154927007-A

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 09/08/15 12:37
Prep Initial Wt./Vol.: 30.095 g
Prep Extract Vol: 1 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL4A**

Client Sample ID: **FL4A**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927007
Lab Project ID: 1154927

Collection Date: 08/27/15 17:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):72.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.54	J	3.37	1.01	mg/Kg	1		09/18/15 00:25
Surrogates								
4-Bromofluorobenzene (surr)	63.7		50-150		%	1		09/18/15 00:25

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/18/15 00:25
Container ID: 1154927007-B

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 08/27/15 17:10
Prep Initial Wt./Vol.: 116.05 g
Prep Extract Vol: 56.8395 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL4A**

Client Sample ID: **FL4A**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927007
Lab Project ID: 1154927

Collection Date: 08/27/15 17:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):72.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,1,1-Trichloroethane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,1,2,2-Tetrachloroethane	8.45	U	16.9	5.26	ug/Kg	1		09/03/15 17:42
1,1,2-Trichloroethane	6.75	U	13.5	4.18	ug/Kg	1		09/03/15 17:42
1,1-Dichloroethane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,1-Dichloroethene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,1-Dichloropropene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,2,3-Trichlorobenzene	33.8	U	67.5	20.2	ug/Kg	1		09/03/15 17:42
1,2,3-Trichloropropane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,2,4-Trichlorobenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,2,4-Trimethylbenzene	41.8	J	67.5	20.2	ug/Kg	1		09/03/15 17:42
1,2-Dibromo-3-chloropropane	67.5	U	135	41.8	ug/Kg	1		09/03/15 17:42
1,2-Dibromoethane	6.75	U	13.5	4.18	ug/Kg	1		09/03/15 17:42
1,2-Dichlorobenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,2-Dichloroethane	6.75	U	13.5	4.18	ug/Kg	1		09/03/15 17:42
1,2-Dichloropropane	6.75	U	13.5	4.18	ug/Kg	1		09/03/15 17:42
1,3,5-Trimethylbenzene	11.1	J	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,3-Dichlorobenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
1,3-Dichloropropane	6.75	U	13.5	4.18	ug/Kg	1		09/03/15 17:42
1,4-Dichlorobenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
2,2-Dichloropropane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
2-Butanone (MEK)	169	U	337	105	ug/Kg	1		09/03/15 17:42
2-Chlorotoluene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
2-Hexanone	169	U	337	105	ug/Kg	1		09/03/15 17:42
4-Chlorotoluene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
4-Isopropyltoluene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
4-Methyl-2-pentanone (MIBK)	169	U	337	105	ug/Kg	1		09/03/15 17:42
Benzene	8.45	U	16.9	5.26	ug/Kg	1		09/03/15 17:42
Bromobenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Bromochloromethane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Bromodichloromethane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Bromoform	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Bromomethane	135	U	270	83.7	ug/Kg	1		09/03/15 17:42
Carbon disulfide	67.5	U	135	41.8	ug/Kg	1		09/03/15 17:42
Carbon tetrachloride	8.45	U	16.9	5.26	ug/Kg	1		09/03/15 17:42
Chlorobenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Chloroethane	135	U	270	83.7	ug/Kg	1		09/03/15 17:42

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL4A**

Client Sample ID: **FL4A**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927007
Lab Project ID: 1154927

Collection Date: 08/27/15 17:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):72.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Chloromethane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
cis-1,2-Dichloroethene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
cis-1,3-Dichloropropene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Dibromochloromethane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Dibromomethane	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Dichlorodifluoromethane	33.8	U	67.5	20.2	ug/Kg	1		09/03/15 17:42
Ethylbenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Freon-113	67.5	U	135	41.8	ug/Kg	1		09/03/15 17:42
Hexachlorobutadiene	33.8	U	67.5	20.2	ug/Kg	1		09/03/15 17:42
Isopropylbenzene (Cumene)	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Methylene chloride	67.5	U	135	41.8	ug/Kg	1		09/03/15 17:42
Methyl-t-butyl ether	67.5	U	135	41.8	ug/Kg	1		09/03/15 17:42
Naphthalene	21.9	J	67.5	20.2	ug/Kg	1		09/03/15 17:42
n-Butylbenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
n-Propylbenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
o-Xylene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
P & M -Xylene	33.8	U	67.5	20.2	ug/Kg	1		09/03/15 17:42
sec-Butylbenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Styrene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
tert-Butylbenzene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Tetrachloroethene	8.45	U	16.9	5.26	ug/Kg	1		09/03/15 17:42
Toluene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
trans-1,2-Dichloroethene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
trans-1,3-Dichloropropene	16.9	U	33.7	10.5	ug/Kg	1		09/03/15 17:42
Trichloroethene	8.45	U	16.9	5.26	ug/Kg	1		09/03/15 17:42
Trichlorofluoromethane	33.8	U	67.5	20.2	ug/Kg	1		09/03/15 17:42
Vinyl acetate	67.5	U	135	41.8	ug/Kg	1		09/03/15 17:42
Vinyl chloride	6.75	U	13.5	4.18	ug/Kg	1		09/03/15 17:42
Xylenes (total)	50.5	U	101	30.8	ug/Kg	1		09/03/15 17:42
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		71-136		%	1		09/03/15 17:42
4-Bromofluorobenzene (surr)	79.7		55-151		%	1		09/03/15 17:42
Toluene-d8 (surr)	92.3		85-116		%	1		09/03/15 17:42

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL4A**

Client Sample ID: **FL4A**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927007
Lab Project ID: 1154927

Collection Date: 08/27/15 17:10
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):72.6
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/03/15 17:42
Container ID: 1154927007-B

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 08/27/15 17:10
Prep Initial Wt./Vol.: 116.05 g
Prep Extract Vol: 56.8395 mL

Results of **FL1CJ**

Client Sample ID: **FL1CJ**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927008
Lab Project ID: 1154927

Collection Date: 08/27/15 17:25
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	274		179	55.5	mg/Kg	4		09/08/15 23:13
Surrogates								
5a Androstane (surr)	82.9		50-150		%	4		09/08/15 23:13

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/15 23:13
Container ID: 1154927008-A

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 09/08/15 12:37
Prep Initial Wt./Vol.: 14.974 g
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **FL1CJ**

Client Sample ID: **FL1CJ**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927008
Lab Project ID: 1154927

Collection Date: 08/27/15 17:25
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	7.39		2.02	0.605	mg/Kg	1		09/18/15 00:44
Surrogates								
4-Bromofluorobenzene (surr)	136		50-150		%	1		09/18/15 00:44

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/18/15 00:44
Container ID: 1154927008-B

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 08/27/15 17:25
Prep Initial Wt./Vol.: 97.501 g
Prep Extract Vol: 35.2168 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **FL1CJ**

Client Sample ID: **FL1CJ**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927008
Lab Project ID: 1154927

Collection Date: 08/27/15 17:25
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,1,1-Trichloroethane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,1,2,2-Tetrachloroethane	5.05	U	10.1	3.15	ug/Kg	1		09/03/15 18:14
1,1,2-Trichloroethane	4.04	U	8.07	2.50	ug/Kg	1		09/03/15 18:14
1,1-Dichloroethane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,1-Dichloroethene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,1-Dichloropropene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,2,3-Trichlorobenzene	20.1	U	40.3	12.1	ug/Kg	1		09/03/15 18:14
1,2,3-Trichloropropane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,2,4-Trichlorobenzene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,2,4-Trimethylbenzene	700		40.3	12.1	ug/Kg	1		09/03/15 18:14
1,2-Dibromo-3-chloropropane	40.4	U	80.7	25.0	ug/Kg	1		09/03/15 18:14
1,2-Dibromoethane	4.04	U	8.07	2.50	ug/Kg	1		09/03/15 18:14
1,2-Dichlorobenzene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,2-Dichloroethane	4.04	U	8.07	2.50	ug/Kg	1		09/03/15 18:14
1,2-Dichloropropane	4.04	U	8.07	2.50	ug/Kg	1		09/03/15 18:14
1,3,5-Trimethylbenzene	307		20.2	6.29	ug/Kg	1		09/03/15 18:14
1,3-Dichlorobenzene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
1,3-Dichloropropane	4.04	U	8.07	2.50	ug/Kg	1		09/03/15 18:14
1,4-Dichlorobenzene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
2,2-Dichloropropane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
2-Butanone (MEK)	101	U	202	62.9	ug/Kg	1		09/03/15 18:14
2-Chlorotoluene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
2-Hexanone	101	U	202	62.9	ug/Kg	1		09/03/15 18:14
4-Chlorotoluene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
4-Isopropyltoluene	31.7		20.2	6.29	ug/Kg	1		09/03/15 18:14
4-Methyl-2-pentanone (MIBK)	101	U	202	62.9	ug/Kg	1		09/03/15 18:14
Benzene	3.83	J	10.1	3.15	ug/Kg	1		09/03/15 18:14
Bromobenzene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Bromochloromethane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Bromodichloromethane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Bromoform	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Bromomethane	80.5	U	161	50.0	ug/Kg	1		09/03/15 18:14
Carbon disulfide	40.4	U	80.7	25.0	ug/Kg	1		09/03/15 18:14
Carbon tetrachloride	5.05	U	10.1	3.15	ug/Kg	1		09/03/15 18:14
Chlorobenzene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Chloroethane	80.5	U	161	50.0	ug/Kg	1		09/03/15 18:14

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J flagging is activated

Results of **FL1CJ**

Client Sample ID: **FL1CJ**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927008
Lab Project ID: 1154927

Collection Date: 08/27/15 17:25
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Chloromethane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
cis-1,2-Dichloroethene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
cis-1,3-Dichloropropene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Dibromochloromethane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Dibromomethane	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Dichlorodifluoromethane	20.1	U	40.3	12.1	ug/Kg	1		09/03/15 18:14
Ethylbenzene	109		20.2	6.29	ug/Kg	1		09/03/15 18:14
Freon-113	40.4	U	80.7	25.0	ug/Kg	1		09/03/15 18:14
Hexachlorobutadiene	20.1	U	40.3	12.1	ug/Kg	1		09/03/15 18:14
Isopropylbenzene (Cumene)	37.9		20.2	6.29	ug/Kg	1		09/03/15 18:14
Methylene chloride	40.4	U	80.7	25.0	ug/Kg	1		09/03/15 18:14
Methyl-t-butyl ether	40.4	U	80.7	25.0	ug/Kg	1		09/03/15 18:14
Naphthalene	62.3		40.3	12.1	ug/Kg	1		09/03/15 18:14
n-Butylbenzene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
n-Propylbenzene	81.9		20.2	6.29	ug/Kg	1		09/03/15 18:14
o-Xylene	468		20.2	6.29	ug/Kg	1		09/03/15 18:14
P & M -Xylene	824		40.3	12.1	ug/Kg	1		09/03/15 18:14
sec-Butylbenzene	19.8	J	20.2	6.29	ug/Kg	1		09/03/15 18:14
Styrene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
tert-Butylbenzene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Tetrachloroethene	5.05	U	10.1	3.15	ug/Kg	1		09/03/15 18:14
Toluene	7.06	J	20.2	6.29	ug/Kg	1		09/03/15 18:14
trans-1,2-Dichloroethene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
trans-1,3-Dichloropropene	10.1	U	20.2	6.29	ug/Kg	1		09/03/15 18:14
Trichloroethene	5.05	U	10.1	3.15	ug/Kg	1		09/03/15 18:14
Trichlorofluoromethane	12.3	J	40.3	12.1	ug/Kg	1		09/03/15 18:14
Vinyl acetate	40.4	U	80.7	25.0	ug/Kg	1		09/03/15 18:14
Vinyl chloride	4.04	U	8.07	2.50	ug/Kg	1		09/03/15 18:14
Xylenes (total)	1290		60.5	18.4	ug/Kg	1		09/03/15 18:14
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		71-136		%	1		09/03/15 18:14
4-Bromofluorobenzene (surr)	95.9		55-151		%	1		09/03/15 18:14
Toluene-d8 (surr)	89.8		85-116		%	1		09/03/15 18:14

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J flagging is activated

Results of **FL1CJ**

Client Sample ID: **FL1CJ**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927008
Lab Project ID: 1154927

Collection Date: 08/27/15 17:25
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/03/15 18:14
Container ID: 1154927008-B

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 08/27/15 17:25
Prep Initial Wt./Vol.: 97.501 g
Prep Extract Vol: 35.2168 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927010
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.23	U	2.45	0.736	mg/Kg	1		09/22/15 20:23
Surrogates								
4-Bromofluorobenzene (surr)	101		50-150		%	1		09/22/15 20:23

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 20:23
Container ID: 1154927010-A

Prep Batch: VXX27950
Prep Method: SW5035A
Prep Date/Time: 08/27/15 11:45
Prep Initial Wt./Vol.: 50.925 g
Prep Extract Vol: 25 mL

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927010
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,1,1-Trichloroethane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,1,2,2-Tetrachloroethane	6.15	U	12.3	3.83	ug/Kg	1		09/01/15 18:18
1,1,2-Trichloroethane	4.91	U	9.82	3.04	ug/Kg	1		09/01/15 18:18
1,1-Dichloroethane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,1-Dichloroethene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,1-Dichloropropene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,2,3-Trichlorobenzene	24.6	U	49.1	14.7	ug/Kg	1		09/01/15 18:18
1,2,3-Trichloropropane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,2,4-Trichlorobenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,2,4-Trimethylbenzene	24.6	U	49.1	14.7	ug/Kg	1		09/01/15 18:18
1,2-Dibromo-3-chloropropane	49.1	U	98.2	30.4	ug/Kg	1		09/01/15 18:18
1,2-Dibromoethane	4.91	U	9.82	3.04	ug/Kg	1		09/01/15 18:18
1,2-Dichlorobenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,2-Dichloroethane	4.91	U	9.82	3.04	ug/Kg	1		09/01/15 18:18
1,2-Dichloropropane	4.91	U	9.82	3.04	ug/Kg	1		09/01/15 18:18
1,3,5-Trimethylbenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,3-Dichlorobenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
1,3-Dichloropropane	4.91	U	9.82	3.04	ug/Kg	1		09/01/15 18:18
1,4-Dichlorobenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
2,2-Dichloropropane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
2-Butanone (MEK)	123	U	245	76.6	ug/Kg	1		09/01/15 18:18
2-Chlorotoluene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
2-Hexanone	123	U	245	76.6	ug/Kg	1		09/01/15 18:18
4-Chlorotoluene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
4-Isopropyltoluene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
4-Methyl-2-pentanone (MIBK)	123	U	245	76.6	ug/Kg	1		09/01/15 18:18
Benzene	6.15	U	12.3	3.83	ug/Kg	1		09/01/15 18:18
Bromobenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Bromochloromethane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Bromodichloromethane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Bromoform	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Bromomethane	98.0	U	196	60.9	ug/Kg	1		09/01/15 18:18
Carbon disulfide	49.1	U	98.2	30.4	ug/Kg	1		09/01/15 18:18
Carbon tetrachloride	6.15	U	12.3	3.83	ug/Kg	1		09/01/15 18:18
Chlorobenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Chloroethane	98.0	U	196	60.9	ug/Kg	1		09/01/15 18:18

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927010
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Chloromethane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
cis-1,2-Dichloroethene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
cis-1,3-Dichloropropene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Dibromochloromethane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Dibromomethane	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Dichlorodifluoromethane	24.6	U	49.1	14.7	ug/Kg	1		09/01/15 18:18
Ethylbenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Freon-113	49.1	U	98.2	30.4	ug/Kg	1		09/01/15 18:18
Hexachlorobutadiene	24.6	U	49.1	14.7	ug/Kg	1		09/01/15 18:18
Isopropylbenzene (Cumene)	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Methylene chloride	49.1	U	98.2	30.4	ug/Kg	1		09/01/15 18:18
Methyl-t-butyl ether	49.1	U	98.2	30.4	ug/Kg	1		09/01/15 18:18
Naphthalene	24.6	U	49.1	14.7	ug/Kg	1		09/01/15 18:18
n-Butylbenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
n-Propylbenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
o-Xylene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
P & M -Xylene	24.6	U	49.1	14.7	ug/Kg	1		09/01/15 18:18
sec-Butylbenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Styrene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
tert-Butylbenzene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Tetrachloroethene	6.15	U	12.3	3.83	ug/Kg	1		09/01/15 18:18
Toluene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
trans-1,2-Dichloroethene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
trans-1,3-Dichloropropene	12.3	U	24.5	7.66	ug/Kg	1		09/01/15 18:18
Trichloroethene	6.15	U	12.3	3.83	ug/Kg	1		09/01/15 18:18
Trichlorofluoromethane	24.6	U	49.1	14.7	ug/Kg	1		09/01/15 18:18
Vinyl acetate	49.1	U	98.2	30.4	ug/Kg	1		09/01/15 18:18
Vinyl chloride	4.91	U	9.82	3.04	ug/Kg	1		09/01/15 18:18
Xylenes (total)	36.8	U	73.6	22.4	ug/Kg	1		09/01/15 18:18
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.4		71-136		%	1		09/01/15 18:18
4-Bromofluorobenzene (surr)	90.2		55-151		%	1		09/01/15 18:18
Toluene-d8 (surr)	90.9		85-116		%	1		09/01/15 18:18

Print Date: 09/25/2015 8:40:29AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Airlines Kotzebue**
Lab Sample ID: 1154927010
Lab Project ID: 1154927

Collection Date: 08/27/15 11:45
Received Date: 08/28/15 13:59
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15225
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/01/15 18:18
Container ID: 1154927010-A

Prep Batch: VXX27823
Prep Method: SW5035A
Prep Date/Time: 08/27/15 11:45
Prep Initial Wt./Vol.: 50.925 g
Prep Extract Vol: 25 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1719592 [SPT/9727]
Blank Lab ID: 1288920

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008, 1154927009

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9727
Analytical Method: SM21 2540G
Instrument:
Analyst: MEV
Analytical Date/Time: 9/7/2015 10:55:00PM

Print Date: 09/25/2015 8:40:33AM

Duplicate Sample Summary

Original Sample ID: 1154930016
Duplicate Sample ID: 1288926

Analysis Date: 09/07/2015 22:55
Matrix: Soil/Solid (dry weight)

QC for Samples:

1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008, 1154927009

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	86.5	87.4	%	1.00	(< 15)

Batch Information

Analytical Batch: SPT9727
Analytical Method: SM21 2540G
Instrument:
Analyst: MEV

Print Date: 09/25/2015 8:40:34AM

Method Blank

Blank ID: MB for HBN 1719115 [VXX/27823]
Blank Lab ID: 1288044

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927010

Results by **SW8260B**

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

Method Blank

Blank ID: MB for HBN 1719115 [VXX/27823]
Blank Lab ID: 1288044

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927010

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	114	71-136		%
4-Bromofluorobenzene (surr)	88.8	55-151		%
Toluene-d8 (surr)	94.5	85-116		%

Method Blank

Blank ID: MB for HBN 1719115 [VXX/27823]
Blank Lab ID: 1288044

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927010

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS15225
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: SCL
Analytical Date/Time: 9/1/2015 10:12:00AM

Prep Batch: VXX27823
Prep Method: SW5035A
Prep Date/Time: 9/1/2015 12:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 09/25/2015 8:40:35AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [VXX27823]
Blank Spike Lab ID: 1288045
Date Analyzed: 09/01/2015 11:07

Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927010

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	756	101	(78-125)
1,1,1-Trichloroethane	750	833	111	(73-130)
1,1,2,2-Tetrachloroethane	750	804	107	(70-124)
1,1,2-Trichloroethane	750	786	105	(78-121)
1,1-Dichloroethane	750	822	110	(76-125)
1,1-Dichloroethene	750	831	111	(70-131)
1,1-Dichloropropene	750	809	108	(76-125)
1,2,3-Trichlorobenzene	750	683	91	(66-130)
1,2,3-Trichloropropane	750	808	108	(73-125)
1,2,4-Trichlorobenzene	750	737	98	(67-129)
1,2,4-Trimethylbenzene	750	779	104	(75-123)
1,2-Dibromo-3-chloropropane	750	796	106	(61-132)
1,2-Dibromoethane	750	782	104	(78-122)
1,2-Dichlorobenzene	750	783	104	(78-121)
1,2-Dichloroethane	750	835	111	(73-128)
1,2-Dichloropropane	750	791	105	(76-123)
1,3,5-Trimethylbenzene	750	785	105	(73-124)
1,3-Dichlorobenzene	750	791	105	(77-121)
1,3-Dichloropropane	750	780	104	(77-121)
1,4-Dichlorobenzene	750	790	105	(75-120)
2,2-Dichloropropane	750	851	113	(67-133)
2-Butanone (MEK)	2250	2300	102	(51-148)
2-Chlorotoluene	750	791	105	(75-122)
2-Hexanone	2250	2300	102	(53-145)
4-Chlorotoluene	750	723	96	(72-124)
4-Isopropyltoluene	750	786	105	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2260	100	(65-135)
Benzene	750	808	108	(77-121)
Bromobenzene	750	799	106	(78-121)
Bromochloromethane	750	814	109	(78-125)
Bromodichloromethane	750	831	111	(75-127)
Bromoform	750	832	111	(67-132)
Bromomethane	750	856	114	(53-143)
Carbon disulfide	1130	1300	115	(63-132)

Print Date: 09/25/2015 8:40:36AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [VXX27823]
Blank Spike Lab ID: 1288045
Date Analyzed: 09/01/2015 11:07

Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927010

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	850	113	(70-135)
Chlorobenzene	750	772	103	(79-120)
Chloroethane	750	804	107	(59-139)
Chloroform	750	819	109	(78-123)
Chloromethane	750	739	99	(50-136)
cis-1,2-Dichloroethene	750	803	107	(77-123)
cis-1,3-Dichloropropene	750	813	108	(74-126)
Dibromochloromethane	750	811	108	(74-126)
Dibromomethane	750	818	109	(78-125)
Dichlorodifluoromethane	750	816	109	(29-149)
Ethylbenzene	750	766	102	(76-122)
Freon-113	1130	1250	111	(66-136)
Hexachlorobutadiene	750	807	108	(61-135)
Isopropylbenzene (Cumene)	750	774	103	(68-134)
Methylene chloride	750	828	110	(70-128)
Methyl-t-butyl ether	1130	1220	108	(73-125)
Naphthalene	750	681	91	(62-129)
n-Butylbenzene	750	804	107	(70-128)
n-Propylbenzene	750	788	105	(73-125)
o-Xylene	750	758	101	(77-123)
P & M -Xylene	1500	1520	102	(77-124)
sec-Butylbenzene	750	788	105	(73-126)
Styrene	750	780	104	(76-124)
tert-Butylbenzene	750	779	104	(73-125)
Tetrachloroethene	750	733	98	(73-128)
Toluene	750	750	100	(77-121)
trans-1,2-Dichloroethene	750	823	110	(74-125)
trans-1,3-Dichloropropene	750	809	108	(71-130)
Trichloroethene	750	805	107	(77-123)
Trichlorofluoromethane	750	877	117	(62-140)
Vinyl acetate	750	784	104	(50-151)
Vinyl chloride	750	788	105	(56-135)
Xylenes (total)	2250	2280	101	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [VXX27823]
Blank Spike Lab ID: 1288045
Date Analyzed: 09/01/2015 11:07

Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927010

Results by **SW8260B**

Parameter	Blank Spike (%) Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	102	102	(71-136)
4-Bromofluorobenzene (surr)	750	93.6	94	(55-151)
Toluene-d8 (surr)	750	93.8	94	(85-116)

Batch Information

Analytical Batch: **VMS15225**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **SCL**

Prep Batch: **VXX27823**
Prep Method: **SW5035A**
Prep Date/Time: **09/01/2015 00:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
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Matrix Spike Summary

Original Sample ID: 1288060
MS Sample ID: 1288061 MS
MSD Sample ID: 1288062 MSD

Analysis Date: 09/01/2015 12:43
Analysis Date: 09/01/2015 11:40
Analysis Date: 09/01/2015 11:56
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1154927010

Results by **SW8260B**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	12.7U	759	769	101		759	751	99		78-125	2.40	(< 20)
1,1,1-Trichloroethane	12.7U	759	831	109		759	790	104		73-130	5.00	(< 20)
1,1,2,2-Tetrachloroethane	6.35U	759	1200	159	*	759	1230	163	*	70-124	2.40	(< 20)
1,1,2-Trichloroethane	5.05U	759	4240	559	*	759	4070	535	*	78-121	4.20	(< 20)
1,1-Dichloroethane	12.7U	759	829	109		759	785	103		76-125	5.50	(< 20)
1,1-Dichloroethene	12.7U	759	833	110		759	769	101		70-131	8.00	(< 20)
1,1-Dichloropropene	12.7U	759	799	105		759	769	101		76-125	3.80	(< 20)
1,2,3-Trichlorobenzene	25.3U	759	782	103		759	876	115		66-130	11.30	(< 20)
1,2,3-Trichloropropane	12.7U	759	935	123		759	954	126	*	73-125	2.00	(< 20)
1,2,4-Trichlorobenzene	12.7U	759	737	97		759	816	108		67-129	10.20	(< 20)
1,2,4-Trimethylbenzene	3350	759	3810	60	*	759	3870	69	*	75-123	1.60	(< 20)
1,2-Dibromo-3-chloropropane	50.5U	759	791	104		759	856	113		61-132	7.90	(< 20)
1,2-Dibromoethane	5.05U	759	756	100		759	770	101		78-122	1.90	(< 20)
1,2-Dichlorobenzene	12.7U	759	656	86		759	669	88		78-121	2.00	(< 20)
1,2-Dichloroethane	5.05U	759	837	110		759	801	106		73-128	4.40	(< 20)
1,2-Dichloropropane	5.05U	759	795	105		759	782	103		76-123	1.80	(< 20)
1,3,5-Trimethylbenzene	2450	759	2940	64	*	759	3030	77		73-124	3.20	(< 20)
1,3-Dichlorobenzene	12.7U	759	662	87		759	678	89		77-121	2.40	(< 20)
1,3-Dichloropropane	5.05U	759	740	97		759	763	101		77-121	3.10	(< 20)
1,4-Dichlorobenzene	12.7U	759	652	86		759	675	89		75-120	3.40	(< 20)
2,2-Dichloropropane	12.7U	759	852	112		759	807	106		67-133	5.30	(< 20)
2-Butanone (MEK)	127U	2280	2430	107		2280	2550	112		51-148	4.90	(< 20)
2-Chlorotoluene	12.7U	759	1060	139	*	759	1070	141	*	75-122	1.70	(< 20)
2-Hexanone	127U	2280	2270	100		2280	2350	103		53-145	3.50	(< 20)
4-Chlorotoluene	12.7U	759	606	80		759	599	79		72-124	1.10	(< 20)
4-Isopropyltoluene	2080	759	2710	83		759	2770	92		73-127	2.30	(< 20)
4-Methyl-2-pentanone (MIBK)	127U	2280	2620	115		2280	2520	111		65-135	3.90	(< 20)
Benzene	29.9	759	806	102		759	813	103		77-121	0.81	(< 20)
Bromobenzene	12.7U	759	669	88		759	663	87		78-121	0.87	(< 20)
Bromochloromethane	12.7U	759	826	109		759	774	102		78-125	6.60	(< 20)
Bromodichloromethane	12.7U	759	839	110		759	796	105		75-127	5.20	(< 20)
Bromoform	12.7U	759	785	103		759	758	100		67-132	3.60	(< 20)
Bromomethane	101U	759	833	110		759	759	100		53-143	9.30	(< 20)
Carbon disulfide	50.5U	1140	1300	114		1140	1180	104		63-132	9.40	(< 20)
Carbon tetrachloride	6.35U	759	833	110		759	780	103		70-135	6.60	(< 20)
Chlorobenzene	12.7U	759	748	99		759	720	95		79-120	3.80	(< 20)
Chloroethane	101U	759	788	104		759	720	95		59-139	9.10	(< 20)

