Final Investigation Report
Former Above-Ground Storage Tank Area
Lot 1, Iliaska Subdivison, Iliamna, Alaska

Prepared for:

INNEC, Newhalen, AK 99606

August 2014

The following information is provided in compliance with Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites, prepared by the Alaska Department of Environmental Conservation, September 23, 2009.

Qualified persons responsible for report preparation:

Dr. Keith Torrance CPG, APC Services, LLC

Greg DuBois, APC Services, LLC

Site name: Former Above-Ground Storage Tank Area
Lot 1, Iliaska Subdivision
Iliamna, Alaska

ADEC file number: 2560.38.003

Prepared by:

APC Services, LLC
4241 B Street, Suite 100,
Anchorage, AK 99503

APC SERVICES LLC
A Subsidiary of Alaska Peninsula Corporation

Executive Summary

APC Services, LLC (APCS) was contracted by the Iliamna-Newhalen-Electric Cooperative (INNEC) to conduct environmental site characterization and obtain closure at a former above-ground storage tank (AST) site in Iliamna. The site is located in Lot 1, Iliaska Subdivision, Iliamna, Alaska. The site is listed in the Alaska Department of Environmental Conservation (ADEC) contaminated sites database as File Number 2560.38.003. The site formerly had six ASTs on site. The ASTs were in a depression created when gravel was excavated from the site and used in an airstrip. Diesel fuel was offloaded from barges into the ASTs. There was no documented spill event at the site and so the impacted soil is possibly related to small spills during use or perhaps a small leak(s). Previous work at the site started in 1994 and included field screening, contaminated soil excavation and treatment in an on-site biocell that was amended with fertilizer and an oxidizer to promote biodegradation; and well points were installed and possibly sampled, however the most recent work had not been clearly documented.

APCS conducted the following activities in June 2014:

- The supervision of the removal of 80 cubic yards of soil from the bio-cells and transportation of the soil to the Newhalen Landfill.
- The dismantling and disposal of the bio-cells.
- Gridding of the site and field screening soil from the center of each grid from 6-9 inches below ground surfaces (bgs).
- The collection of 9 soil samples from grid squares from 12 to 20 inches bgs for laboratory analysis for DRO.
- Groundwater sampling from a new monitoring well (GW3) for DRO and benzene, toluene, ethylbenzene, and xylenes (BTEX).
- The installation of a second monitoring well in saturated soils between the AST area and the lake. As the saturated soil consisted of impervious silts and clays and water from the soil did not enter the well and could not be sampled. A soil sample was collected for laboratory analysisfrom that location.
- Conducted seven shovel sheen tests along the beach.

APCS conducted the following activities in July 2014:

- Soil screening by PID over a gridded area on the shore of Iliamna Lake centered on GW4.
- The collection of 6 additional soil samples for laboratory analysis to delineate the extent of DRO contamination of the shore line.
- The collection of a sample of surface water from Iliamna Lake for laboratory analysis.

APCS findings were as follows:

- Field soil screening results from the bermed area gridded area ranged from 0.3 parts per million (ppm) to 1.2 ppm.

- APCS collected 9 soil samples for laboratory analysis based on field screening results and visual observation; two adjacent sample locations, SS01 and SS09, had strong hydrocarbon odor. A PID result from SS01 was measured at 41 ppm; all other sample locations did not have a hydrocarbon odor.
- Two soil sample results from adjacent grids, SS01 and SS09 exceeded the cleanup level of 250 milligrams per kilogram (mg/kg) at 1,830 mg/kg and 1,150 mg/kg; all other sample results from the gridded area were below 250 mg/kg.
- One soil sample that was collected outside of the berm at SS03 a PID reading of 38.7 ppm with a DRO result of 4,210 mg/kg.
- One groundwater sample collected from within the bermed area of the lot had a DRO analytical result of 2.65 milligrams per liter (mg/L) against a cleanup level of 1.5 mg/L; BTEX analyses were below cleanup levels
- There was no evidence of sheen found during the shovel sheen tests.
- Six additional soil samples collected within a gridded area of the shoreline had DRO concentrations from 22.1 to 3,250 mg/kg.

Conclusions and Recommendations

- Two soil analytical samples and one groundwater sample from inside the bermed area exceed cleanup levels.
- Soil sample SS03, collected outside of the former AST area approximately 20 feet from the lake contained DRO at 4,210 mg/kg.
- Shovel sheen tests between sample SS03 and the lake did not have sheen and based on the site findings during this investigation.
- Delineation of DRO-contaminated soil on the shore line was limited to a few 3’ x 3’ grid squares.
- Analysis of a surface water sample from Iliamna Lake indicated no DRO/TAH/TAqH contaminants above the method level of quantification.
- APCS requests that ADEC consider site closure with institutional controls.

List of Acronyms

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AOC	Area of Concern
APCS	APC Services, LLC
AST	Above-ground Storage Tank
BESC	Bristol Environmental Services Corporation
bgs	Below Ground Surface
BTEX	Benzene Toluene Ethylbenzene Xylene
COC	Chain of Custody
CSM	Conceptual Site Model
DRO	Diesel Range Organics
HAZWOPER	Hazardous Waste Operations and Emergency Response
HDPE	High Density Polyethylene
HSP	Health & Safety Plan
INNEC	Iliamna-Newhalen-Nondalton Electric Cooperative
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
^{o}C	Degrees Centigrade
OSHA	Occupational Safety and Health Administration
PID	Photo-Ionization Detector
ppm	Parts per Million
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
SCR	Site Characterization Report
WP	Work Plan

Contents

Table of Figures

1. Background

APCS and Iliamna-Newhalen-Nondalton Electric Cooperative (INNEC) undertook site evaluation and field sampling activities at the Former Above-Ground Storage Tank (AST) Area, Lot 1, Iliaska Subdivision, Iliamna, Alaska in June 2014. This site is listed in the Alaska Department of Environmental Conservation (ADEC) contaminated sites database as File Number 2560.38.003. A copy of the ADEC Database entry log, as of March 31st 2014, is provided in Appendix E.

Site characterization activities will conform to requirements defined in Chapter 18, Section 75.335 of the Alaska Administrative Code (18 AAC 75.355). Cleanup operations were guided by 18 AAC 75.360 regulations. Qualified persons, as defined in 18 AAC 75.990(100), completed all sampling and reporting for this project. Project personnel are identified in Section 3.

1.1 Document Organization

This report consists of the following sections:

Section 1 provides the introduction and summarizes the report organization.

Section 2 provides the project background.

Section 3 identifies project personnel. Responsibilities for the various positions and contact information for the team are identified.

Section 4 outlines the field evaluation and sampling work that was carried out during the investigation, with the results of field screening and laboratory analysis

Section 5 provides quality control review for the laboratory analytical data..

Section 6 documents the quality assurance review carried out on the analytical data.

Section 7 provides a summary of additional field work at the site.

Section 8 provides references for all works cited.

2. Project Background

2.1 Site Description

Lot #1, Iliaska subdivision, is located in the village of Iliamna, Alaska which is approximately 200 miles SW of Anchorage. The lot is adjacent to the northern shore of Roadhouse Bay on Iliamna Lake and is situated on the south side of a gravel spit connecting the southerly village isthmus to the rest of the village, as shown in Figure 1 and Figure 2. The coordinates of the site are latitude N59.75166 and longitude W154.81723 (WGS84). The site covers an area of approximately 1,100 yards^2 south of Iliaska Drive.

The elevation of the site is approximately 3 feet above the level of Iliamna Lake and 4 feet below Iliaska Drive. The lot is protected from the lake by a semi-circular berm constructed of gravel, which also underlies most of the site. Previous investigation by JBN Consultants, Inc. in 2010 reported groundwater at a depth of 12 – 18 inches below ground level but during this evaluation the water table was at least 16 inches deeper.

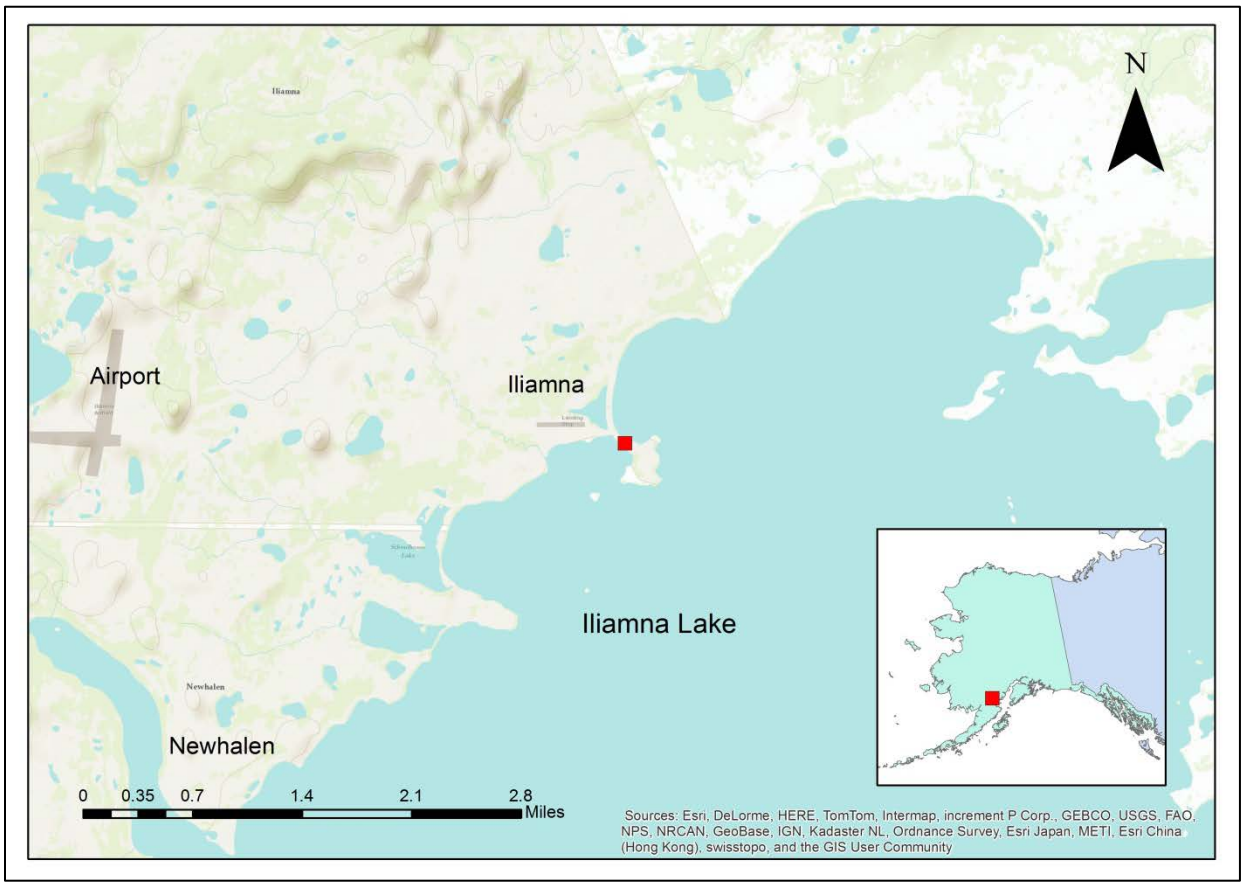


Figure 1. Site Location Map.

2.2 Site History

Lot 1 was previously used as an above-ground storage facility for diesel fuel off-loaded from barges on Iliamna Lake, which was sold for heating and power generation in the villages of Iliamna and Newhalen. The fuel was stored in ASTs that were probably installed in 1968 or 1969 after gravel was removed from the site to construct the old village airstrip, along the route of Iliaska Drive. The site was acquired by INNEC in 1982. Examination of aerial photography taken in the 1980's indicates that six 15,000-gallon tanks were originally present on the lot and were removed by INNEC sometime between September 1982 and August 1983. Figure 3 shows an aerial photograph of the site taken in 1982.

In 1994, a 20 x 40 foot area of diesel impacted soil was identified at the site originating from the former bulk fuel storage area by Bristol Environmental Services Corporation (BESC) who suggested that the release may have occurred from a slow leaky valve from the ASTs as no catastrophic or massive fuel spills are known to have occurred (Bristol Environmental Services Corporation, 1995). In 1995, approximately 80 cubic yards of contaminated soil was excavated and put into a treatment bio-ell on the east side of the lot. The biocell was lined with 20-mil high-density polyethylene (HDPE) liner and a common balanced fertilizer and magnesium peroxide periodically added to the cell to promote bioremediation of hydrocarbons.

No visible sheen was detected by BESC on top of the shallow groundwater table during the 1994 excavation. However, as no confirmation soil samples were collected from the depths of the excavation it is unknown whether contamination remains beneath the former tank farm. During a sampling event in 1998, analytical results obtained from stockpile soil samples indicated contamination remained in the biocell above the prevailing ADEC approved cleanup levels of 200 mg/kg for DRO.

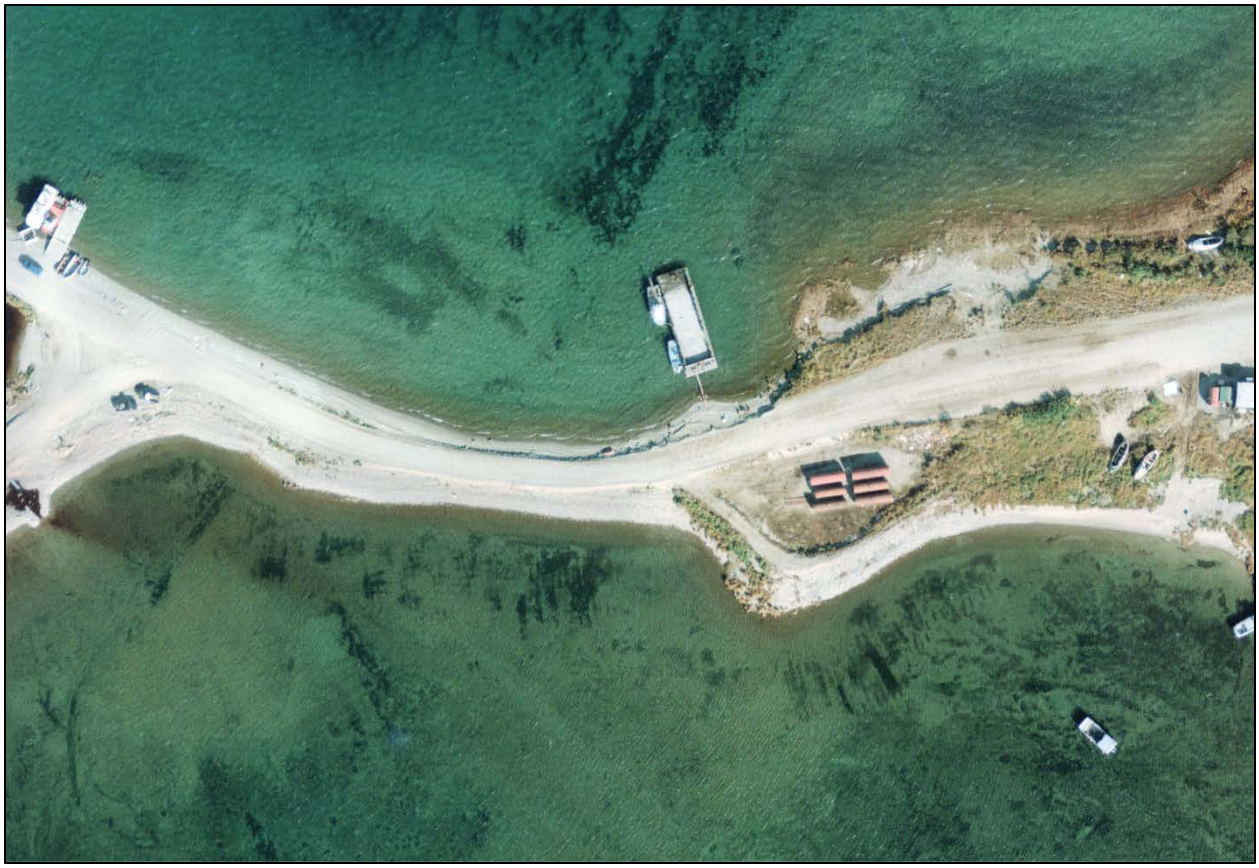


Figure 2. Aerial photograph taken in September 1982 showing Lot 1, Iliamna site with six fuel storage tanks. (Source: Quantum Spatial)

Additional soil sampling was performed in 2011 by JBN Consultants. Laboratory DRO concentrations were up to 526 mg/kg in the biocell and 2,310 mg/kg at the location of the former AST which are above the current ADEC approved cleanup levels of 250 mg/kg from Table B; migration to groundwater. An amended workplan was submitted to ADEC in September 2012 by JBN Consultants that called for the installation and sampling of a temporary well, but it is unclear if this work was completed.

2.3 Climate

Iliamna has a maritime climate, with cool summers, relatively warm winters, and rain. Precipitation averages 25 inches per year. January temperatures average 24 degrees Fahrenheit (°F), and July temperatures average 63°F (State of Alaska, 2010).

3. Personnel and Responsibilities

The field crew for this project was staffed by APCS personnel. Project roles and the responsible individuals are identified below. Contact information is presented in Table 1.

Table 1 Contact Information for Iliamna INNEC Project Personnel

Name	Function	E-mail	Primary Phone Number
Greg DuBois	Program Manager	gdubois@apcservicesllc.com	907-677-9451
Keith Torrance	Project Manager	ktorrance@apcservicesllc.com	907 677 9451 614 264 4506
Shawna Nieraeth	Environmental Scientist	snieraeth@apcservicesllc.com	907 677 9451
Greg DuBois	Program Manager Quality Assurance (QA)/ Quality Control (QC) Officer	gdubois@apcservicesllc.com	907-677-9451
Justin Nelson	SGS - North America, Laboratory Project Manager	justin.nelson@sgs.com	907-562-2343

3.1 Program Manager

Mr. Greg DuBois, Program Manager, had overall responsibility for all technical, contractual, and administrative matters. He was responsible for ensuring this project was executed with a high level of efficiency and accuracy.

3.2 Project Manager

Dr. Keith Torrance was the Project Manager for this project and was on-site to direct site work tasks. Responsibilities included reviewing the quality of deliverables and monitoring budgets and schedules for compliance with project goals. The Project Manager also served as the primary point of contact for the INNEC and ADEC.

3.3 Project Health Safety & Environment Manager

Dr. Keith Torrance acted as the project HSE Manager who was responsible for reviewing, approving, and most importantly, implementing the project health and safety plan. Mr. Torrance has Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) and Site Supervisor certifications. This individual ensured that the project work was conducted in a safe manner and that no spills occurred during the course of project activities.

3.4 ADEC Qualified Person

Dr. Keith Torrance was the ADEC Qualified Person (QP) on-site during field investigations. ADEC guidance provides the following responsibilities and duties for a Qualified Person:

"Qualified people have direct responsibility to prepare reports or make an interpretation regarding field data, and can exercise onsite control over all work that requires assessment, investigation, characterization, reporting, or interpretation at contaminated and underground storage tank sites."

3.5 QA/QC Officer

Mr. Greg DuBois served as the Quality Assurance (QA)/Quality Control (QC) Officer on the project. According to the requirements of 18 AAC 75.355(b), the QA/QC Officer was the responsible person who ensures the collection, interpretation, and reporting of data, and the required sampling and analysis, are conducted by a qualified person. The QA/QC Officer was responsible for training/assisting APCS personnel to conduct analytical sampling of soil, prepare the Site Characterization Report (SCR), manage surveying activities, and interact with regulatory agencies during the course of this project. This position ensured that the requisite number of confirmation samples were collected from excavations and that contaminated soil was properly characterized, excavated, and removed.

3.6 Subcontractors

APCS utilized SGS North America in Anchorage, Alaska, as the analytical laboratory for this project. SGS North America performed laboratory analyses of the samples collected during this project. Stepper Construction, Anchorage, AK, was contracted by INNEC to excavate soil from the biocell and transport it to Newhalen landfill.

4. Field Investigations

Keith Torrance (QP) and Shawna Nieraeth from APCS mobilized to Iliamna on Monday June 9th and spent two days supervising soil excavation and the collection of soil and groundwater samples from the site. Field notes are included in Appendix A.

4.1 Task 2.1 - Bio-cell Excavation

Prior to excavation at the site, scrub and vegetation was cut back from the bio-cell and the central areas within the berm. INNEC contracted Stepper Construction to remove the bio-cell liner and excavate the soil in the cell. Under the supervision of the QP, the top liner was carefully removed using an excavator fitted with a bucket without teeth to minimize damage to the liner, as shown in Figure 4. Soil was excavated from the bio-cell and loaded into a dump truck which was covered by a tarpaulin, as approved by ADEC, for the journey to the Newhalen landfill. No hydrocarbon odor was detected during excavation. A total of nine loads were transported to the landfill for a total volume of approximately 80 yards^3. After all of the soil had been removed from the biocell the base liner was inspected and found to be in good condition. Both liners were transported to Newhalen landfill for disposal.