Print Date: 09/25/2015 8:40:37AM

Matrix Spike Summary

Original Sample ID: 1288060
MS Sample ID: 1288061 MS
MSD Sample ID: 1288062 MSD

QC for Samples: 1154927010

Analysis Date: 09/01/2015 12:43
Analysis Date: 09/01/2015 11:40
Analysis Date: 09/01/2015 11:56
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260B**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Chloroform	12.7U	759	827	109		759	792	104		78-123	4.40	(< 20)
Chloromethane	12.7U	759	731	96		759	676	89		50-136	7.80	(< 20)
cis-1,2-Dichloroethene	12.7U	759	801	105		759	772	102		77-123	3.60	(< 20)
cis-1,3-Dichloropropene	12.7U	759	816	108		759	795	105		74-126	2.60	(< 20)
Dibromochloromethane	12.7U	759	761	100		759	776	102		74-126	2.00	(< 20)
Dibromomethane	12.7U	759	830	109		759	794	105		78-125	4.30	(< 20)
Dichlorodifluoromethane	25.3U	759	774	102		759	706	93		29-149	9.20	(< 20)
Ethylbenzene	85.0	759	783	92		759	772	91		76-122	1.40	(< 20)
Freon-113	50.5U	1140	1200	106		1140	1110	98		66-136	8.20	(< 20)
Hexachlorobutadiene	25.3U	759	1040	136	*	759	1150	151	*	61-135	10.20	(< 20)
Isopropylbenzene (Cumene)	22.3J	759	752	96		759	748	96		68-134	0.57	(< 20)
Methylene chloride	50.5U	759	829	109		759	772	102		70-128	7.10	(< 20)
Methyl-t-butyl ether	50.5U	1140	1200	106		1140	1180	103		73-125	2.20	(< 20)
Naphthalene	167	759	1250	142	*	759	1440	168	*	62-129	14.30	(< 20)
n-Butylbenzene	12.7U	759	1680	221	*	759	1710	226	*	70-128	1.90	(< 20)
n-Propylbenzene	12.7U	759	737	97		759	749	99		73-125	1.60	(< 20)
o-Xylene	1160	759	1820	87		759	1810	86		77-123	0.42	(< 20)
P & M -Xylene	1220	1520	2570	89		1520	2580	90		77-124	0.57	(< 20)
sec-Butylbenzene	12.7U	759	873	115		759	884	116		73-126	1.30	(< 20)
Styrene	12.7U	759	732	96		759	715	94		76-124	2.30	(< 20)
tert-Butylbenzene	12.7U	759	773	102		759	796	105		73-125	2.90	(< 20)
Tetrachloroethene	6.35U	759	737	97		759	722	95		73-128	2.00	(< 20)
Toluene	238	759	937	92		759	937	92		77-121	0.00	(< 20)
trans-1,2-Dichloroethene	12.7U	759	823	108		759	776	102		74-125	5.80	(< 20)
trans-1,3-Dichloropropene	12.7U	759	783	103		759	804	106		71-130	2.60	(< 20)
Trichloroethene	6.35U	759	795	105		759	775	102		77-123	2.50	(< 20)
Trichlorofluoromethane	25.3U	759	815	107		759	686	90		62-140	17.30	(< 20)
Vinyl acetate	50.5U	759	769	101		759	760	100		50-151	1.20	(< 20)
Vinyl chloride	5.05U	759	771	102		759	701	92		56-135	9.50	(< 20)
Xylenes (total)	2380	2280	4390	88		2280	4400	89		78-124	0.16	(< 20)
Surrogates												
1,2-Dichloroethane-D4 (surr)		759	787	104		759	747	98		71-136	5.30	
4-Bromofluorobenzene (surr)		2020	1990	98		2020	2030	100		55-151	1.80	
Toluene-d8 (surr)		759	746	98		759	740	98		85-116	0.75	

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Matrix Spike Summary

Original Sample ID: 1288060
MS Sample ID: 1288061 MS
MSD Sample ID: 1288062 MSD

QC for Samples: 1154927010

Analysis Date:
Analysis Date: 09/01/2015 11:40
Analysis Date: 09/01/2015 11:56
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260B**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS15225
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: SCL
Analytical Date/Time: 9/1/2015 11:40:00AM

Prep Batch: VXX27823
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/1/2015 12:00:00AM
Prep Initial Wt./Vol.: 49.39g
Prep Extract Vol: 25.00mL

Print Date: 09/25/2015 8:40:37AM

Method Blank

Blank ID: MB for HBN 1719263 [VXX/27831]
Blank Lab ID: 1288554

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

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

Method Blank

Blank ID: MB for HBN 1719263 [VXX/27831]
Blank Lab ID: 1288554

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	71-136		%
4-Bromofluorobenzene (surr)	85.8	55-151		%
Toluene-d8 (surr)	94.1	85-116		%

Method Blank

Blank ID: MB for HBN 1719263 [VXX/27831]
Blank Lab ID: 1288554

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: SCL
Analytical Date/Time: 9/3/2015 11:50:00AM

Prep Batch: VXX27831
Prep Method: SW5035A
Prep Date/Time: 9/3/2015 12:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 09/25/2015 8:40:38AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [VXX27831]
Blank Spike Lab ID: 1288555
Date Analyzed: 09/03/2015 12:16

Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	799	107	(78-125)
1,1,1-Trichloroethane	750	785	105	(73-130)
1,1,2,2-Tetrachloroethane	750	787	105	(70-124)
1,1,2-Trichloroethane	750	802	107	(78-121)
1,1-Dichloroethane	750	780	104	(76-125)
1,1-Dichloroethene	750	760	101	(70-131)
1,1-Dichloropropene	750	762	102	(76-125)
1,2,3-Trichlorobenzene	750	714	95	(66-130)
1,2,3-Trichloropropane	750	791	105	(73-125)
1,2,4-Trichlorobenzene	750	716	96	(67-129)
1,2,4-Trimethylbenzene	750	754	101	(75-123)
1,2-Dibromo-3-chloropropane	750	799	107	(61-132)
1,2-Dibromoethane	750	795	106	(78-122)
1,2-Dichlorobenzene	750	764	102	(78-121)
1,2-Dichloroethane	750	809	108	(73-128)
1,2-Dichloropropane	750	777	104	(76-123)
1,3,5-Trimethylbenzene	750	747	100	(73-124)
1,3-Dichlorobenzene	750	749	100	(77-121)
1,3-Dichloropropane	750	793	106	(77-121)
1,4-Dichlorobenzene	750	762	102	(75-120)
2,2-Dichloropropane	750	752	100	(67-133)
2-Butanone (MEK)	2250	2370	105	(51-148)
2-Chlorotoluene	750	761	101	(75-122)
2-Hexanone	2250	2350	104	(53-145)
4-Chlorotoluene	750	728	97	(72-124)
4-Isopropyltoluene	750	733	98	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2380	106	(65-135)
Benzene	750	776	103	(77-121)
Bromobenzene	750	773	103	(78-121)
Bromochloromethane	750	803	107	(78-125)
Bromodichloromethane	750	800	107	(75-127)
Bromoform	750	827	110	(67-132)
Bromomethane	750	776	103	(53-143)
Carbon disulfide	1130	1130	101	(63-132)

Print Date: 09/25/2015 8:40:38AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [VXX27831]
Blank Spike Lab ID: 1288555
Date Analyzed: 09/03/2015 12:16

Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	783	104	(70-135)
Chlorobenzene	750	760	101	(79-120)
Chloroethane	750	754	101	(59-139)
Chloroform	750	791	106	(78-123)
Chloromethane	750	694	93	(50-136)
cis-1,2-Dichloroethene	750	776	103	(77-123)
cis-1,3-Dichloropropene	750	782	104	(74-126)
Dibromochloromethane	750	801	107	(74-126)
Dibromomethane	750	797	106	(78-125)
Dichlorodifluoromethane	750	722	96	(29-149)
Ethylbenzene	750	749	100	(76-122)
Freon-113	1130	1100	98	(66-136)
Hexachlorobutadiene	750	718	96	(61-135)
Isopropylbenzene (Cumene)	750	763	102	(68-134)
Methylene chloride	750	788	105	(70-128)
Methyl-t-butyl ether	1130	1200	106	(73-125)
Naphthalene	750	722	96	(62-129)
n-Butylbenzene	750	709	95	(70-128)
n-Propylbenzene	750	740	99	(73-125)
o-Xylene	750	764	102	(77-123)
P & M -Xylene	1500	1500	100	(77-124)
sec-Butylbenzene	750	744	99	(73-126)
Styrene	750	761	102	(76-124)
tert-Butylbenzene	750	752	100	(73-125)
Tetrachloroethene	750	744	99	(73-128)
Toluene	750	759	101	(77-121)
trans-1,2-Dichloroethene	750	766	102	(74-125)
trans-1,3-Dichloropropene	750	809	108	(71-130)
Trichloroethene	750	768	102	(77-123)
Trichlorofluoromethane	750	785	105	(62-140)
Vinyl acetate	750	741	99	(50-151)
Vinyl chloride	750	737	98	(56-135)
Xylenes (total)	2250	2260	100	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [VXX27831]
Blank Spike Lab ID: 1288555
Date Analyzed: 09/03/2015 12:16

Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

		Blank Spike (%)		
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	102	102	(71-136)
4-Bromofluorobenzene (surr)	750	92	92	(55-151)
Toluene-d8 (surr)	750	99.4	99	(85-116)

Batch Information

Analytical Batch: **VMS15226**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **SCL**

Prep Batch: **VXX27831**
Prep Method: **SW5035A**
Prep Date/Time: **09/03/2015 00:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1288556
MS Sample ID: 1288557 MS
MSD Sample ID: 1288558 MSD

Analysis Date: 09/03/2015 13:43
Analysis Date: 09/03/2015 12:39
Analysis Date: 09/03/2015 12:55
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	16.6U	996	1030	103	996	1030	104	78-125	0.39	(< 20)
1,1,1-Trichloroethane	16.6U	996	1060	107	996	1060	107	73-130	0.00	(< 20)
1,1,2,2-Tetrachloroethane	8.30U	996	1040	104	996	1040	104	70-124	0.03	(< 20)
1,1,2-Trichloroethane	6.65U	996	1210	121	996	1230	124 *	78-121	2.00	(< 20)
1,1-Dichloroethane	16.6U	996	1040	104	996	1050	106	76-125	1.20	(< 20)
1,1-Dichloroethene	16.6U	996	1060	106	996	1060	106	70-131	0.35	(< 20)
1,1-Dichloropropene	16.6U	996	1020	102	996	1040	105	76-125	2.30	(< 20)
1,2,3-Trichlorobenzene	33.2U	996	915	92	996	995	100	66-130	8.40	(< 20)
1,2,3-Trichloropropane	16.6U	996	1060	106	996	1040	104	73-125	1.80	(< 20)
1,2,4-Trichlorobenzene	16.6U	996	936	94	996	981	99	67-129	4.60	(< 20)
1,2,4-Trimethylbenzene	33.2U	996	1000	100	996	1010	102	75-123	1.40	(< 20)
1,2-Dibromo-3-chloropropane	66.5U	996	1030	104	996	1080	109	61-132	4.70	(< 20)
1,2-Dibromoethane	6.65U	996	1030	103	996	1040	104	78-122	1.10	(< 20)
1,2-Dichlorobenzene	16.6U	996	987	99	996	1000	101	78-121	1.50	(< 20)
1,2-Dichloroethane	6.65U	996	1050	105	996	1070	107	73-128	1.70	(< 20)
1,2-Dichloropropane	6.65U	996	1010	101	996	1030	104	76-123	2.70	(< 20)
1,3,5-Trimethylbenzene	13.3J	996	984	97	996	1010	100	73-124	2.40	(< 20)
1,3-Dichlorobenzene	16.6U	996	971	98	996	986	99	77-121	1.50	(< 20)
1,3-Dichloropropane	6.65U	996	1020	103	996	1040	104	77-121	1.20	(< 20)
1,4-Dichlorobenzene	16.6U	996	965	97	996	987	99	75-120	2.20	(< 20)
2,2-Dichloropropane	16.6U	996	1070	107	996	1060	107	67-133	0.06	(< 20)
2-Butanone (MEK)	166U	2990	3010	101	2990	3200	107	51-148	5.80	(< 20)
2-Chlorotoluene	16.6U	996	982	99	996	1000	100	75-122	1.80	(< 20)
2-Hexanone	166U	2990	3060	102	2990	3160	106	53-145	3.30	(< 20)
4-Chlorotoluene	16.6U	996	950	95	996	960	96	72-124	1.10	(< 20)
4-Isopropyltoluene	16.6U	996	971	98	996	991	100	73-127	2.10	(< 20)
4-Methyl-2-pentanone (MIBK)	166U	2990	3010	101	2990	3060	102	65-135	1.40	(< 20)
Benzene	7.30J	996	1030	102	996	1040	103	77-121	1.10	(< 20)
Bromobenzene	16.6U	996	1010	101	996	1000	101	78-121	0.20	(< 20)
Bromochloromethane	16.6U	996	1010	101	996	1030	104	78-125	2.60	(< 20)
Bromodichloromethane	16.6U	996	1040	104	996	1060	107	75-127	2.50	(< 20)
Bromoform	16.6U	996	1080	108	996	1080	108	67-132	0.22	(< 20)
Bromomethane	133U	996	999	100	996	1010	101	53-143	0.66	(< 20)
Carbon disulfide	66.5U	1490	1630	109	1490	1630	109	63-132	0.02	(< 20)
Carbon tetrachloride	8.30U	996	1050	106	996	1060	107	70-135	0.63	(< 20)
Chlorobenzene	16.6U	996	983	99	996	1010	101	79-120	2.60	(< 20)
Chloroethane	133U	996	1000	100	996	1010	102	59-139	1.10	(< 20)

Print Date: 09/25/2015 8:40:39AM

Matrix Spike Summary

Original Sample ID: 1288556
MS Sample ID: 1288557 MS
MSD Sample ID: 1288558 MSD

Analysis Date: 09/03/2015 13:43
Analysis Date: 09/03/2015 12:39
Analysis Date: 09/03/2015 12:55
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	16.6U	996	1030	103	996	1050	105	78-123	1.70	(< 20)
Chloromethane	16.6U	996	920	92	996	917	92	50-136	0.36	(< 20)
cis-1,2-Dichloroethene	16.6U	996	1010	101	996	1020	102	77-123	0.82	(< 20)
cis-1,3-Dichloropropene	16.6U	996	1030	104	996	1050	106	74-126	2.00	(< 20)
Dibromochloromethane	16.6U	996	1030	104	996	1050	105	74-126	1.20	(< 20)
Dibromomethane	16.6U	996	1030	104	996	1050	105	78-125	1.30	(< 20)
Dichlorodifluoromethane	33.2U	996	990	99	996	987	99	29-149	0.30	(< 20)
Ethylbenzene	16.6U	996	973	98	996	1010	101	76-122	3.50	(< 20)
Freon-113	66.5U	1490	1530	102	1490	1530	103	66-136	0.24	(< 20)
Hexachlorobutadiene	33.2U	996	1160	117	996	1140	115	61-135	1.60	(< 20)
Isopropylbenzene (Cumene)	16.6U	996	980	98	996	1010	101	68-134	2.80	(< 20)
Methylene chloride	66.5U	996	1030	103	996	1040	104	70-128	1.20	(< 20)
Methyl-t-butyl ether	66.5U	1490	1530	102	1490	1560	104	73-125	2.00	(< 20)
Naphthalene	24.9J	996	931	91	996	1010	99	62-129	8.30	(< 20)
n-Butylbenzene	16.6U	996	1000	101	996	997	100	70-128	0.73	(< 20)
n-Propylbenzene	16.6U	996	978	98	996	992	100	73-125	1.40	(< 20)
o-Xylene	10.6J	996	980	97	996	1020	101	77-123	4.00	(< 20)
P & M -Xylene	26.6J	1990	1970	98	1990	2010	100	77-124	1.80	(< 20)
sec-Butylbenzene	16.6U	996	1000	101	996	1000	101	73-126	0.03	(< 20)
Styrene	16.6U	996	986	99	996	1010	101	76-124	2.20	(< 20)
tert-Butylbenzene	16.6U	996	990	99	996	988	99	73-125	0.24	(< 20)
Tetrachloroethene	8.30U	996	961	97	996	989	99	73-128	2.80	(< 20)
Toluene	21.6J	996	1000	99	996	1000	98	77-121	0.23	(< 20)
trans-1,2-Dichloroethene	16.6U	996	1040	104	996	1040	105	74-125	0.45	(< 20)
trans-1,3-Dichloropropene	16.6U	996	1050	106	996	1070	108	71-130	2.00	(< 20)
Trichloroethene	8.30U	996	1030	103	996	1040	104	77-123	0.71	(< 20)
Trichlorofluoromethane	33.2U	996	1060	107	996	996	100	62-140	6.50	(< 20)
Vinyl acetate	66.5U	996	994	100	996	1010	101	50-151	1.60	(< 20)
Vinyl chloride	6.65U	996	984	99	996	980	98	56-135	0.44	(< 20)
Xylenes (total)	37.2J	2990	2950	98	2990	3030	100	78-124	2.50	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		996	940	94	996	959	96	71-136	2.00	
4-Bromofluorobenzene (surr)		2660	2210	83	2660	2250	85	55-151	1.40	
Toluene-d8 (surr)		996	910	91	996	930	93	85-116	2.20	

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Matrix Spike Summary

Original Sample ID: 1288556
MS Sample ID: 1288557 MS
MSD Sample ID: 1288558 MSD

Analysis Date:
Analysis Date: 09/03/2015 12:39
Analysis Date: 09/03/2015 12:55
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **SW8260B**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS15226
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: SCL
Analytical Date/Time: 9/3/2015 12:39:00PM

Prep Batch: VXX27831
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/3/2015 12:00:00AM
Prep Initial Wt./Vol.: 37.66g
Prep Extract Vol: 25.00mL

Print Date: 09/25/2015 8:40:39AM

Method Blank

Blank ID: MB for HBN 1720661 [VXX/27918]
Blank Lab ID: 1291667

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	79	50-150		%

Batch Information

Analytical Batch: VFC12674
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 9/17/2015 5:25:00PM

Prep Batch: VXX27918
Prep Method: SW5035A
Prep Date/Time: 9/17/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [VXX27918]
Blank Spike Lab ID: 1291668
Date Analyzed: 09/17/2015 17:44

Spike Duplicate ID: LCSD for HBN 1154927 [VXX27918]
Spike Duplicate Lab ID: 1291669
Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	10.1	101	10.0	9.95	100	(60-120)	1.20	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	88	88	1.25	88.6	89	(50-150)	0.68	

Batch Information

Analytical Batch: **VFC12674**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27918**
Prep Method: **SW5035A**
Prep Date/Time: **09/17/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1721051 [VXX/27950]
Blank Lab ID: 1292799

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927010

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	78.3	50-150		%

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 9/22/2015 6:48:00PM

Prep Batch: VXX27950
Prep Method: SW5035A
Prep Date/Time: 9/22/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [VXX27950]
Blank Spike Lab ID: 1292800
Date Analyzed: 09/22/2015 19:07

Spike Duplicate ID: LCSD for HBN 1154927 [VXX27950]
Spike Duplicate Lab ID: 1292801
Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927010

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	9.80	98	10.0	9.86	99	(60-120)	0.61	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	82.7	83	1.25	81.8	82	(50-150)	1.00	

Batch Information

Analytical Batch: **VFC12686**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27950**
Prep Method: **SW5035A**
Prep Date/Time: **09/22/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1719625 [XXX/34077]
Blank Lab ID: 1289065

Matrix: Soil/Solid (dry weight)

QC for Samples:
1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	87.7	60-120		%

Batch Information

Analytical Batch: XFC12068
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: AYC
Analytical Date/Time: 9/8/2015 8:15:00PM

Prep Batch: XXX34077
Prep Method: SW3550C
Prep Date/Time: 9/8/2015 12:37:22PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154927 [XXX34077]
Blank Spike Lab ID: 1289066
Date Analyzed: 09/08/2015 20:24

Spike Duplicate ID: LCSD for HBN 1154927 [XXX34077]
Spike Duplicate Lab ID: 1289067
Matrix: Soil/Solid (dry weight)

QC for Samples: 1154927001, 1154927002, 1154927003, 1154927004, 1154927005, 1154927006, 1154927007, 1154927008

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	127	76	167	140	84	(75-125)	9.60	(< 20)
Surrogates									
5a Androstane (surr)	3.33	102	102	3.33	115	115	(60-120)	12.00	

Batch Information

Analytical Batch: **XFC12068**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **AYC**

Prep Batch: **XXX34077**
Prep Method: **SW3550C**
Prep Date/Time: **09/08/2015 12:37**
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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t 907.562.2343 f 907.561.5301 www.us.sgs.com

SGS

1154927

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide
Alaska Maryland
New Jersey New York
North Carolina Indiana
West Virgina Kentucky
www.us.sgs.com

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

Page 1 of 1

Section 1

CLIENT: SLR Consulting, Anchorage

CONTACT: Justin Moman PHONE #: 503.723.~~4483~~ ~~222-1112~~

PROJECT NAME: Alaska Airlines Kotzebue Project/ PWSID/ PERMIT#:

REPORTS TO: E-MAIL: jmoman@slrconsulting.com

INVOICE TO: SLR QUOTE #: P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Pres: Type: Comp Grab MI (Multi-incremental)	Preservative: None	Preservative: MeOH									REMARKS/ LOC ID
							AK102 - DRO	AK101/SW8260 - GRO/VOC									
(1) AB	SK 01-05	8/27/15	1145	S			✓	✓									
(2) AB	SK 06-10		1400	S			✓	✓									
(3) AB	SK 11-14J		1415	S			✓	✓									
(4) AB	SK11-14		1410	S			✓	✓									
(5) AB	FL 3B		1715	S			✓	✓									
(6) AB	FL 1C		1720	S			✓	✓									
(7) AB	FL 1A		1710	S			✓	✓									
(8) AB	FL 1CJ		1735	S			✓	✓									
(9) A																	
(10) A																	

Section 5

	Date	Time	
Relinquished By: (1) Justin Moman	8/27/15	1740	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 8/28/15	Time 1355	Received For Laboratory By:

Section 4

DOD Project? Yes No

Data Deliverable Requirements:

Cooler ID:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 2.6 H 11

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

SGS North America Inc.

200 W. Potter Dr., Anchorage, AK 99518 (ph) 907-562-2343, (fax) 907-561-5301

3180 Peger Rd. Ste 190, Fairbanks, AK 99701 (ph) 907-474-8656, (fax) 907-474-9685

Sample Kit Request

Client Code: SLRANCH **Does a Profile exist in LIMS?** ☐ Yes ☐ No

Client Name: SLR Consulting, Anchorage

Ordered By: Justin Moman **Phone #:** 222-1112

Email: jmoman@slrconsulting.com **Deliverables:** L2/DV

Project Name: AK Airlines Kotzebue **Project/Permit#:**

Quote #: SLR Open **Profile #:**

Delivery: Kotzebue Airport (OTZ) attn: Justin Moman

Hold for Pickup

☐ **Client pickup Date:** **Time:**

Be sure to ask if client will ship by ground (DOT) or air carrier (IATA)

☐ **Deliver to client:** 274424414 34

☑ **Ship by/Air Carrier:** ~~Goldstreak Acct.#274424414 34~~ 365 Goldstreak

Airbill Number: JM 8/25 account

Date to ship by: 8/25/2015

Notes:

Kit request taken by: JAN **Date:** 8/25/2015

Kit prepared by: X.C **Date:** 8/25/15

Kit (*including lid tightness for pres'd bottles*) checked by: KMW **Date:** 8/25/15

Kit packed & shipped by: X.C **Date:** 8/25/15

No. Samples	Matrix	Analysis	Container Size & Type		Pres.	Bottle Lot #	Preservative Lot #	Hold Time	# QC Bottles	Total Bottles
15	Soil	AK102 - DRO	1 x 4 oz.	Amber	None			14 d	0	15
15	Soil	AK101/SW8260 - GRO/VOC	1 x 4 oz.	w/Septa	MeOH			14 d	0	15

1154927

☐ Pack for Shipping via ***ground*** (DOT)

☑ Pack for Shipping via ***air carrier*** (IATA)

☑ Temperature Blank (***circle one:*** 120-mL OR 500-mL)

☑ Soil VOA Trip Blank - Lot#: VW8-73-02

☐ Water VOA Trip Blank - Lot#:

☐ 524 VOA Trip Blank - Lot#:

☐ Low Level Mercury Trip Blank- Lot#:

☑ Coolers

☑ Gel Ice (***circle one:*** in each cooler OR in a separate cooler)

☑ Bubble Wrap

☑ Labels

☑ Custody Seals

☐ Total # includes bottles for % Solids

☐ Track all Lot#s

☐ Foreign Soil

☐ Pack similar bottles together OR custom packing (***circle one***)

Other Notes/Reminders for Kit Prep:

Send labels for return shipping.