Figure 3. Removal of top liner from the bio-cell.

4.2 Task 2.2 - Soil Screening

After the biocell had been removed, a 10’ x 10’ grid was laid out within the berm using a compass to establish an east-west baseline and a chain to mark the grid corners and labelled as shown in Figure 5. Cells A06 to A13 were not sampled because of heavy brush.

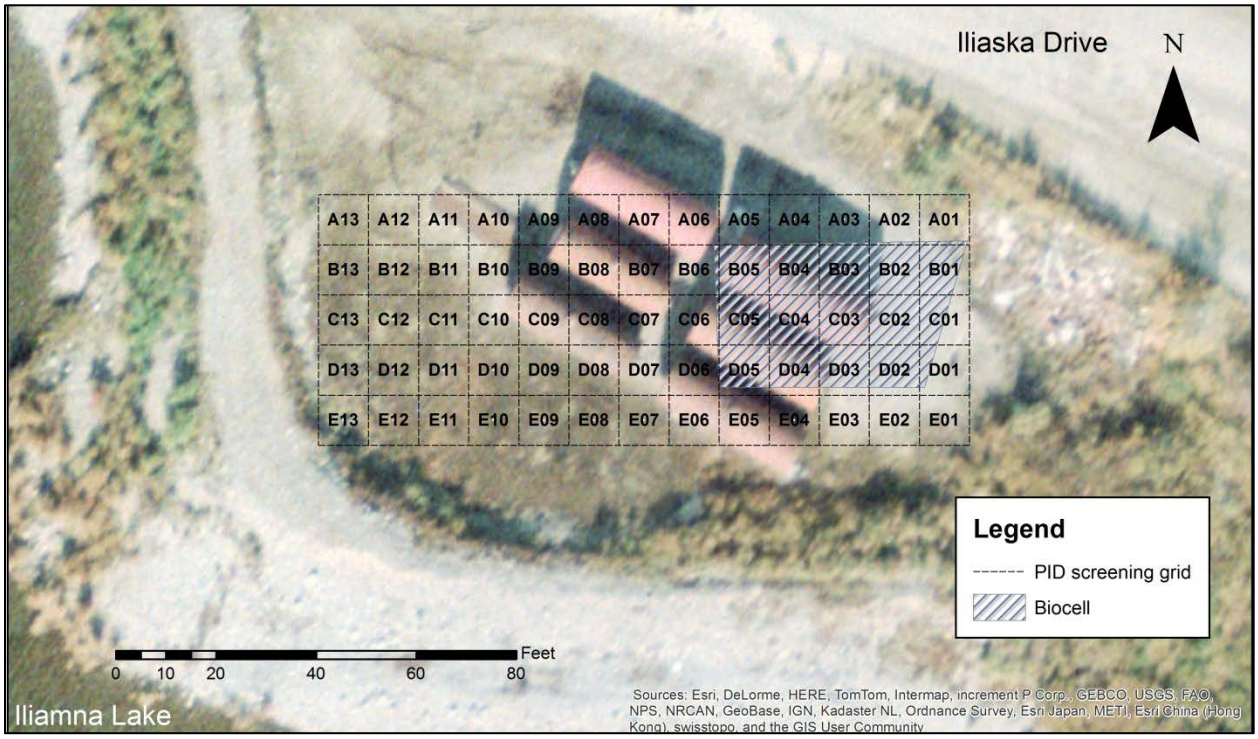


Figure 4. PID soil screening grid.

Approximately 50 grams of fresh soil was removed from a depth of 6 - 9 inches from the center of each grid square and transferred to a plastic bag for screening using a MiniRae 2000 photo ionization detector (PID) which had previously been calibrated at the beginning of the day using fresh air and 100ppm isobutylene as a span gas. Samples were warmed for 15 minutes before PID measurement which was completed within 45 minutes of the soil sample being collected. Results are shown in Table 2.

Table 2. Screening cell PID values.

Cell	PID (ppm)	Cell	PID (ppm)	Cell	PID (ppm)	Cell	PID (ppm)	Cell	PID (ppm)
A01	0.3	B01	0.4	C1	0.7	D01	0.8		
A02	0.4	B02	0.3	C2	0.9	D02	0.7	E02	1.1
A03	0.5	B03	0.6	C3	0.6	D03	0.6	E03	0.8
A04	0.5	B04	0.5	C4	0.6	D04	0.6	E04	0.6
A05	0.5	B05	0.6	C5	0.5	D05	0.8	E05	0.5
		B06	0.4	C6	1.0	D06	0.3	E06	0.3
		B07	1.0	C7	0.9	D07	0.7	E07	0.4
		B08	1.1	C8	0.7	D08	0.9	E08	0.4
		B09	0.7	C9	0.8	D09	0.6		
		B10	1.1	C10	0.6	D10	0.5		
		B11	0.9	C11	0.7	D11	0.7		
		B12	0.7	C12	0.5	D12	0.5		
		B13	0.7	C13	0.4	D13	1.2		

PID results ranged from 0.3 ppm to 1.1 parts per million (ppm), with no olfactory evidence of residual hydrocarbons. The soil underneath the biocell liner showed no staining or other signs that hydrocarbons had penetrated the liner.

4.3 Task 2.3 - Soil Sampling

Screening data and visual evidence was used to select sites for the collection of laboratory soil samples. The location of each sample site was marked using a survey stake and its position determined using GPS. Figure 5 shows the location of each sample point.

At each sample point a pit was dug using a stainless steel shovel to a depth of 12” – 20”. A new stainless steel spoon was used to collect a representative sample from the base of the pit and was transferred to a clean 4oz amber glass bottle for laboratory analysis by Method AK102. Duplicate samples were analyzed at a frequency of 10%. Samples were stored in a cooler at 4^{o}C until they could be delivered to SGS North America Inc.’s laboratory in Anchorage, as documented in the Chain of Custody (COC) manifest (Appendix D).

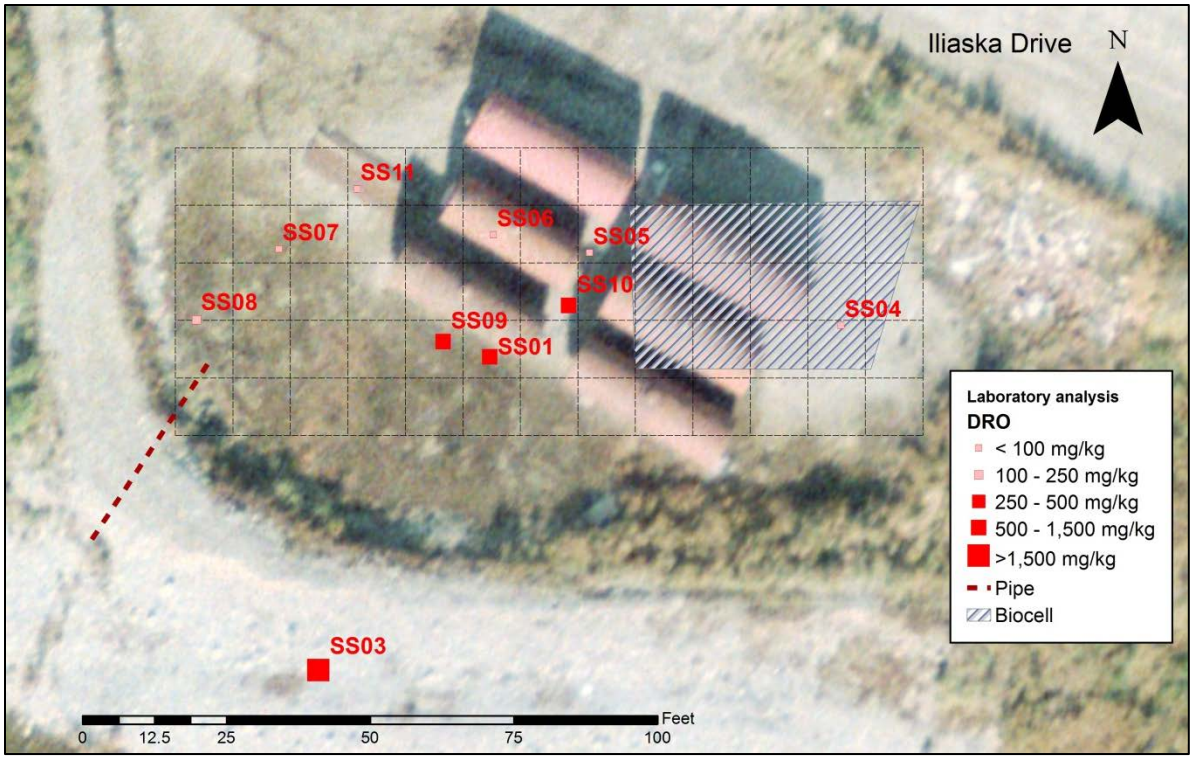


Figure 5. Location of laboratory soil sampling points – June 2014.

All samples, with the exception of SS03 which was collected south of the berm adjacent to the shore of Iliamna Lake, were collected within the screen sample grid as shown in Figure 5. Sample locations were selected based on the PID screening values and site considerations. Analytical results are summarized in Table 3 and the laboratory report, 1142382 is included in Appendix B. DRO concentrations above ADEC clean up levels at 1,839 mg/kg and 1,150 mg/kg were detected from samples collected at SS01 and SS09 within the berm. The highest concentration of DRO, at 4,210 mg/kg, was detected in sample SS03 which was collected between the berm and the shoreline.

Table 3. Analytical data on soils analyzed by Method AK102.

Sample point	Latitude	Longitude	DRO mg/kg	PID ppm	Notes
SS01	59.75161498	-154.817185	**1,360**	41	Strong hydrocarbon odor
SS02	59.75161498	-154.817185	**1,830**		duplicate
SS03	59.75146503	-154.817343	**4,210**	38.7	Strong hydrocarbon odor
SS04	59.75163200	-154.816854	31.9		
SS05	59.75166502	-154.817092	21.6		
SS06	59.75167299	-154.817183	17.5		
SS07	59.75166502	-154.817385	21.9		
SS08	59.75163099	-154.817462	134		
SS09	59.75162202	-154.817229	**1,150**		Strong hydrocarbon odor
SS10	59.75163996	-154.817111	**1,300**		
SS11	59.75169403	-154.817312	34.6		

Values in **bold** exceed ADEC's cleanup level of 250 mg/kg

A series of pits were dug along the shore of Iliamna Lake to a minimum depth of 12 inches in saturated gravels and silts. A shovel sheen test was performed to test for the presence of hydrocarbons in the sediments. None of the pits showed any indication of sheen. During the installation of well GW04, which was located between the berm and the shoreline, a laboratory soil sample (SS03) was collected as there was a strong smell of hydrocarbons with a PID headspace value of 38.7 ppm.

4.4 Task 2.4 - Groundwater Sampling

Groundwater levels were much lower than those encountered by JBN Consultants in 2011. A new groundwater monitoring well, GW3 was installed at the site on June 10th, 2014 using a stainless steel piezometer and ¾" inch galvanized steel conduit at a location where DRO soil contamination was detected in 2011. Groundwater was encountered at an initial depth of 3.2' below ground level (bgs) within sand and gravel sediments and stabilized at 2.80 feet bgs. The location of all monitoring wells is shown in Figure 6.

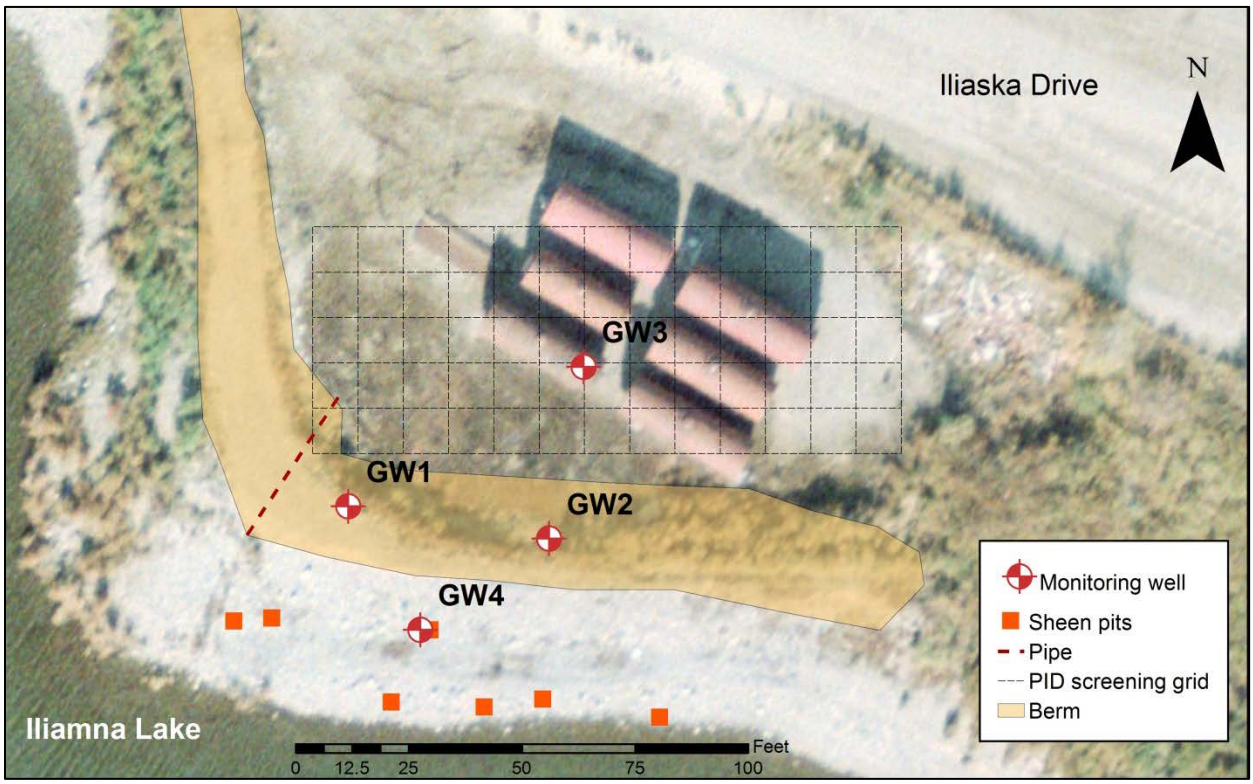


Figure 6. Location of groundwater monitoring wells and shovel sheen test pits – June 2014.

Following well development and purging of two well volumes samples (plus duplicates) were collected using a peristaltic pump with new Teflon tubing into HCl preserved 1-liter glass bottles (AK102) and 40 mL glass vials (SW8260B). Some sheening was observed in the sample collection bottles but diminished as more water was extracted from the well. Sample bottles were packed in coolers maintained at 4°C for shipment to SGS North America for analysis of

DRO by AK102 and BTEX by SW8260B. The laboratory results are summarized in Table 4 and detailed laboratory reports included in Appendix B.

Table 4. Summary of groundwater analysis

Method:	AK 102	SW8260B			
Sample	**DRO**	**Benzene**	**Toluene**	**Ethyl Benzene**	**Xylene**
0614GW3GW001	2.65 mg/L	0.180[J] ug/L	0.0005 mg/L	1.50 ug/L	1.51J ug/L
0614GW3GW201	1.63 mg/L	0.160[J] ug/L	0.0005 mg/L	1.21 ug/L	1.36J ug/L
ADEC clean-up levels (Table C)	*1.5 mg/L*	*5 ug/L*	*1.0 mg/L*	*700 ug/L*	*10 mg/L*

[J] Estimated

Monitoring wells GW1 and GW2, installed on the berm during the 2011 investigation, were dry to a depth of 5 feet and could not be sampled. A second new well was installed at GW4 between the berm and the shoreline, as shown in Figure 6. Although the sediments were saturated at a depth of 18 inches bgs, the well remained dry because of the poor permeability of silt/clay sediments and a groundwater sample could not be collected. Instead, a soil sample (SS03) was collected for laboratory analysis which subsequently indicated DRO concentrations of 4,200 mg/kg.

DRO concentrations exceeded ADEC groundwater cleanup levels for DRO at GW03, but BTEX concentrations were well below cleanup levels.

Investigation derived waste (IDW) consisted of groundwater that was purged from the monitoring well. Approximately 0.5 liters of water were removed from the site and disposed of according to ADEC guidelines, 100 yards away from any water bodies. Sampling pits were in-filled with clean soil.

4.5 Task 2.5 - Removal of Infrastructure

Infrastructure that was part of the original tank farm was identified in the SW corner of the lot, as shown in Figure 7. This consisted of a valve within a culvert connected to a 10 foot long section of 4" ID metal pipe running SW through the berm to the beach. The diameter of this pipe is consistent with it being the main supply line to the tanks and strongly suggests that fuel barges docked on the Roadhouse Bay (south) side of the lot for re-fuelling the AST's.

The pipe valve and culvert was removed and transported to Newhalen landfill for disposal. Soil around the valve was sampled and laboratory analysis indicated a DRO concentration of 134 mg/kg, which is below ADEC cleanup levels. As it was not practical to remove the 4" diameter metal pipe without damaging the berm the end was bent to seal the pipe and left in situ.

Figure 7. Pipe and valve assembly prior to removal.

5. Quality Assurance Review

All analytical work was performed by SGS North America, which is an ADEC contaminated site approved laboratory. No significant QA/QC issues were reported. A laboratory data review checklist for Report Number 1142382 is included in Appendix C.

6. Addendum – Shoreline Soil and Surface Water Sampling Study, July 2014.

6.1 Background

Following a review of the preliminary draft investigation report on Lot #1 Iliaska subdivision, Iliamna with Mr. Grant Lidren of ADEC on July 9th, 2014, it was determined that additional investigation was warranted to delineate the extent of the DRO contaminated soil identified on the shore front of Iliamna Lake around monitoring well GW4. In addition, ADEC requested that a sample of surface water from Iliamna Lake be collected for laboratory analysis for TAH and TAqH using Methods EPA 625M and 602/624 to determine if the lake is being impacted DRO migration from the site. A work plan addendum was submitted to ADEC for approval in July 2014.

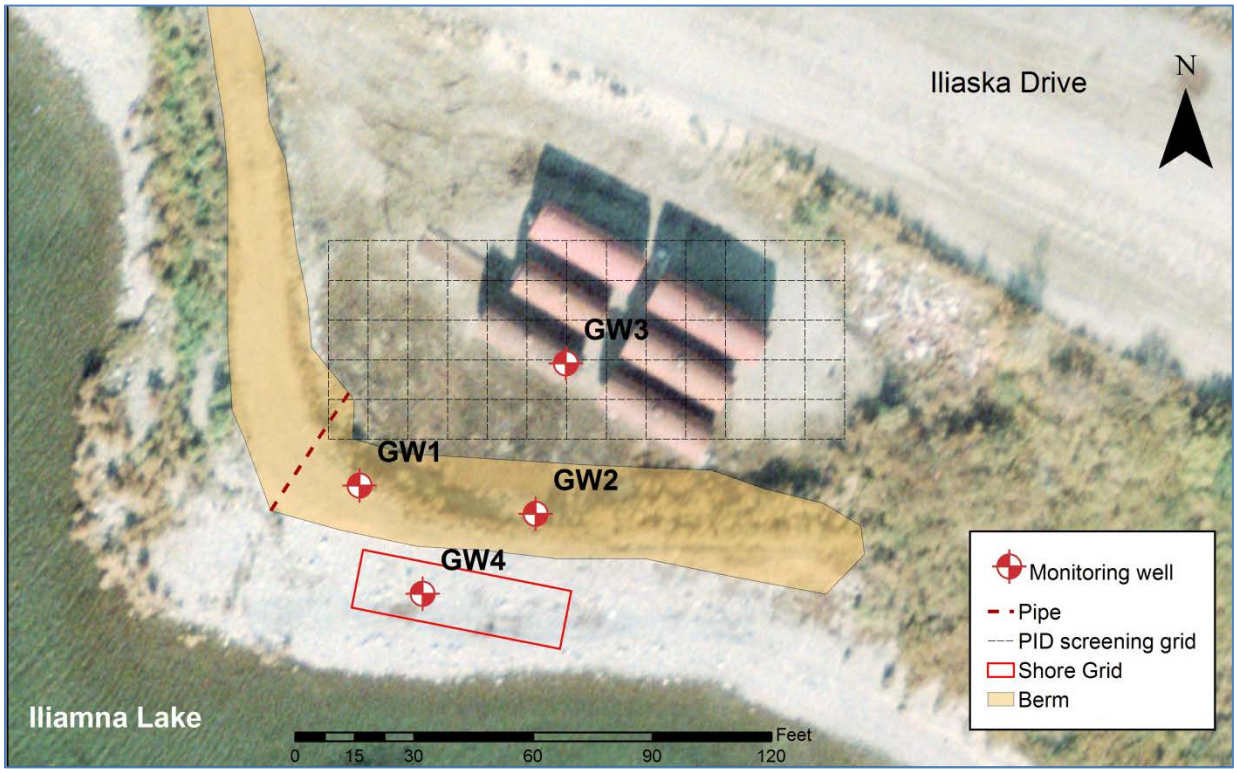


Figure 8. Approximate location of area under investigation around GW4 on the shore of Iliamna Lake.

Field sampling was carried out at the site on July 25th 2014 by Dr. Keith Torrance, an employee of APCS and a Qualified Person (QP). Field work followed the protocols outlined in ADEC's Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites, dated 23 September 2009.

Figure 8 shows the location of the area under investigation in comparison to previous investigations at the site. As the level of Lake Iliamna was higher than during the previous investigation in June 2014, the water edge was within 2.7 feet of GW4. Consequently, the water table was at a higher level and was encountered in all sampling pits. The width of the beach

was approximately 10 feet from the edge of water to the beginning of the berm, as illustrated in Figure 9 and Figure 11.

Figure 9. Photo showing the position of GW4 with respect to the edge of Iliamna Lake. Photo taken on 7/25/14.

6.2 Soil screening

Using monitoring well GW4 as a central reference point, a 3' x 3' grid was laid out parallel to the shore line using a measuring tape and the corners marked with flags. The grid covered an area of approximately 400 ft^2 bounded by the lake and the vegetated berm, as shown in Figure 11. In the center of each grid square a hole was dug to a minimum of 12 inches or until groundwater was encountered. Soil types were predominantly gravels and sandy gravels, transitioning to sandy silt and silt closer to Iliamna Lake, with an upper layer of cobbles. Using a new, clean stainless steel spoon, a sample of soil was removed as previously described and placed in a polythene bag for PID screening using a MiniRae 2000 instrument that was calibrated using air and 100ppm isobutylene as the span gas. Screening results for the study area are shown in Figure 10.

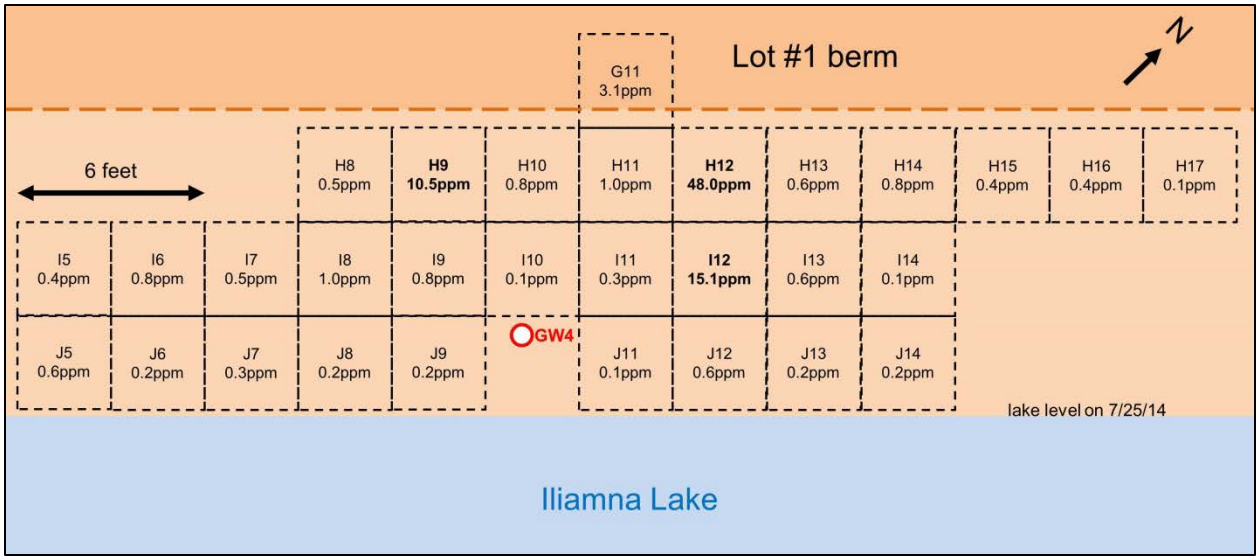


Figure 10. Shoreline soil sampling grid.

PID screening levels were above 2.5 ppm in soil from four grid squares which ranged from 3.1 ppm to 48.0 ppm compared to background levels of 1.0 ppm or less.

Figure 11. Photo of the shoreline showing flagged grid squares.

Based on the screening values, a total of six separate soil samples (with duplicate) were collected for laboratory analysis for DRO using Method AK102 and analyzed by SGS North America. Samples were collected in amber glass jars and kept in a cooler below 4°C until transferred to the laboratory. The Chain of Custody Record is included as Appendix D. Laboratory analytical results by Method AK102 are shown in Table 5.

Table 5. Laboratory Analysis of Soil Samples by AK102

Soil sample	PID (ppm)	DRO mg/kg by AK102	ADEC guideline	Comments
H9	10.5	152	250 mg/kg	
H8	0.5	38.9	250 mg/kg	
H12	48.0	3,250	250 mg/kg	hydrocarbon odor
G11	3.1	520	250 mg/kg	
H17	0.1	22.1J	250 mg/kg	
I12	15.1	26.7	250 mg/kg	

Two soil samples, H12 and G11, exceeded ADEC's soil cleanup guideline of 250 mg/kg for DRO (18 AAC 75, Table B2. - migration to groundwater). Both soil samples were predominantly of sandy gravel within a horizon above the water table. Figure 12 shows the location of laboratory soil samples that were collected. Confining silt layers within the pits appeared to be largely free of contamination. At locations where hydrocarbons were detected, the initial hydrocarbon odor rapidly dissipated upon exposure to air. The full laboratory report is included in Appendix B.

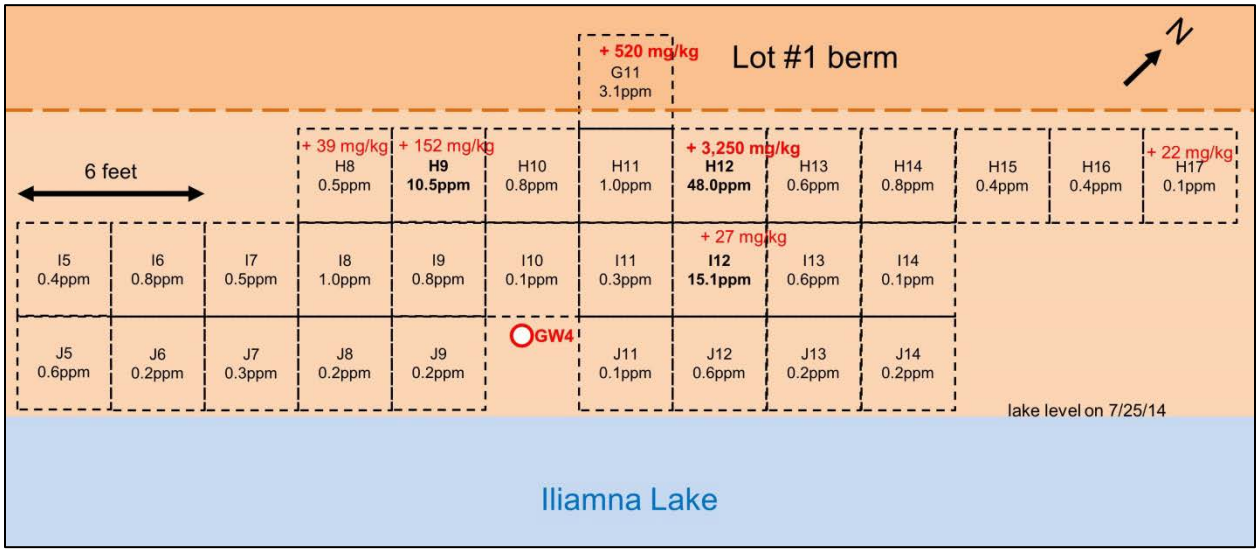


Figure 12. Location of laboratory soil samples collected in July 2014.

6.3 Surface Water Sampling

The collection of a water sample (SS03GW) from GW4 was attempted. The sample did not satisfy sampling protocols as there was limited recharge of the well and the data was rejected during internal QC. Monitoring wells GW1 & GW2 were dry on 25th July 2014.

A sample of surface water (1LSW1) was collected from Iliamna Lake, approximately 6 feet from the water's edge and analyzed by Methods AK102, EPA625M and 602/604 for DRO, TAH and TAqH. Analytical results, extracted from Report Number 1143379, are shown in Table 6. No TAH and TAqH target analytes were detected. DRO was analyzed by AK102 and estimated at 0.542 mg/L. The complete laboratory report is included in Appendix B.

Table 6. Laboratory Analysis of Surface Water

Sample	Parameter	Method	Result	LOQ/CL	Detection limit	Units
1LSW1	**TAH**					
	Acenaphthene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Acenaphthylene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Anthracene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Benzo(a)Anthracene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Benzo[a]pyrene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Benzo[b]Fluoranthene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Benzo[g,h,i]perylene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Benzo[k]fluoranthene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Chrysene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Dibenzo[a,h]anthracen	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Fluoranthene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Fluorene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Indeno[1,2,3-c,d]	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Naphthalene	EPA 625M	0.0520 U	0.104	0.0323	ug/L
	Phenanthrene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
	Pyrene	EPA 625M	0.0261 U	0.0521	0.0156	ug/L
1LSW2	**DRO**	AK102	0.542 J	0.600	0.180	mg/L
1LSW3	**TAqH**					
	1,2-Dichlorobenzene	EPA-602/624	0.500 U	1.00	0.310	ug/L
	1,3-Dichlorobenzene	EPA-602/624	0.500 U	1.00	0.310	ug/L
	1,4-Dichlorobenzene	EPA-602/624	0.250 U	0.500	0.150	ug/L
	Benzene	EPA-602/624	0.200 U	0.400	0.120	ug/L
	Chlorobenzene	EPA-602/624	0.250 U	0.500	0.150	ug/L
	Ethylbenzene	EPA-602/624	0.500 U	1.00	0.310	ug/L
	o-Xylene	EPA-602/624	0.500 U	1.00	0.310	ug/L
	P & M -Xylene	EPA-602/624	1.000 U	2.00	0.620	ug/L
	Toluene	EPA-602/624	0.500 U	1.00	0.310	ug/L

U analysis was below the detection limit: J result is an estimate.

6.4 Quality Control

All analytical work on samples collected on July 25th 2014 was performed by SGS North America, which is an ADEC contaminated site approved laboratory. No significant QA/QC issues were reported. A laboratory data review checklist for Report Number 11423379 is included in Appendix C.

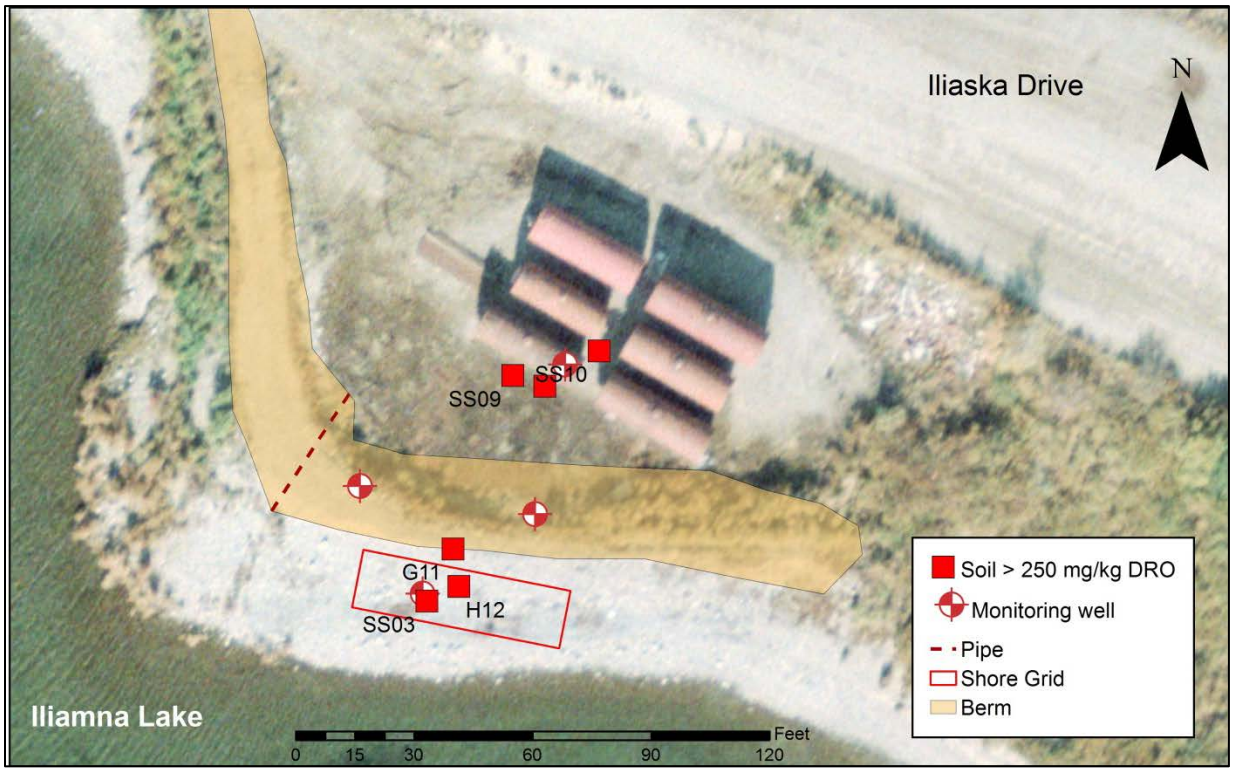


Figure 13. Map showing the position of all soil samples above 250 mg/kg DRO.

7. Summary

A summary of the work carried out and findings are as follows:

- Approximately 80 yards^3 of soil within the bio-cell was excavated and transported by covered dump truck to the Newhalen landfill and the liners removed. Soil field screening results showed no indication that contaminants had leaked from the biocell to the native soil underneath.
- Soil screening by PID showed no evidence of contaminated soil in the upper 6 – 9 inches of top soil across the site.
- Laboratory analysis of 9 soil samples collected within the berm indicated the presence of a single DRO-contaminated area at a horizon above the shallow water table.
- A second DRO-contaminated area was delineated between the berm and the shoreline.
- There was no soil contamination associated with the remnant pipe and valve in the SW corner of the site.
- Groundwater sampled from the area of hydrocarbon contamination within the berm marginally exceeded the ADEC cleanup level for DRO, as outlined in Table C in 18 AAC 75.341 but levels of BTEX were below action levels.
- Sheen testing along the shoreline failed to detect evidence of hydrocarbon migration into Iliamna Lake.
- Soil screening by PID indicated limited soil contamination by DRO over a gridded area on the shore of Iliamna Lake.
- Additional soil samples were collected in July to delineate the extent of DRO contamination of the shore.
- A sample of surface water from Iliamna Lake was collected for laboratory analysis.

The characterization data collected in this study confirmed that contamination at Iliamna Lot #1 has been addressed over most of the site. Contamination remains over an area of less than 10 yards^3 within a foot of the groundwater table. The presence of a DRO anomaly on the shore side of the lot suggests that there has been some limited migration of hydrocarbons via groundwater underneath the berm towards Iliamna Lake.

DRO contamination of the Iliamna Lake shoreline at Lot #1 is restricted to two narrow fingers that are less than 3 feet in width and extend from around MW3, inside the berm, to MW4 on the shoreline of Iliamna Lake. Figure 14 shows the location of all soil samples that tested above 250 mg/kg DRO and suggests that they form a single small area running under the berm. DRO contamination is associated with coarse sandy gravels and appears to be confined by inter-fingered silts that form the bed of Iliamna Lake.

Analysis of Iliamna Lake water indicated no detectable TAH/TAqH compounds and minimal DRO concentrations below the LOC. It can be concluded that the small volume of DRO-contaminated soil on the shore side of the berm at Lot #1 has no significant impact on Iliamna Lake.

The presence of silts and clays interlaced with gravel along the lake shore has restricted movement to the lake itself as no sheening was observed in the pits dug adjacent to the shore. A revised conceptual site model is shown in Figure 8.

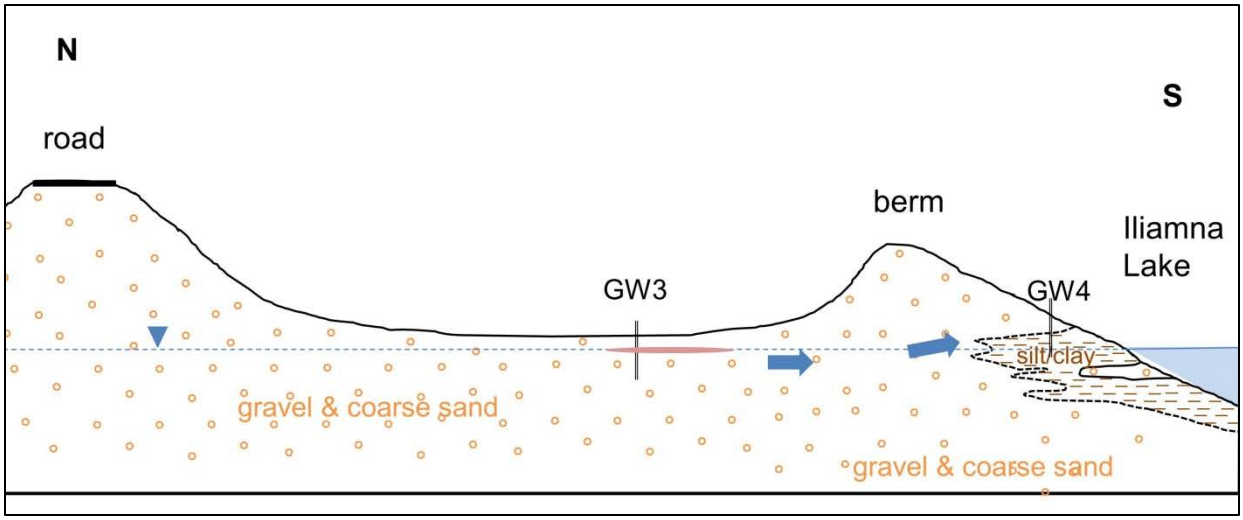


Figure 14. Conceptual Site Model of Lot #1 (not to scale).

8. References

ADEC 18 AAC 75 Oil and Other Hazardous Substances Pollution Control Regulations, April, 2012

ADEC Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites, dated 23 September 2009;

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

ADEC Division of Spill Prevention and Response Contaminated Sites Program. Monitoring Well Guidance, Feb 2009

ADEC Technical Memorandum. Environmental Laboratory Data and Quality Assurance Requirements. March 2009

ADEC Laboratory Data Review Checklist (Ver. 27). January 2010

Bristol Environmental Services Corporation Abbreviated Work Plan and Treatment Plan. INNEC Iliaska Point Small Spill Clean-up - July 1995

JBN Consultants, Inc. Closure Sampling Plan for Iliamna-Newhalen-Nondalton Electric Cooperative (INNEC) Former Above-Ground Storage Tank Area Lot 1, Iliaska Subdivision Iliamna, Alaska September 2011

Appendix A - Field Notes

Appendix B - Laboratory Reports

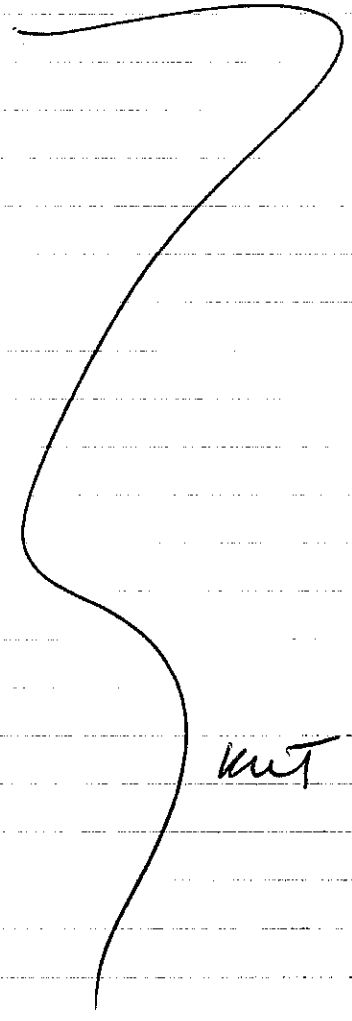
Appendix C - Laboratory Data Review Checklist

Appendix D - Chain of Custody Manifest

Appendix E - ADEC Database Entry Log

Wednesday June 11TH 2014

Return to Anchorage on Iliamna Air Taxi. Samples already shipped.



KMT.

25TH July 2014

8:00. Mobilization at APC Services in Anchorage.

PID Serial # 11517 calibrated using fresh air and ~~ppm~~ Isobutylene as a span gas. Standard has expiry date of 12/23/2015; Lot # 14-4972. Calibration successful.