Attention Client/Sampler:

1. Do not rinse container before filling and be aware of any acid preservative in container.
2. Fill container to top, but do not overfill (except volatiles which should be headspace free).
3. Label the container with your sample/site ID, as well as the date & time of collection.
4. Fill in the Chain of Custody.
5. Add frozen gel packs or ice to your cooler & pack to prevent breakage.

Charges may be invoiced for bottles which are unused or improperly used.

If you have any questions concerning this sample kit, please contact your Project Manager for assistance. *Thank you.*

☑ SGS COCs (**Remember: 1 COC/10 sample**) ☐ Blank COC ☐ DW COC ☑ COC initiated by PM (attached)

☑ Send additional instructions/documents (***Note to PM:*** *Be sure to attach copy of requested form.*)

Fridge

027 OTZ 8755 3071 027-8755 3071

Shipper's Name and Address OTZKKAS Alaska Airlines PO Box 726 Kotzebue, AK 99752 USA Tel: 9074423474	Shipper's Account Number Customer's ID Number 22595
Not Negotiable **Air Waybill** Issued By Alaska Air Cargo ALASKA AIRLINES & HORIZON AIR P.O. BOX 68900 SEATTLE, WA 98168 800-225-2752 ALASKACARGO.COM	
Consignee's Name and Address ANCKKAS Alaska Airlines 5000 Old International Airport Rd Anchorage, AK 99502 USA Tel:	Consignee's Account Number
Also notify SGS North America Inc. 907-562-2343 NOTIFD 8/28 11:45AM	
Issuing Carrier's Agent and City	Accounting Information
Agent's IATA Code / Account No.	
Airport of Departure (Addr. of First Carrier) and Requested Routing Kotzebue	GoldStreak

To	By First Carrier	To / By	To / By	Currency		WT/VAL		Other		Declared Value For Carriage	Declared Value For Customs
ANC	Alaska Airlines			USD	NC	X		X		NVD	NCV

Airport of Destination	Flight/Date	Flight/Date	Amount of Insurance
Anchorage	AS 154/28		XXX

Handling Information
COMAT SCREENED

SCI

No of Pieces	Gross Weight	kg lb	Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (Incl. Dimensions or Volume)
1	35.0	L		35.0			SOIL SAMPLES Dims: 24 x 13 x14 x 1
1	35.0					0.00	SVC Volume: 2.528

1154927

Prepaid	Weight Charge	Collect	Other Charges
	0.00		
Valuation Charge			
Tax			
Total Other Charges Due Agent			
Total Other Charges Due Carrier			
Total Prepaid	Total Collect		

Shipper certifies that the particulars on the face hereof are correct and that **insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.**

For: OTZKKAS Alaska Airlines

Signature of Shipper or his Agent

☐ THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS ☐ THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

27 Aug 2015 17:54 Kotzebue Alaska Airlines

Executed On (Date) at (Place) Signature of Issuing Carrier or its Agent

027-8755 3071

SGS

Returned Bottles Inventory

Name of individual returning bottles: _____ **Date Received:** 8/28/15

Client Name: SLR consulting, Anch. **Received by:** ERIK

Project Name: Alaska Airlines Kotzebue **SGS PM:** Jan

HDPE/Nalgene:	1-L					
	500-ml					
	250-ml or 8-oz					
	125-ml or 4-oz					
	60-ml or 2-oz					
	other					
amber glass:	1-L					
	500-ml					
	250-ml or 8-oz					
	125-ml or 4-oz with or without septa	11				
	40-ml VOA vial	7				
	other					
Subtotal:		18				

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

Amount to Invoice Client $: 72 **WO#:** 1154927

Alert Expeditors Inc.

#358673

Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 8/28/15

From OTZ LKAS

To SAS

Collect ☐	Prepay ☐ Account ☐	Advance Charges ☐
Job #	PO#	

I Carter

GSK

5755 3071

1154927

Shipped Signature

Received By: 8/27 1559

Total Charge

SGS

1154927

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	☑ ☑	☐ ☐	☐ ☐	***Exemption permitted if sampler hand carries/delivers.*** 2F
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6 °C, were samples collected <8 hours ago?* *If <0 °C, were all sample containers ice free?* Cooler ID: [1] _____ @ 2.6 _____ w/ Therm.ID: 11 _____ 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 & "**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."	☑ ☐ ☐	☐ ☑ ☑	☐ ☐ ☐	***Exemption permitted if chilled & collected <8 hrs ago.*** ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery method (specify all that apply): ☐Client (hand carried) ☐USPS ☐Lynden ☑AK Air ☑Alert Courier ☐UPS ☐FedEx ☐RAVN ☐C&D Delivery ☐Carlile ☐Pen Air ☐Warp Speed ☐Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	☑	☐	☐	
	Yes	N/A	No	
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	☑ ☐ ☑	☐ ☐ ☐	☐ ☑ ☐	***Note: Refer to form F-083 "Sample Guide" for hold times.*** ***Note: If times differ <1hr, record details and login per COC.*** *
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ☐Bubble Wrap ☐Separate plastic bags ☐Vermiculite ☐Other:	☑	☐	☐	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	☑ ☑ ☐ ☑	☐ ☐ ☑ ☐	☐ ☐ ☐ ☐	☐ ***Exemption permitted for metals (e.g., 200.8/6020A).***
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	☐ ☐	☑ ☑	☐ ☐	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	☐	☑	☐	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	☐	☑	☐	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	☐	☑	☐	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	☐	☑	☐	SRF Completed by: KPV 8/28/15 PM notified:
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	☑	☐	☐	Peer Reviewed by:

Additional notes (if applicable):

* One extra % solids container received, had no identification. logged in E Sample, Per PM.

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

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1154927001-A	No Preservative Required	OK			
1154927001-B	Methanol field pres. 4 C	OK			
1154927002-A	No Preservative Required	OK			
1154927002-B	Methanol field pres. 4 C	OK			
1154927003-A	No Preservative Required	OK			
1154927003-B	Methanol field pres. 4 C	OK			
1154927004-A	No Preservative Required	OK			
1154927004-B	Methanol field pres. 4 C	OK			
1154927005-A	No Preservative Required	OK			
1154927005-B	Methanol field pres. 4 C	OK			
1154927006-A	No Preservative Required	OK			
1154927006-B	Methanol field pres. 4 C	OK			
1154927007-A	No Preservative Required	OK			
1154927007-B	Methanol field pres. 4 C	OK			
1154927008-A	No Preservative Required	OK			
1154927008-B	Methanol field pres. 4 C	OK			
1154927009-A	No Preservative Required	OK			
1154927010-A	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.
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.
BU - The container was received with headspace greater than 6mm.

Laboratory Report of Analysis

To: SLR Alaska-Anchorage
1800 Blankenship Road Suite 440
West Linn, OR 97068
(503)905-3728

Report Number: **1155135**

Client Project: **Alaska Air Kotzebue**

Dear Justin Moman, E.I.,

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

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

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

Sincerely,
SGS North America Inc.

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

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

Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1155135**
Project Name/Site: **Alaska Air Kotzebue**
Project Contact: **Justin Moman, E.I.**

Refer to sample receipt form for information on sample condition.

B1 (1155135012) PS

AK102/103 - Surrogate recoveries for 5a-androstane (%) and n-triacontane (%) do not meet QC criteria due to sample dilution (4X).

C3 (1155135013) PS

AK101/8021B - The LOQs are elevated due to dilution (2X). Sample cannot be re-analyzed at lower dilution due to insufficient sample volume.
AK101 - Surrogate recovery for 4-bromofluorobenzene (20.8%) does not meet QC criteria. Insufficient volume for confirmation.

1155135013(1290367MSD) (1290369) MSD

8260B – MS/MSD RPD recovery for trichlorofluoromethane do not meet QC criteria (20.1%). This analyte was not detected above the LOQ in the associated samples.

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

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 & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 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
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
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
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
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
Trench	1155135001	09/05/2015	09/08/2015	Soil/Solid (dry weight)
SK15-18	1155135002	09/05/2015	09/08/2015	Soil/Solid (dry weight)
SK19-22	1155135003	09/05/2015	09/08/2015	Soil/Solid (dry weight)
SK23-26	1155135004	09/05/2015	09/08/2015	Soil/Solid (dry weight)
Southwest Corner Well	1155135005	09/05/2015	09/08/2015	Soil/Solid (dry weight)
Southwest Corner Floor	1155135006	09/05/2015	09/08/2015	Soil/Solid (dry weight)
C Box	1155135007	09/06/2015	09/08/2015	Soil/Solid (dry weight)
SK27-29	1155135008	09/06/2015	09/08/2015	Soil/Solid (dry weight)
SK30-32	1155135009	09/06/2015	09/08/2015	Soil/Solid (dry weight)
A2	1155135010	09/06/2015	09/08/2015	Soil/Solid (dry weight)
A5	1155135011	09/06/2015	09/08/2015	Soil/Solid (dry weight)
B1	1155135012	09/06/2015	09/08/2015	Soil/Solid (dry weight)
C3	1155135013	09/06/2015	09/08/2015	Soil/Solid (dry weight)
Trip Blank	1155135014	09/05/2015	09/08/2015	Soil/Solid (dry weight)

Method	Method Description
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8260B	VOC 8260 (S) Field Extracted

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: **Trench**
Lab Sample ID: 1155135001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	32.8J	mg/Kg
	Residual Range Organics	203	mg/Kg
Volatile GC/MS	o-Xylene	7.43J	ug/Kg
	P & M -Xylene	15.4J	ug/Kg
	Toluene	35.3	ug/Kg
	Xylenes (total)	22.8J	ug/Kg

Client Sample ID: **SK15-18**
Lab Sample ID: 1155135002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	26.7J	mg/Kg
	Residual Range Organics	144	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.675J	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	11.7J	ug/Kg
	Ethylbenzene	6.64J	ug/Kg
	o-Xylene	14.5J	ug/Kg
	P & M -Xylene	32.9	ug/Kg
	Toluene	61.2	ug/Kg
	Xylenes (total)	47.4	ug/Kg

Client Sample ID: **SK19-22**
Lab Sample ID: 1155135003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	28.3J	mg/Kg
	Residual Range Organics	248	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.656J	mg/Kg
Volatile GC/MS	Toluene	7.04J	ug/Kg

Client Sample ID: **SK23-26**
Lab Sample ID: 1155135004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	294	mg/Kg
	Residual Range Organics	985	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.12	mg/Kg
Volatile GC/MS	P & M -Xylene	12.0J	ug/Kg
	Trichlorofluoromethane	13.9J	ug/Kg

Client Sample ID: **Southwest Corner Well**
Lab Sample ID: 1155135005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	341	mg/Kg
	Residual Range Organics	675	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.40J	mg/Kg

Client Sample ID: **Southwest Corner Floor**
Lab Sample ID: 1155135006

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	672	mg/Kg
	Residual Range Organics	774	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.859J	mg/Kg

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Detectable Results Summary

Client Sample ID: **C Box**
Lab Sample ID: 1155135007

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	76.5	mg/Kg
	Residual Range Organics	576	mg/Kg
Volatile Fuels	Gasoline Range Organics	5.19	mg/Kg
Volatile GC/MS	o-Xylene	6.89J	ug/Kg
	P & M -Xylene	27.0	ug/Kg
	Toluene	23.6	ug/Kg
	Xylenes (total)	33.9J	ug/Kg

Client Sample ID: **SK27-29**
Lab Sample ID: 1155135008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	86.1	mg/Kg
	Residual Range Organics	479	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.52J	mg/Kg

Client Sample ID: **SK30-32**
Lab Sample ID: 1155135009

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	114	mg/Kg
	Residual Range Organics	589	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.85	mg/Kg
Volatile GC/MS	Ethylbenzene	7.05J	ug/Kg
	o-Xylene	13.8J	ug/Kg
	P & M -Xylene	33.7	ug/Kg
	Toluene	53.2	ug/Kg
	Xylenes (total)	47.5	ug/Kg

Client Sample ID: **A2**
Lab Sample ID: 1155135010

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	43.2J	mg/Kg
	Residual Range Organics	388	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.20J	mg/Kg
Volatile GC/MS	P & M -Xylene	12.9J	ug/Kg

Client Sample ID: **A5**
Lab Sample ID: 1155135011

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	47.8	mg/Kg
	Residual Range Organics	308	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.944J	mg/Kg

Client Sample ID: **B1**
Lab Sample ID: 1155135012

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	331	mg/Kg

Client Sample ID: **C3**
Lab Sample ID: 1155135013

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	9.87J	mg/Kg
	Residual Range Organics	97.0	mg/Kg
Volatile GC/MS	Toluene	5.32J	ug/Kg

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Results of **Trench**

Client Sample ID: **Trench**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135001
Lab Project ID: 1155135

Collection Date: 09/05/15 11:55
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	32.8	J	84.4	26.2	mg/Kg	4		09/22/15 09:06
Surrogates								
5a Androstane (surr)	63.5		50-150		%	4		09/22/15 09:06

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 09:06
Container ID: 1155135001-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.425 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	203		84.4	26.2	mg/Kg	4		09/22/15 09:06
Surrogates								
n-Triacontane-d62 (surr)	123		50-150		%	4		09/22/15 09:06

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 09:06
Container ID: 1155135001-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.425 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **Trench**

Client Sample ID: **Trench**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135001
Lab Project ID: 1155135

Collection Date: 09/05/15 11:55
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.845	U	1.69	0.507	mg/Kg	1		09/22/15 12:59
Surrogates								
4-Bromofluorobenzene (surr)	98.8		50-150		%	1		09/22/15 12:59

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 12:59
Container ID: 1155135001-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/05/15 11:55
Prep Initial Wt./Vol.: 99.945 g
Prep Extract Vol: 31.5489 mL

Results of **Trench**

Client Sample ID: **Trench**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135001
Lab Project ID: 1155135

Collection Date: 09/05/15 11:55
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,1,1-Trichloroethane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,1,2,2-Tetrachloroethane	4.22	U	8.44	2.63	ug/Kg	1		09/12/15 13:10
1,1,2-Trichloroethane	3.38	U	6.76	2.09	ug/Kg	1		09/12/15 13:10
1,1-Dichloroethane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,1-Dichloroethene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,1-Dichloropropene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,2,3-Trichlorobenzene	16.9	U	33.8	10.1	ug/Kg	1		09/12/15 13:10
1,2,3-Trichloropropane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,2,4-Trichlorobenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,2,4-Trimethylbenzene	16.9	U	33.8	10.1	ug/Kg	1		09/12/15 13:10
1,2-Dibromo-3-chloropropane	33.8	U	67.6	20.9	ug/Kg	1		09/12/15 13:10
1,2-Dibromoethane	3.38	U	6.76	2.09	ug/Kg	1		09/12/15 13:10
1,2-Dichlorobenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,2-Dichloroethane	3.38	U	6.76	2.09	ug/Kg	1		09/12/15 13:10
1,2-Dichloropropane	3.38	U	6.76	2.09	ug/Kg	1		09/12/15 13:10
1,3,5-Trimethylbenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,3-Dichlorobenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
1,3-Dichloropropane	3.38	U	6.76	2.09	ug/Kg	1		09/12/15 13:10
1,4-Dichlorobenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
2,2-Dichloropropane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
2-Butanone (MEK)	84.5	U	169	52.7	ug/Kg	1		09/12/15 13:10
2-Chlorotoluene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
2-Hexanone	84.5	U	169	52.7	ug/Kg	1		09/12/15 13:10
4-Chlorotoluene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
4-Isopropyltoluene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
4-Methyl-2-pentanone (MIBK)	84.5	U	169	52.7	ug/Kg	1		09/12/15 13:10
Benzene	4.22	U	8.44	2.63	ug/Kg	1		09/12/15 13:10
Bromobenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Bromochloromethane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Bromodichloromethane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Bromoform	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Bromomethane	67.5	U	135	41.9	ug/Kg	1		09/12/15 13:10
Carbon disulfide	33.8	U	67.6	20.9	ug/Kg	1		09/12/15 13:10
Carbon tetrachloride	4.22	U	8.44	2.63	ug/Kg	1		09/12/15 13:10
Chlorobenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Chloroethane	67.5	U	135	41.9	ug/Kg	1		09/12/15 13:10

Results of **Trench**

Client Sample ID: **Trench**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135001
Lab Project ID: 1155135

Collection Date: 09/05/15 11:55
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Chloromethane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
cis-1,2-Dichloroethene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
cis-1,3-Dichloropropene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Dibromochloromethane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Dibromomethane	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Dichlorodifluoromethane	16.9	U	33.8	10.1	ug/Kg	1		09/12/15 13:10
Ethylbenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Freon-113	33.8	U	67.6	20.9	ug/Kg	1		09/12/15 13:10
Hexachlorobutadiene	16.9	U	33.8	10.1	ug/Kg	1		09/12/15 13:10
Isopropylbenzene (Cumene)	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Methylene chloride	33.8	U	67.6	20.9	ug/Kg	1		09/12/15 13:10
Methyl-t-butyl ether	33.8	U	67.6	20.9	ug/Kg	1		09/12/15 13:10
Naphthalene	16.9	U	33.8	10.1	ug/Kg	1		09/12/15 13:10
n-Butylbenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
n-Propylbenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
o-Xylene	7.43	J	16.9	5.27	ug/Kg	1		09/12/15 13:10
P & M -Xylene	15.4	J	33.8	10.1	ug/Kg	1		09/12/15 13:10
sec-Butylbenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Styrene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
tert-Butylbenzene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Tetrachloroethene	4.22	U	8.44	2.63	ug/Kg	1		09/12/15 13:10
Toluene	35.3		16.9	5.27	ug/Kg	1		09/12/15 13:10
trans-1,2-Dichloroethene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
trans-1,3-Dichloropropene	8.45	U	16.9	5.27	ug/Kg	1		09/12/15 13:10
Trichloroethene	4.22	U	8.44	2.63	ug/Kg	1		09/12/15 13:10
Trichlorofluoromethane	16.9	U	33.8	10.1	ug/Kg	1		09/12/15 13:10
Vinyl acetate	33.8	U	67.6	20.9	ug/Kg	1		09/12/15 13:10
Vinyl chloride	3.38	U	6.76	2.09	ug/Kg	1		09/12/15 13:10
Xylenes (total)	22.8	J	50.7	15.4	ug/Kg	1		09/12/15 13:10
Surrogates								
1,2-Dichloroethane-D4 (surr)	93.4		71-136		%	1		09/12/15 13:10
4-Bromofluorobenzene (surr)	107		55-151		%	1		09/12/15 13:10
Toluene-d8 (surr)	107		85-116		%	1		09/12/15 13:10

Print Date: 09/29/2015 8:40:07AM

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Results of **Trench**

Client Sample ID: **Trench**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135001
Lab Project ID: 1155135

Collection Date: 09/05/15 11:55
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 13:10
Container ID: 1155135001-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/05/15 11:55
Prep Initial Wt./Vol.: 99.945 g
Prep Extract Vol: 31.5489 mL

Results of **SK15-18**

Client Sample ID: **SK15-18**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135002
Lab Project ID: 1155135

Collection Date: 09/05/15 13:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):92.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	26.7	J	85.2	26.4	mg/Kg	4		09/22/15 09:16
Surrogates								
5a Androstane (surr)	59.4		50-150		%	4		09/22/15 09:16

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 09:16
Container ID: 1155135002-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.368 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	144		85.2	26.4	mg/Kg	4		09/22/15 09:16
Surrogates								
n-Triacontane-d62 (surr)	89.9		50-150		%	4		09/22/15 09:16

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 09:16
Container ID: 1155135002-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.368 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK15-18**

Client Sample ID: **SK15-18**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135002
Lab Project ID: 1155135

Collection Date: 09/05/15 13:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):92.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.675	J	1.58	0.474	mg/Kg	1		09/22/15 13:18
Surrogates								
4-Bromofluorobenzene (surr)	103		50-150		%	1		09/22/15 13:18

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 13:18
Container ID: 1155135002-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/05/15 13:21
Prep Initial Wt./Vol.: 112.863 g
Prep Extract Vol: 33.1184 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK15-18**

Client Sample ID: **SK15-18**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135002
Lab Project ID: 1155135

Collection Date: 09/05/15 13:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):92.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,1,1-Trichloroethane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,1,2,2-Tetrachloroethane	3.95	U	7.90	2.47	ug/Kg	1		09/12/15 13:26
1,1,2-Trichloroethane	3.16	U	6.32	1.96	ug/Kg	1		09/12/15 13:26
1,1-Dichloroethane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,1-Dichloroethene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,1-Dichloropropene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,2,3-Trichlorobenzene	15.8	U	31.6	9.49	ug/Kg	1		09/12/15 13:26
1,2,3-Trichloropropane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,2,4-Trichlorobenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,2,4-Trimethylbenzene	11.7	J	31.6	9.49	ug/Kg	1		09/12/15 13:26
1,2-Dibromo-3-chloropropane	31.6	U	63.2	19.6	ug/Kg	1		09/12/15 13:26
1,2-Dibromoethane	3.16	U	6.32	1.96	ug/Kg	1		09/12/15 13:26
1,2-Dichlorobenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,2-Dichloroethane	3.16	U	6.32	1.96	ug/Kg	1		09/12/15 13:26
1,2-Dichloropropane	3.16	U	6.32	1.96	ug/Kg	1		09/12/15 13:26
1,3,5-Trimethylbenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,3-Dichlorobenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
1,3-Dichloropropane	3.16	U	6.32	1.96	ug/Kg	1		09/12/15 13:26
1,4-Dichlorobenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
2,2-Dichloropropane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
2-Butanone (MEK)	79.0	U	158	49.3	ug/Kg	1		09/12/15 13:26
2-Chlorotoluene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
2-Hexanone	79.0	U	158	49.3	ug/Kg	1		09/12/15 13:26
4-Chlorotoluene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
4-Isopropyltoluene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
4-Methyl-2-pentanone (MIBK)	79.0	U	158	49.3	ug/Kg	1		09/12/15 13:26
Benzene	3.95	U	7.90	2.47	ug/Kg	1		09/12/15 13:26
Bromobenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Bromochloromethane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Bromodichloromethane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Bromoform	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Bromomethane	63.0	U	126	39.2	ug/Kg	1		09/12/15 13:26
Carbon disulfide	31.6	U	63.2	19.6	ug/Kg	1		09/12/15 13:26
Carbon tetrachloride	3.95	U	7.90	2.47	ug/Kg	1		09/12/15 13:26
Chlorobenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Chloroethane	63.0	U	126	39.2	ug/Kg	1		09/12/15 13:26

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK15-18**

Client Sample ID: **SK15-18**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135002
Lab Project ID: 1155135

Collection Date: 09/05/15 13:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):92.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Chloromethane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
cis-1,2-Dichloroethene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
cis-1,3-Dichloropropene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Dibromochloromethane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Dibromomethane	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Dichlorodifluoromethane	15.8	U	31.6	9.49	ug/Kg	1		09/12/15 13:26
Ethylbenzene	6.64	J	15.8	4.93	ug/Kg	1		09/12/15 13:26
Freon-113	31.6	U	63.2	19.6	ug/Kg	1		09/12/15 13:26
Hexachlorobutadiene	15.8	U	31.6	9.49	ug/Kg	1		09/12/15 13:26
Isopropylbenzene (Cumene)	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Methylene chloride	31.6	U	63.2	19.6	ug/Kg	1		09/12/15 13:26
Methyl-t-butyl ether	31.6	U	63.2	19.6	ug/Kg	1		09/12/15 13:26
Naphthalene	15.8	U	31.6	9.49	ug/Kg	1		09/12/15 13:26
n-Butylbenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
n-Propylbenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
o-Xylene	14.5	J	15.8	4.93	ug/Kg	1		09/12/15 13:26
P & M -Xylene	32.9		31.6	9.49	ug/Kg	1		09/12/15 13:26
sec-Butylbenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Styrene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
tert-Butylbenzene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Tetrachloroethene	3.95	U	7.90	2.47	ug/Kg	1		09/12/15 13:26
Toluene	61.2		15.8	4.93	ug/Kg	1		09/12/15 13:26
trans-1,2-Dichloroethene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
trans-1,3-Dichloropropene	7.90	U	15.8	4.93	ug/Kg	1		09/12/15 13:26
Trichloroethene	3.95	U	7.90	2.47	ug/Kg	1		09/12/15 13:26
Trichlorofluoromethane	15.8	U	31.6	9.49	ug/Kg	1		09/12/15 13:26
Vinyl acetate	31.6	U	63.2	19.6	ug/Kg	1		09/12/15 13:26
Vinyl chloride	3.16	U	6.32	1.96	ug/Kg	1		09/12/15 13:26
Xylenes (total)	47.4		47.4	14.4	ug/Kg	1		09/12/15 13:26
Surrogates								
1,2-Dichloroethane-D4 (surr)	94.7		71-136		%	1		09/12/15 13:26
4-Bromofluorobenzene (surr)	103		55-151		%	1		09/12/15 13:26
Toluene-d8 (surr)	107		85-116		%	1		09/12/15 13:26

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J flagging is activated

Results of **SK15-18**

Client Sample ID: **SK15-18**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135002
Lab Project ID: 1155135

Collection Date: 09/05/15 13:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):92.8
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 13:26
Container ID: 1155135002-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/05/15 13:21
Prep Initial Wt./Vol.: 112.863 g
Prep Extract Vol: 33.1184 mL

Results of **SK19-22**

Client Sample ID: **SK19-22**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135003
Lab Project ID: 1155135

Collection Date: 09/05/15 17:39
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	28.3	J	87.3	27.1	mg/Kg	4		09/22/15 08:27
Surrogates								
5a Androstane (surr)	80.1		50-150		%	4		09/22/15 08:27