9:30. Flight to Iliamna on IAT. 10:45 Arrive in Iliamna – met by George Heinbergers.

11:10. Arrive at the LOI with Robert Clay & Paul Askoak.

Weather: fair, sunny, light wind out of the North. Iliamna Lake level is much higher than last visit. Water edge is 2.7 feet from SSO3

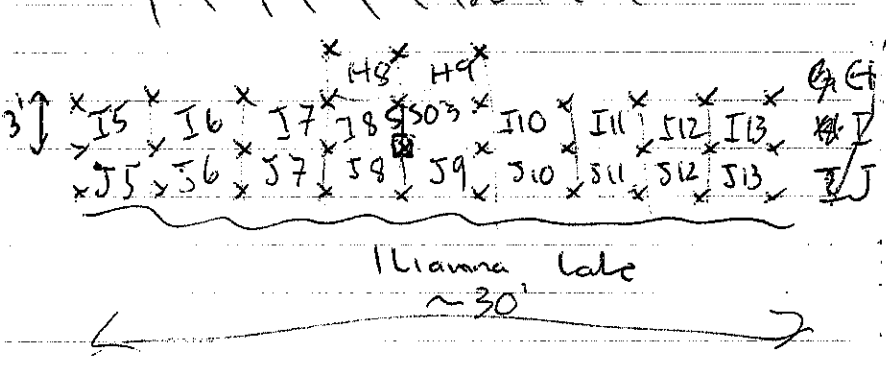
well.

(GW04)

11:35. Well SS08 is dull, but recharge rate is questionable. Sample collected but didn't meet purging criteria. (SS03GW)

Water samples collected from Illiamna Lake. Approx 6 feet from shore. Sample ILSW01, ~~LL02~~ ~~LL03~~. ILSW02, ILSW03.

11:40. 3 foot grid laid out on the foreshore around SS03.



Top left

Wells SS01 & SS02 dry.

12:10.

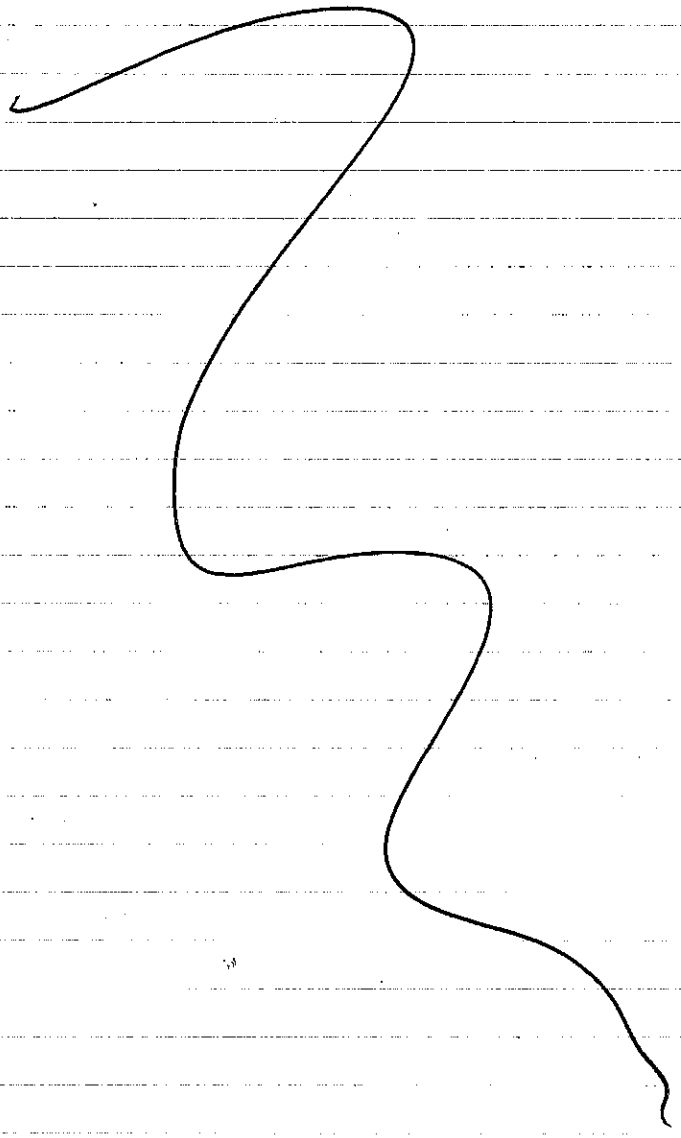
PID Screening Data

Square	PID
H5	0.4
H6	
H7	
H8	
H9	
H10	
H11	
H1	

KWT

Square	PID
I5	
I6	
I7	
I8	
I9	

KWT 8/25/14

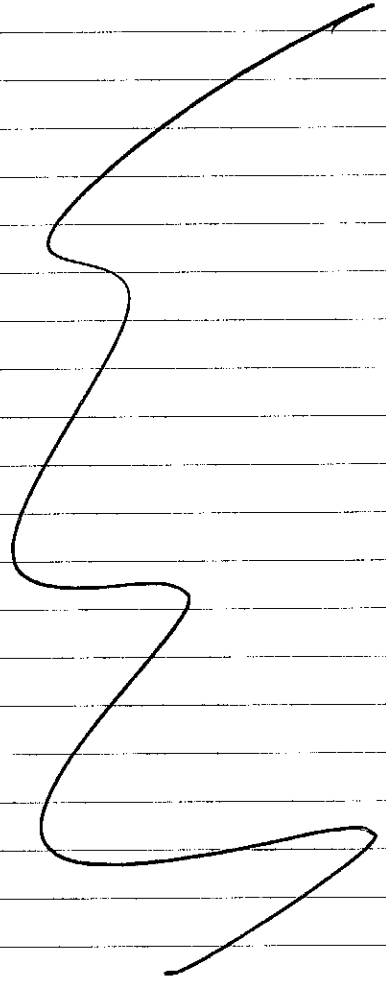


PID Screening Data.

Square	PID	Square	PID
I 5	0.4 ppm	J 5	0.6 ppm
I 6	0.8 ppm	J 6	0.2 ppm
I 7	0.5 ppm	J 7	0.3 ppm
I 8	1.0 ppm	J 8	0.8 ppm
I 9	0.8 ppm	J 9	0.2 ppm
I 10	0.1 ppm	J 10	
I 11	0.3 ppm	J 11	0.1 ppm
I 12	15.1 ppm	J 12	0.6 ppm
I 13	0.6 ppm	J 13	0.2 ppm
I 14	0.1 ppm	J 14	0.2 ppm

H 8	0.5 ppm	
H 9	10.5 ppm	
H 10	0.8 ppm	
H 11	~~0.8~~ ppm 1.0 ppm	Kurt 7/25/14
H 12	48 ppm	
H 13	0.6 ppm	
H 14	0.8 ppm	visible sheen
H 15	0.4 ppm	
H 16	0.4 ppm	
H 17	0.1 ppm	

Rite in the Rain



Grid

G11 3.1 ppm.

Laboratory soil samples taken:

H9	12:25	
H17	12:40	
I 12	13:25	
G 11	13:45	
H 8	12:15	
H12	12:20	
H 12 D	12:20	(duplicate)

13:00 Remove flag, fill in soil sample pits.

16:30 Fly to Anchorage on IAT.

Kurt 7/25/14

Monday 9TH June 2014

8:00 Travel to Iliamna via IAT

9:15 Arrive in Iliamna, met by George Honberger. Pick up freight.

10:15. Arrive at Lot # 1
Weather: cloudy, cool & dry.
Staff: Keith Tarrance (QP)
Shawna Nieraeth (Stepper)

Stepper mobilized on Sunday 8TH June.
Tailgate safety meeting – discussed hazards of working around heavy equipment

10:40: 1ST load removed after cover peeled back from the biocell. No odor of hydrocarbons.

Rite in the Rain

10:45 PID calibrated using fresh air and 100ppm isobutylene as the span gas.

Soil sample from biorell screened - no increase from background.

11.00 Checked water level in two wells (installed by JBN). Both are dry to a depth of around 5 feet. Lake level is still low, so not unexpected that water table is lower than JBN recorded.

12:30 Groundwater monitoring well installed using piezometer & approx 36" of 3/4" galvanized pipe. Water encountered at 3.2' below top of well. - GW3

MJT

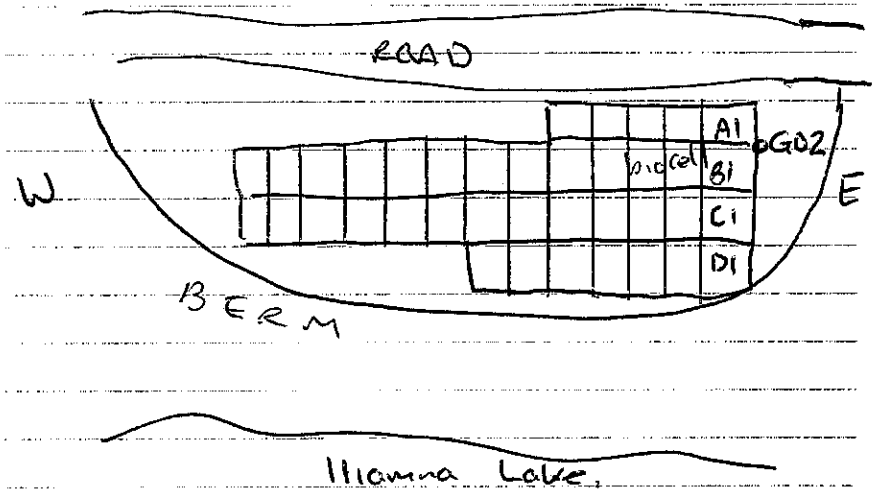
14:00 New monitoring well purged; approx 30 mL of groundwater removed using the peristaltic pump before going dry. Strong hydrocarbon odor and visible sheen on water. The plan is to purge several times before collecting a sample for lab analysis.

14:30.
A series of small pits dug along the shore of Illawarra Lake to test for sheening. No evidence of hydrocarbon sheening in any pits. The two westerly pits had stain from iron oxide but no odor.

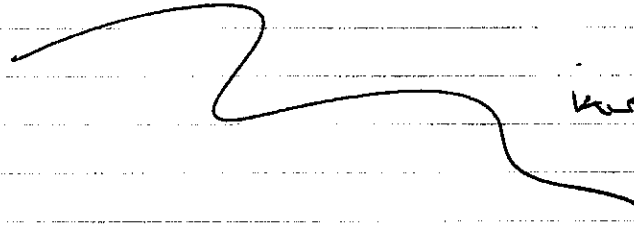
14:40. Last load of soil removed from the biorell. Surface underneath the liner is clean & sandy - no sign of contamination

MJT

15:00 Grid set out on site with 10' x 10' grid squares. E-W baseline established with compass bearing and flags set at 10' intervals using marked chain:



16:30 Return to INNEC



KLT.

Tuesday June 10TH, 2014

Weather: overcast, dry, light wind.

8:15. Arrive onsite. Water in GW3 measured at 2.80 feet below top of well.

8:35: PID (Serial # 11231) calibrated using fresh air and isobutylene gas (100 ppm).

Begin collection of soil screening samples. Approx 50 mL of soil collected from 6"-12" depth and placed in polyethene bag. Bag warmed for 15 minuts before sampling. Sample collected from the center of each square and labeled from the NW corner flag.

KLT

Grid Square		PID (ppm)
A1	Sandy soil	0.3 ppm
A2	↓	0.4 ppm
A3		0.5 ppm
A4		0.5 ppm
A5		0.5 ppm
B1		0.4 ppm
B2		0.3 ppm
B3		0.6 ppm
B4		0.5 ppm
B5		0.6 ppm
B6		0.4 ppm
B7		1.0 ppm
B8		1.1 ppm
B9		0.7 ppm
B10		1.1 ppm
B11		0.9 ppm
B12		0.7 ppm
B13		0.7 ppm
C1	sandy soil	0.7 ppm
C2	"	0.9 ppm
C3	"	0.6 ppm
C4	"	0.6 ppm
C5	"	0.5 ppm
C6	"	1.0 ppm

Grid Square		PID (ppm)
C7		0.9 ppm
C8		0.7 ppm
C9		0.8 ppm
C10		0.6 ppm
C11		0.7 ppm
C12		0.5 ppm
C13		0.4 ppm
D1		— 0.8 ppm
D2		0.8 ppm
D3		0.7 ppm
D4		0.6 ppm
D5		0.8 ppm
D6		0.3 ppm
D7		0.7 ppm
D8		0.9 ppm
D9		0.6 ppm
D10		0.5 ppm
D11		0.7 ppm
D12		0.5 ppm
D13	(value)	1.2 ppm
E2		1.1 ppm
E3		0.8 ppm
E4		0.6 ppm

Grid Square	PID (ppm)
E5	0.5 ppm
E6	0.3 ppm
E7	0.4 ppm
E8	0.4 ppm
GW4	38.7 PPM

12:10 Attempted to install new well, GW4 on the beach side of the berm, approx 9 feet from lake edge. No water filled into well, although soil was damp at ~12". Strong hydrocarbon odor; PID recorded at 38.7 ppm.

Sample SS03 collected from a depth of 16". Soil moist with clay layer underneath. Collected at 12:45 at GW4. Strong hydrocarbon odor.

All sample points recorded using GPS.

MCT

Sample SS01 with duplicate SS02 collected at 12:40 at a depth of 20 inches. Strong hydrocarbon odor; PID measured up to 41 ppm. (Grid D8)

Sample SS04 collected at 12:55 from base of bio-cell (Grid B3). Sandy soil - no hydrocarbon odor

Sample SS05 collected at 13:05 at a depth of 14 inches. Soil dry, sandy - no hydrocarbon odor.

13:07 SS06 collected from center of B8 grid at a depth of 16 inches. No hydrocarbon odor.

MCT

13.18 Collected sample SS07 at B12 at a depth of 14 inches. No hydrocarbon odor.

13:25 Collected soil sample SS08 beside valve at a depth of 18 inches No hydrocarbon odor

13:35. Collected lab soil sample SS09 from E8 grid at depth of 14". Soil damp with hydrocarbon odor.

14:30. Holes filled in & demobilized.

15:30 Sample cooler placed on 1AT flight to Anchorage; Nick will pick it up.

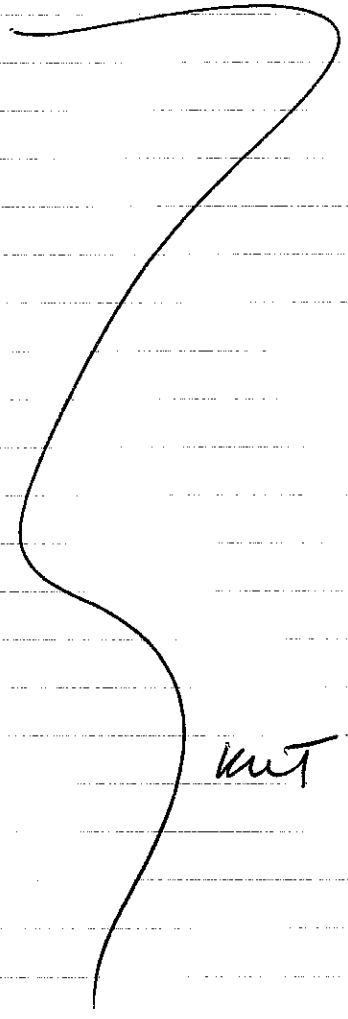
MT

16:00 Talked to George Hornberger at INNEC & discussed preliminary findings.

MT

Wednesday June 11TH 2014

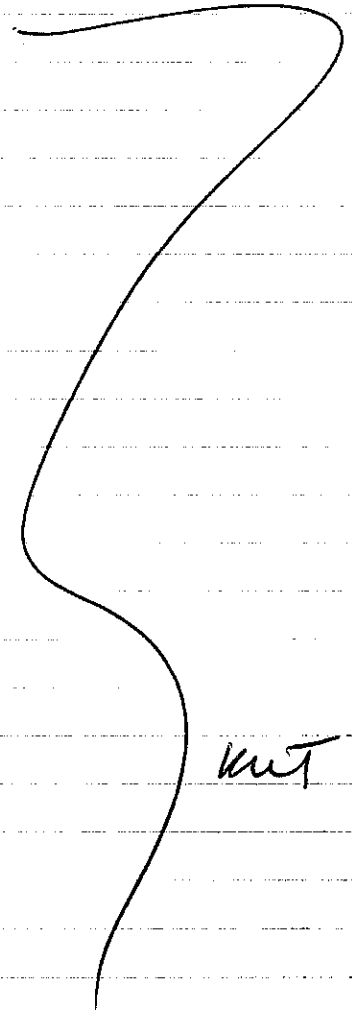
Return to Anchorage on Iliamna Air Taxi. Samples already shipped.



KMT.

Wednesday June 11TH 2014

Return to Anchorage on Iliamna Air Taxi. Samples already shipped.



KMT.

25TH July 2014

8:00. Mobilization at APC Services in Anchorage.

PID Serial # 11517 calibrated using fresh air and ~~ppm~~ Isobutylene as a span gas. Standard has expiry date of 12/23/2015; Lot # 14-4972. Calibration successful.

9:30. Flight to Iliamna on IAT. 10:45 Arrive in Iliamna – met by George Heinbergers.

11:10. Arrive at the LOI with Robert Clay & Paul Askoak.

Weather: fair, sunny, light wind out of the North. Iliamna Lake level is much higher than last visit. Water edge is 2.7 feet from SSO3

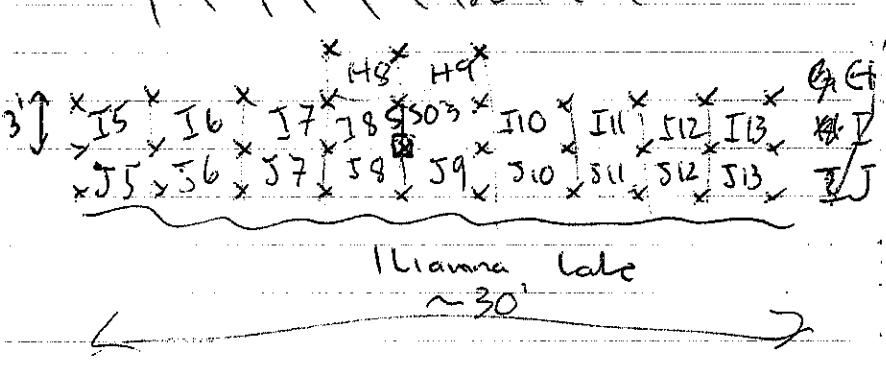
well.

(GW04)

11:35. Well SS08 is dull, but recharge rate is questionable. Sample collected but didn't meet purging criteria. (SS03GW)

Water samples collected from Illiamna Lake. Approx 6 feet from shore. Sample ILSW01, ~~LL02~~ ~~LL03~~. ILSW02, ILSW03.

11:40. 3 foot grid laid out on the foreshore around SS03.



Top left

Wells SS01 & SS02 dry.

12:10.

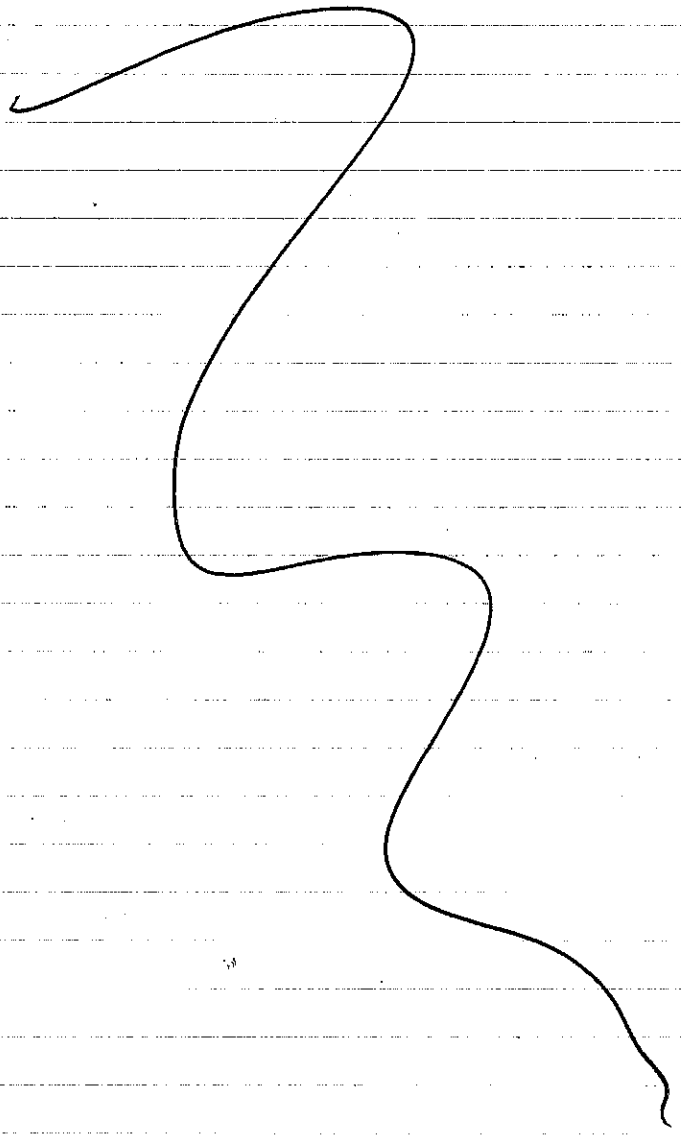
PID Screening Data

Square	PID
H5	0.4
H6	
H7	
H8	
H9	
H10	
H11	
H1	

KWT

Square	PID
I5	
I6	
I7	
I8	
I9	

KWT 8/25/14



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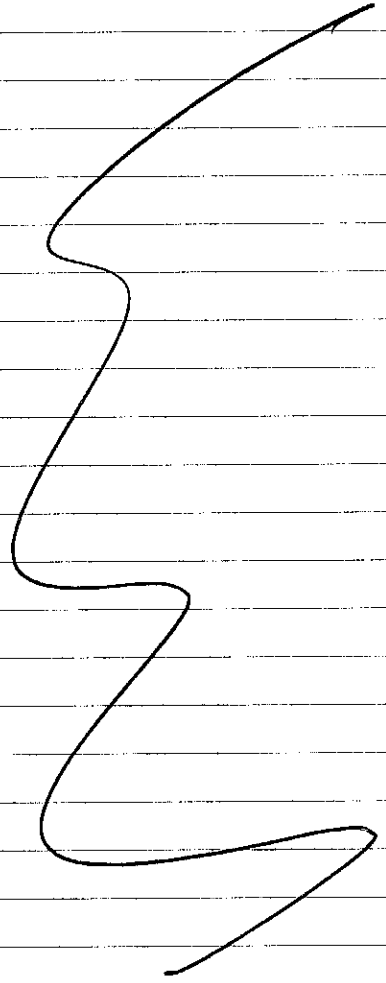
I 9	0.8 ppm	J 9	0.2 ppm
I 10	0.1 ppm	J 10	
I 11	0.3 ppm	J 11	0.1 ppm
I 12	15.1 ppm	J 12	0.6 ppm
I 13	0.6 ppm	J 13	0.2 ppm
I 14	0.1 ppm	J 14	0.2 ppm

H 8	0.5 ppm	
H 9	10.5 ppm	
H 10	0.8 ppm	
H 11	~~0.8~~ ppm 1.0 ppm	Kurt 7/25/14
H 12	48 ppm	
H 13	0.6 ppm	
H 14	0.8 ppm	visible sheen
H 15	0.4 ppm	
H 16	0.4 ppm	
H 17	0.1 ppm	

Rite in the Rain



Grid

G11 3.1 ppm.

Laboratory soil samples taken:

H9	12:25	
H17	12:40	
I 12	13:25	
G 11	13:45	
H 8	12:15	
H12	12:20	
H 12 D	12:20	(duplicate)

13:00 Remove flag, fill in soil sample pits.

16:30 Fly to Anchorage on IAT.

Kurt 7/25/14

Laboratory Report of Analysis

To: APC Services, LLC.
4241 B Street, Suite 100
Anchorage, AK 99503
(907)677-9451

Report Number: **1142382**

Client Project: **INNEC**

Dear Keith Torrance,

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 five 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

Revised Report - Revision 1 - This report has been reissued to change the Project Name to "INNEC", as indicated by the client on 6/26/14. No data has changed.

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: **APC Services, LLC.**
SGS Project: **1142382**
Project Name/Site: **INNEC**
Project Contact: **Keith Torrance**

Refer to sample receipt form for information on sample condition.

0614GW3GW001 (1142382001) PS

AK102 - The pattern is consistent with a weathered middle distillate.

0614GW3GW201 (1142382002) PS

AK102 - The pattern is consistent with a weathered middle distillate.

0614SS03 (1142382008) PS

AK102 - The pattern is consistent with a weathered middle distillate.

0614SS04 (1142382009) PS

AK102 - Unknown hydrocarbon with several peaks is present.

0614SS07 (1142382012) PS

AK102 - Unknown hydrocarbon with several peaks is present.

0614SS08 (1142382013) PS

AK102 - Unknown hydrocarbon with several peaks is present.

0614SS09 (1142382014) PS

AK102 - The pattern is consistent with a weathered middle distillate.

0614SS10 (1142382015) PS

AK102 - The pattern is consistent with a weathered middle distillate.

0614SS11 (1142382016) PS

AK102 - The pattern is consistent with a weathered middle distillate.

CCV for HBN 1574462 [VMS/14188 (1213905) CCV

8260B - CCV recoveries for multiple analytes do not meet QC criteria (biased high). These analytes were not detected above the LOQ in the associated samples.

LCS for HBN 1574461 [VXX/25962 (1213902) LCS

8260B - LCS recovery for 1,2-dibromoethane does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the associated samples.

LCSD for HBN 1574461 [VXX/2596 (1213903) LCSD

8260B - LCSD recoveries for multiple analytes do not meet QC criteria (biased high). These analytes were 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.

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Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
0614GW3GW001	1142382001	06/10/2014	06/10/2014	Water (Surface, Eff., Ground)
0614GW3GW201	1142382002	06/10/2014	06/10/2014	Water (Surface, Eff., Ground)
0614GW3GW001	1142382003	06/10/2014	06/10/2014	Water (Surface, Eff., Ground)
0614GW3GW201	1142382004	06/10/2014	06/10/2014	Water (Surface, Eff., Ground)
0614SGSGW601	1142382005	06/10/2014	06/10/2014	Water (Surface, Eff., Ground)
0614SS01	1142382006	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS02	1142382007	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS03	1142382008	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS04	1142382009	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS05	1142382010	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS06	1142382011	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS07	1142382012	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS08	1142382013	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS09	1142382014	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS10	1142382015	06/10/2014	06/10/2014	Soil/Solid (dry weight)
0614SS11	1142382016	06/10/2014	06/10/2014	Soil/Solid (dry weight)

Method	Method Description
AK102	Diesel Range Organics (S)
AK102	Diesel Range Organics (W)
SM21 2540G	Percent Solids SM2540G
SW8260B	Volatile Organic Compounds (W)

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Detectable Results Summary

Client Sample ID: **0614GW3GW001**
Lab Sample ID: 1142382001
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	2.65	mg/L

Client Sample ID: **0614GW3GW201**
Lab Sample ID: 1142382002
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1.63	mg/L

Client Sample ID: **0614GW3GW001**
Lab Sample ID: 1142382003
Volatile GC/MS

Parameter	Result	Units
Benzene	0.180J	ug/L
Ethylbenzene	1.50	ug/L
P & M -Xylene	1.51J	ug/L

Client Sample ID: **0614GW3GW201**
Lab Sample ID: 1142382004
Volatile GC/MS

Parameter	Result	Units
Benzene	0.160J	ug/L
Ethylbenzene	1.21	ug/L
P & M -Xylene	1.36J	ug/L

Client Sample ID: **0614SS01**
Lab Sample ID: 1142382006
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1360	mg/Kg

Client Sample ID: **0614SS02**
Lab Sample ID: 1142382007
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1830	mg/Kg

Client Sample ID: **0614SS03**
Lab Sample ID: 1142382008
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	4210	mg/Kg

Client Sample ID: **0614SS04**
Lab Sample ID: 1142382009
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	31.9	mg/Kg

Client Sample ID: **0614SS05**
Lab Sample ID: 1142382010
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	21.6J	mg/Kg

Client Sample ID: **0614SS06**
Lab Sample ID: 1142382011
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	17.5J	mg/Kg

Client Sample ID: **0614SS07**
Lab Sample ID: 1142382012
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	21.9	mg/Kg

Client Sample ID: **0614SS08**
Lab Sample ID: 1142382013
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	134	mg/Kg

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Detectable Results Summary

Client Sample ID: **0614SS09**
Lab Sample ID: 1142382014
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1150	mg/Kg

Client Sample ID: **0614SS10**
Lab Sample ID: 1142382015
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1300	mg/Kg

Client Sample ID: **0614SS11**
Lab Sample ID: 1142382016
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	34.6	mg/Kg

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Results of **0614GW3GW001**

Client Sample ID: **0614GW3GW001**
Client Project ID: **INNEC**
Lab Sample ID: 1142382001
Lab Project ID: 1142382

Collection Date: 06/10/14 10:00
Received Date: 06/10/14 16:47
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2.65		0.723	0.217	mg/L	1		06/13/14 02:25
Surrogates								
5a Androstane	79.4		50-150		%	1		06/13/14 02:25

Batch Information

Analytical Batch: XFC11358
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 06/13/14 02:25
Container ID: 1142382001-A

Prep Batch: XXX31175
Prep Method: SW3520C
Prep Date/Time: 06/12/14 10:15
Prep Initial Wt./Vol.: 830 mL
Prep Extract Vol: 1 mL

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Results of **0614GW3GW201**

Client Sample ID: **0614GW3GW201**
Client Project ID: **INNEC**
Lab Sample ID: 1142382002
Lab Project ID: 1142382

Collection Date: 06/10/14 10:00
Received Date: 06/10/14 16:47
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.63		0.674	0.202	mg/L	1		06/13/14 02:35
Surrogates								
5a Androstane	73.7		50-150		%	1		06/13/14 02:35

Batch Information

Analytical Batch: XFC11358
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 06/13/14 02:35
Container ID: 1142382002-A

Prep Batch: XXX31175
Prep Method: SW3520C
Prep Date/Time: 06/12/14 10:15
Prep Initial Wt./Vol.: 890 mL
Prep Extract Vol: 1 mL

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Results of **0614GW3GW001**

Client Sample ID: **0614GW3GW001**
Client Project ID: **INNEC**
Lab Sample ID: 1142382003
Lab Project ID: 1142382

Collection Date: 06/10/14 13:00
Received Date: 06/10/14 16:47
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.180	J	0.400	0.120	ug/L	1		06/11/14 16:25
Ethylbenzene	1.50		1.00	0.310	ug/L	1		06/11/14 16:25
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/11/14 16:25
P & M -Xylene	1.51	J	2.00	0.620	ug/L	1		06/11/14 16:25
Toluene	0.500	U	1.00	0.310	ug/L	1		06/11/14 16:25
Surrogates								
1,2-Dichloroethane-D4	113		70-120		%	1		06/11/14 16:25
4-Bromofluorobenzene	97.7		75-120		%	1		06/11/14 16:25
Toluene-d8	97		85-120		%	1		06/11/14 16:25

Batch Information

Analytical Batch: VMS14188
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/11/14 16:25
Container ID: 1142382003-A

Prep Batch: VXX25962
Prep Method: SW5030B
Prep Date/Time: 06/11/14 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614GW3GW201**

Client Sample ID: **0614GW3GW201**
Client Project ID: **INNEC**
Lab Sample ID: 1142382004
Lab Project ID: 1142382

Collection Date: 06/10/14 13:00
Received Date: 06/10/14 16:47
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.160	J	0.400	0.120	ug/L	1		06/11/14 16:41
Ethylbenzene	1.21		1.00	0.310	ug/L	1		06/11/14 16:41
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/11/14 16:41
P & M -Xylene	1.36	J	2.00	0.620	ug/L	1		06/11/14 16:41
Toluene	0.500	U	1.00	0.310	ug/L	1		06/11/14 16:41
Surrogates								
1,2-Dichloroethane-D4	114		70-120		%	1		06/11/14 16:41
4-Bromofluorobenzene	98.3		75-120		%	1		06/11/14 16:41
Toluene-d8	95.3		85-120		%	1		06/11/14 16:41

Batch Information

Analytical Batch: VMS14188
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/11/14 16:41
Container ID: 1142382004-A

Prep Batch: VXX25962
Prep Method: SW5030B
Prep Date/Time: 06/11/14 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614SGSGW601**

Client Sample ID: **0614SGSGW601**
Client Project ID: **INNEC**
Lab Sample ID: 1142382005
Lab Project ID: 1142382

Collection Date: 06/10/14 13:00
Received Date: 06/10/14 16:47
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		06/11/14 14:43
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/11/14 14:43
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/11/14 14:43
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/11/14 14:43
Toluene	0.500	U	1.00	0.310	ug/L	1		06/11/14 14:43
Surrogates								
1,2-Dichloroethane-D4	117		70-120		%	1		06/11/14 14:43
4-Bromofluorobenzene	98		75-120		%	1		06/11/14 14:43
Toluene-d8	98.8		85-120		%	1		06/11/14 14:43

Batch Information

Analytical Batch: VMS14188
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/11/14 14:43
Container ID: 1142382005-A

Prep Batch: VXX25962
Prep Method: SW5030B
Prep Date/Time: 06/11/14 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **0614SS01**

Client Sample ID: **0614SS01**
Client Project ID: **INNEC**
Lab Sample ID: 1142382006
Lab Project ID: 1142382

Collection Date: 06/10/14 12:40
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 88.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1360		89.7	27.8	mg/Kg	4		06/17/14 06:58
Surrogates								
5a Androstane	83.5		50-150		%	4		06/17/14 06:58

Batch Information

Analytical Batch: XFC11362
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/17/14 06:58
Container ID: 1142382006-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.3 g
Prep Extract Vol: 1 mL

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Results of **0614SS02**

Client Sample ID: **0614SS02**
Client Project ID: **INNEC**
Lab Sample ID: 1142382007
Lab Project ID: 1142382

Collection Date: 06/10/14 12:40
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 87.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1830		91.1	28.2	mg/Kg	4		06/17/14 07:08
Surrogates								
5a Androstane	84.9		50-150		%	4		06/17/14 07:08

Batch Information

Analytical Batch: XFC11362
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/17/14 07:08
Container ID: 1142382007-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.126 g
Prep Extract Vol: 1 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614SS03**

Client Sample ID: **0614SS03**
Client Project ID: **INNEC**
Lab Sample ID: 1142382008
Lab Project ID: 1142382

Collection Date: 06/10/14 12:45
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 79.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	4210		252	78.1	mg/Kg	10		06/17/14 07:18
Surrogates								
5a Androstane	150		50-150		%	10		06/17/14 07:18

Batch Information

Analytical Batch: XFC11362
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/17/14 07:18
Container ID: 1142382008-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.132 g
Prep Extract Vol: 1 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614SS04**

Client Sample ID: **0614SS04**
Client Project ID: **INNEC**
Lab Sample ID: 1142382009
Lab Project ID: 1142382

Collection Date: 06/10/14 12:55
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 90.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	31.9		21.9	6.79	mg/Kg	1		06/16/14 23:03
Surrogates								
5a Androstane	78.2		50-150		%	1		06/16/14 23:03

Batch Information

Analytical Batch: XFC11361
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/16/14 23:03
Container ID: 1142382009-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.253 g
Prep Extract Vol: 1 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614SS05**

Client Sample ID: **0614SS05**
Client Project ID: **INNEC**
Lab Sample ID: 1142382010
Lab Project ID: 1142382

Collection Date: 06/10/14 13:05
Received Date: 06/10/14 16:47
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	21.6	J	22.3	6.91	mg/Kg	1		06/16/14 23:13
Surrogates								
5a Androstane	74.7		50-150		%	1		06/16/14 23:13

Batch Information

Analytical Batch: XFC11361
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/16/14 23:13
Container ID: 1142382010-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.08 g
Prep Extract Vol: 1 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614SS06**

Client Sample ID: **0614SS06**
Client Project ID: **INNEC**
Lab Sample ID: 1142382011
Lab Project ID: 1142382

Collection Date: 06/10/14 13:07
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 93.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	17.5	J	21.3	6.59	mg/Kg	1		06/16/14 23:23
Surrogates								
5a Androstane	73.4		50-150		%	1		06/16/14 23:23

Batch Information

Analytical Batch: XFC11361
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/16/14 23:23
Container ID: 1142382011-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.151 g
Prep Extract Vol: 1 mL

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Results of **0614SS07**

Client Sample ID: **0614SS07**
Client Project ID: **INNEC**
Lab Sample ID: 1142382012
Lab Project ID: 1142382

Collection Date: 06/10/14 13:18
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 92.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	21.9		21.6	6.69	mg/Kg	1		06/16/14 23:33
Surrogates								
5a Androstane	82.3		50-150		%	1		06/16/14 23:33

Batch Information

Analytical Batch: XFC11361
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/16/14 23:33
Container ID: 1142382012-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.178 g
Prep Extract Vol: 1 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614SS08**

Client Sample ID: **0614SS08**
Client Project ID: **INNEC**
Lab Sample ID: 1142382013
Lab Project ID: 1142382

Collection Date: 06/10/14 13:25
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 77.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	134		102	31.5	mg/Kg	4		06/16/14 23:53
Surrogates								
5a Androstane	101		50-150		%	4		06/16/14 23:53

Batch Information

Analytical Batch: XFC11361
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/16/14 23:53
Container ID: 1142382013-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.432 g
Prep Extract Vol: 1 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614SS09**

Client Sample ID: **0614SS09**
Client Project ID: **INNEC**
Lab Sample ID: 1142382014
Lab Project ID: 1142382

Collection Date: 06/10/14 13:35
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 83.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1150		94.9	29.4	mg/Kg	4		06/17/14 08:22
Surrogates								
5a Androstane	84.6		50-150		%	4		06/17/14 08:22

Batch Information

Analytical Batch: XFC11362
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/17/14 08:22
Container ID: 1142382014-A

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 06/16/14 10:00
Prep Initial Wt./Vol.: 30.314 g
Prep Extract Vol: 1 mL

Print Date: 06/26/2014 2:06:24PM

Results of **0614SS10**

Client Sample ID: **0614SS10**
Client Project ID: **INNEC**
Lab Sample ID: 1142382015
Lab Project ID: 1142382

Collection Date: 06/10/14 13:50
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 91.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1300		86.5	26.8	mg/Kg	4		06/19/14 02:51
Surrogates								
5a Androstane	101		50-150		%	4		06/19/14 02:51

Batch Information

Analytical Batch: XFC11366
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 06/19/14 02:51
Container ID: 1142382015-A

Prep Batch: XXX31192
Prep Method: SW3550C
Prep Date/Time: 06/16/14 11:05
Prep Initial Wt./Vol.: 30.263 g
Prep Extract Vol: 1 mL

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Results of **0614SS11**

Client Sample ID: **0614SS11**
Client Project ID: **INNEC**
Lab Sample ID: 1142382016
Lab Project ID: 1142382

Collection Date: 06/10/14 14:00
Received Date: 06/10/14 16:47
Matrix: Soil/Solid (dry weight)
Solids (%): 93.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	34.6		21.3	6.62	mg/Kg	1		06/17/14 23:29
Surrogates								
5a Androstane	67.3		50-150		%	1		06/17/14 23:29

Batch Information

Analytical Batch: XFC11364
Analytical Method: AK102
Analyst: HM
Analytical Date/Time: 06/17/14 23:29
Container ID: 1142382016-A

Prep Batch: XXX31192
Prep Method: SW3550C
Prep Date/Time: 06/16/14 11:05
Prep Initial Wt./Vol.: 30.01 g
Prep Extract Vol: 1 mL

Print Date: 06/26/2014 2:06:24PM

Method Blank

Blank ID: MB for HBN 1578761 [SPT/9369]
Blank Lab ID: 1214538

Matrix: Soil/Solid (dry weight)

QC for Samples:
1142382006, 1142382007, 1142382008, 1142382009, 1142382010, 1142382011, 1142382012, 1142382013, 1142382014, 1142382015, 1142382016

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9369
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN
Analytical Date/Time: 6/13/2014 5:00:00PM

Print Date: 06/26/2014 2:06:25PM

Duplicate Sample Summary

Original Sample ID: 1142350023
Duplicate Sample ID: 1214539

Analysis Date: 06/13/2014 17:00
Matrix: Soil/Solid (dry weight)

QC for Samples:

1142382006, 1142382007, 1142382008, 1142382009, 1142382010, 1142382011, 1142382012, 1142382013, 1142382014, 1142382015, 1142382016

Results by **SM21 2540G**

NAME	Original ()	Duplicate ()	RPD (%)	RPD CL
Total Solids	89.5	79.4	11.90	15.00

Batch Information

Analytical Batch: SPT9369
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN

Print Date: 06/26/2014 2:06:25PM

Method Blank

Blank ID: MB for HBN 1574461 [VXX/25962]
Blank Lab ID: 1213901

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1142382003, 1142382004, 1142382005

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4	114	70-120		%
4-Bromofluorobenzene	97.6	75-120		%
Toluene-d8	101	85-120		%

Batch Information

Analytical Batch: VMS14188
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 6/11/2014 11:30:00AM