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 08:27
Container ID: 1155135003-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.154 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	248		87.3	27.1	mg/Kg	4		09/22/15 08:27
Surrogates								
n-Triacontane-d62 (surr)	100		50-150		%	4		09/22/15 08:27

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 08:27
Container ID: 1155135003-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.154 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK19-22**

Client Sample ID: **SK19-22**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135003
Lab Project ID: 1155135

Collection Date: 09/05/15 17:39
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.656	J	1.56	0.469	mg/Kg	1		09/22/15 13:37
Surrogates								
4-Bromofluorobenzene (surr)	103		50-150		%	1		09/22/15 13:37

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 13:37
Container ID: 1155135003-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/05/15 17:39
Prep Initial Wt./Vol.: 126.68 g
Prep Extract Vol: 36.1476 mL

Results of **SK19-22**

Client Sample ID: **SK19-22**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135003
Lab Project ID: 1155135

Collection Date: 09/05/15 17:39
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,1,1-Trichloroethane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,1,2,2-Tetrachloroethane	3.91	U	7.82	2.44	ug/Kg	1		09/12/15 13:42
1,1,2-Trichloroethane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:42
1,1-Dichloroethane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,1-Dichloroethene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,1-Dichloropropene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,2,3-Trichlorobenzene	15.7	U	31.3	9.39	ug/Kg	1		09/12/15 13:42
1,2,3-Trichloropropane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,2,4-Trichlorobenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,2,4-Trimethylbenzene	15.7	U	31.3	9.39	ug/Kg	1		09/12/15 13:42
1,2-Dibromo-3-chloropropane	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:42
1,2-Dibromoethane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:42
1,2-Dichlorobenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,2-Dichloroethane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:42
1,2-Dichloropropane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:42
1,3,5-Trimethylbenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,3-Dichlorobenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
1,3-Dichloropropane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:42
1,4-Dichlorobenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
2,2-Dichloropropane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
2-Butanone (MEK)	78.0	U	156	48.8	ug/Kg	1		09/12/15 13:42
2-Chlorotoluene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
2-Hexanone	78.0	U	156	48.8	ug/Kg	1		09/12/15 13:42
4-Chlorotoluene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
4-Isopropyltoluene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
4-Methyl-2-pentanone (MIBK)	78.0	U	156	48.8	ug/Kg	1		09/12/15 13:42
Benzene	3.91	U	7.82	2.44	ug/Kg	1		09/12/15 13:42
Bromobenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Bromochloromethane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Bromodichloromethane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Bromoform	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Bromomethane	62.5	U	125	38.8	ug/Kg	1		09/12/15 13:42
Carbon disulfide	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:42
Carbon tetrachloride	3.91	U	7.82	2.44	ug/Kg	1		09/12/15 13:42
Chlorobenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Chloroethane	62.5	U	125	38.8	ug/Kg	1		09/12/15 13:42

Results of **SK19-22**

Client Sample ID: **SK19-22**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135003
Lab Project ID: 1155135

Collection Date: 09/05/15 17:39
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Chloromethane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
cis-1,2-Dichloroethene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
cis-1,3-Dichloropropene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Dibromochloromethane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Dibromomethane	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Dichlorodifluoromethane	15.7	U	31.3	9.39	ug/Kg	1		09/12/15 13:42
Ethylbenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Freon-113	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:42
Hexachlorobutadiene	15.7	U	31.3	9.39	ug/Kg	1		09/12/15 13:42
Isopropylbenzene (Cumene)	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Methylene chloride	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:42
Methyl-t-butyl ether	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:42
Naphthalene	15.7	U	31.3	9.39	ug/Kg	1		09/12/15 13:42
n-Butylbenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
n-Propylbenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
o-Xylene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
P & M -Xylene	15.7	U	31.3	9.39	ug/Kg	1		09/12/15 13:42
sec-Butylbenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Styrene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
tert-Butylbenzene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Tetrachloroethene	3.91	U	7.82	2.44	ug/Kg	1		09/12/15 13:42
Toluene	7.04	J	15.6	4.88	ug/Kg	1		09/12/15 13:42
trans-1,2-Dichloroethene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
trans-1,3-Dichloropropene	7.80	U	15.6	4.88	ug/Kg	1		09/12/15 13:42
Trichloroethene	3.91	U	7.82	2.44	ug/Kg	1		09/12/15 13:42
Trichlorofluoromethane	15.7	U	31.3	9.39	ug/Kg	1		09/12/15 13:42
Vinyl acetate	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:42
Vinyl chloride	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:42
Xylenes (total)	23.4	U	46.9	14.3	ug/Kg	1		09/12/15 13:42
Surrogates								
1,2-Dichloroethane-D4 (surr)	93.6		71-136		%	1		09/12/15 13:42
4-Bromofluorobenzene (surr)	109		55-151		%	1		09/12/15 13:42
Toluene-d8 (surr)	108		85-116		%	1		09/12/15 13:42

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J flagging is activated

Results of **SK19-22**

Client Sample ID: **SK19-22**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135003
Lab Project ID: 1155135

Collection Date: 09/05/15 17:39
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 13:42
Container ID: 1155135003-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/05/15 17:39
Prep Initial Wt./Vol.: 126.68 g
Prep Extract Vol: 36.1476 mL

Results of **SK23-26**

Client Sample ID: **SK23-26**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135004
Lab Project ID: 1155135

Collection Date: 09/05/15 17:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	294		84.9	26.3	mg/Kg	4		09/22/15 09:26
Surrogates								
5a Androstane (surr)	92.7		50-150		%	4		09/22/15 09:26

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 09:26
Container ID: 1155135004-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.343 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	985		84.9	26.3	mg/Kg	4		09/22/15 09:26
Surrogates								
n-Triacontane-d62 (surr)	118		50-150		%	4		09/22/15 09:26

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 09:26
Container ID: 1155135004-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.343 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK23-26**

Client Sample ID: **SK23-26**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135004
Lab Project ID: 1155135

Collection Date: 09/05/15 17:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.12		1.67	0.501	mg/Kg	1		09/22/15 13:56
Surrogates								
4-Bromofluorobenzene (surr)	91.7		50-150		%	1		09/22/15 13:56

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 13:56
Container ID: 1155135004-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/05/15 17:48
Prep Initial Wt./Vol.: 102.964 g
Prep Extract Vol: 32.0559 mL

Results of **SK23-26**

Client Sample ID: **SK23-26**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135004
Lab Project ID: 1155135

Collection Date: 09/05/15 17:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,1,1-Trichloroethane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,1,2,2-Tetrachloroethane	4.18	U	8.36	2.61	ug/Kg	1		09/12/15 13:58
1,1,2-Trichloroethane	3.34	U	6.68	2.07	ug/Kg	1		09/12/15 13:58
1,1-Dichloroethane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,1-Dichloroethene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,1-Dichloropropene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,2,3-Trichlorobenzene	16.7	U	33.4	10.0	ug/Kg	1		09/12/15 13:58
1,2,3-Trichloropropane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,2,4-Trichlorobenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,2,4-Trimethylbenzene	16.7	U	33.4	10.0	ug/Kg	1		09/12/15 13:58
1,2-Dibromo-3-chloropropane	33.4	U	66.8	20.7	ug/Kg	1		09/12/15 13:58
1,2-Dibromoethane	3.34	U	6.68	2.07	ug/Kg	1		09/12/15 13:58
1,2-Dichlorobenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,2-Dichloroethane	3.34	U	6.68	2.07	ug/Kg	1		09/12/15 13:58
1,2-Dichloropropane	3.34	U	6.68	2.07	ug/Kg	1		09/12/15 13:58
1,3,5-Trimethylbenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,3-Dichlorobenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
1,3-Dichloropropane	3.34	U	6.68	2.07	ug/Kg	1		09/12/15 13:58
1,4-Dichlorobenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
2,2-Dichloropropane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
2-Butanone (MEK)	83.5	U	167	52.1	ug/Kg	1		09/12/15 13:58
2-Chlorotoluene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
2-Hexanone	83.5	U	167	52.1	ug/Kg	1		09/12/15 13:58
4-Chlorotoluene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
4-Isopropyltoluene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
4-Methyl-2-pentanone (MIBK)	83.5	U	167	52.1	ug/Kg	1		09/12/15 13:58
Benzene	4.18	U	8.36	2.61	ug/Kg	1		09/12/15 13:58
Bromobenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Bromochloromethane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Bromodichloromethane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Bromoform	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Bromomethane	67.0	U	134	41.4	ug/Kg	1		09/12/15 13:58
Carbon disulfide	33.4	U	66.8	20.7	ug/Kg	1		09/12/15 13:58
Carbon tetrachloride	4.18	U	8.36	2.61	ug/Kg	1		09/12/15 13:58
Chlorobenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Chloroethane	67.0	U	134	41.4	ug/Kg	1		09/12/15 13:58

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J flagging is activated

Results of **SK23-26**

Client Sample ID: **SK23-26**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135004
Lab Project ID: 1155135

Collection Date: 09/05/15 17:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Chloromethane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
cis-1,2-Dichloroethene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
cis-1,3-Dichloropropene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Dibromochloromethane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Dibromomethane	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Dichlorodifluoromethane	16.7	U	33.4	10.0	ug/Kg	1		09/12/15 13:58
Ethylbenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Freon-113	33.4	U	66.8	20.7	ug/Kg	1		09/12/15 13:58
Hexachlorobutadiene	16.7	U	33.4	10.0	ug/Kg	1		09/12/15 13:58
Isopropylbenzene (Cumene)	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Methylene chloride	33.4	U	66.8	20.7	ug/Kg	1		09/12/15 13:58
Methyl-t-butyl ether	33.4	U	66.8	20.7	ug/Kg	1		09/12/15 13:58
Naphthalene	16.7	U	33.4	10.0	ug/Kg	1		09/12/15 13:58
n-Butylbenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
n-Propylbenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
o-Xylene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
P & M -Xylene	12.0	J	33.4	10.0	ug/Kg	1		09/12/15 13:58
sec-Butylbenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Styrene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
tert-Butylbenzene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Tetrachloroethene	4.18	U	8.36	2.61	ug/Kg	1		09/12/15 13:58
Toluene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
trans-1,2-Dichloroethene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
trans-1,3-Dichloropropene	8.35	U	16.7	5.21	ug/Kg	1		09/12/15 13:58
Trichloroethene	4.18	U	8.36	2.61	ug/Kg	1		09/12/15 13:58
Trichlorofluoromethane	13.9	J	33.4	10.0	ug/Kg	1		09/12/15 13:58
Vinyl acetate	33.4	U	66.8	20.7	ug/Kg	1		09/12/15 13:58
Vinyl chloride	3.34	U	6.68	2.07	ug/Kg	1		09/12/15 13:58
Xylenes (total)	25.1	U	50.1	15.2	ug/Kg	1		09/12/15 13:58
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.1		71-136		%	1		09/12/15 13:58
4-Bromofluorobenzene (surr)	97.9		55-151		%	1		09/12/15 13:58
Toluene-d8 (surr)	115		85-116		%	1		09/12/15 13:58

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J flagging is activated

Results of **SK23-26**

Client Sample ID: **SK23-26**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135004
Lab Project ID: 1155135

Collection Date: 09/05/15 17:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 13:58
Container ID: 1155135004-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/05/15 17:48
Prep Initial Wt./Vol.: 102.964 g
Prep Extract Vol: 32.0559 mL

Results of **Southwest Corner Well**

Client Sample ID: **Southwest Corner Well**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135005
Lab Project ID: 1155135

Collection Date: 09/05/15 16:41
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	341		91.4	28.3	mg/Kg	4		09/25/15 11:31
Surrogates								
5a Androstane (surr)	104		50-150		%	4		09/25/15 11:31

Batch Information

Analytical Batch: XFC12104
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/25/15 11:31
Container ID: 1155135005-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.415 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	675		91.4	28.3	mg/Kg	4		09/25/15 11:31
Surrogates								
n-Triacontane-d62 (surr)	122		50-150		%	4		09/25/15 11:31

Batch Information

Analytical Batch: XFC12104
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/25/15 11:31
Container ID: 1155135005-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.415 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **Southwest Corner Well**

Client Sample ID: **Southwest Corner Well**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135005
Lab Project ID: 1155135

Collection Date: 09/05/15 16:41
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.40	J	2.55	0.764	mg/Kg	1		09/22/15 14:15
Surrogates								
4-Bromofluorobenzene (surr)	102		50-150		%	1		09/22/15 14:15

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 14:15
Container ID: 1155135005-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/05/15 16:41
Prep Initial Wt./Vol.: 82.432 g
Prep Extract Vol: 36.2595 mL

Results of **Southwest Corner Well**

Client Sample ID: **Southwest Corner Well**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135005
Lab Project ID: 1155135

Collection Date: 09/05/15 16:41
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,1,1-Trichloroethane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,1,2,2-Tetrachloroethane	6.35	U	12.7	3.97	ug/Kg	1		09/12/15 14:14
1,1,2-Trichloroethane	5.10	U	10.2	3.16	ug/Kg	1		09/12/15 14:14
1,1-Dichloroethane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,1-Dichloroethene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,1-Dichloropropene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,2,3-Trichlorobenzene	25.4	U	50.9	15.3	ug/Kg	1		09/12/15 14:14
1,2,3-Trichloropropane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,2,4-Trichlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,2,4-Trimethylbenzene	25.4	U	50.9	15.3	ug/Kg	1		09/12/15 14:14
1,2-Dibromo-3-chloropropane	51.0	U	102	31.6	ug/Kg	1		09/12/15 14:14
1,2-Dibromoethane	5.10	U	10.2	3.16	ug/Kg	1		09/12/15 14:14
1,2-Dichlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,2-Dichloroethane	5.10	U	10.2	3.16	ug/Kg	1		09/12/15 14:14
1,2-Dichloropropane	5.10	U	10.2	3.16	ug/Kg	1		09/12/15 14:14
1,3,5-Trimethylbenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,3-Dichlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
1,3-Dichloropropane	5.10	U	10.2	3.16	ug/Kg	1		09/12/15 14:14
1,4-Dichlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
2,2-Dichloropropane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
2-Butanone (MEK)	128	U	255	79.5	ug/Kg	1		09/12/15 14:14
2-Chlorotoluene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
2-Hexanone	128	U	255	79.5	ug/Kg	1		09/12/15 14:14
4-Chlorotoluene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
4-Isopropyltoluene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
4-Methyl-2-pentanone (MIBK)	128	U	255	79.5	ug/Kg	1		09/12/15 14:14
Benzene	6.35	U	12.7	3.97	ug/Kg	1		09/12/15 14:14
Bromobenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Bromochloromethane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Bromodichloromethane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Bromoform	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Bromomethane	102	U	204	63.2	ug/Kg	1		09/12/15 14:14
Carbon disulfide	51.0	U	102	31.6	ug/Kg	1		09/12/15 14:14
Carbon tetrachloride	6.35	U	12.7	3.97	ug/Kg	1		09/12/15 14:14
Chlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Chloroethane	102	U	204	63.2	ug/Kg	1		09/12/15 14:14

Results of **Southwest Corner Well**

Client Sample ID: **Southwest Corner Well**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135005
Lab Project ID: 1155135

Collection Date: 09/05/15 16:41
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Chloromethane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
cis-1,2-Dichloroethene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
cis-1,3-Dichloropropene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Dibromochloromethane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Dibromomethane	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Dichlorodifluoromethane	25.4	U	50.9	15.3	ug/Kg	1		09/12/15 14:14
Ethylbenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Freon-113	51.0	U	102	31.6	ug/Kg	1		09/12/15 14:14
Hexachlorobutadiene	25.4	U	50.9	15.3	ug/Kg	1		09/12/15 14:14
Isopropylbenzene (Cumene)	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Methylene chloride	51.0	U	102	31.6	ug/Kg	1		09/12/15 14:14
Methyl-t-butyl ether	51.0	U	102	31.6	ug/Kg	1		09/12/15 14:14
Naphthalene	25.4	U	50.9	15.3	ug/Kg	1		09/12/15 14:14
n-Butylbenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
n-Propylbenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
o-Xylene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
P & M -Xylene	25.4	U	50.9	15.3	ug/Kg	1		09/12/15 14:14
sec-Butylbenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Styrene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
tert-Butylbenzene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Tetrachloroethene	6.35	U	12.7	3.97	ug/Kg	1		09/12/15 14:14
Toluene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
trans-1,2-Dichloroethene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
trans-1,3-Dichloropropene	12.8	U	25.5	7.95	ug/Kg	1		09/12/15 14:14
Trichloroethene	6.35	U	12.7	3.97	ug/Kg	1		09/12/15 14:14
Trichlorofluoromethane	25.4	U	50.9	15.3	ug/Kg	1		09/12/15 14:14
Vinyl acetate	51.0	U	102	31.6	ug/Kg	1		09/12/15 14:14
Vinyl chloride	5.10	U	10.2	3.16	ug/Kg	1		09/12/15 14:14
Xylenes (total)	38.2	U	76.4	23.2	ug/Kg	1		09/12/15 14:14
Surrogates								
1,2-Dichloroethane-D4 (surr)	93		71-136		%	1		09/12/15 14:14
4-Bromofluorobenzene (surr)	101		55-151		%	1		09/12/15 14:14
Toluene-d8 (surr)	109		85-116		%	1		09/12/15 14:14

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J flagging is activated

Results of **Southwest Corner Well**

Client Sample ID: **Southwest Corner Well**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135005
Lab Project ID: 1155135

Collection Date: 09/05/15 16:41
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 14:14
Container ID: 1155135005-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/05/15 16:41
Prep Initial Wt./Vol.: 82.432 g
Prep Extract Vol: 36.2595 mL

Results of **Southwest Corner Floor**

Client Sample ID: **Southwest Corner Floor**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135006
Lab Project ID: 1155135

Collection Date: 09/05/15 16:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	672		86.9	26.9	mg/Kg	4		09/25/15 11:51
Surrogates								
5a Androstane (surr)	95.2		50-150		%	4		09/25/15 11:51

Batch Information

Analytical Batch: XFC12104
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/25/15 11:51
Container ID: 1155135006-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.385 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	774		86.9	26.9	mg/Kg	4		09/25/15 11:51
Surrogates								
n-Triacontane-d62 (surr)	124		50-150		%	4		09/25/15 11:51

Batch Information

Analytical Batch: XFC12104
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/25/15 11:51
Container ID: 1155135006-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.385 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **Southwest Corner Floor**

Client Sample ID: **Southwest Corner Floor**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135006
Lab Project ID: 1155135

Collection Date: 09/05/15 16:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.859	J	2.02	0.607	mg/Kg	1		09/22/15 14:34
Surrogates								
4-Bromofluorobenzene (surr)	90.5		50-150		%	1		09/22/15 14:34

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 14:34
Container ID: 1155135006-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/05/15 16:48
Prep Initial Wt./Vol.: 90.011 g
Prep Extract Vol: 33.15 mL

Results of **Southwest Corner Floor**

Client Sample ID: **Southwest Corner Floor**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135006
Lab Project ID: 1155135

Collection Date: 09/05/15 16:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,1,1-Trichloroethane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,1,2,2-Tetrachloroethane	5.05	U	10.1	3.16	ug/Kg	1		09/12/15 14:30
1,1,2-Trichloroethane	4.05	U	8.10	2.51	ug/Kg	1		09/12/15 14:30
1,1-Dichloroethane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,1-Dichloroethene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,1-Dichloropropene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,2,3-Trichlorobenzene	20.3	U	40.5	12.1	ug/Kg	1		09/12/15 14:30
1,2,3-Trichloropropane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,2,4-Trichlorobenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,2,4-Trimethylbenzene	20.3	U	40.5	12.1	ug/Kg	1		09/12/15 14:30
1,2-Dibromo-3-chloropropane	40.5	U	81.0	25.1	ug/Kg	1		09/12/15 14:30
1,2-Dibromoethane	4.05	U	8.10	2.51	ug/Kg	1		09/12/15 14:30
1,2-Dichlorobenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,2-Dichloroethane	4.05	U	8.10	2.51	ug/Kg	1		09/12/15 14:30
1,2-Dichloropropane	4.05	U	8.10	2.51	ug/Kg	1		09/12/15 14:30
1,3,5-Trimethylbenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,3-Dichlorobenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
1,3-Dichloropropane	4.05	U	8.10	2.51	ug/Kg	1		09/12/15 14:30
1,4-Dichlorobenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
2,2-Dichloropropane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
2-Butanone (MEK)	101	U	202	63.2	ug/Kg	1		09/12/15 14:30
2-Chlorotoluene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
2-Hexanone	101	U	202	63.2	ug/Kg	1		09/12/15 14:30
4-Chlorotoluene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
4-Isopropyltoluene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
4-Methyl-2-pentanone (MIBK)	101	U	202	63.2	ug/Kg	1		09/12/15 14:30
Benzene	5.05	U	10.1	3.16	ug/Kg	1		09/12/15 14:30
Bromobenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Bromochloromethane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Bromodichloromethane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Bromoform	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Bromomethane	81.0	U	162	50.2	ug/Kg	1		09/12/15 14:30
Carbon disulfide	40.5	U	81.0	25.1	ug/Kg	1		09/12/15 14:30
Carbon tetrachloride	5.05	U	10.1	3.16	ug/Kg	1		09/12/15 14:30
Chlorobenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Chloroethane	81.0	U	162	50.2	ug/Kg	1		09/12/15 14:30

Results of **Southwest Corner Floor**

Client Sample ID: **Southwest Corner Floor**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135006
Lab Project ID: 1155135

Collection Date: 09/05/15 16:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Chloromethane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
cis-1,2-Dichloroethene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
cis-1,3-Dichloropropene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Dibromochloromethane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Dibromomethane	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Dichlorodifluoromethane	20.3	U	40.5	12.1	ug/Kg	1		09/12/15 14:30
Ethylbenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Freon-113	40.5	U	81.0	25.1	ug/Kg	1		09/12/15 14:30
Hexachlorobutadiene	20.3	U	40.5	12.1	ug/Kg	1		09/12/15 14:30
Isopropylbenzene (Cumene)	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Methylene chloride	40.5	U	81.0	25.1	ug/Kg	1		09/12/15 14:30
Methyl-t-butyl ether	40.5	U	81.0	25.1	ug/Kg	1		09/12/15 14:30
Naphthalene	20.3	U	40.5	12.1	ug/Kg	1		09/12/15 14:30
n-Butylbenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
n-Propylbenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
o-Xylene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
P & M -Xylene	20.3	U	40.5	12.1	ug/Kg	1		09/12/15 14:30
sec-Butylbenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Styrene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
tert-Butylbenzene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Tetrachloroethene	5.05	U	10.1	3.16	ug/Kg	1		09/12/15 14:30
Toluene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
trans-1,2-Dichloroethene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
trans-1,3-Dichloropropene	10.1	U	20.2	6.32	ug/Kg	1		09/12/15 14:30
Trichloroethene	5.05	U	10.1	3.16	ug/Kg	1		09/12/15 14:30
Trichlorofluoromethane	20.3	U	40.5	12.1	ug/Kg	1		09/12/15 14:30
Vinyl acetate	40.5	U	81.0	25.1	ug/Kg	1		09/12/15 14:30
Vinyl chloride	4.05	U	8.10	2.51	ug/Kg	1		09/12/15 14:30
Xylenes (total)	30.4	U	60.7	18.5	ug/Kg	1		09/12/15 14:30
Surrogates								
1,2-Dichloroethane-D4 (surr)	87.6		71-136		%	1		09/12/15 14:30
4-Bromofluorobenzene (surr)	96.6		55-151		%	1		09/12/15 14:30
Toluene-d8 (surr)	102		85-116		%	1		09/12/15 14:30

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **Southwest Corner Floor**

Client Sample ID: **Southwest Corner Floor**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135006
Lab Project ID: 1155135

Collection Date: 09/05/15 16:48
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 14:30
Container ID: 1155135006-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/05/15 16:48
Prep Initial Wt./Vol.: 90.011 g
Prep Extract Vol: 33.15 mL

Results of **C Box**

Client Sample ID: **C Box**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135007
Lab Project ID: 1155135

Collection Date: 09/06/15 12:58
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	76.5		21.0	6.50	mg/Kg	1		09/22/15 07:17
Surrogates								
5a Androstane (surr)	101		50-150		%	1		09/22/15 07:17

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 07:17
Container ID: 1155135007-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.189 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	576		21.0	6.50	mg/Kg	1		09/22/15 07:17
Surrogates								
n-Triacontane-d62 (surr)	113		50-150		%	1		09/22/15 07:17

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 07:17
Container ID: 1155135007-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.189 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **C Box**

Client Sample ID: **C Box**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135007
Lab Project ID: 1155135

Collection Date: 09/06/15 12:58
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	5.19		1.35	0.405	mg/Kg	1		09/22/15 14:54
Surrogates								
4-Bromofluorobenzene (surr)	113		50-150		%	1		09/22/15 14:54

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 14:54
Container ID: 1155135007-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/06/15 12:58
Prep Initial Wt./Vol.: 122.479 g
Prep Extract Vol: 31.3585 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **C Box**

Client Sample ID: **C Box**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135007
Lab Project ID: 1155135