Prep Batch: VXX25962
Prep Method: SW5030B
Prep Date/Time: 6/11/2014 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1142382 [VXX25962]
Blank Spike Lab ID: 1213902
Date Analyzed: 06/11/2014 11:55

Spike Duplicate ID: LCSD for HBN 1142382 [VXX25962]
Spike Duplicate Lab ID: 1213903
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1142382003, 1142382004, 1142382005

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	34.8	116	30	35.8	119	(80-120)	2.70	(< 20)
Ethylbenzene	30	36.0	120	30	35.2	117	(75-125)	2.20	(< 20)
o-Xylene	30	32.4	108	30	31.3	104	(80-120)	3.40	(< 20)
P & M -Xylene	60	65.4	109	60	63.7	106	(75-130)	2.60	(< 20)
Toluene	30	32.9	110	30	31.7	106	(75-120)	3.90	(< 20)
Surrogates									
1,2-Dichloroethane-D4	30		104	30		111	(70-120)	7.40	
4-Bromofluorobenzene	30		96	30		97	(75-120)	0.14	
Toluene-d8	30		100	30		95	(85-120)	4.50	

Batch Information

Analytical Batch: **VMS14188**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX25962**
Prep Method: **SW5030B**
Prep Date/Time: **06/11/2014 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dup Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1576366 [XXX/31175]
Blank Lab ID: 1214100

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1142382001, 1142382002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.219J	0.600	0.180	mg/L
Surrogates				
5a Androstane	83.8	60-120		%

Batch Information

Analytical Batch: XFC11358
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: AYC
Analytical Date/Time: 6/13/2014 12:37:00AM

Prep Batch: XXX31175
Prep Method: SW3520C
Prep Date/Time: 6/12/2014 10:15:44AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1142382 [XXX31175]
Blank Spike Lab ID: 1214101
Date Analyzed: 06/13/2014 00:47

Spike Duplicate ID: LCSD for HBN 1142382 [XXX31175]
Spike Duplicate Lab ID: 1214102
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1142382001, 1142382002

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	5	4.62	92	5	4.92	99	(75-125)	6.40	(< 20)
Surrogates									
5a Androstane	0.1		87	0.1		94	(60-120)	7.00	

Batch Information

Analytical Batch: **XFC11358**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **AYC**

Prep Batch: **XXX31175**
Prep Method: **SW3520C**
Prep Date/Time: **06/12/2014 10:15**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
Dup Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1579361 [XXX/31191]
Blank Lab ID: 1214580

Matrix: Soil/Solid (dry weight)

QC for Samples:
1142382006, 1142382007, 1142382008, 1142382009, 1142382010, 1142382011, 1142382012, 1142382013, 1142382014

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	9.32J	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	75.8	60-120		%

Batch Information

Analytical Batch: XFC11361
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: HM
Analytical Date/Time: 6/16/2014 6:37:00PM

Prep Batch: XXX31191
Prep Method: SW3550C
Prep Date/Time: 6/16/2014 10:00:44AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1142382 [XXX31191]
Blank Spike Lab ID: 1214581
Date Analyzed: 06/16/2014 18:47

Spike Duplicate ID: LCSD for HBN 1142382 [XXX31191]
Spike Duplicate Lab ID: 1214582
Matrix: Soil/Solid (dry weight)

QC for Samples: 1142382006, 1142382007, 1142382008, 1142382009, 1142382010, 1142382011, 1142382012, 1142382013, 1142382014

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	154	92	167	155	93	(75-125)	0.92	(< 20)
Surrogates									
5a Androstane	3.33		88	3.33		89	(60-120)	1.10	

Batch Information

Analytical Batch: **XFC11361**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **HM**

Prep Batch: **XXX31191**
Prep Method: **SW3550C**
Prep Date/Time: **06/16/2014 10:00**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1579565 [XXX/31192]
Blank Lab ID: 1214619

Matrix: Soil/Solid (dry weight)

QC for Samples:
1142382015, 1142382016

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	8.85J	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	74.8	60-120		%

Batch Information

Analytical Batch: XFC11364
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: HM
Analytical Date/Time: 6/17/2014 6:53:00PM

Prep Batch: XXX31192
Prep Method: SW3550C
Prep Date/Time: 6/16/2014 11:05:44AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1142382 [XXX31192]
Blank Spike Lab ID: 1214620
Date Analyzed: 06/17/2014 19:02

Spike Duplicate ID: LCSD for HBN 1142382 [XXX31192]
Spike Duplicate Lab ID: 1214621
Matrix: Soil/Solid (dry weight)

QC for Samples: 1142382015, 1142382016

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	157	94	167	152	91	(75-125)	3.10	(< 20)
Surrogates									
5a Androstane	3.33		91	3.33		88	(60-120)	3.50	

Batch Information

Analytical Batch: **XFC11364**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **HM**

Prep Batch: **XXX31192**
Prep Method: **SW3550C**
Prep Date/Time: **06/16/2014 11:05**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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CHAIN OF CUSTODY RECORD

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West

1142382

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

Section 1

CLIENT: APC Services LLC

CONTACT: Keith Torrance — PHONE NO: 677-9451

PROJECT NAME: Muldoon — PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Keith Torrance — E-MAIL: ktorrance@apcservicesllc.com

INVOICE TO: APC Services LLC — QUOTE #: 11091 — P.O. #:

Section 3 — Preservative

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incremental Soils	AK102 - DRO (None)		AK102 - DRO (HCl)	SW8260B - BTEX (HCl)							REMARKS/ LOC ID
(1)	A	0614 GW3 GW001	06/10/14	10:00	GW001	1	G			X								
(2)	A	0614 GW3	06/10/14	10:00	GW201	1	G			X								
(3)	A-C	0614 GW3	06/10/14	13:00	GW001	3	G				X							
(4)	A-C	0614 GW3	06/10/14	13:00	GW201	3	G				X							
(5)	A-C	0614 SGS	06/10/14	13:00	GW001	1					X							TripBlank
(6)	~~A-C~~	0614 SS01	"	12:40	S	1		X										
(7)	A	0614 SS02	"	12:40	S	1		X										
(8)	A	0614 SS03	"	12:45	S	1		X										
(9)	A	0614 SS04	"	1255	S	1		X										
(10)	A	0614 SS05	"	13:05	S	1		X										

Section 5

	Date	Time	
Relinquished By: (1)			Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
~~Relinquished By: (4)~~	Date	Time	Received For Laboratory By:
	6/10/14	16:47	

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 18.0 #238

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) 1F 1B

(INTACT) BROKEN ABSENT

(See attached Sample Receipt Form)

Revised Report - Revision 1

33 of 36

[ ] 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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Alaska Maryland
New Jersey New York
North Carolina Indiana
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Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Section 1

CLIENT: APC Services LLC

CONTACT: Keith Torrance PHONE NO: 677-9451

PROJECT NAME: Muldoon PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Keith Torrance E-MAIL: ktorrance@apcservicesllc.com

INVOICE TO: APC Services LLC QUOTE #: 11091 P.O. #:

Section 3

1142382

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 Incremental Soils	Preservative: None		Preservative: HCl	Preservative: HCl							REMARKS/ LOC ID
							AK102 - DRO		AK102 - DRO	SW8260B - BTEX							
(11) A	0614SS06	06/10/14	13:07	S	1		X										
(12) A	0614SS07	"	13:18	S	1		X										
(13) A	0614SS08	"	13:25	S	1		X										
(14) A	0614SS09	"	13:35	S	1		X										
(15) A	0614SS10	"	13:50	S	1		X										
(16) A	0614SS11	"	14:00	S													

Section 5

	Date	Time	
Relinquished By: (1)			Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 6/10/14	Time 16:47	Received For Laboratory By: Lori Drager

Section 4

DOD Project? Yes (No)

Data Deliverable Requirements:

Cooler ID:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 18.0 #238

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

(INTACT) BROKEN ABSENT

(See attached Sample Receipt Form)

Revised Report - Revision 1

[ ] 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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Revised Report - Revision 1

SGS WO# 1142382

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	(Yes) No N/A (Yes) No N/A	IFSIR
Temperature blank compliant* (i.e., 0-6°C after CF)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 18.0° w/ Therm.ID: 238 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* 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." **If temperature(s) <0°C, were all sample containers ice free?**	(Yes) No N/A Yes No (N/A)	Samples collected <8 hours ago
Delivery method (specify all that apply): (Client) USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or (N/A) Yes No (N/A)	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: (N/A) → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed. SRF Initiated by: (N/A)		
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if times differ <1hr; in that case, use times on COC.* Were analyses requested unambiguous?	(Yes) No N/A Yes (No)* N/A (Yes) No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): (Bubble Wrap) Separate plastic bags Vermiculite Other:	(Yes) No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	(Yes) No N/A Yes No (N/A)	
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A (Yes) No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	(Yes) No N/A	Samples 001/002 were only submitted with 1-L of sample for analysis
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)?	(Yes) No N/A Yes No (N/A)	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A)	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No (N/A)	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	(Yes) No N/A	SRF Completed by: JM for EMF PM = JM N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	(Yes) No N/A	Peer Reviewed by JM for KMM N/A

Additional notes (if applicable):

* ID from Chain of custody used -

Sample container	COC ID
5504	06145504
06105505	06145505
06105507	06145507
06145511	06145511

Note to Client: *Any "no" circled 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
1142382001-A	HCL to pH < 2	OK			
1142382002-A	HCL to pH < 2	OK			
1142382003-A	HCL to pH < 2	OK			
1142382003-B	HCL to pH < 2	OK			
1142382003-C	HCL to pH < 2	OK			
1142382004-A	HCL to pH < 2	OK			
1142382004-B	HCL to pH < 2	OK			
1142382004-C	HCL to pH < 2	OK			
1142382005-A	HCL to pH < 2	OK			
1142382005-B	HCL to pH < 2	OK			
1142382005-C	HCL to pH < 2	OK			
1142382006-A	No Preservative Required	OK			
1142382007-A	No Preservative Required	OK			
1142382008-A	No Preservative Required	OK			
1142382009-A	No Preservative Required	OK			
1142382010-A	No Preservative Required	OK			
1142382011-A	No Preservative Required	OK			
1142382012-A	No Preservative Required	OK			
1142382013-A	No Preservative Required	OK			
1142382014-A	No Preservative Required	OK			
1142382015-A	No Preservative Required	OK			
1142382016-A	No Preservative Required	OK			

Container Condition Glossary

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: APC Services, LLC.
4241 B Street, Suite 100
Anchorage, AK 99503
(907)677-9451

Report Number: **1143379**

Client Project: **INNEC Iliamna**

Dear Keith Torrance,

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 five 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: **APC Services, LLC.**
SGS Project: **1143379**
Project Name/Site: **INNEC Iliamna**
Project Contact: **Keith Torrance**

Refer to sample receipt form for information on sample condition.

H9 (1143379001) PS

AK102 - The pattern is consistent with a weathered middle distillate.

H8 (1143379002) PS

AK102 - The pattern is consistent with a weathered middle distillate.

H12 (1143379003) PS

AK102 - The pattern is consistent with a weathered middle distillate.

H12D (1143379004) PS

AK102 - The pattern is consistent with a weathered middle distillate.

G11 (1143379005) PS

AK102 - Unknown hydrocarbon with several peaks is present.

I12 (1143379007) PS

AK102 - Unknown hydrocarbon with several peaks is present.

SS03GW (1143379010) PS

AK102 - The pattern is consistent with a weathered middle distillate.

CCV for HBN 1624740 [VMS/14314 (1223127) CCV

8260B - CCV recoveries for multiple analytes do not meet QC criteria (biased high). These analytes were not detected above the LOQ in the associated samples.

CCV for HBN 1624901 [XMS/8193] (1223864) CCV

8270D SIM - CCV recovery for multiple analytes does not meet QC criteria (biased high). These analytes were not detected above the LOQ in the associated samples.

LCS for HBN 1624739 [VXX/26178 (1223124) LCS

8260B - LCS recovery for chloromethane does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the associated samples.

LCSD for HBN 1624739 [VXX/2617 (1223125) LCSD

8260B - LCSD recovery for chloromethane does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the associated samples.

MB for HBN 1624752 [XXX/31529] (1223178) MB

AK102/103 - MB result is greater than one-half the LOQ, however less than the LOQ.

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

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Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
H9	1143379001	07/25/2014	07/28/2014	Soil/Solid (dry weight)
H8	1143379002	07/25/2014	07/28/2014	Soil/Solid (dry weight)
H12	1143379003	07/25/2014	07/28/2014	Soil/Solid (dry weight)
H12D	1143379004	07/25/2014	07/28/2014	Soil/Solid (dry weight)
G11	1143379005	07/25/2014	07/28/2014	Soil/Solid (dry weight)
H17	1143379006	07/25/2014	07/28/2014	Soil/Solid (dry weight)
I12	1143379007	07/25/2014	07/28/2014	Soil/Solid (dry weight)
1LSW1	1143379008	07/25/2014	07/28/2014	Water (Surface, Eff., Ground)
1LSW2	1143379009	07/25/2014	07/28/2014	Water (Surface, Eff., Ground)
SS03GW	1143379010	07/25/2014	07/28/2014	Water (Surface, Eff., Ground)
1LSW3	1143379011	07/25/2014	07/28/2014	Water (Surface, Eff., Ground)
Trip Blank	1143379012	07/25/2014	07/28/2014	Water (Surface, Eff., Ground)

Method	Method Description
EPA 602/624	602 Aromatics by 624 (W)
EPA 625M SIMS (PAH)	625 Semi-Volatiles GC/MS Liq/Liq ext.
AK102	Diesel Range Organics (S)
AK102	DRO Low Volume (W)
SM21 2540G	Percent Solids SM2540G

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Detectable Results Summary

Client Sample ID: **H9**			
Lab Sample ID: 1143379001	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	152	mg/Kg
Client Sample ID: **H8**			
Lab Sample ID: 1143379002	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	38.9	mg/Kg
Client Sample ID: **H12**			
Lab Sample ID: 1143379003	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	3250	mg/Kg
Client Sample ID: **H12D**			
Lab Sample ID: 1143379004	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	2480	mg/Kg
Client Sample ID: **G11**			
Lab Sample ID: 1143379005	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	520	mg/Kg
Client Sample ID: **H17**			
Lab Sample ID: 1143379006	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	22.1J	mg/Kg
Client Sample ID: **I12**			
Lab Sample ID: 1143379007	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	26.7	mg/Kg
Client Sample ID: **1LSW2**			
Lab Sample ID: 1143379009	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.542J	mg/L
Client Sample ID: **SS03GW**			
Lab Sample ID: 1143379010	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.634	mg/L

Results of **H9**

Client Sample ID: **H9**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379001
Lab Project ID: 1143379

Collection Date: 07/25/14 12:25
Received Date: 07/28/14 08:45
Matrix: Soil/Solid (dry weight)
Solids (%): 81.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	152		24.6	7.64	mg/Kg	1		08/01/14 08:20
Surrogates								
5a Androstane	82.1		50-150		%	1		08/01/14 08:20

Batch Information

Analytical Batch: XFC11454
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 08/01/14 08:20
Container ID: 1143379001-A

Prep Batch: XXX31571
Prep Method: SW3550C
Prep Date/Time: 07/31/14 20:09
Prep Initial Wt./Vol.: 30.034 g
Prep Extract Vol: 1 mL

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Results of **H8**

Client Sample ID: **H8**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379002
Lab Project ID: 1143379

Collection Date: 07/25/14 12:15
Received Date: 07/28/14 08:45
Matrix: Soil/Solid (dry weight)
Solids (%): 79.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	38.9		24.9	7.73	mg/Kg	1		08/01/14 08:40
Surrogates								
5a Androstane	86.6		50-150		%	1		08/01/14 08:40

Batch Information

Analytical Batch: XFC11454
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 08/01/14 08:40
Container ID: 1143379002-A

Prep Batch: XXX31571
Prep Method: SW3550C
Prep Date/Time: 07/31/14 20:09
Prep Initial Wt./Vol.: 30.197 g
Prep Extract Vol: 1 mL

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Results of **H12**

Client Sample ID: **H12**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379003
Lab Project ID: 1143379

Collection Date: 07/25/14 12:20
Received Date: 07/28/14 08:45
Matrix: Soil/Solid (dry weight)
Solids (%): 79.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	3250		250	77.7	mg/Kg	10		08/02/14 00:53
Surrogates								
5a Androstane	91.2		50-150		%	10		08/02/14 00:53

Batch Information

Analytical Batch: XFC11458
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 08/02/14 00:53
Container ID: 1143379003-A

Prep Batch: XXX31571
Prep Method: SW3550C
Prep Date/Time: 07/31/14 20:09
Prep Initial Wt./Vol.: 30.211 g
Prep Extract Vol: 1 mL

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Results of **H12D**

Client Sample ID: **H12D**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379004
Lab Project ID: 1143379

Collection Date: 07/25/14 12:20
Received Date: 07/28/14 08:45
Matrix: Soil/Solid (dry weight)
Solids (%): 77.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2480		128	39.7	mg/Kg	5		08/02/14 01:13
Surrogates								
5a Androstane	93.2		50-150		%	5		08/02/14 01:13

Batch Information

Analytical Batch: XFC11458
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 08/02/14 01:13
Container ID: 1143379004-A

Prep Batch: XXX31571
Prep Method: SW3550C
Prep Date/Time: 07/31/14 20:09
Prep Initial Wt./Vol.: 30.351 g
Prep Extract Vol: 1 mL

Print Date: 08/08/2014 1:33:39PM

Results of **G11**

Client Sample ID: **G11**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379005
Lab Project ID: 1143379

Collection Date: 07/25/14 13:45
Received Date: 07/28/14 08:45
Matrix: Soil/Solid (dry weight)
Solids (%): 64.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	520		125	38.6	mg/Kg	4		08/01/14 11:05
Surrogates								
5a Androstane	69.2		50-150		%	4		08/01/14 11:05

Batch Information

Analytical Batch: XFC11454
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 08/01/14 11:05
Container ID: 1143379005-A

Prep Batch: XXX31571
Prep Method: SW3550C
Prep Date/Time: 07/31/14 20:09
Prep Initial Wt./Vol.: 30.1 g
Prep Extract Vol: 1 mL

Print Date: 08/08/2014 1:33:39PM

Results of **H17**

Client Sample ID: **H17**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379006
Lab Project ID: 1143379

Collection Date: 07/25/14 12:40
Received Date: 07/28/14 08:45
Matrix: Soil/Solid (dry weight)
Solids (%): 81.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	22.1	J	24.4	7.56	mg/Kg	1		08/01/14 09:42
Surrogates								
5a Androstane	89.6		50-150		%	1		08/01/14 09:42

Batch Information

Analytical Batch: XFC11454
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 08/01/14 09:42
Container ID: 1143379006-A

Prep Batch: XXX31571
Prep Method: SW3550C
Prep Date/Time: 07/31/14 20:09
Prep Initial Wt./Vol.: 30.055 g
Prep Extract Vol: 1 mL

Print Date: 08/08/2014 1:33:39PM

Results of **I12**

Client Sample ID: **I12**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379007
Lab Project ID: 1143379

Collection Date: 07/25/14 13:25
Received Date: 07/28/14 08:45
Matrix: Soil/Solid (dry weight)
Solids (%): 82.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	26.7		24.0	7.44	mg/Kg	1		08/01/14 10:03
Surrogates								
5a Androstane	89.4		50-150		%	1		08/01/14 10:03

Batch Information

Analytical Batch: XFC11454
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 08/01/14 10:03
Container ID: 1143379007-A

Prep Batch: XXX31571
Prep Method: SW3550C
Prep Date/Time: 07/31/14 20:09
Prep Initial Wt./Vol.: 30.25 g
Prep Extract Vol: 1 mL

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Results of **1LSW1**

Client Sample ID: **1LSW1**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379008
Lab Project ID: 1143379

Collection Date: 07/25/14 11:35
Received Date: 07/28/14 08:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Acenaphthene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Acenaphthylene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Benzo(a)Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Benzo[a]pyrene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Benzo[b]Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Benzo[g,h,i]perylene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Benzo[k]fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Chrysene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Dibenzo[a,h]anthracene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Fluorene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Indeno[1,2,3-c,d] pyrene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Naphthalene	0.0520	U	0.104	0.0323	ug/L	1		07/31/14 02:50
Phenanthrene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Pyrene	0.0261	U	0.0521	0.0156	ug/L	1		07/31/14 02:50
Surrogates								
2-Fluorobiphenyl	76.7		50-110		%	1		07/31/14 02:50
Terphenyl-d14	101		50-135		%	1		07/31/14 02:50

Batch Information

Analytical Batch: XMS8193
Analytical Method: EPA 625M SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 07/31/14 02:50
Container ID: 1143379008-A

Prep Batch: XXX31549
Prep Method: SW3520C
Prep Date/Time: 07/30/14 12:15
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Print Date: 08/08/2014 1:33:39PM

Results of **1LSW2**

Client Sample ID: **1LSW2**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379009
Lab Project ID: 1143379