Collection Date: 09/06/15 12:58
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,1,1-Trichloroethane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,1,2,2-Tetrachloroethane	3.38	U	6.75	2.11	ug/Kg	1		09/12/15 14:46
1,1,2-Trichloroethane	2.70	U	5.40	1.67	ug/Kg	1		09/12/15 14:46
1,1-Dichloroethane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,1-Dichloroethene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,1-Dichloropropene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,2,3-Trichlorobenzene	13.5	U	27.0	8.10	ug/Kg	1		09/12/15 14:46
1,2,3-Trichloropropane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,2,4-Trichlorobenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,2,4-Trimethylbenzene	13.5	U	27.0	8.10	ug/Kg	1		09/12/15 14:46
1,2-Dibromo-3-chloropropane	27.0	U	54.0	16.7	ug/Kg	1		09/12/15 14:46
1,2-Dibromoethane	2.70	U	5.40	1.67	ug/Kg	1		09/12/15 14:46
1,2-Dichlorobenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,2-Dichloroethane	2.70	U	5.40	1.67	ug/Kg	1		09/12/15 14:46
1,2-Dichloropropane	2.70	U	5.40	1.67	ug/Kg	1		09/12/15 14:46
1,3,5-Trimethylbenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,3-Dichlorobenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
1,3-Dichloropropane	2.70	U	5.40	1.67	ug/Kg	1		09/12/15 14:46
1,4-Dichlorobenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
2,2-Dichloropropane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
2-Butanone (MEK)	67.5	U	135	42.1	ug/Kg	1		09/12/15 14:46
2-Chlorotoluene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
2-Hexanone	67.5	U	135	42.1	ug/Kg	1		09/12/15 14:46
4-Chlorotoluene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
4-Isopropyltoluene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
4-Methyl-2-pentanone (MIBK)	67.5	U	135	42.1	ug/Kg	1		09/12/15 14:46
Benzene	3.38	U	6.75	2.11	ug/Kg	1		09/12/15 14:46
Bromobenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Bromochloromethane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Bromodichloromethane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Bromoform	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Bromomethane	54.0	U	108	33.5	ug/Kg	1		09/12/15 14:46
Carbon disulfide	27.0	U	54.0	16.7	ug/Kg	1		09/12/15 14:46
Carbon tetrachloride	3.38	U	6.75	2.11	ug/Kg	1		09/12/15 14:46
Chlorobenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Chloroethane	54.0	U	108	33.5	ug/Kg	1		09/12/15 14:46

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J flagging is activated

Results of **C Box**

Client Sample ID: **C Box**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135007
Lab Project ID: 1155135

Collection Date: 09/06/15 12:58
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Chloromethane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
cis-1,2-Dichloroethene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
cis-1,3-Dichloropropene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Dibromochloromethane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Dibromomethane	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Dichlorodifluoromethane	13.5	U	27.0	8.10	ug/Kg	1		09/12/15 14:46
Ethylbenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Freon-113	27.0	U	54.0	16.7	ug/Kg	1		09/12/15 14:46
Hexachlorobutadiene	13.5	U	27.0	8.10	ug/Kg	1		09/12/15 14:46
Isopropylbenzene (Cumene)	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Methylene chloride	27.0	U	54.0	16.7	ug/Kg	1		09/12/15 14:46
Methyl-t-butyl ether	27.0	U	54.0	16.7	ug/Kg	1		09/12/15 14:46
Naphthalene	13.5	U	27.0	8.10	ug/Kg	1		09/12/15 14:46
n-Butylbenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
n-Propylbenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
o-Xylene	6.89	J	13.5	4.21	ug/Kg	1		09/12/15 14:46
P & M -Xylene	27.0		27.0	8.10	ug/Kg	1		09/12/15 14:46
sec-Butylbenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Styrene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
tert-Butylbenzene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Tetrachloroethene	3.38	U	6.75	2.11	ug/Kg	1		09/12/15 14:46
Toluene	23.6		13.5	4.21	ug/Kg	1		09/12/15 14:46
trans-1,2-Dichloroethene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
trans-1,3-Dichloropropene	6.75	U	13.5	4.21	ug/Kg	1		09/12/15 14:46
Trichloroethene	3.38	U	6.75	2.11	ug/Kg	1		09/12/15 14:46
Trichlorofluoromethane	13.5	U	27.0	8.10	ug/Kg	1		09/12/15 14:46
Vinyl acetate	27.0	U	54.0	16.7	ug/Kg	1		09/12/15 14:46
Vinyl chloride	2.70	U	5.40	1.67	ug/Kg	1		09/12/15 14:46
Xylenes (total)	33.9	J	40.5	12.3	ug/Kg	1		09/12/15 14:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	93.6		71-136		%	1		09/12/15 14:46
4-Bromofluorobenzene (surr)	106		55-151		%	1		09/12/15 14:46
Toluene-d8 (surr)	111		85-116		%	1		09/12/15 14:46

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **C Box**

Client Sample ID: **C Box**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135007
Lab Project ID: 1155135

Collection Date: 09/06/15 12:58
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 14:46
Container ID: 1155135007-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/06/15 12:58
Prep Initial Wt./Vol.: 122.479 g
Prep Extract Vol: 31.3585 mL

Results of **SK27-29**

Client Sample ID: **SK27-29**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135008
Lab Project ID: 1155135

Collection Date: 09/06/15 14:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	86.1		84.4	26.2	mg/Kg	4		09/22/15 08:36
Surrogates								
5a Androstane (surr)	72		50-150		%	4		09/22/15 08:36

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 08:36
Container ID: 1155135008-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.467 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	479		84.4	26.2	mg/Kg	4		09/22/15 08:36
Surrogates								
n-Triacontane-d62 (surr)	87.3		50-150		%	4		09/22/15 08:36

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 08:36
Container ID: 1155135008-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.467 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK27-29**

Client Sample ID: **SK27-29**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135008
Lab Project ID: 1155135

Collection Date: 09/06/15 14:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.52	J	1.65	0.495	mg/Kg	1		09/22/15 15:12
Surrogates								
4-Bromofluorobenzene (surr)	99.6		50-150		%	1		09/22/15 15:12

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 15:12
Container ID: 1155135008-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/06/15 14:21
Prep Initial Wt./Vol.: 103.523 g
Prep Extract Vol: 31.8857 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK27-29**

Client Sample ID: **SK27-29**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135008
Lab Project ID: 1155135

Collection Date: 09/06/15 14:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,1,1-Trichloroethane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,1,2,2-Tetrachloroethane	4.13	U	8.25	2.57	ug/Kg	1		09/12/15 15:02
1,1,2-Trichloroethane	3.30	U	6.60	2.05	ug/Kg	1		09/12/15 15:02
1,1-Dichloroethane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,1-Dichloroethene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,1-Dichloropropene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,2,3-Trichlorobenzene	16.5	U	33.0	9.90	ug/Kg	1		09/12/15 15:02
1,2,3-Trichloropropane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,2,4-Trichlorobenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,2,4-Trimethylbenzene	16.5	U	33.0	9.90	ug/Kg	1		09/12/15 15:02
1,2-Dibromo-3-chloropropane	33.0	U	66.0	20.5	ug/Kg	1		09/12/15 15:02
1,2-Dibromoethane	3.30	U	6.60	2.05	ug/Kg	1		09/12/15 15:02
1,2-Dichlorobenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,2-Dichloroethane	3.30	U	6.60	2.05	ug/Kg	1		09/12/15 15:02
1,2-Dichloropropane	3.30	U	6.60	2.05	ug/Kg	1		09/12/15 15:02
1,3,5-Trimethylbenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,3-Dichlorobenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
1,3-Dichloropropane	3.30	U	6.60	2.05	ug/Kg	1		09/12/15 15:02
1,4-Dichlorobenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
2,2-Dichloropropane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
2-Butanone (MEK)	82.5	U	165	51.5	ug/Kg	1		09/12/15 15:02
2-Chlorotoluene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
2-Hexanone	82.5	U	165	51.5	ug/Kg	1		09/12/15 15:02
4-Chlorotoluene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
4-Isopropyltoluene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
4-Methyl-2-pentanone (MIBK)	82.5	U	165	51.5	ug/Kg	1		09/12/15 15:02
Benzene	4.13	U	8.25	2.57	ug/Kg	1		09/12/15 15:02
Bromobenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Bromochloromethane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Bromodichloromethane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Bromoform	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Bromomethane	66.0	U	132	40.9	ug/Kg	1		09/12/15 15:02
Carbon disulfide	33.0	U	66.0	20.5	ug/Kg	1		09/12/15 15:02
Carbon tetrachloride	4.13	U	8.25	2.57	ug/Kg	1		09/12/15 15:02
Chlorobenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Chloroethane	66.0	U	132	40.9	ug/Kg	1		09/12/15 15:02

Results of **SK27-29**

Client Sample ID: **SK27-29**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135008
Lab Project ID: 1155135

Collection Date: 09/06/15 14:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Chloromethane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
cis-1,2-Dichloroethene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
cis-1,3-Dichloropropene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Dibromochloromethane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Dibromomethane	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Dichlorodifluoromethane	16.5	U	33.0	9.90	ug/Kg	1		09/12/15 15:02
Ethylbenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Freon-113	33.0	U	66.0	20.5	ug/Kg	1		09/12/15 15:02
Hexachlorobutadiene	16.5	U	33.0	9.90	ug/Kg	1		09/12/15 15:02
Isopropylbenzene (Cumene)	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Methylene chloride	33.0	U	66.0	20.5	ug/Kg	1		09/12/15 15:02
Methyl-t-butyl ether	33.0	U	66.0	20.5	ug/Kg	1		09/12/15 15:02
Naphthalene	16.5	U	33.0	9.90	ug/Kg	1		09/12/15 15:02
n-Butylbenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
n-Propylbenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
o-Xylene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
P & M -Xylene	16.5	U	33.0	9.90	ug/Kg	1		09/12/15 15:02
sec-Butylbenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Styrene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
tert-Butylbenzene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Tetrachloroethene	4.13	U	8.25	2.57	ug/Kg	1		09/12/15 15:02
Toluene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
trans-1,2-Dichloroethene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
trans-1,3-Dichloropropene	8.25	U	16.5	5.15	ug/Kg	1		09/12/15 15:02
Trichloroethene	4.13	U	8.25	2.57	ug/Kg	1		09/12/15 15:02
Trichlorofluoromethane	16.5	U	33.0	9.90	ug/Kg	1		09/12/15 15:02
Vinyl acetate	33.0	U	66.0	20.5	ug/Kg	1		09/12/15 15:02
Vinyl chloride	3.30	U	6.60	2.05	ug/Kg	1		09/12/15 15:02
Xylenes (total)	24.8	U	49.5	15.0	ug/Kg	1		09/12/15 15:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	95		71-136		%	1		09/12/15 15:02
4-Bromofluorobenzene (surr)	107		55-151		%	1		09/12/15 15:02
Toluene-d8 (surr)	107		85-116		%	1		09/12/15 15:02

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK27-29**

Client Sample ID: **SK27-29**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135008
Lab Project ID: 1155135

Collection Date: 09/06/15 14:21
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 15:02
Container ID: 1155135008-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/06/15 14:21
Prep Initial Wt./Vol.: 103.523 g
Prep Extract Vol: 31.8857 mL

Results of **SK30-32**

Client Sample ID: **SK30-32**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135009
Lab Project ID: 1155135

Collection Date: 09/06/15 14:33
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	114		84.7	26.3	mg/Kg	4		09/25/15 12:32
Surrogates								
5a Androstane (surr)	84.5		50-150		%	4		09/25/15 12:32

Batch Information

Analytical Batch: XFC12104
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/25/15 12:32
Container ID: 1155135009-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.347 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	589		84.7	26.3	mg/Kg	4		09/25/15 12:32
Surrogates								
n-Triacontane-d62 (surr)	95		50-150		%	4		09/25/15 12:32

Batch Information

Analytical Batch: XFC12104
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/25/15 12:32
Container ID: 1155135009-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.347 g
Prep Extract Vol: 1 mL

Results of **SK30-32**

Client Sample ID: **SK30-32**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135009
Lab Project ID: 1155135

Collection Date: 09/06/15 14:33
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.85		1.57	0.470	mg/Kg	1		09/22/15 15:31
Surrogates								
4-Bromofluorobenzene (surr)	97.3		50-150		%	1		09/22/15 15:31

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 15:31
Container ID: 1155135009-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/06/15 14:33
Prep Initial Wt./Vol.: 110.767 g
Prep Extract Vol: 32.3832 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK30-32**

Client Sample ID: **SK30-32**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135009
Lab Project ID: 1155135

Collection Date: 09/06/15 14:33
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,1,1-Trichloroethane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,1,2,2-Tetrachloroethane	3.92	U	7.83	2.44	ug/Kg	1		09/12/15 13:06
1,1,2-Trichloroethane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:06
1,1-Dichloroethane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,1-Dichloroethene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,1-Dichloropropene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,2,3-Trichlorobenzene	15.7	U	31.3	9.40	ug/Kg	1		09/12/15 13:06
1,2,3-Trichloropropane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,2,4-Trichlorobenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,2,4-Trimethylbenzene	15.7	U	31.3	9.40	ug/Kg	1		09/12/15 13:06
1,2-Dibromo-3-chloropropane	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:06
1,2-Dibromoethane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:06
1,2-Dichlorobenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,2-Dichloroethane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:06
1,2-Dichloropropane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:06
1,3,5-Trimethylbenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,3-Dichlorobenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
1,3-Dichloropropane	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:06
1,4-Dichlorobenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
2,2-Dichloropropane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
2-Butanone (MEK)	78.5	U	157	48.9	ug/Kg	1		09/12/15 13:06
2-Chlorotoluene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
2-Hexanone	78.5	U	157	48.9	ug/Kg	1		09/12/15 13:06
4-Chlorotoluene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
4-Isopropyltoluene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
4-Methyl-2-pentanone (MIBK)	78.5	U	157	48.9	ug/Kg	1		09/12/15 13:06
Benzene	3.92	U	7.83	2.44	ug/Kg	1		09/12/15 13:06
Bromobenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Bromochloromethane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Bromodichloromethane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Bromoform	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Bromomethane	62.5	U	125	38.8	ug/Kg	1		09/12/15 13:06
Carbon disulfide	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:06
Carbon tetrachloride	3.92	U	7.83	2.44	ug/Kg	1		09/12/15 13:06
Chlorobenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Chloroethane	62.5	U	125	38.8	ug/Kg	1		09/12/15 13:06

Results of **SK30-32**

Client Sample ID: **SK30-32**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135009
Lab Project ID: 1155135

Collection Date: 09/06/15 14:33
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Chloromethane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
cis-1,2-Dichloroethene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
cis-1,3-Dichloropropene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Dibromochloromethane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Dibromomethane	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Dichlorodifluoromethane	15.7	U	31.3	9.40	ug/Kg	1		09/12/15 13:06
Ethylbenzene	7.05	J	15.7	4.89	ug/Kg	1		09/12/15 13:06
Freon-113	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:06
Hexachlorobutadiene	15.7	U	31.3	9.40	ug/Kg	1		09/12/15 13:06
Isopropylbenzene (Cumene)	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Methylene chloride	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:06
Methyl-t-butyl ether	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:06
Naphthalene	15.7	U	31.3	9.40	ug/Kg	1		09/12/15 13:06
n-Butylbenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
n-Propylbenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
o-Xylene	13.8	J	15.7	4.89	ug/Kg	1		09/12/15 13:06
P & M -Xylene	33.7		31.3	9.40	ug/Kg	1		09/12/15 13:06
sec-Butylbenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Styrene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
tert-Butylbenzene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Tetrachloroethene	3.92	U	7.83	2.44	ug/Kg	1		09/12/15 13:06
Toluene	53.2		15.7	4.89	ug/Kg	1		09/12/15 13:06
trans-1,2-Dichloroethene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
trans-1,3-Dichloropropene	7.85	U	15.7	4.89	ug/Kg	1		09/12/15 13:06
Trichloroethene	3.92	U	7.83	2.44	ug/Kg	1		09/12/15 13:06
Trichlorofluoromethane	15.7	U	31.3	9.40	ug/Kg	1		09/12/15 13:06
Vinyl acetate	31.3	U	62.6	19.4	ug/Kg	1		09/12/15 13:06
Vinyl chloride	3.13	U	6.26	1.94	ug/Kg	1		09/12/15 13:06
Xylenes (total)	47.5		47.0	14.3	ug/Kg	1		09/12/15 13:06
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		09/12/15 13:06
4-Bromofluorobenzene (surr)	102		55-151		%	1		09/12/15 13:06
Toluene-d8 (surr)	96.9		85-116		%	1		09/12/15 13:06

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **SK30-32**

Client Sample ID: **SK30-32**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135009
Lab Project ID: 1155135

Collection Date: 09/06/15 14:33
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15248
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 09/12/15 13:06
Container ID: 1155135009-B

Prep Batch: VXX27882
Prep Method: SW5035A
Prep Date/Time: 09/06/15 14:33
Prep Initial Wt./Vol.: 110.767 g
Prep Extract Vol: 32.3832 mL

Results of **A2**

Client Sample ID: **A2**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135010
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	43.2	J	84.0	26.0	mg/Kg	4		09/22/15 08:56
Surrogates								
5a Androstane (surr)	79.4		50-150		%	4		09/22/15 08:56

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 08:56
Container ID: 1155135010-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.398 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	388		84.0	26.0	mg/Kg	4		09/22/15 08:56
Surrogates								
n-Triacontane-d62 (surr)	117		50-150		%	4		09/22/15 08:56

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 08:56
Container ID: 1155135010-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.398 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **A2**

Client Sample ID: **A2**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135010
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.20	J	1.79	0.538	mg/Kg	1		09/22/15 15:50
Surrogates								
4-Bromofluorobenzene (surr)	103		50-150		%	1		09/22/15 15:50

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 15:50
Container ID: 1155135010-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/06/15 16:25
Prep Initial Wt./Vol.: 90.166 g
Prep Extract Vol: 30.385 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **A2**

Client Sample ID: **A2**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135010
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,1,1-Trichloroethane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,1,2,2-Tetrachloroethane	4.48	U	8.96	2.80	ug/Kg	1		09/12/15 15:18
1,1,2-Trichloroethane	3.59	U	7.17	2.22	ug/Kg	1		09/12/15 15:18
1,1-Dichloroethane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,1-Dichloroethene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,1-Dichloropropene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,2,3-Trichlorobenzene	17.9	U	35.8	10.8	ug/Kg	1		09/12/15 15:18
1,2,3-Trichloropropane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,2,4-Trichlorobenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,2,4-Trimethylbenzene	17.9	U	35.8	10.8	ug/Kg	1		09/12/15 15:18
1,2-Dibromo-3-chloropropane	35.9	U	71.7	22.2	ug/Kg	1		09/12/15 15:18
1,2-Dibromoethane	3.59	U	7.17	2.22	ug/Kg	1		09/12/15 15:18
1,2-Dichlorobenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,2-Dichloroethane	3.59	U	7.17	2.22	ug/Kg	1		09/12/15 15:18
1,2-Dichloropropane	3.59	U	7.17	2.22	ug/Kg	1		09/12/15 15:18
1,3,5-Trimethylbenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,3-Dichlorobenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
1,3-Dichloropropane	3.59	U	7.17	2.22	ug/Kg	1		09/12/15 15:18
1,4-Dichlorobenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
2,2-Dichloropropane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
2-Butanone (MEK)	89.5	U	179	55.9	ug/Kg	1		09/12/15 15:18
2-Chlorotoluene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
2-Hexanone	89.5	U	179	55.9	ug/Kg	1		09/12/15 15:18
4-Chlorotoluene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
4-Isopropyltoluene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
4-Methyl-2-pentanone (MIBK)	89.5	U	179	55.9	ug/Kg	1		09/12/15 15:18
Benzene	4.48	U	8.96	2.80	ug/Kg	1		09/12/15 15:18
Bromobenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Bromochloromethane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Bromodichloromethane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Bromoform	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Bromomethane	71.5	U	143	44.4	ug/Kg	1		09/12/15 15:18
Carbon disulfide	35.9	U	71.7	22.2	ug/Kg	1		09/12/15 15:18
Carbon tetrachloride	4.48	U	8.96	2.80	ug/Kg	1		09/12/15 15:18
Chlorobenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Chloroethane	71.5	U	143	44.4	ug/Kg	1		09/12/15 15:18

Results of **A2**

Client Sample ID: **A2**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135010
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Chloromethane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
cis-1,2-Dichloroethene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
cis-1,3-Dichloropropene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Dibromochloromethane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Dibromomethane	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Dichlorodifluoromethane	17.9	U	35.8	10.8	ug/Kg	1		09/12/15 15:18
Ethylbenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Freon-113	35.9	U	71.7	22.2	ug/Kg	1		09/12/15 15:18
Hexachlorobutadiene	17.9	U	35.8	10.8	ug/Kg	1		09/12/15 15:18
Isopropylbenzene (Cumene)	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Methylene chloride	35.9	U	71.7	22.2	ug/Kg	1		09/12/15 15:18
Methyl-t-butyl ether	35.9	U	71.7	22.2	ug/Kg	1		09/12/15 15:18
Naphthalene	17.9	U	35.8	10.8	ug/Kg	1		09/12/15 15:18
n-Butylbenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
n-Propylbenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
o-Xylene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
P & M -Xylene	12.9	J	35.8	10.8	ug/Kg	1		09/12/15 15:18
sec-Butylbenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Styrene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
tert-Butylbenzene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Tetrachloroethene	4.48	U	8.96	2.80	ug/Kg	1		09/12/15 15:18
Toluene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
trans-1,2-Dichloroethene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
trans-1,3-Dichloropropene	8.95	U	17.9	5.59	ug/Kg	1		09/12/15 15:18
Trichloroethene	4.48	U	8.96	2.80	ug/Kg	1		09/12/15 15:18
Trichlorofluoromethane	17.9	U	35.8	10.8	ug/Kg	1		09/12/15 15:18
Vinyl acetate	35.9	U	71.7	22.2	ug/Kg	1		09/12/15 15:18
Vinyl chloride	3.59	U	7.17	2.22	ug/Kg	1		09/12/15 15:18
Xylenes (total)	26.9	U	53.8	16.3	ug/Kg	1		09/12/15 15:18
Surrogates								
1,2-Dichloroethane-D4 (surr)	86.5		71-136		%	1		09/12/15 15:18
4-Bromofluorobenzene (surr)	104		55-151		%	1		09/12/15 15:18
Toluene-d8 (surr)	102		85-116		%	1		09/12/15 15:18

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J flagging is activated

Results of **A2**

Client Sample ID: **A2**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135010
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 15:18
Container ID: 1155135010-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/06/15 16:25
Prep Initial Wt./Vol.: 90.166 g
Prep Extract Vol: 30.385 mL

Results of **A5**

Client Sample ID: **A5**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135011
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	47.8		21.2	6.59	mg/Kg	1		09/22/15 07:27
Surrogates								
5a Androstane (surr)	84.7		50-150		%	1		09/22/15 07:27

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 07:27
Container ID: 1155135011-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.333 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	308		21.2	6.59	mg/Kg	1		09/22/15 07:27
Surrogates								
n-Triacontane-d62 (surr)	108		50-150		%	1		09/22/15 07:27

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 07:27
Container ID: 1155135011-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.333 g
Prep Extract Vol: 1 mL

Results of **A5**

Client Sample ID: **A5**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135011
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.944	J	1.72	0.516	mg/Kg	1		09/22/15 16:36
Surrogates								
4-Bromofluorobenzene (surr)	101		50-150		%	1		09/22/15 16:36

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 16:36
Container ID: 1155135011-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/06/15 16:25
Prep Initial Wt./Vol.: 99.39 g
Prep Extract Vol: 31.8493 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **A5**

Client Sample ID: **A5**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135011
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,1,1-Trichloroethane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,1,2,2-Tetrachloroethane	4.30	U	8.60	2.68	ug/Kg	1		09/12/15 15:34
1,1,2-Trichloroethane	3.44	U	6.88	2.13	ug/Kg	1		09/12/15 15:34
1,1-Dichloroethane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,1-Dichloroethene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,1-Dichloropropene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,2,3-Trichlorobenzene	17.2	U	34.4	10.3	ug/Kg	1		09/12/15 15:34
1,2,3-Trichloropropane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,2,4-Trichlorobenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,2,4-Trimethylbenzene	17.2	U	34.4	10.3	ug/Kg	1		09/12/15 15:34
1,2-Dibromo-3-chloropropane	34.4	U	68.8	21.3	ug/Kg	1		09/12/15 15:34
1,2-Dibromoethane	3.44	U	6.88	2.13	ug/Kg	1		09/12/15 15:34
1,2-Dichlorobenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,2-Dichloroethane	3.44	U	6.88	2.13	ug/Kg	1		09/12/15 15:34
1,2-Dichloropropane	3.44	U	6.88	2.13	ug/Kg	1		09/12/15 15:34
1,3,5-Trimethylbenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,3-Dichlorobenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
1,3-Dichloropropane	3.44	U	6.88	2.13	ug/Kg	1		09/12/15 15:34
1,4-Dichlorobenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
2,2-Dichloropropane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
2-Butanone (MEK)	86.0	U	172	53.7	ug/Kg	1		09/12/15 15:34
2-Chlorotoluene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
2-Hexanone	86.0	U	172	53.7	ug/Kg	1		09/12/15 15:34
4-Chlorotoluene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
4-Isopropyltoluene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
4-Methyl-2-pentanone (MIBK)	86.0	U	172	53.7	ug/Kg	1		09/12/15 15:34
Benzene	4.30	U	8.60	2.68	ug/Kg	1		09/12/15 15:34
Bromobenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Bromochloromethane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Bromodichloromethane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Bromoform	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Bromomethane	69.0	U	138	42.7	ug/Kg	1		09/12/15 15:34
Carbon disulfide	34.4	U	68.8	21.3	ug/Kg	1		09/12/15 15:34
Carbon tetrachloride	4.30	U	8.60	2.68	ug/Kg	1		09/12/15 15:34
Chlorobenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Chloroethane	69.0	U	138	42.7	ug/Kg	1		09/12/15 15:34

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Results of **A5**

Client Sample ID: **A5**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135011
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Chloromethane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
cis-1,2-Dichloroethene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
cis-1,3-Dichloropropene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Dibromochloromethane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Dibromomethane	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Dichlorodifluoromethane	17.2	U	34.4	10.3	ug/Kg	1		09/12/15 15:34
Ethylbenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Freon-113	34.4	U	68.8	21.3	ug/Kg	1		09/12/15 15:34
Hexachlorobutadiene	17.2	U	34.4	10.3	ug/Kg	1		09/12/15 15:34
Isopropylbenzene (Cumene)	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Methylene chloride	34.4	U	68.8	21.3	ug/Kg	1		09/12/15 15:34
Methyl-t-butyl ether	34.4	U	68.8	21.3	ug/Kg	1		09/12/15 15:34
Naphthalene	17.2	U	34.4	10.3	ug/Kg	1		09/12/15 15:34
n-Butylbenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
n-Propylbenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
o-Xylene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
P & M -Xylene	17.2	U	34.4	10.3	ug/Kg	1		09/12/15 15:34
sec-Butylbenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Styrene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
tert-Butylbenzene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Tetrachloroethene	4.30	U	8.60	2.68	ug/Kg	1		09/12/15 15:34
Toluene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
trans-1,2-Dichloroethene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
trans-1,3-Dichloropropene	8.60	U	17.2	5.37	ug/Kg	1		09/12/15 15:34
Trichloroethene	4.30	U	8.60	2.68	ug/Kg	1		09/12/15 15:34
Trichlorofluoromethane	17.2	U	34.4	10.3	ug/Kg	1		09/12/15 15:34
Vinyl acetate	34.4	U	68.8	21.3	ug/Kg	1		09/12/15 15:34
Vinyl chloride	3.44	U	6.88	2.13	ug/Kg	1		09/12/15 15:34
Xylenes (total)	25.8	U	51.6	15.7	ug/Kg	1		09/12/15 15:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	93.2		71-136		%	1		09/12/15 15:34
4-Bromofluorobenzene (surr)	102		55-151		%	1		09/12/15 15:34
Toluene-d8 (surr)	109		85-116		%	1		09/12/15 15:34