Collection Date: 07/25/14 11:35
Received Date: 07/28/14 08:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.542	J	0.600	0.180	mg/L	1		07/30/14 15:45
Surrogates								
5a Androstane	79.7		50-150		%	1		07/30/14 15:45

Batch Information

Analytical Batch: XFC11452
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 07/30/14 15:45
Container ID: 1143379009-A

Prep Batch: XXX31529
Prep Method: SW3520C
Prep Date/Time: 07/29/14 10:15
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 08/08/2014 1:33:39PM

Results of **SS03GW**

Client Sample ID: **SS03GW**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379010
Lab Project ID: 1143379

Collection Date: 07/25/14 12:00
Received Date: 07/28/14 08:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.634		0.600	0.180	mg/L	1		08/06/14 20:40
Surrogates								
5a Androstane	86.9		50-150		%	1		08/06/14 20:40

Batch Information

Analytical Batch: XFC11469
Analytical Method: AK102
Analyst: EAB
Analytical Date/Time: 08/06/14 20:40
Container ID: 1143379010-A

Prep Batch: XXX31529
Prep Method: SW3520C
Prep Date/Time: 07/29/14 10:15
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 08/08/2014 1:33:39PM

Results of **1LSW3**

Client Sample ID: **1LSW3**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379011
Lab Project ID: 1143379

Collection Date: 07/25/14 11:35
Received Date: 07/28/14 08:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/28/14 17:59
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/28/14 17:59
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/28/14 17:59
Benzene	0.200	U	0.400	0.120	ug/L	1		07/28/14 17:59
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/28/14 17:59
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/28/14 17:59
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/28/14 17:59
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/28/14 17:59
Toluene	0.500	U	1.00	0.310	ug/L	1		07/28/14 17:59
Surrogates								
1,2-Dichloroethane-D4	113		70-120		%	1		07/28/14 17:59
4-Bromofluorobenzene	95.2		75-120		%	1		07/28/14 17:59
Toluene-d8	96		85-120		%	1		07/28/14 17:59

Batch Information

Analytical Batch: VMS14314
Analytical Method: EPA 602/624
Analyst: NRB
Analytical Date/Time: 07/28/14 17:59
Container ID: 1143379011-A

Prep Batch: VXX26178
Prep Method: SW5030B
Prep Date/Time: 07/28/14 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/08/2014 1:33:39PM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **INNEC Iliamna**
Lab Sample ID: 1143379012
Lab Project ID: 1143379

Collection Date: 07/25/14 11:35
Received Date: 07/28/14 08:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/28/14 16:03
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/28/14 16:03
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/28/14 16:03
Benzene	0.200	U	0.400	0.120	ug/L	1		07/28/14 16:03
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/28/14 16:03
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/28/14 16:03
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/28/14 16:03
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/28/14 16:03
Toluene	0.500	U	1.00	0.310	ug/L	1		07/28/14 16:03
Surrogates								
1,2-Dichloroethane-D4	112		70-120		%	1		07/28/14 16:03
4-Bromofluorobenzene	95.8		75-120		%	1		07/28/14 16:03
Toluene-d8	97.2		85-120		%	1		07/28/14 16:03

Batch Information

Analytical Batch: VMS14314
Analytical Method: EPA 602/624
Analyst: NRB
Analytical Date/Time: 07/28/14 16:03
Container ID: 1143379012-A

Prep Batch: VXX26178
Prep Method: SW5030B
Prep Date/Time: 07/28/14 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/08/2014 1:33:39PM

Method Blank

Blank ID: MB for HBN 1624806 [SPT/9410]
Blank Lab ID: 1223430

Matrix: Soil/Solid (dry weight)

QC for Samples:
1143379001, 1143379002, 1143379003, 1143379004, 1143379005, 1143379006, 1143379007

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9410
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN
Analytical Date/Time: 7/29/2014 6:05:00PM

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Duplicate Sample Summary

Original Sample ID: 1143410001
Duplicate Sample ID: 1223431

Analysis Date: 07/29/2014 18:05
Matrix: Soil/Solid (dry weight)

QC for Samples:

1143379001, 1143379002, 1143379003, 1143379004, 1143379005, 1143379006, 1143379007

Results by **SM21 2540G**

NAME	Original ()	Duplicate ()	RPD (%)	RPD CL
Total Solids	97.3	97.4	0.07	15.00

Batch Information

Analytical Batch: SPT9410
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN

Print Date: 08/08/2014 1:33:41PM

Method Blank

Blank ID: MB for HBN 1624739 [VXX/26178]
Blank Lab ID: 1223123

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1143379011, 1143379012

Results by **EPA 602/624**

Parameter	Results	LOQ/CL	DL	Units
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4	112	70-120		%
4-Bromofluorobenzene	97.7	75-120		%
Toluene-d8	96.6	85-120		%

Batch Information

Analytical Batch: VMS14314
Analytical Method: EPA 602/624
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 7/28/2014 1:36:00PM

Prep Batch: VXX26178
Prep Method: SW5030B
Prep Date/Time: 7/28/2014 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1143379 [VXX26178]
Blank Spike Lab ID: 1223124
Date Analyzed: 07/28/2014 13:59

Spike Duplicate ID: LCSD for HBN 1143379 [VXX26178]
Spike Duplicate Lab ID: 1223125
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1143379011, 1143379012

Results by **EPA 602/624**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2-Dichlorobenzene	30	29.5	98	30	30.4	101	(70-120)	2.80	(< 20)
1,3-Dichlorobenzene	30	29.6	99	30	30.4	101	(75-125)	2.80	(< 20)
1,4-Dichlorobenzene	30	30.4	101	30	31.2	104	(75-125)	2.60	(< 20)
Benzene	30	31.4	105	30	31.2	104	(80-120)	0.48	(< 20)
Chlorobenzene	30	29.8	99	30	29.9	100	(80-120)	0.30	(< 20)
Ethylbenzene	30	31.2	104	30	31.4	105	(75-125)	0.67	(< 20)
o-Xylene	30	31.9	106	30	31.2	104	(80-120)	2.40	(< 20)
P & M -Xylene	60	64.0	107	60	62.7	105	(75-130)	2.00	(< 20)
Toluene	30	30.1	100	30	30.1	100	(75-120)	0.07	(< 20)
Surrogates									
1,2-Dichloroethane-D4	30		103	30		105	(70-120)	2.20	
4-Bromofluorobenzene	30		95	30		97	(75-120)	2.00	
Toluene-d8	30		100	30		101	(85-120)	1.10	

Batch Information

Analytical Batch: **VMS14314**
Analytical Method: **EPA 602/624**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX26178**
Prep Method: **SW5030B**
Prep Date/Time: **07/28/2014 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dup Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 08/08/2014 1:33:45PM

Method Blank

Blank ID: MB for HBN 1624752 [XXX/31529]
Blank Lab ID: 1223178

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1143379009, 1143379010

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.503J	0.600	0.180	mg/L
Surrogates				
5a Androstane	78.4	60-120		%

Batch Information

Analytical Batch: XFC11452
Analytical Method: AK102
Instrument: HP 7890A FID SV E F
Analyst: EAB
Analytical Date/Time: 7/30/2014 11:18:00AM

Prep Batch: XXX31529
Prep Method: SW3520C
Prep Date/Time: 7/29/2014 10:15:44AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1143379 [XXX31529]
Blank Spike Lab ID: 1223179
Date Analyzed: 07/30/2014 10:16

Spike Duplicate ID: LCSD for HBN 1143379 [XXX31529]
Spike Duplicate Lab ID: 1223180
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1143379009, 1143379010

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	17.8	89	20	18.5	93	(75-125)	4.00	(< 20)
Surrogates									
5a Androstane	0.4		78	0.4		80	(60-120)	2.90	

Batch Information

Analytical Batch: **XFC11452**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E F**
Analyst: **EAB**

Prep Batch: **XXX31529**
Prep Method: **SW3520C**
Prep Date/Time: **07/29/2014 10:15**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dup Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1624839 [XXX/31549]
Blank Lab ID: 1223566

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1143379008

Results by **EPA 625M SIMS (PAH)**

Parameter	Results	LOQ/CL	DL	Units
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0250U	0.0500	0.0150	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0250U	0.0500	0.0150	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0250U	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Fluorobiphenyl	75.9	50-110		%
Terphenyl-d14	104	50-135		%

Batch Information

Analytical Batch: XMS8193
Analytical Method: EPA 625M SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 7/31/2014 1:49:00AM

Prep Batch: XXX31549
Prep Method: SW3520C
Prep Date/Time: 7/30/2014 12:15:44PM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1143379 [XXX31549]
Blank Spike Lab ID: 1223567
Date Analyzed: 07/31/2014 02:04

Spike Duplicate ID: LCSD for HBN 1143379 [XXX31549]
Spike Duplicate Lab ID: 1223568
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1143379008

Results by **EPA 625M SIMS (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Acenaphthene	0.5	0.339	68	0.5	0.353	71	(45-110)	4.10	(< 30)
Acenaphthylene	0.5	0.335	67	0.5	0.352	70	(50-105)	5.00	(< 30)
Anthracene	0.5	0.345	69	0.5	0.379	76	(55-110)	9.20	(< 30)
Benzo(a)Anthracene	0.5	0.425	85	0.5	0.414	83	(55-110)	2.60	(< 30)
Benzo[a]pyrene	0.5	0.452	90	0.5	0.437	87	(55-110)	3.40	(< 30)
Benzo[b]Fluoranthene	0.5	0.455	91	0.5	0.419	84	(45-120)	8.40	(< 30)
Benzo[g,h,i]perylene	0.5	0.480	96	0.5	0.463	93	(40-125)	3.50	(< 30)
Benzo[k]fluoranthene	0.5	0.490	98	0.5	0.449	90	(45-125)	8.70	(< 30)
Chrysene	0.5	0.482	96	0.5	0.460	92	(55-110)	4.50	(< 30)
Dibenzo[a,h]anthracene	0.5	0.448	90	0.5	0.414	83	(40-125)	7.90	(< 30)
Fluoranthene	0.5	0.434	87	0.5	0.438	88	(55-115)	0.91	(< 30)
Fluorene	0.5	0.337	67	0.5	0.357	71	(50-110)	5.90	(< 30)
Indeno[1,2,3-c,d] pyrene	0.5	0.467	93	0.5	0.452	90	(45-125)	3.30	(< 30)
Naphthalene	0.5	0.306	61	0.5	0.324	65	(40-100)	5.70	(< 30)
Phenanthrene	0.5	0.347	70	0.5	0.372	74	(50-115)	6.90	(< 30)
Pyrene	0.5	0.422	85	0.5	0.427	85	(50-130)	1.00	(< 30)
Surrogates									
2-Fluorobiphenyl	0.5		73	0.5		76	(50-110)	4.70	
Terphenyl-d14	0.5		101	0.5		97	(50-135)	4.10	

Batch Information

Analytical Batch: **XMS8193**
Analytical Method: **EPA 625M SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX31549**
Prep Method: **SW3520C**
Prep Date/Time: **07/30/2014 12:15**
Spike Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL
Dup Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1624918 [XXX/31571]
Blank Lab ID: 1223941

Matrix: Soil/Solid (dry weight)

QC for Samples:
1143379001, 1143379002, 1143379003, 1143379004, 1143379005, 1143379006, 1143379007

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	8.02J	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	86.6	60-120		%

Batch Information

Analytical Batch: XFC11454
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: EAB
Analytical Date/Time: 8/1/2014 6:57:00AM

Prep Batch: XXX31571
Prep Method: SW3550C
Prep Date/Time: 7/31/2014 8:09:44PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1143379 [XXX31571]
Blank Spike Lab ID: 1223942
Date Analyzed: 08/01/2014 06:37

Spike Duplicate ID: LCSD for HBN 1143379 [XXX31571]
Spike Duplicate Lab ID: 1223943
Matrix: Soil/Solid (dry weight)

QC for Samples: 1143379001, 1143379002, 1143379003, 1143379004, 1143379005, 1143379006, 1143379007

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	152	91	167	151	91	(75-125)	0.32	(< 20)
Surrogates									
5a Androstane	3.33		83	3.33		85	(60-120)	2.30	

Batch Information

Analytical Batch: **XFC11454**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **EAB**

Prep Batch: **XXX31571**
Prep Method: **SW3550C**
Prep Date/Time: **07/31/2014 20:09**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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CHAIN OF CUSTODY RECORD

1143379

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

Section 1

CLIENT: APC Services, LLC

CONTACT: Keith Torrance PHONE NO: 614 264 4506

PROJECT NAME: INNEC Iliamna PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Keith Torrance E-MAIL:

INVOICE TO: APC Services, LLC QUOTE #: 12197A 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	Section 3 Preservative: None	HCl	HCl	None							REMARKS/ LOC ID
							AK102 - DRO	AK102 - DRO Low Vol	EPA 602/624 - TAH	EPA 625 SIMS - TAqH							
(1) A	H9	7/25/14	12:25	S	1	G	✓										
(2) A	H8		12:15	S	1	G	✓										
(3) A	H12		12:20	S	1	G	✓										
(4) A	H12D		12:20	S	1	G	✓										
(5) A	G11		13:45	S	1	G	✓										
(6) A	H17		12:40	S	1	G	✓										
(7) A	I12		13:25	S	1	G	✓										
(8) A-B	1LSW1	7/25/14	11:35	SW	2					✓							
(9) A-B	1LSW2		11:35	SW	2			✓									
(10) A-B	SS03GW		12:00	GW	2			✓									

Section 5

	Date	Time	
Relinquished By: (1)	7/28/14	9:45	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	7/28/14	8:45	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: 3.5 #239

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT (IF) 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

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1143379

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

Section 1

CLIENT: APC Services, LLC

CONTACT: Keith Torrance PHONE NO: 614 264 4506

PROJECT NAME: INNEC Iliamna PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Keith Torrance E-MAIL:

INVOICE TO: APC Services, LLC QUOTE #: 12197A 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 Incremental Soils	AK102 - DRO (None)	AK102 - DRO Low Vol (HCl)	EPA 602/624 - TAH (HCl)	EPA 625 SIMS - TAqH (None)	REMARKS/ LOC ID
(11) A-C	ILSW3	7/25/14	11:35	SW	3				✓		
(12) A-C	Trip Blank	7/25/14			3						

Section 3 — Preservative

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Section 5

Relinquished By:	Date	Time	Received By:
(1)	7/28/14	8:45	
(2)			
(3)			
(4)	7/28/14	8:45	Received For Laboratory By:

Temp Blank °C: 3.5#239

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

(INTACT) BROKEN ABSENT

(See attached Sample Receipt Form)

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1143379

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No N/A Yes No N/A	IF
Temperature blank compliant* (i.e., 0-6°C after CF)? * ***Note: Exemption permitted for chilled samples collected less than 8 hours ago.*** Cooler ID: 1 @ 3.6 w/ Therm.ID: 239 Cooler ID: ~~_____ @ _____ w/ Therm.ID: _____~~ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ ***Note: If non-compliant, use form FS-0029 to document affected samples/analyses.*** 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." **If temperature(s) <0°C, were all sample containers ice free?**	Yes No N/A Yes No N/A	
Delivery method (specify all that apply): Client USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or N/A Yes No N/A	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: N/A → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed. SRF Initiated by: N/A		
Were samples received within hold time? ***Note: Refer to form F-083 "Sample Guide" for hold time information.*** Do samples **match COC*** (i.e., sample IDs, dates/times collected)? ***Note: Exemption permitted if times differ <1hr; in that case, use times on COC.*** Were analyses requested unambiguous?	Yes No N/A Yes No N/A Yes No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:	Yes No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	Yes No N/A Yes No N/A	
Were **proper containers** (type/mass/volume/preservative*) used? ***Note: Exemption permitted for waters to be analyzed for metals.*** Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No N/A Yes No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No N/A	
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)?	Yes No N/A Yes No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No N/A	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No N/A	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No N/A	SRF Completed by: EVF PM = N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No N/A	Peer Reviewed by: JMW N/A
Additional notes (if applicable):		

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

Returned Bottles Inventory

Name of individual returning bottles: _____ **Date Received:** 7/28/14

Client Name: APC Services **Received by:** EMF

Project Name: _____ **SGS PM:** _____

Preservative:	unpres.	H2SO4	HCl	HNO3	NaOH	other	vials of MeOH
HDPE/Nalgene:							
1-L							
500-ml							
250-ml							
125-ml							
other							
Amber Glass:							
1-L BR							
500-ml BR							
250-ml BR							
125-ml BR	4						
8-oz SS							
4-oz SS	1						
4-oz w/ septa							
40-ml VOA vial							
other							
Subtotal:	$20.00						

--- The bottom of this form should be completed by the Project Manager, who will determine how apply charges. ---

Note: Returned bottles (regardless of size/pres.) are billed back at $4/bottle ***unless otherwise quoted.***
These prices are only for bottles returned to the lab for disposal.
Unused/unreturned bottles are billed separately. Please see Accounting for current price list.

Amount to Invoice Client: $ 20.00 **WO#:** 1143379

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1143379001-A	No Preservative Required	OK			
1143379002-A	No Preservative Required	OK			
1143379003-A	No Preservative Required	OK			
1143379004-A	No Preservative Required	OK			
1143379005-A	No Preservative Required	OK			
1143379006-A	No Preservative Required	OK			
1143379007-A	No Preservative Required	OK			
1143379008-A	No Preservative Required	OK			
1143379008-B	No Preservative Required	OK			
1143379009-A	HCL to pH < 2	OK			
1143379009-B	HCL to pH < 2	OK			
1143379010-A	HCL to pH < 2	OK			
1143379010-B	HCL to pH < 2	OK			
1143379011-A	HCL to pH < 2	OK			
1143379011-B	HCL to pH < 2	OK			
1143379011-C	HCL to pH < 2	OK			
1143379012-A	HCL to pH < 2	OK			
1143379012-B	HCL to pH < 2	OK			
1143379012-C	HCL to pH < 2	OK			

Container Condition Glossary

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 Data Review Checklist

Completed by:	Keith Torrance		
Title:	Senior Environmental Geologist	Date:	Aug 14, 2014
CS Report Name:	INNEC Lot #1 Iliamna, Alaska	Report Date:	August 2014
Consultant Firm:	APC Services, LLC		
Laboratory Name:	SGS North America Inc	Laboratory Report Number:	1143379
ADEC File Number:	2560.38.003	ADEC RecKey Number:	

1. Laboratory

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

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

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

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

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:

3.5 deg. C

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

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

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

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

All bottles were in good condition

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

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

No discrepencies

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

Comments:

No

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:

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

Comments:

No affect

5. Samples Results

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

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

b. All applicable holding times met?

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

c. All soils reported on a dry weight basis?

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

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

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

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

Comments:

No

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:

N/A

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

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

No affected samples

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

No

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

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

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

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

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

No metals

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:

Sample G11 has a recovery of 69.2%

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

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

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

Comments:

N/A

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

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

No affected samples

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

No

c. Surrogates - Organics Only

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

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

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

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

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

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

No failed surrogates

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

No

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

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

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

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

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

iii. All results less than PQL?

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

iv. If above PQL, what samples are affected?

Comments:

N/A

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

Comments:

e. Field Duplicate

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

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

ii. Submitted blind to lab?

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

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

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

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

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

f. Decontamination or Equipment Blank (if applicable)

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

Method blank only

i. All results less than PQL?

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

ii. If above PQL, what samples are affected?

Comments:

N/A

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

Comments:

No

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

a. Defined and appropriate?

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

Reset Form

Laboratory Data Review Checklist

Completed by:	Keith Torrance		
Title:	Senior Environmental Geologist	Date:	Jun 26, 2014
CS Report Name:	INNEC Lot #1 Iliamna, Alaska	Report Date:	June 2014
Consultant Firm:	APC Services LLC		
Laboratory Name:	SGS North America	Laboratory Report Number:	1142382
ADEC File Number:	2560.38.003	ADEC RecKey Number:	

1. Laboratory

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

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

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

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

Analysis by SGS North Ameica in their Anchorage laboratory

2. Chain of Custody (COC)

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

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

b. Correct analyses requested?

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

3. Laboratory Sample Receipt Documentation

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

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

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

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

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

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

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

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

Yes; some variation in sample ID on container versus COC

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

Comments:

Samples readily identified; no affect on data quality.

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:

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:

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

Comments:

No

6. QC Samples

a. Method Blank

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

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

ii. All method blank results less than PQL?

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

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

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

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

No flags

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

No

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

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

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

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

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

No inorganics analyzed

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/DMSD, 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 samples(s) have data flags? If so, are the data flags clearly defined?

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

No flags

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

No

c. Surrogates - Organics Only

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

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

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

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

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

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

None failed

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

Comments:

Usabaility not affected

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

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

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

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

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

iii. All results less than PQL?

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

iv. If above PQL, what samples are affected?

Comments:

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

Comments:

No

e. Field Duplicate

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

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

ii. Submitted blind to lab?

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

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

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

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

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

f. Decontamination or Equipment Blank (if applicable)

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

i. All results less than PQL?

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

ii. If above PQL, what samples are affected?

Comments:

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

Comments:

No

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

a. Defined and appropriate?

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

Reset Form

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Lo
Alaska
New J
North
West

1142382

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

Section 1

CLIENT: APC Services LLC

CONTACT: Keith Torrance — PHONE NO: 677-9451

PROJECT NAME: Muldoon — PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Keith Torrance — E-MAIL: ktorrance@apcservicesllc.com

INVOICE TO: APC Services LLC — QUOTE #: 11091 — P.O. #:

Section 3

Preservative: None | | HCl | HCl | | | | | | | |

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 Incremental Soils	AK102 - DRO		AK102 - DRO	SW8260B - BTEX							REMARKS/ LOC ID
(1)	A 0614 GW3 GW001	06/10/14	10:00	GW001	1	G			X								
(2)	A 0614 GW3	06/10/14	10:00	GW201	1	G			x								
(3)	A-C 0614 GW3	06/10/14	13:00	GW001	3	G				X							
(4)	A-C 0614 GW3	06/10/14	13:00	GW201	3	G				x							
(5)	A-C 0614 SGS	06/10/14	13:00	GW001	1					X							TripBlank
(6)	~~A-C~~ 0614 SS01	"	12:40	S	1		x										
(7)	A 0614 SS02	"	12:40	S	1		x										
(8)	A 0614 SS03	"	12:45	S	1		x										
(9)	A 0614 SS04	"	1255	S	1		x										
(10)	A 0614 SS05	"	13:05	S	1		x										

Section 5

	Date	Time	
Relinquished By: (1)			Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
~~Relinquished By: (4)~~	6/10/14	16:47	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: 18.0 #238

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) IF IB

(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

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.

1142382

Section 1

CLIENT: APC Services LLC

CONTACT: Keith Torrance PHONE NO: 677-9451

PROJECT NAME: Muldoon PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Keith Torrance E-MAIL: ktorrance@apcservicesllc.com

INVOICE TO: APC Services LLC QUOTE #: 11091 P.O. #:

Section 3 — Preservative

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	None: AK102 - DRO		HCl: AK102 - DRO	HCl: SW8260B - BTEX							REMARKS/ LOC ID
(11) A	0614SS06	06/10/14	13:07	S	1		X										
(12) A	0614SS07	"	13:18	S	1		X										
(13) A	0614SS08	"	13:25	S	1		X										
(14) A	0614SS09	"	13:35	S	1		X										
(15) A	0614SS10	"	13:50	S	1		X										
(16) A	0614SS11	"	14:00	S													

Section 5

	Date	Time	
Relinquished By: (1)			Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 6/10/14	Time 16:47	Received For Laboratory By: Terri Draeger

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 18.0 #238
or Ambient [ ]
(See attached Sample Receipt Form)

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

1F1B

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

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

SGS

1142382

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	(Yes) No N/A (Yes) No N/A	IF IB
Temperature blank compliant* (i.e., 0-6°C after CF)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 18.0 w/ Therm.ID: #238 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* 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." **If temperature(s) <0°C, were all sample containers ice free?**	Yes (No) N/A Yes No (N/A)	~~OK~~ because samples were just taken.
Delivery method (specify all that apply): ~~Client~~ USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or (N/A) Yes No (N/A)	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note:		(N/A)
→ For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.	SRF Initiated by: TLD	(N/A)
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if times differ <1hr; in that case, use times on COC.* Were analyses requested unambiguous?	(Yes) No N/A Yes (No) N/A Yes No N/A	See Additional notes
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ~~Bubble Wrap~~ Separate plastic bags Vermiculite ~~Other:~~	(Yes) No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	(Yes) No N/A (Yes) No N/A	
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A Yes No N/A	Limited Volume on ↓
For **special handling** (e.g., "MI" or foreign soils, lab filter, ~~limited volume~~, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	(Yes) No N/A	EMF 6/10/14 1142382 001 A 0614610SC 1142382 002 A
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)?	(Yes) No N/A Yes No (N/A)	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A)	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No (N/A)	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	(Yes) No N/A	SRF Completed by: EMF PM = SAN N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	(Yes) No N/A	Peer Reviewed by: KMW N/A

Additional notes (if applicable): Sample ID corresponds to COC in LIMS

0610145511 = 0614551I = 1142382016 A

0610550 7 = 0614550 7 = 1142382012 A

0610550 5 = 0614550 5 = 1142382010 A

5504 = ~~0614SC~~ 0614550 4 1142382009A

EMF

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

SGS North America Inc.
200 W. Potter Dr., Anchorage, AK 99518 (ph) 907-562-2343, (fax) 907-561-5301
3180 Peger Rd., Fairbanks, AK 99701 (ph) 907-474-8656, (fax) 907-474-9685

Sample Kit Request

☑ **Client pickup Date:** 5/28/2014 **Time:** 8:00
Be sure to ask if client will ship by ground (DOT) or air carrier (IATA)
☐ **Deliver to client:**
☐ **Ship by/Air Carrier:**
Airbill Number:
Date to ship by:
Notes:

Client Name: APC Services LLC
Ordered By: Keith Torrance **e-mail:** ɔrrance@apcservicesllc.com
Phone #: 677-9451
Project Name: Muldoon
Quote #: 11091
Delivery:

Kit request taken by: JAN **Date:** 5/5/2014
Kit prepared by: N2G **Date:** 27 May 14
Kit *(including lid tightness for pres'd bottles)* checked by: EMF **Date:** 27 May 14
Kit packed & shipped by: EMF **Date:** 27 May 14

PM Reminders:
☐ **Track all Lot#** ☐ **QAPP/SOW/SAP/DQOs** ☐ **Total # includes bottles for % Solids** ☐ **Foreign Soil**
☐ **ETA for samples returning to lab** ☐ **Profile Build/Project Notice** ☐ **Regulatory/Special Requirements** ☐ **Problem Matrix**

Notes:

No. Samples	Matrix	Analysis	Container Size & Type		Pres.	Bottle Lot #	Preservative Lot #	Hold Time	# QC Bottles	Total Bottles
12	Soil	AK102 - DRO	1 x 4 oz.	Amber	None				0	12
6	Water	AK102 - DRO	2x 1 L	Amber	HCl				0	12
6	Water	SW8260B - BTEX	3 x 40 mL	VOA	HCl				0	18

☑ 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#:
☑ Water VOA Trip Blank - Lot#: 1210893
☐ 524 VOA Trip Blank - Lot#:
☐ Low Level Mercury Trip Blank- Lot#:
☑ SGS COCs - ***Circle req'd format:*** * Blank COC * COC initiated by PM (attached)
☑ Custody Seals * Drinking Water COC template * WasteWater COC template
☑ Labels * UST COC template * Mining COC template
☑ Coolers * Landfill COC template * TCLP COC template
☑ Bubble Wrap
☑ Gel Ice (***circle one:*** **in each cooler** OR in a separate cooler)
☑ **Pack similar bottles together** OR custom packing ***(circle one)***
☐ Send additional instructions/documents ***(Note to PM:*** *Be sure to attach copy of requested form.)*

Other Notes/Reminders for Kit Prep:

Attention Client/Sampler:

Please remember the following sampling guidelines -

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.***

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1142382001-A	HCL to pH < 2	OK			
1142382002-A	HCL to pH < 2	OK			
1142382003-A	HCL to pH < 2	OK			
1142382003-B	HCL to pH < 2	OK			
1142382003-C	HCL to pH < 2	OK			
1142382004-A	HCL to pH < 2	OK			
1142382004-B	HCL to pH < 2	OK			
1142382004-C	HCL to pH < 2	OK			
1142382005-A	HCL to pH < 2	OK			
1142382005-B	HCL to pH < 2	OK			
1142382005-C	HCL to pH < 2	OK			
1142382006-A	No Preservative Required	OK			
1142382007-A	No Preservative Required	OK			
1142382008-A	No Preservative Required	OK			
1142382009-A	No Preservative Required	OK			
1142382010-A	No Preservative Required	OK			
1142382011-A	No Preservative Required	OK			
1142382012-A	No Preservative Required	OK			
1142382013-A	No Preservative Required	OK			
1142382014-A	No Preservative Required	OK			
1142382015-A	No Preservative Required	OK			
1142382016-A	No Preservative Required	OK			

Container Condition Glossary

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.

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1143379

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

Section 1

CLIENT: APC Services, LLC

CONTACT: Keith Torrance PHONE NO: 614 264 4506

PROJECT NAME: INNEC Iliamna PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Keith Torrance E-MAIL:

INVOICE TO: APC Services, LLC QUOTE #: 12197A 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: None	HCl	HCl	None							REMARKS/ LOC ID
							AK102 - DRO	AK102 - DRO Low Vol	EPA 602/624 - TAH	EPA 625 SIMS - TAqH							
(1) A	H9	7/25/14	12:25	S	1	G	✓										
(2) A	H8		12:15	S	1	G	✓										
(3) A	H12		12:20	S	1	G	✓										
(4) A	H12D		12:20	S	1	G	✓										
(5) A	G11		13:45	S	1	G	✓										
(6) A	H17		12:40	S	1	G	✓										
(7) A	I12		13:25	S	1	G	✓										
(8) A-B	1LSW1	7/25/14	11:35	SW	2					✓							
(9) A-B	1LSW2		11:35	SW	2			✓									
(10) A-B	SS03GW		12:00	GW	2			✓									

Section 5

Relinquished By:	Date	Time	Received By:
(1)	7/28/14	9:45	
(2)			
(3)			
(4)	7/28/14	8:45	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: 3.5 #239 or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) INTACT IF 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

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

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1143379

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

Section 1

CLIENT: APC Services, LLC

CONTACT: Keith Torrance PHONE NO: 614 264 4506

PROJECT NAME: INNEC Iliamna PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Keith Torrance E-MAIL:

INVOICE TO: APC Services, LLC QUOTE #: 12197A 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: None / AK102 - DRO	Preservative: HCl / AK102 - DRO Low Vol	Preservative: HCl / EPA 602/624 - TAH	Preservative: None / EPA 625 SIMS - TAqH	REMARKS/ LOC ID
(11) A-C	ILSW3	7/25/14	11:35	SW	3				✓		
(12) A-C	Trip Blank	7/25/14			3						

Section 3 — Preservative

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Section 5

	Date	Time	
Relinquished By: (1)	7/28/14	8:45	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	7/28/14	8:45	Received For Laboratory By:

Temp Blank °C: 3.5#239

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

(INTACT) IF 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

1143379

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No N/A Yes No N/A	IF
Temperature blank compliant* (i.e., 0-6°C after CF)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 3.6 w/ Therm.ID: 239 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* 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." **If temperature(s) <0°C, were all sample containers ice free?**	Yes No N/A Yes No N/A	
Delivery method (specify all that apply): Client USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or N/A Yes No N/A	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.		N/A SRF Initiated by: N/A
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if times differ <1hr; in that case, use times on COC.* Were analyses requested unambiguous?	Yes No N/A Yes No N/A Yes No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:	Yes No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	Yes No N/A Yes No N/A	
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No N/A Yes No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No N/A	
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)?	Yes No N/A Yes No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No N/A	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No N/A	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No N/A	SRF Completed by: EVF PM = N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No N/A	Peer Reviewed by: EMV N/A
Additional notes (if applicable):		

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

Returned Bottles Inventory

Name of individual returning bottles: _____ **Date Received:** 7/28/14

Client Name: APC Services **Received by:** EMF

Project Name: _____ **SGS PM:** _____

Preservative:	unpres.	H2SO4	HCl	HNO3	NaOH	other	vials of MeOH
HDPE/Nalgene:							
1-L							
500-ml							
250-ml							
125-ml							
other							
Amber Glass:							
1-L BR							
500-ml BR							
250-ml BR							
125-ml BR	4						
8-oz SS							
4-oz SS	1						
4-oz w/ septa							
40-ml VOA vial							
other							
Subtotal:	$20.00						

~~~ The bottom of this form should be completed by the Project Manager, who will determine how apply charges. ~~~

Note: Returned bottles (regardless of size/pres.) are billed back at $4/bottle ***unless otherwise quoted.***
These prices are only for bottles returned to the lab for disposal.
Unused/unreturned bottles are billed separately. Please see Accounting for current price list.

Amount to Invoice Client: $ 20.00 **WO#:** 143379

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1143379001-A	No Preservative Required	OK			
1143379002-A	No Preservative Required	OK			
1143379003-A	No Preservative Required	OK			
1143379004-A	No Preservative Required	OK			
1143379005-A	No Preservative Required	OK			
1143379006-A	No Preservative Required	OK			
1143379007-A	No Preservative Required	OK			
1143379008-A	No Preservative Required	OK			
1143379008-B	No Preservative Required	OK			
1143379009-A	HCL to pH < 2	OK			
1143379009-B	HCL to pH < 2	OK			
1143379010-A	HCL to pH < 2	OK			
1143379010-B	HCL to pH < 2	OK			
1143379011-A	HCL to pH < 2	OK			
1143379011-B	HCL to pH < 2	OK			
1143379011-C	HCL to pH < 2	OK			
1143379012-A	HCL to pH < 2	OK			
1143379012-B	HCL to pH < 2	OK			
1143379012-C	HCL to pH < 2	OK			

Container Condition Glossary

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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.

Contaminated Sites Database

By law, DEC is required to recover expenses incurred during cleanup, including staff oversight time. Current and former landowners may be liable for state cleanup expenditures.

Cleanup Chronology Report for **Iliamna Newhalen Nondalton Electric**

New Database Search

Site Name:	Iliamna Newhalen Nondalton Electric
Address:	Newhalen Iliamna, AK 99606
File Number:	2560.38.003
Hazard ID:	2150
Staff:	Grant Lidren - 9072698685
Status:	Active
Landowner:	
Latitude:	59.751787
Longitude:	-154.817033
Section:	28
Meridian:	Seward
Range:	033
Township:	005

Institutional Controls Report
No ICs exist for this site.

Problem / Comments

In 1994, a 20 x 40 foot area of diesel impacted soil was encountered from a former above ground storage tank (AST) area. The exact number of ASTs located in this area is unclear. The spill may have occurred from a slow leaky valve from the ASTs. The ASTs were located just north of sample point IP4 Approximately 80 cubic yards of contaminated soil was excavated and put into a biocell on site. Confirmation samples were not collected from the depths of the excavation. Stockpile soil samples collected in 1998 indicate contamination remains in the biocell above ADEC cleanup levels.

Glossary/Acronyms

Action Information

Action Date	Action	Description	DEC Staff
07/13/1995	Update or Other Action	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). Cleanup and remediation plan received and reviewed.	Dronenburg, Ray
07/13/1995	Report or Workplan Review - Other	On this date, ADEC received Work Plan and Treatment Plan INNEC Iliaska Point Small Spill Clean-up INNEC Job #95-003, submitted by Bristol. In 1994, a 20 x 40 foot area of diesel impacted soil was encountered as a former bulk fuel storage area indicated by seven soil samples with TPH up to 2,590 mg/kg. Groundwater was encountered 12 to 18 inches bgs. Sheen was not noted on the groundwater but there was petroleum odor. It was suspected that a shallow organic silt layer may be preventing vertical migration of contamination to lower water tables. It was also noted that the bedrock is quite shallow.	Lidren, Grant
07/13/1995	Update or Other Action	(Old R:Base Action Code = RPL1 - Initiate Dialog with RP). Initiate dialogue with responsible party.	Dronenburg, Ray

07/21/1995	Preliminary Assessment Approved	(Old R:Base Action Code = SA1R - Phase I SA Review (CS/LUST)). Reviewed a phase 1 site assessment.	Dronenburg, Ray
07/21/1995	Update or Other Action	(Old R:Base Action Code = CORR - Correspondence (General)). Sent ADEC response letter requesting additional information	Dronenburg, Ray
08/01/1995	Update or Other Action	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). Reviewed and approved remedial action plan.	Dronenburg, Ray
08/01/1995	Update or Other Action	(Old R:Base Action Code = TOTH - Treatment, Other). Treatment approved.	Dronenburg, Ray
08/04/1998	Report or Workplan Review - Other	On this date, ADEC received biocell sampling results submitted by Bristol. Three soil samples collected from the biocell contained DRO of 150, 750, and 2,800 mg/kg.	Lidren, Grant
09/27/2001	Update or Other Action	Telephone call with Jerry Armstrong of INNEC - approximately 80 cubic yards remain in a biocell constructed in 1995. The material in the cell will be tilled this week, then tilled again and resampled next summer (2002). See email in file.	Evans, Renee
07/12/2004	Update or Other Action	File number issued 2560.38.003	Blandford, Aggie
03/07/2007	Exposure Tracking Model Ranking	Initial Site Ranking using the ETM	Fritz, Don
03/20/2007	Update or Other Action	Letter sent to the RP requesting an update on site activities and if none, submittal of an assessment work plan.	Fritz, Don
07/03/2007	Update or Other Action	Contaminated Sites staff was contacted by Chip Embretson 571-1225/571-1000 regarding the Iliamna-Newhalen Nondalton Electric site on Lake Illiamna. Mr. Embretson advised that he has been unsuccessful in getting the representative for the responsible party to move forward in responding to concerns identified by the department. Mr. Embretson stated that he is interested in purchasing the property, thus he intends to move forward on completing assessment activates in an effort to close out environmental issues at the site so that he can purchase it.	Fritz, Don
02/07/2008	Update or Other Action	Contaminated Sites staff received a phone call from Chip Embretson regarding the Iliamna-Newhalen Nondalton Electric site on Lake Iliamna. Mr. Embretson asked if Bristol Environmental had contacted ADEC staff with regards to continuing assessment and cleanup work on the site. After Mr. Embretson was informed that Bristol Environmental had not contacted Contaminated Sites staff, he stated that he would look for a different consultant to review the file and develop a work plan. Contaminated Sites staff explained to Mr. Embretson that in addition to the soils existing in the bioremediation cell, we have no documentation regarding the actions taken at the site, thus further site assessment and reporting was necessary. Mr. Embretson asked about the possibility of incorporating contaminated soils into roadways, and was informed that this may be a possibility if done under an approved plan.	Fritz, Don
09/16/2009	Update or Other Action	File transferred/received from Soldotna. New ADEC project manager is now Grant Lidren.	Nuechterlein, Linda
12/17/2009	Update or Other Action	On this date, ADEC contacted a prospective buyer. It appears the last sampling event was 1998, which is in accordance with the ADEC file. It is possible that the biocell rests upon a tarp at the area of the former spill. It was discussed that further soil sampling needs to be completed.	Lidren, Grant
12/28/2009	Update or Other Action	On this date, ADEC contacted INNEC. It was discussed that INNEC is considered an RP for this site.	Lidren, Grant
02/23/2011	Potentially Responsible Party/State Interest Letter	Request for further action/RP letter sent on this date.	Lidren, Grant
09/06/2011	Site Characterization Workplan Approved	On this date, ADEC reviewed the Closure Sampling Plan for INNEC – Former Above-Ground Storage Tank Area Lot 1, submitted by JBN Consultants, dated August 31, 2011. A total of six soil samples will be collected including the duplicate. Two surface soil samples will be collected from the biocell and two surface soil samples will be collected from the spill area. Additionally, one comparison sample will be collected outside of the zone of contamination.	Lidren, Grant
09/05/2012	Update or Other Action	On this date, ADEC received the Closure Sampling lab results for INNEC – Former Above-Ground Storage Tank Area Lot 1, submitted by JBN Consultants. A total of six soil samples were collected including the duplicate. Two surface soil samples collected from the biocell contained DRO up to 526 mg/kg. Four surface soil samples collected at the former AST location contained DRO up to 2,310 mg/kg. It is assumed the AST samples were collected from less than 2 feet bgs and at the groundwater interface.	Lidren, Grant
09/07/2012	Site Characterization Workplan Approved	ADEC received and approved amended workplan. Two temporary wellpoints were to be installed downgradient. As of 5/22/2014, ADEC has not recieved the Report for this field work.	Lidren, Grant
03/05/2014	Meeting or Teleconference Held	On this date, a meeting was conducted with APC Services LLC discussing potential field work at the site in 2014.	Lidren, Grant
05/21/2014	Report or Workplan Review - Other	ADEC approved the Draft Closure Sampling Work Plan Former AST Area submitted by APC Services LLC dated May 2014 with the following condition: the biocell shall be containerized and/or covered during transport. Field work is planned for the week of June 8, 2014.	Lidren, Grant
05/22/2014	Offsite Soil or Groundwater Disposal Approved	On this date, ADEC approved the disposal of remediated biocell soil to the landfill.	Lidren, Grant

back to top

Division of Spill Prevention and Response
410 Willoughby Ave., Ste. 302
P.O. Box 111800
Juneau, AK 99811-1800

CCReports Application System version 2.0