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J flagging is activated

Results of **A5**

Client Sample ID: **A5**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135011
Lab Project ID: 1155135

Collection Date: 09/06/15 16:25
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 15:34
Container ID: 1155135011-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/06/15 16:25
Prep Initial Wt./Vol.: 99.39 g
Prep Extract Vol: 31.8493 mL

Results of **B1**

Client Sample ID: **B1**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135012
Lab Project ID: 1155135

Collection Date: 09/06/15 16:28
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):85.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	46.3	U	92.5	28.7	mg/Kg	4		09/22/15 08:46
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		09/22/15 08:46

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 08:46
Container ID: 1155135012-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.2 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	331		92.5	28.7	mg/Kg	4		09/22/15 08:46
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		09/22/15 08:46

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 08:46
Container ID: 1155135012-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.2 g
Prep Extract Vol: 1 mL

Results of **B1**

Client Sample ID: **B1**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135012
Lab Project ID: 1155135

Collection Date: 09/06/15 16:28
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):85.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.31	U	2.62	0.785	mg/Kg	1		09/22/15 16:54
Surrogates								
4-Bromofluorobenzene (surr)	114		50-150		%	1		09/22/15 16:54

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 16:54
Container ID: 1155135012-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/06/15 16:28
Prep Initial Wt./Vol.: 81.158 g
Prep Extract Vol: 36.4667 mL

Results of **B1**

Client Sample ID: **B1**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135012
Lab Project ID: 1155135

Collection Date: 09/06/15 16:28
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):85.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,1,1-Trichloroethane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,1,2,2-Tetrachloroethane	6.55	U	13.1	4.08	ug/Kg	1		09/12/15 15:50
1,1,2-Trichloroethane	5.25	U	10.5	3.24	ug/Kg	1		09/12/15 15:50
1,1-Dichloroethane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,1-Dichloroethene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,1-Dichloropropene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,2,3-Trichlorobenzene	26.1	U	52.3	15.7	ug/Kg	1		09/12/15 15:50
1,2,3-Trichloropropane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,2,4-Trichlorobenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,2,4-Trimethylbenzene	26.1	U	52.3	15.7	ug/Kg	1		09/12/15 15:50
1,2-Dibromo-3-chloropropane	52.5	U	105	32.4	ug/Kg	1		09/12/15 15:50
1,2-Dibromoethane	5.25	U	10.5	3.24	ug/Kg	1		09/12/15 15:50
1,2-Dichlorobenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,2-Dichloroethane	5.25	U	10.5	3.24	ug/Kg	1		09/12/15 15:50
1,2-Dichloropropane	5.25	U	10.5	3.24	ug/Kg	1		09/12/15 15:50
1,3,5-Trimethylbenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,3-Dichlorobenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
1,3-Dichloropropane	5.25	U	10.5	3.24	ug/Kg	1		09/12/15 15:50
1,4-Dichlorobenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
2,2-Dichloropropane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
2-Butanone (MEK)	131	U	262	81.6	ug/Kg	1		09/12/15 15:50
2-Chlorotoluene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
2-Hexanone	131	U	262	81.6	ug/Kg	1		09/12/15 15:50
4-Chlorotoluene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
4-Isopropyltoluene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
4-Methyl-2-pentanone (MIBK)	131	U	262	81.6	ug/Kg	1		09/12/15 15:50
Benzene	6.55	U	13.1	4.08	ug/Kg	1		09/12/15 15:50
Bromobenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Bromochloromethane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Bromodichloromethane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Bromoform	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Bromomethane	105	U	209	64.9	ug/Kg	1		09/12/15 15:50
Carbon disulfide	52.5	U	105	32.4	ug/Kg	1		09/12/15 15:50
Carbon tetrachloride	6.55	U	13.1	4.08	ug/Kg	1		09/12/15 15:50
Chlorobenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Chloroethane	105	U	209	64.9	ug/Kg	1		09/12/15 15:50

Results of **B1**

Client Sample ID: **B1**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135012
Lab Project ID: 1155135

Collection Date: 09/06/15 16:28
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):85.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Chloromethane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
cis-1,2-Dichloroethene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
cis-1,3-Dichloropropene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Dibromochloromethane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Dibromomethane	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Dichlorodifluoromethane	26.1	U	52.3	15.7	ug/Kg	1		09/12/15 15:50
Ethylbenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Freon-113	52.5	U	105	32.4	ug/Kg	1		09/12/15 15:50
Hexachlorobutadiene	26.1	U	52.3	15.7	ug/Kg	1		09/12/15 15:50
Isopropylbenzene (Cumene)	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Methylene chloride	52.5	U	105	32.4	ug/Kg	1		09/12/15 15:50
Methyl-t-butyl ether	52.5	U	105	32.4	ug/Kg	1		09/12/15 15:50
Naphthalene	26.1	U	52.3	15.7	ug/Kg	1		09/12/15 15:50
n-Butylbenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
n-Propylbenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
o-Xylene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
P & M -Xylene	26.1	U	52.3	15.7	ug/Kg	1		09/12/15 15:50
sec-Butylbenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Styrene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
tert-Butylbenzene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Tetrachloroethene	6.55	U	13.1	4.08	ug/Kg	1		09/12/15 15:50
Toluene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
trans-1,2-Dichloroethene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
trans-1,3-Dichloropropene	13.1	U	26.2	8.16	ug/Kg	1		09/12/15 15:50
Trichloroethene	6.55	U	13.1	4.08	ug/Kg	1		09/12/15 15:50
Trichlorofluoromethane	26.1	U	52.3	15.7	ug/Kg	1		09/12/15 15:50
Vinyl acetate	52.5	U	105	32.4	ug/Kg	1		09/12/15 15:50
Vinyl chloride	5.25	U	10.5	3.24	ug/Kg	1		09/12/15 15:50
Xylenes (total)	39.3	U	78.5	23.9	ug/Kg	1		09/12/15 15:50
Surrogates								
1,2-Dichloroethane-D4 (surr)	89.1		71-136		%	1		09/12/15 15:50
4-Bromofluorobenzene (surr)	114		55-151		%	1		09/12/15 15:50
Toluene-d8 (surr)	104		85-116		%	1		09/12/15 15:50

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **B1**

Client Sample ID: **B1**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135012
Lab Project ID: 1155135

Collection Date: 09/06/15 16:28
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):85.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 15:50
Container ID: 1155135012-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/06/15 16:28
Prep Initial Wt./Vol.: 81.158 g
Prep Extract Vol: 36.4667 mL

Results of **C3**

Client Sample ID: **C3**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135013
Lab Project ID: 1155135

Collection Date: 09/06/15 16:31
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry 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	9.87	J	21.0	6.51	mg/Kg	1		09/22/15 07:37
Surrogates								
5a Androstane (surr)	69.3		50-150		%	1		09/22/15 07:37

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/22/15 07:37
Container ID: 1155135013-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.234 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	97.0		21.0	6.51	mg/Kg	1		09/22/15 07:37
Surrogates								
n-Triacontane-d62 (surr)	91.1		50-150		%	1		09/22/15 07:37

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/22/15 07:37
Container ID: 1155135013-A

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 09/11/15 21:43
Prep Initial Wt./Vol.: 30.234 g
Prep Extract Vol: 1 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **C3**

Client Sample ID: **C3**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135013
Lab Project ID: 1155135

Collection Date: 09/06/15 16:31
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.52	U	3.04	0.912	mg/Kg	2		09/22/15 17:13
Surrogates								
4-Bromofluorobenzene (surr)	20.8	*	50-150		%	2		09/22/15 17:13

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 17:13
Container ID: 1155135013-B

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/06/15 16:31
Prep Initial Wt./Vol.: 107.811 g
Prep Extract Vol: 30.9557 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **C3**

Client Sample ID: **C3**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135013
Lab Project ID: 1155135

Collection Date: 09/06/15 16:31
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,1,1-Trichloroethane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,1,2,2-Tetrachloroethane	3.80	U	7.60	2.37	ug/Kg	1		09/12/15 12:54
1,1,2-Trichloroethane	3.04	U	6.08	1.88	ug/Kg	1		09/12/15 12:54
1,1-Dichloroethane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,1-Dichloroethene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,1-Dichloropropene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,2,3-Trichlorobenzene	15.2	U	30.4	9.12	ug/Kg	1		09/12/15 12:54
1,2,3-Trichloropropane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,2,4-Trichlorobenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,2,4-Trimethylbenzene	15.2	U	30.4	9.12	ug/Kg	1		09/12/15 12:54
1,2-Dibromo-3-chloropropane	30.4	U	60.8	18.8	ug/Kg	1		09/12/15 12:54
1,2-Dibromoethane	3.04	U	6.08	1.88	ug/Kg	1		09/12/15 12:54
1,2-Dichlorobenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,2-Dichloroethane	3.04	U	6.08	1.88	ug/Kg	1		09/12/15 12:54
1,2-Dichloropropane	3.04	U	6.08	1.88	ug/Kg	1		09/12/15 12:54
1,3,5-Trimethylbenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,3-Dichlorobenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
1,3-Dichloropropane	3.04	U	6.08	1.88	ug/Kg	1		09/12/15 12:54
1,4-Dichlorobenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
2,2-Dichloropropane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
2-Butanone (MEK)	76.0	U	152	47.4	ug/Kg	1		09/12/15 12:54
2-Chlorotoluene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
2-Hexanone	76.0	U	152	47.4	ug/Kg	1		09/12/15 12:54
4-Chlorotoluene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
4-Isopropyltoluene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
4-Methyl-2-pentanone (MIBK)	76.0	U	152	47.4	ug/Kg	1		09/12/15 12:54
Benzene	3.80	U	7.60	2.37	ug/Kg	1		09/12/15 12:54
Bromobenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Bromochloromethane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Bromodichloromethane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Bromoform	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Bromomethane	61.0	U	122	37.7	ug/Kg	1		09/12/15 12:54
Carbon disulfide	30.4	U	60.8	18.8	ug/Kg	1		09/12/15 12:54
Carbon tetrachloride	3.80	U	7.60	2.37	ug/Kg	1		09/12/15 12:54
Chlorobenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Chloroethane	61.0	U	122	37.7	ug/Kg	1		09/12/15 12:54

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **C3**

Client Sample ID: **C3**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135013
Lab Project ID: 1155135

Collection Date: 09/06/15 16:31
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Chloromethane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
cis-1,2-Dichloroethene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
cis-1,3-Dichloropropene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Dibromochloromethane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Dibromomethane	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Dichlorodifluoromethane	15.2	U	30.4	9.12	ug/Kg	1		09/12/15 12:54
Ethylbenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Freon-113	30.4	U	60.8	18.8	ug/Kg	1		09/12/15 12:54
Hexachlorobutadiene	15.2	U	30.4	9.12	ug/Kg	1		09/12/15 12:54
Isopropylbenzene (Cumene)	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Methylene chloride	30.4	U	60.8	18.8	ug/Kg	1		09/12/15 12:54
Methyl-t-butyl ether	30.4	U	60.8	18.8	ug/Kg	1		09/12/15 12:54
Naphthalene	15.2	U	30.4	9.12	ug/Kg	1		09/12/15 12:54
n-Butylbenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
n-Propylbenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
o-Xylene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
P & M -Xylene	15.2	U	30.4	9.12	ug/Kg	1		09/12/15 12:54
sec-Butylbenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Styrene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
tert-Butylbenzene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Tetrachloroethene	3.80	U	7.60	2.37	ug/Kg	1		09/12/15 12:54
Toluene	5.32	J	15.2	4.74	ug/Kg	1		09/12/15 12:54
trans-1,2-Dichloroethene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
trans-1,3-Dichloropropene	7.60	U	15.2	4.74	ug/Kg	1		09/12/15 12:54
Trichloroethene	3.80	U	7.60	2.37	ug/Kg	1		09/12/15 12:54
Trichlorofluoromethane	15.2	U	30.4	9.12	ug/Kg	1		09/12/15 12:54
Vinyl acetate	30.4	U	60.8	18.8	ug/Kg	1		09/12/15 12:54
Vinyl chloride	3.04	U	6.08	1.88	ug/Kg	1		09/12/15 12:54
Xylenes (total)	22.8	U	45.6	13.9	ug/Kg	1		09/12/15 12:54
Surrogates								
1,2-Dichloroethane-D4 (surr)	92.9		71-136		%	1		09/12/15 12:54
4-Bromofluorobenzene (surr)	102		55-151		%	1		09/12/15 12:54
Toluene-d8 (surr)	106		85-116		%	1		09/12/15 12:54

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **C3**

Client Sample ID: **C3**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135013
Lab Project ID: 1155135

Collection Date: 09/06/15 16:31
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):94.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Analyst: SCL
Analytical Date/Time: 09/12/15 12:54
Container ID: 1155135013-B

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 09/06/15 16:31
Prep Initial Wt./Vol.: 107.811 g
Prep Extract Vol: 30.9557 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135014
Lab Project ID: 1155135

Collection Date: 09/05/15 10:00
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.25	U	2.51	0.754	mg/Kg	1		09/22/15 11:44
Surrogates								
4-Bromofluorobenzene (surr)	96.3		50-150		%	1		09/22/15 11:44

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/22/15 11:44
Container ID: 1155135014-A

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 09/05/15 10:00
Prep Initial Wt./Vol.: 49.73 g
Prep Extract Vol: 25 mL

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135014
Lab Project ID: 1155135

Collection Date: 09/05/15 10:00
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,1,1-Trichloroethane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,1,2,2-Tetrachloroethane	6.30	U	12.6	3.92	ug/Kg	1		09/12/15 12:34
1,1,2-Trichloroethane	5.05	U	10.1	3.12	ug/Kg	1		09/12/15 12:34
1,1-Dichloroethane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,1-Dichloroethene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,1-Dichloropropene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,2,3-Trichlorobenzene	25.1	U	50.3	15.1	ug/Kg	1		09/12/15 12:34
1,2,3-Trichloropropane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,2,4-Trichlorobenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,2,4-Trimethylbenzene	25.1	U	50.3	15.1	ug/Kg	1		09/12/15 12:34
1,2-Dibromo-3-chloropropane	50.5	U	101	31.2	ug/Kg	1		09/12/15 12:34
1,2-Dibromoethane	5.05	U	10.1	3.12	ug/Kg	1		09/12/15 12:34
1,2-Dichlorobenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,2-Dichloroethane	5.05	U	10.1	3.12	ug/Kg	1		09/12/15 12:34
1,2-Dichloropropane	5.05	U	10.1	3.12	ug/Kg	1		09/12/15 12:34
1,3,5-Trimethylbenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,3-Dichlorobenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
1,3-Dichloropropane	5.05	U	10.1	3.12	ug/Kg	1		09/12/15 12:34
1,4-Dichlorobenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
2,2-Dichloropropane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
2-Butanone (MEK)	126	U	251	78.4	ug/Kg	1		09/12/15 12:34
2-Chlorotoluene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
2-Hexanone	126	U	251	78.4	ug/Kg	1		09/12/15 12:34
4-Chlorotoluene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
4-Isopropyltoluene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
4-Methyl-2-pentanone (MIBK)	126	U	251	78.4	ug/Kg	1		09/12/15 12:34
Benzene	6.30	U	12.6	3.92	ug/Kg	1		09/12/15 12:34
Bromobenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Bromochloromethane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Bromodichloromethane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Bromoform	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Bromomethane	101	U	201	62.3	ug/Kg	1		09/12/15 12:34
Carbon disulfide	50.5	U	101	31.2	ug/Kg	1		09/12/15 12:34
Carbon tetrachloride	6.30	U	12.6	3.92	ug/Kg	1		09/12/15 12:34
Chlorobenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Chloroethane	101	U	201	62.3	ug/Kg	1		09/12/15 12:34

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135014
Lab Project ID: 1155135

Collection Date: 09/05/15 10:00
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Chloromethane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
cis-1,2-Dichloroethene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
cis-1,3-Dichloropropene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Dibromochloromethane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Dibromomethane	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Dichlorodifluoromethane	25.1	U	50.3	15.1	ug/Kg	1		09/12/15 12:34
Ethylbenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Freon-113	50.5	U	101	31.2	ug/Kg	1		09/12/15 12:34
Hexachlorobutadiene	25.1	U	50.3	15.1	ug/Kg	1		09/12/15 12:34
Isopropylbenzene (Cumene)	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Methylene chloride	50.5	U	101	31.2	ug/Kg	1		09/12/15 12:34
Methyl-t-butyl ether	50.5	U	101	31.2	ug/Kg	1		09/12/15 12:34
Naphthalene	25.1	U	50.3	15.1	ug/Kg	1		09/12/15 12:34
n-Butylbenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
n-Propylbenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
o-Xylene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
P & M -Xylene	25.1	U	50.3	15.1	ug/Kg	1		09/12/15 12:34
sec-Butylbenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Styrene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
tert-Butylbenzene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Tetrachloroethene	6.30	U	12.6	3.92	ug/Kg	1		09/12/15 12:34
Toluene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
trans-1,2-Dichloroethene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
trans-1,3-Dichloropropene	12.6	U	25.1	7.84	ug/Kg	1		09/12/15 12:34
Trichloroethene	6.30	U	12.6	3.92	ug/Kg	1		09/12/15 12:34
Trichlorofluoromethane	25.1	U	50.3	15.1	ug/Kg	1		09/12/15 12:34
Vinyl acetate	50.5	U	101	31.2	ug/Kg	1		09/12/15 12:34
Vinyl chloride	5.05	U	10.1	3.12	ug/Kg	1		09/12/15 12:34
Xylenes (total)	37.7	U	75.4	22.9	ug/Kg	1		09/12/15 12:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		71-136		%	1		09/12/15 12:34
4-Bromofluorobenzene (surr)	92.7		55-151		%	1		09/12/15 12:34
Toluene-d8 (surr)	92.7		85-116		%	1		09/12/15 12:34

Print Date: 09/29/2015 8:40:07AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Alaska Air Kotzebue**
Lab Sample ID: 1155135014
Lab Project ID: 1155135

Collection Date: 09/05/15 10:00
Received Date: 09/08/15 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15248
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 09/12/15 12:34
Container ID: 1155135014-A

Prep Batch: VXX27882
Prep Method: SW5035A
Prep Date/Time: 09/05/15 10:00
Prep Initial Wt./Vol.: 49.73 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1719966 [SPT/9733]
Blank Lab ID: 1290329

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9733
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R
Analytical Date/Time: 9/11/2015 6:34:00PM

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Duplicate Sample Summary

Original Sample ID: 1155056002
Duplicate Sample ID: 1290331
Analysis Date: 09/11/2015 18:34
Matrix: Soil/Solid (dry weight)

QC for Samples:

1155135001, 1155135002, 1155135003, 1155135004, 1155135005

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	93.4	93.9	%	0.51	(< 15)

Batch Information

Analytical Batch: SPT9733
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

Print Date: 09/29/2015 8:40:14AM

Duplicate Sample Summary

Original Sample ID: 1155135005
Duplicate Sample ID: 1290332

Analysis Date: 09/11/2015 18:34
Matrix: Soil/Solid (dry weight)

QC for Samples:

1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	86.3	85.0	%	1.60	(< 15)

Batch Information

Analytical Batch: SPT9733
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

Print Date: 09/29/2015 8:40:14AM

Duplicate Sample Summary

Original Sample ID: 1155228001
Duplicate Sample ID: 1290333

Analysis Date: 09/11/2015 18:34
Matrix: Soil/Solid (dry weight)

QC for Samples:

1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	91.9	91.6	%	0.32	(< 15)

Batch Information

Analytical Batch: SPT9733
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

Print Date: 09/29/2015 8:40:14AM

Method Blank

Blank ID: MB for HBN 1720055 [VXX/27881]
Blank Lab ID: 1290365

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

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

Method Blank

Blank ID: MB for HBN 1720055 [VXX/27881]
Blank Lab ID: 1290365

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	91.3	71-136		%
4-Bromofluorobenzene (surr)	96.1	55-151		%
Toluene-d8 (surr)	102	85-116		%

Method Blank

Blank ID: MB for HBN 1720055 [VXX/27881]
Blank Lab ID: 1290365

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: SCL
Analytical Date/Time: 9/12/2015 9:24:00AM

Prep Batch: VXX27881
Prep Method: SW5035A
Prep Date/Time: 9/12/2015 12:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [VXX27881]
Blank Spike Lab ID: 1290366
Date Analyzed: 09/12/2015 10:47

Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	785	105	(78-125)
1,1,1-Trichloroethane	750	739	99	(73-130)
1,1,2,2-Tetrachloroethane	750	820	109	(70-124)
1,1,2-Trichloroethane	750	846	113	(78-121)
1,1-Dichloroethane	750	720	96	(76-125)
1,1-Dichloroethene	750	788	105	(70-131)
1,1-Dichloropropene	750	800	107	(76-125)
1,2,3-Trichlorobenzene	750	707	94	(66-130)
1,2,3-Trichloropropane	750	766	102	(73-125)
1,2,4-Trichlorobenzene	750	738	98	(67-129)
1,2,4-Trimethylbenzene	750	792	106	(75-123)
1,2-Dibromo-3-chloropropane	750	697	93	(61-132)
1,2-Dibromoethane	750	835	111	(78-122)
1,2-Dichlorobenzene	750	768	102	(78-121)
1,2-Dichloroethane	750	687	92	(73-128)
1,2-Dichloropropane	750	805	107	(76-123)
1,3,5-Trimethylbenzene	750	793	106	(73-124)
1,3-Dichlorobenzene	750	783	104	(77-121)
1,3-Dichloropropane	750	809	108	(77-121)
1,4-Dichlorobenzene	750	787	105	(75-120)
2,2-Dichloropropane	750	811	108	(67-133)
2-Butanone (MEK)	2250	1980	88	(51-148)
2-Chlorotoluene	750	719	96	(75-122)
2-Hexanone	2250	2250	100	(53-145)
4-Chlorotoluene	750	787	105	(72-124)
4-Isopropyltoluene	750	851	113	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2250	100	(65-135)
Benzene	750	794	106	(77-121)
Bromobenzene	750	776	103	(78-121)
Bromochloromethane	750	768	102	(78-125)
Bromodichloromethane	750	738	98	(75-127)
Bromoform	750	795	106	(67-132)
Bromomethane	750	784	104	(53-143)
Carbon disulfide	1130	1220	109	(63-132)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [VXX27881]
Blank Spike Lab ID: 1290366
Date Analyzed: 09/12/2015 10:47

Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	751	100	(70-135)
Chlorobenzene	750	807	108	(79-120)
Chloroethane	750	719	96	(59-139)
Chloroform	750	719	96	(78-123)
Chloromethane	750	681	91	(50-136)
cis-1,2-Dichloroethene	750	772	103	(77-123)
cis-1,3-Dichloropropene	750	828	110	(74-126)
Dibromochloromethane	750	809	108	(74-126)
Dibromomethane	750	741	99	(78-125)
Dichlorodifluoromethane	750	615	82	(29-149)
Ethylbenzene	750	809	108	(76-122)
Freon-113	1130	1170	104	(66-136)
Hexachlorobutadiene	750	819	109	(61-135)
Isopropylbenzene (Cumene)	750	807	108	(68-134)
Methylene chloride	750	812	108	(70-128)
Methyl-t-butyl ether	1130	1150	102	(73-125)
Naphthalene	750	753	100	(62-129)
n-Butylbenzene	750	870	116	(70-128)
n-Propylbenzene	750	824	110	(73-125)
o-Xylene	750	817	109	(77-123)
P & M -Xylene	1500	1630	108	(77-124)
sec-Butylbenzene	750	854	114	(73-126)
Styrene	750	765	102	(76-124)
tert-Butylbenzene	750	840	112	(73-125)
Tetrachloroethene	750	809	108	(73-128)
Toluene	750	831	111	(77-121)
trans-1,2-Dichloroethene	750	787	105	(74-125)
trans-1,3-Dichloropropene	750	849	113	(71-130)
Trichloroethene	750	749	100	(77-123)
Trichlorofluoromethane	750	727	97	(62-140)
Vinyl acetate	750	786	105	(50-151)
Vinyl chloride	750	759	101	(56-135)
Xylenes (total)	2250	2440	109	(78-124)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [VXX27881]
Blank Spike Lab ID: 1290366
Date Analyzed: 09/12/2015 10:47

Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

	Blank Spike (%)			
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	90	90	(71-136)
4-Bromofluorobenzene (surr)	750	102	102	(55-151)
Toluene-d8 (surr)	750	110	110	(85-116)

Batch Information

Analytical Batch: **VMS15250**
Analytical Method: **SW8260B**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **SCL**

Prep Batch: **VXX27881**
Prep Method: **SW5035A**
Prep Date/Time: **09/12/2015 00:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1290367
MS Sample ID: 1290368 MS
MSD Sample ID: 1290369 MSD

Analysis Date: 09/12/2015 12:54
Analysis Date: 09/12/2015 11:34
Analysis Date: 09/12/2015 11:50
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	5.80U	348	333	96	348	353	101	78-125	5.80	(< 20)
1,1,1-Trichloroethane	5.80U	348	315	91	348	310	89	73-130	1.60	(< 20)
1,1,2,2-Tetrachloroethane	2.90U	348	351	101	348	374	108	70-124	6.40	(< 20)
1,1,2-Trichloroethane	2.32U	348	356	102	348	377	108	78-121	5.80	(< 20)
1,1-Dichloroethane	5.80U	348	306	88	348	304	87	76-125	0.91	(< 20)
1,1-Dichloroethene	5.80U	348	334	96	348	327	94	70-131	2.20	(< 20)
1,1-Dichloropropene	5.80U	348	341	98	348	339	98	76-125	0.58	(< 20)
1,2,3-Trichlorobenzene	11.6U	348	320	92	348	366	105	66-130	13.50	(< 20)
1,2,3-Trichloropropane	5.80U	348	320	92	348	347	100	73-125	7.90	(< 20)
1,2,4-Trichlorobenzene	5.80U	348	322	93	348	346	99	67-129	6.90	(< 20)
1,2,4-Trimethylbenzene	11.6U	348	330	95	348	343	99	75-123	3.90	(< 20)
1,2-Dibromo-3-chloropropane	23.2U	348	288	83	348	311	90	61-132	7.70	(< 20)
1,2-Dibromoethane	2.32U	348	353	101	348	373	107	78-122	5.60	(< 20)
1,2-Dichlorobenzene	5.80U	348	320	92	348	333	96	78-121	3.90	(< 20)
1,2-Dichloroethane	2.32U	348	291	84	348	296	85	73-128	1.70	(< 20)
1,2-Dichloropropane	2.32U	348	343	99	348	351	101	76-123	2.50	(< 20)
1,3,5-Trimethylbenzene	5.80U	348	336	97	348	346	100	73-124	3.00	(< 20)
1,3-Dichlorobenzene	5.80U	348	324	93	348	329	95	77-121	1.50	(< 20)
1,3-Dichloropropane	2.32U	348	344	99	348	361	104	77-121	4.90	(< 20)
1,4-Dichlorobenzene	5.80U	348	324	93	348	341	98	75-120	5.00	(< 20)
2,2-Dichloropropane	5.80U	348	339	98	348	331	95	67-133	2.30	(< 20)
2-Butanone (MEK)	58.0U	1040	861	83	1040	948	91	51-148	9.60	(< 20)
2-Chlorotoluene	5.80U	348	301	87	348	314	90	75-122	4.20	(< 20)
2-Hexanone	58.0U	1040	944	91	1040	1040	100	53-145	9.60	(< 20)
4-Chlorotoluene	5.80U	348	327	94	348	341	98	72-124	4.00	(< 20)
4-Isopropyltoluene	5.80U	348	351	101	348	352	101	73-127	0.10	(< 20)
4-Methyl-2-pentanone (MIBK)	58.0U	1040	983	94	1040	1040	99	65-135	5.20	(< 20)
Benzene	2.90U	348	340	98	348	346	100	77-121	1.70	(< 20)
Bromobenzene	5.80U	348	323	93	348	333	96	78-121	3.20	(< 20)
Bromochloromethane	5.80U	348	325	93	348	319	92	78-125	1.70	(< 20)
Bromodichloromethane	5.80U	348	314	90	348	318	91	75-127	1.30	(< 20)
Bromoform	5.80U	348	338	97	348	352	101	67-132	4.00	(< 20)
Bromomethane	46.4U	348	339	97	348	335	96	53-143	0.96	(< 20)
Carbon disulfide	23.2U	522	519	100	522	509	98	63-132	1.90	(< 20)
Carbon tetrachloride	2.90U	348	320	92	348	312	90	70-135	2.50	(< 20)
Chlorobenzene	5.80U	348	339	98	348	352	101	79-120	3.70	(< 20)
Chloroethane	46.4U	348	307	88	348	298	86	59-139	3.00	(< 20)

Print Date: 09/29/2015 8:40:20AM

Matrix Spike Summary

Original Sample ID: 1290367
MS Sample ID: 1290368 MS
MSD Sample ID: 1290369 MSD

Analysis Date: 09/12/2015 12:54
Analysis Date: 09/12/2015 11:34
Analysis Date: 09/12/2015 11:50
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	5.80U	348	309	89	348	307	88	78-123	0.71	(< 20)
Chloromethane	5.80U	348	291	84	348	284	82	50-136	2.60	(< 20)
cis-1,2-Dichloroethene	5.80U	348	329	95	348	331	95	77-123	0.42	(< 20)
cis-1,3-Dichloropropene	5.80U	348	353	102	348	363	104	74-126	2.70	(< 20)
Dibromochloromethane	5.80U	348	338	97	348	352	101	74-126	4.00	(< 20)
Dibromomethane	5.80U	348	315	91	348	324	93	78-125	2.70	(< 20)
Dichlorodifluoromethane	11.6U	348	262	75	348	256	74	29-149	2.60	(< 20)
Ethylbenzene	5.80U	348	341	98	348	350	101	76-122	2.50	(< 20)
Freon-113	23.2U	522	487	93	522	477	92	66-136	2.10	(< 20)
Hexachlorobutadiene	11.6U	348	360	103	348	353	102	61-135	1.80	(< 20)
Isopropylbenzene (Cumene)	5.80U	348	342	98	348	342	98	68-134	0.00	(< 20)
Methylene chloride	23.2U	348	344	99	348	348	100	70-128	1.20	(< 20)
Methyl-t-butyl ether	23.2U	522	492	94	522	513	98	73-125	4.20	(< 20)
Naphthalene	11.6U	348	334	96	348	383	110	62-129	13.60	(< 20)
n-Butylbenzene	5.80U	348	354	102	348	351	101	70-128	0.95	(< 20)
n-Propylbenzene	5.80U	348	346	100	348	349	100	73-125	0.73	(< 20)
o-Xylene	5.80U	348	344	99	348	356	102	77-123	3.20	(< 20)
P & M -Xylene	11.6U	696	687	99	696	699	101	77-124	1.70	(< 20)
sec-Butylbenzene	5.80U	348	356	102	348	354	102	73-126	0.36	(< 20)
Styrene	5.80U	348	318	91	348	334	96	76-124	4.90	(< 20)
tert-Butylbenzene	5.80U	348	349	100	348	353	101	73-125	1.20	(< 20)
Tetrachloroethene	2.90U	348	340	98	348	350	101	73-128	3.20	(< 20)
Toluene	4.06J	348	352	100	348	363	103	77-121	2.90	(< 20)
trans-1,2-Dichloroethene	5.80U	348	337	97	348	332	96	74-125	1.30	(< 20)
trans-1,3-Dichloropropene	5.80U	348	359	103	348	371	107	71-130	3.40	(< 20)
Trichloroethene	2.90U	348	319	92	348	322	93	77-123	0.76	(< 20)
Trichlorofluoromethane	11.6U	348	303	87	348	247	71	62-140	20.10	* (< 20)
Vinyl acetate	23.2U	348	342	99	348	354	102	50-151	3.40	(< 20)
Vinyl chloride	2.32U	348	326	94	348	314	90	56-135	3.80	(< 20)
Xylenes (total)	17.4U	1040	1030	99	1040	1050	101	78-124	2.20	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		348	291	84	348	298	86	71-136	2.60	
4-Bromofluorobenzene (surr)		928	781	84	928	820	88	55-151	4.80	
Toluene-d8 (surr)		348	354	102	348	368	106	85-116	4.00	

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Matrix Spike Summary

Original Sample ID: 1290367
MS Sample ID: 1290368 MS
MSD Sample ID: 1290369 MSD

Analysis Date:
Analysis Date: 09/12/2015 11:34
Analysis Date: 09/12/2015 11:50
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135010, 1155135011, 1155135012, 1155135013

Results by **SW8260B**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS15250
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: SCL
Analytical Date/Time: 9/12/2015 11:34:00AM

Prep Batch: VXX27881
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/12/2015 12:00:00AM
Prep Initial Wt./Vol.: 107.81g
Prep Extract Vol: 25.00mL

Print Date: 09/29/2015 8:40:20AM

Method Blank

Blank ID: MB for HBN 1720056 [VXX/27882]
Blank Lab ID: 1290370

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135009, 1155135014

Results by **SW8260B**

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

Method Blank

Blank ID: MB for HBN 1720056 [VXX/27882]
Blank Lab ID: 1290370

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135009, 1155135014

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	71-136		%
4-Bromofluorobenzene (surr)	89.5	55-151		%
Toluene-d8 (surr)	97.3	85-116		%

Method Blank

Blank ID: MB for HBN 1720056 [VXX/27882]
Blank Lab ID: 1290370

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135009, 1155135014

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS15248
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: ST
Analytical Date/Time: 9/12/2015 9:20:00AM

Prep Batch: VXX27882
Prep Method: SW5035A
Prep Date/Time: 9/12/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [VXX27882]
Blank Spike Lab ID: 1290371
Date Analyzed: 09/12/2015 10:14

Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135009, 1155135014

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	730	97	(78-125)
1,1,1-Trichloroethane	750	838	112	(73-130)
1,1,2,2-Tetrachloroethane	750	798	106	(70-124)
1,1,2-Trichloroethane	750	747	100	(78-121)
1,1-Dichloroethane	750	803	107	(76-125)
1,1-Dichloroethene	750	812	108	(70-131)
1,1-Dichloropropene	750	792	106	(76-125)
1,2,3-Trichlorobenzene	750	634	85	(66-130)
1,2,3-Trichloropropane	750	817	109	(73-125)
1,2,4-Trichlorobenzene	750	659	88	(67-129)
1,2,4-Trimethylbenzene	750	727	97	(75-123)
1,2-Dibromo-3-chloropropane	750	795	106	(61-132)
1,2-Dibromoethane	750	755	101	(78-122)
1,2-Dichlorobenzene	750	741	99	(78-121)
1,2-Dichloroethane	750	848	113	(73-128)
1,2-Dichloropropane	750	769	103	(76-123)
1,3,5-Trimethylbenzene	750	736	98	(73-124)
1,3-Dichlorobenzene	750	728	97	(77-121)
1,3-Dichloropropane	750	758	101	(77-121)
1,4-Dichlorobenzene	750	731	97	(75-120)
2,2-Dichloropropane	750	848	113	(67-133)
2-Butanone (MEK)	2250	2310	103	(51-148)
2-Chlorotoluene	750	747	100	(75-122)
2-Hexanone	2250	2400	107	(53-145)
4-Chlorotoluene	750	725	97	(72-124)
4-Isopropyltoluene	750	717	96	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2320	103	(65-135)
Benzene	750	770	103	(77-121)
Bromobenzene	750	781	104	(78-121)
Bromochloromethane	750	812	108	(78-125)
Bromodichloromethane	750	829	111	(75-127)
Bromoform	750	813	108	(67-132)
Bromomethane	750	795	106	(53-143)
Carbon disulfide	1130	1260	112	(63-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [VXX27882]
Blank Spike Lab ID: 1290371
Date Analyzed: 09/12/2015 10:14

Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135009, 1155135014

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	854	114	(70-135)
Chlorobenzene	750	735	98	(79-120)
Chloroethane	750	799	107	(59-139)
Chloroform	750	815	109	(78-123)
Chloromethane	750	746	100	(50-136)
cis-1,2-Dichloroethene	750	785	105	(77-123)
cis-1,3-Dichloropropene	750	802	107	(74-126)
Dibromochloromethane	750	792	106	(74-126)
Dibromomethane	750	817	109	(78-125)
Dichlorodifluoromethane	750	840	112	(29-149)
Ethylbenzene	750	738	98	(76-122)
Freon-113	1130	1220	108	(66-136)
Hexachlorobutadiene	750	752	100	(61-135)
Isopropylbenzene (Cumene)	750	717	96	(68-134)
Methylene chloride	750	793	106	(70-128)
Methyl-t-butyl ether	1130	1220	108	(73-125)
Naphthalene	750	633	84	(62-129)
n-Butylbenzene	750	724	97	(70-128)
n-Propylbenzene	750	733	98	(73-125)
o-Xylene	750	718	96	(77-123)
P & M -Xylene	1500	1430	95	(77-124)
sec-Butylbenzene	750	728	97	(73-126)
Styrene	750	743	99	(76-124)
tert-Butylbenzene	750	728	97	(73-125)
Tetrachloroethene	750	690	92	(73-128)
Toluene	750	722	96	(77-121)
trans-1,2-Dichloroethene	750	797	106	(74-125)
trans-1,3-Dichloropropene	750	779	104	(71-130)
Trichloroethene	750	790	105	(77-123)
Trichlorofluoromethane	750	922	123	(62-140)
Vinyl acetate	750	799	107	(50-151)
Vinyl chloride	750	787	105	(56-135)
Xylenes (total)	2250	2150	96	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [VXX27882]
Blank Spike Lab ID: 1290371
Date Analyzed: 09/12/2015 10:14

Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135009, 1155135014

Results by **SW8260B**

		Blank Spike (%)		
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	108	108	(71-136)
4-Bromofluorobenzene (surr)	750	91.8	92	(55-151)
Toluene-d8 (surr)	750	94.5	95	(85-116)

Batch Information

Analytical Batch: **VMS15248**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **ST**

Prep Batch: **VXX27882**
Prep Method: **SW5035A**
Prep Date/Time: **09/12/2015 08:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1290372
MS Sample ID: 1290373 MS
MSD Sample ID: 1290374 MSD

Analysis Date: 09/12/2015 13:06
Analysis Date: 09/12/2015 11:30
Analysis Date: 09/12/2015 11:46
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1155135009, 1155135014

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	5.65U	339	363	107	339	343	101	78-125	5.70	(< 20)
1,1,1-Trichloroethane	5.65U	339	374	111	339	379	112	73-130	1.20	(< 20)
1,1,2,2-Tetrachloroethane	2.82U	339	367	108	339	371	110	70-124	1.30	(< 20)
1,1,2-Trichloroethane	2.25U	339	349	103	339	345	102	78-121	1.20	(< 20)
1,1-Dichloroethane	5.65U	339	355	105	339	363	107	76-125	2.30	(< 20)
1,1-Dichloroethene	5.65U	339	367	108	339	369	109	70-131	0.58	(< 20)
1,1-Dichloropropene	5.65U	339	355	105	339	364	108	76-125	2.60	(< 20)
1,2,3-Trichlorobenzene	11.3U	339	298	88	339	327	97	66-130	9.30	(< 20)
1,2,3-Trichloropropane	5.65U	339	378	112	339	376	111	73-125	0.51	(< 20)
1,2,4-Trichlorobenzene	5.65U	339	306	91	339	326	96	67-129	6.10	(< 20)
1,2,4-Trimethylbenzene	11.3U	339	344	102	339	341	101	75-123	0.69	(< 20)
1,2-Dibromo-3-chloropropane	22.6U	339	369	109	339	386	114	61-132	4.50	(< 20)
1,2-Dibromoethane	2.25U	339	353	104	339	340	100	78-122	3.80	(< 20)
1,2-Dichlorobenzene	5.65U	339	340	100	339	338	100	78-121	0.57	(< 20)
1,2-Dichloroethane	2.25U	339	374	111	339	380	112	73-128	1.60	(< 20)
1,2-Dichloropropane	2.25U	339	338	100	339	349	103	76-123	3.20	(< 20)
1,3,5-Trimethylbenzene	5.65U	339	339	100	339	335	99	73-124	1.10	(< 20)
1,3-Dichlorobenzene	5.65U	339	334	99	339	334	99	77-121	0.14	(< 20)
1,3-Dichloropropane	2.25U	339	351	104	339	339	100	77-121	3.40	(< 20)
1,4-Dichlorobenzene	5.65U	339	336	99	339	336	99	75-120	0.03	(< 20)
2,2-Dichloropropane	5.65U	339	377	111	339	382	113	67-133	1.20	(< 20)
2-Butanone (MEK)	56.5U	1020	1050	103	1020	1140	112	51-148	8.30	(< 20)
2-Chlorotoluene	5.65U	339	343	101	339	344	102	75-122	0.36	(< 20)
2-Hexanone	56.5U	1020	1110	109	1020	1130	111	53-145	1.90	(< 20)
4-Chlorotoluene	5.65U	339	331	98	339	332	98	72-124	0.10	(< 20)
4-Isopropyltoluene	5.65U	339	331	98	339	325	96	73-127	1.60	(< 20)
4-Methyl-2-pentanone (MIBK)	56.5U	1020	1090	107	1020	1130	111	65-135	4.00	(< 20)
Benzene	2.82U	339	349	103	339	355	105	77-121	1.60	(< 20)
Bromobenzene	5.65U	339	352	104	339	355	105	78-121	1.10	(< 20)
Bromochloromethane	5.65U	339	356	105	339	358	106	78-125	0.41	(< 20)
Bromodichloromethane	5.65U	339	370	109	339	373	110	75-127	0.97	(< 20)
Bromoform	5.65U	339	393	116	339	365	108	67-132	7.40	(< 20)
Bromomethane	45.1U	339	355	105	339	354	104	53-143	0.48	(< 20)
Carbon disulfide	22.6U	508	564	111	508	565	111	63-132	0.06	(< 20)
Carbon tetrachloride	2.82U	339	386	114	339	382	113	70-135	1.00	(< 20)
Chlorobenzene	5.65U	339	344	102	339	339	100	79-120	1.30	(< 20)
Chloroethane	45.1U	339	362	107	339	360	106	59-139	0.50	(< 20)

Print Date: 09/29/2015 8:40:24AM

Matrix Spike Summary

Original Sample ID: 1290372
MS Sample ID: 1290373 MS
MSD Sample ID: 1290374 MSD

Analysis Date: 09/12/2015 13:06
Analysis Date: 09/12/2015 11:30
Analysis Date: 09/12/2015 11:46
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1155135009, 1155135014

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	5.65U	339	361	107	339	368	109	78-123	2.00	(< 20)
Chloromethane	5.65U	339	332	98	339	329	97	50-136	0.72	(< 20)
cis-1,2-Dichloroethene	5.65U	339	360	106	339	364	107	77-123	1.00	(< 20)
cis-1,3-Dichloropropene	5.65U	339	355	105	339	367	108	74-126	3.20	(< 20)
Dibromochloromethane	5.65U	339	364	108	339	351	104	74-126	3.70	(< 20)
Dibromomethane	5.65U	339	360	106	339	369	109	78-125	2.30	(< 20)
Dichlorodifluoromethane	11.3U	339	378	112	339	362	107	29-149	4.40	(< 20)
Ethylbenzene	5.08J	339	339	99	339	338	98	76-122	0.20	(< 20)
Freon-113	22.6U	508	542	107	508	544	107	66-136	0.46	(< 20)
Hexachlorobutadiene	11.3U	339	369	109	339	367	109	61-135	0.34	(< 20)
Isopropylbenzene (Cumene)	5.65U	339	333	98	339	327	97	68-134	1.70	(< 20)
Methylene chloride	22.6U	339	353	104	339	358	106	70-128	1.50	(< 20)
Methyl-t-butyl ether	22.6U	508	535	105	508	548	108	73-125	2.50	(< 20)
Naphthalene	11.3U	339	304	90	339	334	99	62-129	9.60	(< 20)
n-Butylbenzene	5.65U	339	335	99	339	326	96	70-128	2.80	(< 20)
n-Propylbenzene	5.65U	339	337	100	339	335	99	73-125	0.64	(< 20)
o-Xylene	9.93J	339	339	97	339	339	97	77-123	0.00	(< 20)
P & M -Xylene	24.3	677	678	97	677	678	97	77-124	0.00	(< 20)
sec-Butylbenzene	5.65U	339	333	98	339	325	96	73-126	2.30	(< 20)
Styrene	5.65U	339	339	100	339	331	98	76-124	2.20	(< 20)
tert-Butylbenzene	5.65U	339	331	98	339	334	99	73-125	0.92	(< 20)
Tetrachloroethene	2.82U	339	336	99	339	324	96	73-128	3.70	(< 20)
Toluene	38.4	339	372	98	339	368	97	77-121	0.92	(< 20)
trans-1,2-Dichloroethene	5.65U	339	361	107	339	363	107	74-125	0.69	(< 20)
trans-1,3-Dichloropropene	5.65U	339	370	109	339	359	106	71-130	3.10	(< 20)
Trichloroethene	2.82U	339	353	104	339	366	108	77-123	3.40	(< 20)
Trichlorofluoromethane	11.3U	339	411	121	339	379	112	62-140	8.00	(< 20)
Vinyl acetate	22.6U	339	355	105	339	361	107	50-151	1.80	(< 20)
Vinyl chloride	2.25U	339	354	105	339	348	103	56-135	1.90	(< 20)
Xylenes (total)	34.2	1020	1020	97	1020	1020	97	78-124	0.00	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		339	349	103	339	361	107	71-136	3.40	
4-Bromofluorobenzene (surr)		903	742	82	903	745	83	55-151	0.49	
Toluene-d8 (surr)		339	336	99	339	327	97	85-116	2.80	

Print Date: 09/29/2015 8:40:24AM

Matrix Spike Summary

Original Sample ID: 1290372
MS Sample ID: 1290373 MS
MSD Sample ID: 1290374 MSD

QC for Samples: 1155135009, 1155135014

Analysis Date:
Analysis Date: 09/12/2015 11:30
Analysis Date: 09/12/2015 11:46
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260B**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS15248
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: ST
Analytical Date/Time: 9/12/2015 11:30:00AM

Prep Batch: VXX27882
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/12/2015 8:00:00AM
Prep Initial Wt./Vol.: 110.77g
Prep Extract Vol: 25.00mL

Print Date: 09/29/2015 8:40:24AM

Method Blank

Blank ID: MB for HBN 1721049 [VXX/27949]
Blank Lab ID: 1292794

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013, 1155135014

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	84.1	50-150		%

Batch Information

Analytical Batch: VFC12686
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 9/22/2015 10:09:00AM

Prep Batch: VXX27949
Prep Method: SW5035A
Prep Date/Time: 9/22/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [VXX27949]
Blank Spike Lab ID: 1292795
Date Analyzed: 09/22/2015 10:28

Spike Duplicate ID: LCSD for HBN 1155135 [VXX27949]
Spike Duplicate Lab ID: 1292796
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013, 1155135014

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	10.2	102	10.0	10.1	101	(60-120)	1.80	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	83.2	83	1.25	84.5	85	(50-150)	1.60	

Batch Information

Analytical Batch: **VFC12686**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27949**
Prep Method: **SW5035A**
Prep Date/Time: **09/22/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1719949 [XXX/34116]
Blank Lab ID: 1290256

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	82	60-120		%

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 9/21/2015 9:02:00PM

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 9/11/2015 9:43:44PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [XXX34116]
Blank Spike Lab ID: 1290257
Date Analyzed: 09/21/2015 20:42

Spike Duplicate ID: LCSD for HBN 1155135 [XXX34116]
Spike Duplicate Lab ID: 1290258
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013

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	143	86	167	146	88	(75-125)	2.50	(< 20)
Surrogates									
5a Androstane (surr)	3.33	95.6	96	3.33	99.1	99	(60-120)	3.60	

Batch Information

Analytical Batch: **XFC12098**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **NLL**

Prep Batch: **XXX34116**
Prep Method: **SW3550C**
Prep Date/Time: **09/11/2015 21:43**
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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Method Blank

Blank ID: MB for HBN 1719949 [XXX/34116]
Blank Lab ID: 1290256

Matrix: Soil/Solid (dry weight)

QC for Samples:
1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	87	60-120		%

Batch Information

Analytical Batch: XFC12098
Analytical Method: AK103
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 9/21/2015 9:02:00PM

Prep Batch: XXX34116
Prep Method: SW3550C
Prep Date/Time: 9/11/2015 9:43:44PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1155135 [XXX34116]
Blank Spike Lab ID: 1290257
Date Analyzed: 09/21/2015 20:42

Spike Duplicate ID: LCSD for HBN 1155135 [XXX34116]
Spike Duplicate Lab ID: 1290258
Matrix: Soil/Solid (dry weight)

QC for Samples: 1155135001, 1155135002, 1155135003, 1155135004, 1155135005, 1155135006, 1155135007, 1155135008, 1155135009, 1155135010, 1155135011, 1155135012, 1155135013

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	129	78	167	144	86	(60-120)	10.50	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	79.9	80	3.33	87	87	(60-120)	8.50	

Batch Information

Analytical Batch: **XFC12098**
Analytical Method: **AK103**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **NLL**

Prep Batch: **XXX34116**
Prep Method: **SW3550C**
Prep Date/Time: **09/11/2015 21:43**
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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1155135

Locations Nationwide

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

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

Page 1 of 2

Section 1

CLIENT: Alaska Air

CONTACT: PHONE NO:

PROJECT NAME: Alaska Air Kotzebue

PROJECT/ PWSID/ PERMIT#: 108.00104.00071

REPORTS TO: Stan, Alaska

E-MAIL: sflagel@slrconsulting.com

INVOICE TO:

QUOTE #:

P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3: # CONTAINERS	Section 3: Type C = COMP G = GRAB MI = Multi Incremental Soils	Preservative: VOC 8260B	Preservative: DRO/RRO	Preservative: GRO	REMARKS/ LOC ID
(1) A-B	trench	9/5/15	1155	soil	2	G	X	X	X	
(2) A-B	SK15-18	9/5/15	1321				X	X	X	
(3) A-B	SK19-22	9/5/15	1739				X	X	X	
(4) A-B	SK 23-26	9/5/15	1748				X	X	X	
(5) A-B	@ southwest corner wall floor	9/5/15	1641				X	X	X	
(6) A-B	southwest corner floor	9/5/15	1648				X	X	X	
(7) A-B	c box	9/6/15	1258				X	X	X	
(8) A-B	SK27-29	9/6/15	1421				X	X	X	
(9) A-B	SK30-32	9/6/15	1433				X	X	X	
(10) A-B	A2	9/6/15	1625				X	X	X	

Section 5

	Date	Time	
Relinquished By: (1)	9/6/15	1731	Received By:
Relinquished By: (2)	9/8/15	0810	Received By:
Relinquished By: (3)	9/7/15	0906	Received By:
Relinquished By: (4)	9/8/15	9:06	Received For Laboratory By:

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 0.3 & D2

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

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Locations Nationwide

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Instructic ... must be filled out.
Omissions may delay the onset of analysis.

Section 1

CLIENT: Alaska Air
CONTACT: Alexia Knudson PHONE NO: 222-1112 350 9824
PROJECT NAME: Alaska Air Kotzebue PROJECT/ PWSID/ PERMIT#: 108.00104.00071
REPORTS TO: E-MAIL: AKknudson@bkrconsulting.com
INVOICE TO: QUOTE #:
P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	Preservative: VOC 8260B	DRO/RRO	GRO	REMARKS/ LOC ID
(11) A-B	A5	9/6/15	1625	soil	2	G	X	X	X	
(12) A-B	B1	"	1628	soil	2	G	X	X	X	
(13) A-B	C3	"	1631	soil	2	G	X	X	X	
(14) A	TB 9/8/15	9/5/15	1000	TB			X			

Section 3

Section 4

DOD Project? Yes (No)

Data Deliverable Requirements:

Cooler ID:

Requested Turnaround Time and/or Special Instructions:
Standard

Section 5

Relinquished By:	Date	Time	Received By:
(1)	9/6/15	1731	
(2)	9/8/15	0810	
(3)	9/8/15	0906	
(4)	9/8/15	9:06	Received For Laboratory By:

Temp Blank °C: 0.37 D2
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

1155135

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	☑ x JN	☐ ☑	☐ ☐	***Exemption permitted if sampler hand carries/delivers.***
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6 °C, were samples collected <8 hours ago?* *If <0 °C, were all sample containers ice free?* Cooler ID: [1] _____ @ 0.3 _____ w/ Therm.ID: D2 _____ 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 & "**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."	☑ ☐ ☐	☐ ☑ ☑	☐ ☐ ☐	***Exemption permitted if chilled & collected <8 hrs ago.*** ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery method (specify all that apply): ☑Client (hand carried) ☐USPS ☐Lynden ☐AK Air ☐Alert Courier ☐UPS ☐FedEx ☐RAVN ☐C&D Delivery ☐Carlile ☐Pen Air ☐Warp Speed ☐Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*		☑	☐	
	Yes	N/A	No	
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	☑ ☑ ☑	☐ ☐ ☐	☐ ☐ ☐	***Note: Refer to form F-083 "Sample Guide" for hold times.*** ***Note: If times differ <1hr, record details and login per COC.***
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ☑Bubble Wrap ☐Separate plastic bags ☐Vermiculite ☐Other:	☑	☐	☐	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	☑ ☐ ☐ ☐	☐ ☑ ☑ ☑	☐ ☐ ☐ ☐	☐ ***Exemption permitted for metals (e.g., 200.8/6020A).***
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	☑ ☐	☐ ☑	☐ ☐	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	☐	☑	☐	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	☐	☑	☐	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	☐	☑	☐	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	☐	☑	☐	SRF Completed by: VDL 9/8/15 PM notified:
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	☑	☐	☐	Peer Reviewed by: KPV
Additional notes (if applicable):				

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

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1155135001-A	No Preservative Required	OK			
1155135001-B	Methanol field pres. 4 C	OK			
1155135002-A	No Preservative Required	OK			
1155135002-B	Methanol field pres. 4 C	OK			
1155135003-A	No Preservative Required	OK			
1155135003-B	Methanol field pres. 4 C	OK			
1155135004-A	No Preservative Required	OK			
1155135004-B	Methanol field pres. 4 C	OK			
1155135005-A	No Preservative Required	OK			
1155135005-B	Methanol field pres. 4 C	OK			
1155135006-A	No Preservative Required	OK			
1155135006-B	Methanol field pres. 4 C	OK			
1155135007-A	No Preservative Required	OK			
1155135007-B	Methanol field pres. 4 C	OK			
1155135008-A	No Preservative Required	OK			
1155135008-B	Methanol field pres. 4 C	OK			
1155135009-A	No Preservative Required	OK			
1155135009-B	Methanol field pres. 4 C	OK			
1155135010-A	No Preservative Required	OK			
1155135010-B	Methanol field pres. 4 C	OK			
1155135011-A	No Preservative Required	OK			
1155135011-B	Methanol field pres. 4 C	OK			
1155135012-A	No Preservative Required	OK			
1155135012-B	Methanol field pres. 4 C	OK			
1155135013-A	No Preservative Required	OK			
1155135013-B	Methanol field pres. 4 C	OK			
1155135014-A	Methanol field pres. 4 C	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.
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.
BU - The container was received with headspace greater than 6mm.

APPENDIX D

LABORATORY QUALITY ASSURANCE REVIEW AND ADEC LABORATORY DATA REVIEW CHECKLIST

Kotzebue Airport Terminal Concrete Excavation Report

Alaska Airlines
P.O. Box 68900-SEAZE
Seattle, WA 98168-0900

January 2016

LABORATORY DATA
QUALITY ASSURANCE REVIEW

ALASKA AIRLINES
2015 KOTZEBUE AIRPORT SOIL EXCAVATION

SLR Project Number 108.00104.00071

This Quality Assurance Review (QAR) summarizes an evaluation of analytical results for work order numbers 1154927 and 1155135, for samples collected on 08/27/2015, and 09/5/2015 through 09/06/2015. Samples were collected by SLR International Corporation (SLR), and submitted to SGS North America, Inc (SGS). Samples were analyzed for the following parameters:

- Gasoline range organics (GRO), using Alaska Method 101 (AK101)
- Diesel range organics (DRO), using Alaska Method 102 (AK102)
- Residual range organics (RRO), using Alaska Method 103 (AK103)
- Volatile Organic Compounds (VOCs), using United States Environmental Protection Agency (USEPA) SW-846 8260B
- Percent Solids, using Standard Methods (SM) 21 2540G

Both confirmation and waste samples were collected in association with each work order. This QAR evaluated Quality Controls (QC) associated with confirmation samples only.

Quality Assurance Program

A quality assurance (QA) program was followed that addressed project administration, sampling protocols, data review, and data QA. Sample QA was provided by SLR through adherence to sampling protocols. Chain-of-custody (COC) procedures were followed as an integral part of the QA program.

Data validation consisted of the following:

- Verifying that quality control (QC) blanks were properly prepared, identified, and analyzed.
- Reviewing COC records for completeness, signatures, and dates.
- Verifying that surrogate analyses were within recovery acceptance limits.
- Verifying that Laboratory Control Samples (LCS) and Laboratory Control Sample Duplicates (LCSD), and the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) were within recovery acceptance limits.

- Verifying that Continuing Calibration Verification (CCV) recoveries were within applicable acceptance limits.

- Evaluating the result relative percent difference (RPD) between primary and duplicate field samples, LCS/LCSD, MS/MSD, and laboratory duplicates.

- Evaluating whether laboratory reporting limits met project goals.

- Providing an overall assessment of laboratory data quality and qualifying sample results if necessary.

Data Qualifications

The comments presented in this report refer to the field procedures and the laboratory's performance in meeting the QC specifications. The sample results were reviewed using the following documents:

- Alaska Department of Environmental Conservation (ADEC), 18 AAC 75, Oil and Other Hazardous Substances Pollution Control (revised, June 17, 2015).

- ADEC, Underground Storage Tanks Procedure Manual Guidance for Treatment of Petroleum – Contaminated Soil and Water and Standard Sampling Procedures (November 2002).

- ADEC, Technical Memorandum – 06-002, Environmental Laboratory Data and Quality Assurance Requirements (March 2009).

- USEPA Document 530/SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, fourth edition (November 1991).

- Standard Methods for the Examination of Water and Wastewater, 21st Edition, (2005).

Data Validation

Data Packages
The data packages were checked for transcription errors, omissions, or other anomalies. No issues were noted with regards to the data packages, except as noted below.

For work order 1155135

- The cooler was received at SGS, Anchorage, with a temperature blank below the ADEC required 4±2°C. This was recorded on the sample receipt form, but was not noted in the case narrative.

Sample Receipt
The sample receipt documentation was checked for anomalies. No issues were noted with regards to the receipt of the samples, except as noted below.

For work order 1154927

- The sample receipt form noted that one extra, unlabeled percent solids container was included in the cooler. This sample was logged in as “E Sample”, and was analyzed for percent solids by SM 21 2540G. Data was not impacted.

- The trip blank was not recorded on the COC. It was included in the cooler with all containers for all samples, including samples for volatile methods (GRO by AK101 and VOCs by SW8260B). Data was not impacted.

For work order 1155135

- The cooler was received at SGS, Anchorage, with a temperature blank at 0.3°C, below the ADEC required 4±2°C. Since no evidence of freezing was documented by the laboratory, data was considered not impacted. Al data was considered usable without qualification.

- The sample receipt form was unclear as to whether or not the COC accompanied the samples. An “X” was in the “Yes” box, with an “N” next to the box. It was likely that the SLR personnel who delivered the samples to SGS was carrying the COC, as opposed to it being in the cooler. Since samples and the COC were in the custody of SLR from the time of collection until delivery at the laboratory, data integrity was not compromised.

- Three boxes on the sample receipt form were marked incorrectly by SGS. First, not applicable (“N/A”) instead of “Yes” was checked regarding the presence of trip blanks. One trip blank was included in the cooler with all samples for all methods, including volatile methods. Secondly, the form noted “N/A” instead of “Yes” regarding VOA vials field extraction. Soil VOAs were correctly field preserved with surrogated methanol. Thirdly, the form noted “Yes” instead of the correct “N/A” that waters were pH compliant. No water samples were submitted with this work order. These were minor discrepancies with no impact to data quality or usability.

Holding Times and Preservation
Samples were appropriately preserved upon collection and were submitted to SGS. Sample analyses were conducted within holding time criteria. No issues were noted in regard to sample preservation.

Laboratory Method Blanks
Laboratory method blanks were analyzed at the appropriate frequencies. Analytes were not detected in any method blanks at or above the Limit of Detection (LOD).

Trip Blanks
One trip blank was submitted and analyzed for each work order for volatile methods GRO by AK101 and VOCs by SW8260B. Analytes were not detected in the trip blank at or above the LOD.

Surrogate Recovery Results
Surrogate analysis was performed at the required frequencies. All surrogate recoveries were within analytical method and SGS percent recovery acceptance limits, except as noted below.

For work order 1154927

- For GRO by Method AK101, 4-bromofluorobenzene surrogate for sample FL1C recovered above the acceptable upper control limit, likely due to matrix interference. The GRO result for sample FL1C was flagged "M+" to indicate an estimated value with potential high bias. Since a high bias was indicated, and the affected result was well below the applicable project cleanup level of 1,400 mg/Kg for GRO (18 AAC 75 Method Two, Arctic Zone), data usability was not affected. All data was usable as qualified.

For work order 1155135

- For GRO by Method AK 101, 4-bromofluorobenzene surrogate for sample C3 recovered below the acceptable lower control limit. Sample C3 was analyzed at a two-fold dilution. Insufficient volume was provided to the laboratory for re-analysis. The GRO result for sample C3 was flagged "QL" to indicate an estimated value with a potential low bias. Since the affected result was non-detect, with an LOD well below the applicable project cleanup level of 1,400 mg/Kg for GRO (18 AAC 75, Method Two, Arctic Zone); data usability was not affected. All data was usable as qualified.

- For DRO by Method AK 102 and RRO by Method AK 103, 5a-androstane and n-triacontane surrogates for sample B1 recovered below the acceptable lower control limit. Sample B1 was analyzed at a four-fold dilution for DRO and RRO due to matrix. Since surrogate may not accurately quantify target analyte recovery at this dilution, it was considered unlikely that data was impacted. To be conservative, DRO and RRO results for sample B1 were flagged "M-" to indicate estimated values with potential low bias. The affected results were well below applicable project cleanup levels (18 AAC 75, Method Two, Arctic Zone); therefore, all data was usable as qualified.

Calibration Verifications
CCVs were performed at the required frequencies. CCV recoveries were included only in the electronic data deliverables, not in the case narratives. All CCV percent recoveries were within analytical method and SGS percent recovery acceptance limits as reviewed in the data deliverables.

Field Duplicates
Two field duplicates were analyzed for ten VOC, GRO, and DRO soil samples. One field duplicate was analyzed for seven RRO samples. This satisfied the required frequency of one per 10 samples or less.

Field duplicates were submitted blind to the laboratory.

- Sample FL1CJ was a field duplicate of FL1C (1154927).

- Sample A5 was a field duplicate of A2 (1155135).

All RPDs between parent and duplicate samples were within limits for all analytes detected above the LOQ (less than the 50% required for soil samples), except as noted in the table below. Results for samples listed in the table below are recommended for qualification with a "QN", and should be considered estimated with unknown bias. Since no ADEC cleanup level is defined for 4-isopropyltoluene, by 18 AAC 75, Method Two, Table B1, Soil Cleanup Levels for the Arctic Zone (ADEC, June 17, 2015); all data was considered usable as qualified.

RELATIVE PERCENT DIFFERENCES			
Work Order	**Primary Sample (Duplicate Sample)**	**Analyte**	**RPD**
1154927	FL1C (FL1CJ)	4-isopropyltoluene	108%

RPDs for all duplicate/parent sample pairs with both results below the LOQ are considered to be acceptable without qualification.

Laboratory Control Samples/Laboratory Control Duplicate Samples
LCS and LCSDs were analyzed at the appropriate frequencies. All LCS/LCSD recoveries and RPDs were within acceptable limits.

Laboratory Duplicate Samples
Laboratory duplicates were analyzed at appropriate frequencies for percent solids. All RPDs were within acceptable limits.

Matrix Spike/Matrix Spike Duplicate Samples
MS/MSDs were analyzed at the appropriate frequencies. All MS/MSD recoveries and RPDs were within acceptable limits, except as noted below.

For work order 1154927

- For VOCs by Method SW8260B, MS/MSD recoveries for several analytes exceeded acceptable limits. Only the trip blank was associated with this MS/MSD pair. Since the LCS recoveries were acceptable for all analytes, only the parent sample (not associated with this project) was affected. All data was usable without qualification.

- For VOCs by Method SW8260B, the MSD recovery for 1,1,2-trichloroethane slightly exceeded the acceptable upper limit. Associated samples were FL1C, FL1CJ, FL3B, and FL4A. Since the LCS recovery was acceptable for this analyte, only the parent sample (not associated with this project) was affected. All data was usable without qualification.

Limits of Quantitation/Reporting Limits
For non-detect results, the LOD was compared to applicable cleanup levels for the site. LODs were compared to 18 AAC 75 Method Two, Tables B1 and B2, soil cleanup levels, most stringent of direct contact or outdoor inhalation for the Arctic Zone (June 17, 2015). All analytes with results of non-detect had LODs at or below applicable cleanup levels.

Overall Assessment

This data is judged acceptable for use, with the above noted qualifications.

Precision, Accuracy, Representativeness, Comparability, Completeness, and Sensitivity

- Precision: Precision goals were met, except as noted in the Field Duplicates section.
- Accuracy: Accuracy goals were met except as noted in the Surrogate Recovery and MS/MSD sections.
- Representativeness: Representativeness goals were met.
- Comparability: Comparability goals were met.
- Completeness: Completeness goals were met.
- Sensitivity: Sensitivity goals were met.

Laboratory Data Review Checklist

Completed by: Jennifer McLean

Title: Project Scientist Date: October 5, 2015

CS Report Name: Alaska Airlines Kotzebue Airport Soil Removal Report Date: September 25, 2015

Consultant Firm: SLR International Corporation

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1154927

ADEC File Number: 410.26.005 ADEC RecKey Number: na

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:

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:

      The trip blank was not recorded on the COC. Refer to the Trip Blank section for further discussion.

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

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

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

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

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

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:

The sample receipt form noted that one extra, unlabeled percent solids container was included in the cooler. This sample was logged in as "E Sample", and was analyzed for percent solids by SM 21 2540G.

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

Comments:

Data was not impacted.

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:

None were taken.

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

Comments:

No impact.

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

      The trip blank was not recorded on the COC. Refer to the Trip Blank section for further discussion.

   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:

      LODs were compared to 18 AAC 75 Method Two, Tables B1 and B2, soil cleanup levels, most stringent of direct contact or outdoor inhalation for the Arctic Zone (June 17, 2015).

   e. Data quality or usability affected?
      Comments:

      No impact.

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:

      Not applicable.

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

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

Comments:

No impact.

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

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

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

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

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

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

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

For VOCs by Method SW8260B:
1 - MS/MSD recoveries for several analytes exceeded acceptable limits.
2 - the MSD recovery for 1,1,2-trichloroethane slightly exceeded the acceptable upper limit.

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:

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

Comments:

1 - Only the trip blank was associated with this MS/MSD pair.
2 - Associated samples were FL1C, FL1CJ, FL3B, and FL4A.

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

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

1 - Since the LCS recoveries were acceptable for all analytes, only the parent sample (not associated with this project) was affected. No data was qualified.
2 - Since the LCS recovery was acceptable for this analyte, only the parent sample (not associated with this project) was affected. No data was qualified.

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

In both cases, all data was usable without qualification.

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:

For GRO by Method AK101, 4-bromofluorobenzene surrogate for sample FL1C recovered above the acceptable upper control limit, likely due to matrix interference.

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:

The GRO result for sample FL1C was flagged "M+" to indicate an estimated value with potential high bias.

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

Since a high bias was indicated, and the affected result was well below the applicable project cleanup level of 1,400 mg/Kg for GRO (18 AAC 75 Method Two, Arctic Zone), data usability was not affected. All data was usable as qualified.

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

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

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

The trip blank was not recorded on the COC. It was included in the cooler with all containers for all samples, including samples for volatile methods (GRO by AK101 and VOCs by SW8260B).

iii. All results less than PQL?

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

iv. If above PQL, what samples are affected?

Comments:

Not applicable.

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

Comments:

Data was not impacted.

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:

Sample FL1CJ was a field duplicate of FL1C.

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:

For 4-isopropyltoluene by SW8260B, the RPD of 108% between parent (FL1C) and duplicate (FL1CJ) exceeded the recommended 50% RPD limit.

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

Comments:

4-isopropyltoluene results for these samples were recommended for qualification with a "QN", and should be considered estimated with unknown bias. Since no ADEC cleanup level is defined for 4-isopropyltoluene, by 18 AAC 75, Method Two, Table B1, Soil Cleanup Levels for the Arctic Zone (ADEC, June 17, 2015); all data was considered usable as qualified.

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

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

Samples were collected with disposable or dedicated equipment.

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:

No impact.

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

a. Defined and appropriate?

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

Laboratory Data Review Checklist

Completed by: Jennifer McLean

Title: Project Scientist Date: October 5, 2015

CS Report Name: Alaska Airlines Kotzebue Airport Soil Removal Report Date: September 29, 2015

Consultant Firm: SLR International Corporation

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1155135

ADEC File Number: 410.26.005 ADEC RecKey Number: na

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:

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

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

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ☐ Yes ☒ No ☐ NA (Please explain.) Comments:

      The cooler was received at SGS, Anchorage, with a temperature blank at 0.3°C, below the ADEC required 4±2°C.

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

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

Refer to 3d regarding sample preservation.

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

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

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

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

Temperature exceedance was noted.
Three boxes on the sample receipt form were marked incorrectly by SGS. First, not applicable ("N/A") instead of "Yes" was checked regarding the presence of trip blanks. One trip blank was included in the cooler with all samples for all methods, including volatile methods. Secondly, the form noted "N/A" instead of "Yes" regarding VOA vials field extraction. Soil VOAs were correctly field preserved with surrogated methanol. Thirdly, the form noted "Yes" instead of the correct "N/A" that waters were pH compliant. No water samples were submitted for this work order.
The sample receipt form was unclear as to whether or not the COC accompanied the samples. An "X" was in the "Yes" box, with an "N" next to the box. It was likely that the SLR personnel who delivered the samples to SGS was carrying the COC, as opposed to it being in the cooler.

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

Comments:

Regarding temperature, since no evidence of freezing was documented by the laboratory, data was considered not impacted. All data was considered usable without qualification.
Regarding documentation errors, these were minor discrepancies with no impact to data usability.
Regarding the COC, since samples and the COC were in the custody of SLR from the time of collection until delivery at the laboratory, data integrity was not compromised.

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:

The cooler was received at SGS, Anchorage, with a temperature blank below the ADEC required 4±2°C. This was recorded on the sample receipt form, but was not noted in the case narrative.

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

None were taken.

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

No impact.

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:

LODs were compared to 18 AAC 75 Method Two, Tables B1 and B2, soil cleanup levels, most stringent of direct contact or outdoor inhalation for the Arctic Zone (June 17, 2015).

e. Data quality or usability affected?
Comments:

No impact.

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:

Not applicable.

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

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

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

Comments:

No impact.

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

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

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

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

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

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

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

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:

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

Comments:

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

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

No impact.

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:

For GRO by Method AK 101, 4-bromofluorobenzene surrogate for sample C3 recovered below the acceptable lower control limit.
For DRO by Method AK 102 and RRO by Method AK 103, 5a-androstane and n-triacontane surrogates for sample B1 recovered below the acceptable lower control limit.

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:

For GRO, sample C3 was analyzed at a two-fold dilution. Insufficient volume was provided to the laboratory for re-analysis. The GRO result for sample C3 was flagged "QL" to indicate an estimated value with a potential low bias.
For DRO and RRO, sample B1 was analyzed at a four-fold dilution for these analytes due to matrix. Since surrogate may not accurately quantify target analyte recovery at this dilution, it was considered unlikely that data was impacted. To be conservative, DRO and RRO results for sample B1 were flagged "M-" to indicate estimated values with potential low bias.

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

For GRO, since the affected result was non-detect, with an LOD well below the applicable project cleanup level of 1,400 mg/Kg for GRO (18 AAC 75, Method Two, Arctic Zone); data usability was not affected. All data was usable as qualified.
For DRO and RRO, the affected results were well below applicable project cleanup levels (18 AAC 75, Method Two, Arctic Zone); therefore, all data was usable as qualified.

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:

Not applicable ("N/A") instead of "Yes" was checked regarding the presence of trip blanks on the sample receipt form. One trip blank was included in the cooler with all samples for all methods, including volatile methods.

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:

All samples arrived at SGS in one cooler.

iii. All results less than PQL?

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

iv. If above PQL, what samples are affected?

Comments:

Not applicable.

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

Comments:

Data was not impacted.

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:

Sample A5 was a field duplicate of A2.

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:

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

Comments:

No impact.

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

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

Samples were collected with disposable or dedicated equipment.

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:

No impact.

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

a. Defined and appropriate?

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

APPENDIX E

ADEC HUMAN HEALTH CONCEPTUAL SITE MODEL: SCOPING FORM AND STANDARDIZED GRAPHIC

Kotzebue Airport Terminal Concrete Excavation Report

Alaska Airlines
P.O. Box 68900-SEAZE
Seattle, WA 98168-0900

January 2016

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Alaska Airlines Terminal - Kotzebue Airport

File Number: 400.26.005

Completed by: SLR International Corporation

Introduction

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

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

1. General Information:

Sources *(check potential sources at the site)*

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

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

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

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

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

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

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

* bgs - below ground surface

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

a) Direct Contact -

1. Incidental Soil Ingestion

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

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

Comments:

Impacted soil is cover by concrete slab. No direct contact with soil likely. Concentrations for all contaminants identified in soil are less than 1/10 the Arctic Zone soil cleanup level.

2. Dermal Absorption of Contaminants from Soil

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

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

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

Comments:

Impacted soil is cover by concrete slab. No direct contact with soil likely. Concentrations for all contaminants identified in soil are less than 1/10 the Arctic Zone soil cleanup level.

b) Ingestion -

1. Ingestion of Groundwater

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

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

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

Comments:

Although groundwater samples have not been collected in the excavation area, impacted groundwater is found in the vicinity of the terminal building. Water source for airport is located off-site. Contact with groundwater not likely.

2. Ingestion of Surface Water

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

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

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

Comments:

3. Ingestion of Wild and Farmed Foods

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

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

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

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

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

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

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

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

Comments:

Concentrations for all contaminants identified in soil are less than 1/10 the Arctic Zone soil cleanup level.

2. Inhalation of Indoor Air

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

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

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

Comments:

Recent screening of indoor air with PID indicated no volatile hydrocarbons. Survey of cargo area indicated active ventilation system. Concentrations for all contaminants identified in soil are less than 1/10 the Arctic Zone soil cleanup level.

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

Dermal Exposure to Contaminants in Groundwater and Surface Water

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

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

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

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

Comments:

Inhalation of Volatile Compounds in Tap Water

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

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

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

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

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

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

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

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

Comments:

Direct Contact with Sediment

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

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

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

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

Comments:

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

Exposure to impacted soils is expected only during active construction when overlying concrete slab might be removed. All completed pathways are considered insignificant because maximum concentrations are below 1/10 the soil cleanup levels.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: _____

_____

Completed By: _____

Date Completed: _____

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

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

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

Media / Transport Mechanisms

☑ Surface Soil (0-2 ft bgs)
- ☑ Direct release to surface soil — *check soil*
- ☐ Migration to subsurface — *check soil*
- ☑ Migration to groundwater — *check groundwater*
- ☑ Volatilization — *check air*
- ☐ Runoff or erosion — *check surface water*
- ☐ Uptake by plants or animals — *check biota*
- ☐ Other (list): _____

☑ Subsurface Soil (2-15 ft bgs)
- ☑ Direct release to subsurface soil — *check soil*
- ☑ Migration to groundwater — *check groundwater*
- ☑ Volatilization — *check air*
- ☐ Uptake by plants or animals — *check biota*
- ☐ Other (list): _____

☐ Ground-water
- ☐ Direct release to groundwater — *check groundwater*
- ☐ Volatilization — *check air*
- ☐ Flow to surface water body — *check surface water*
- ☐ Flow to sediment — *check sediment*
- ☐ Uptake by plants or animals — *check biota*
- ☐ Other (list): _____

☐ Surface Water
- ☐ Direct release to surface water — *check surface water*
- ☐ Volatilization — *check air*
- ☐ Sedimentation — *check sediment*
- ☐ Uptake by plants or animals — *check biota*
- ☐ Other (list): _____

☐ Sediment
- ☐ Direct release to sediment — *check sediment*
- ☐ Resuspension, runoff, or erosion — *check surface water*
- ☐ Uptake by plants or animals — *check biota*
- ☐ Other (list): _____

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

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

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

Exposure Media / Exposure Pathway/Route / Current & Future Receptors

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

Revised, 10/01/2010