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**Soil and Groundwater
Assessment and Remediation Report
Red Salmon Facility,
Naknek, Alaska**

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Red Salmon Facility,
Naknek, Alaska**

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

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ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
COC	chain of custody
CSM	conceptual site model
CY	cubic yard
DQA	Data Quality Assessment
DRO	diesel-range organics
GAC	granulated activated carbon
GRO	gasoline-range organics
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSEP	Health, Safety, and Environmental Plan
LOD	limit of detection
LOQ	limit of quantitation
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NPSI	North Pacific Seafoods Incorporated
PAH	polycyclic aromatic hydrocarbons
PID	photoionization detector
ppm	parts per million
QA	quality assurance
QC	quality control
RPD	relative percent difference
RRO	residual-range organics
SIM	Selective Ion Monitoring
SLR	SLR International Corporation
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
USCS	Unified Soil Classification System

EXECUTIVE SUMMARY

SLR International Corporation was requested by North Pacific Seafoods Incorporated (NPSI) to remove petroleum hydrocarbon-impacted soil that was identified during a 2014 field investigation and to further delineate the extent of potential petroleum related contamination in soil and groundwater at the Red Salmon Facility located in Naknek, Alaska. The work was completed in accordance the Alaska Department of Environmental Quality (ADEC) approved *Soil and Groundwater Assessment and Remediation, Red Salmon Facility, Naknek, Alaska, Work Plan* (Work Plan) (SLR, 2015).

Field activities were completed on June 12, 2015, and between July 29 and August 3, 2015. Activities included: inspection of areas downslope of the Fisherman's Gear Storage Building to identify seeps and potential discharges to the Naknek River; excavation and removal of approximately 50 cubic yard (CY) of hydrocarbon impacted soil from the west side of the Fisherman's Gear Storage Building; collection and analysis of confirmation samples from the excavation floor and side walls; completion and sampling of two step-out test pits north-northwest of the excavation area; completion of four groundwater monitoring wells upslope and downslope of the excavation area; and groundwater and seep water sampling and analysis.

All soil and water samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), as well as gasoline-range organics (GRO), diesel-range organics (DRO), and residual range organics (RRO). One groundwater and two seep water samples were also analyzed for polycyclic aromatic hydrocarbons (PAHs).

Results of soil confirmation samples collected from the floor and sidewalls of the excavation pit showed DRO concentration remained above the most stringent ADEC Method Two soil cleanup level (i.e., migration to groundwater) after the excavation work was completed. Expansion of the excavation was halted once 50 CY of impacted soil had been removed due to limitations with storage and transportation, and in accordance with the Work Plan. Excavated soil was transported to Seattle, Washington via Alaska Marine Lines and then transported to CEMEX in Everett, Washington for final disposal.

Analytical results from the two test pits showed no hydrocarbon impacts approximately 50 to 160 feet north-northwest of the excavation. To the east-southeast, soil screening and analytical testing completed in 2014 delineated the extent of soil impacts to approximately 20-feet to 25-feet southeast of the Fisherman's Gear Storage Building.

During excavation activities, vertical digging below the depth of the water table was not considered practical for source removal. Hydrocarbon impacts below the water table were assessed by groundwater and seep water sampling. Regenesis ORC[®], an oxygenate compound engineered to accelerate the biological attenuation of remaining petroleum hydrocarbon concentrations in groundwater, was spread across the floor of the excavation prior to backfilling as a treatment for impacted groundwater.

Three of four groundwater samples contained dissolved phase DRO concentrations exceeding ADEC groundwater cleanup levels. Analytical results from one of the seep water samples collected showed that in addition to dissolved phase DRO, RRO and benzene also exceeded

ACRONYMS (CONTINUED)

ADEC groundwater cleanup levels. The occurrence of dissolved phase benzene and RRO in the seep water was in contrast to the impacts reported in groundwater. No seeps were observed discharging to the Naknek River.

1. INTRODUCTION

SLR International Corporation (SLR) was requested by North Pacific Seafoods Incorporated (NPSI) to remove petroleum hydrocarbon-impacted soil that was identified during a 2014 field investigation and to further delineate the extent of potential petroleum related contamination in soil and groundwater at the Red Salmon Facility (Site) located in Naknek, Alaska (Figure 1). This report summarizes the field activities completed at the Site during 2015.

1.1 PROJECT BACKGROUND

Petroleum hydrocarbon-impacted soil was observed in the spring of 2014 near a valve box connected by above ground piping to inactive above-ground Bunker C storage tanks (Figures 2 and 3). In response, onsite NPSI personnel excavated the visibly stained soil from around the valve box and placed the impacted soil in fish totes for disposal at an offsite disposal facility.

To evaluate the extent of petroleum impacts to soil and groundwater in the vicinity of the former valve box, NPSI contracted SLR to complete a subsurface investigation in September 2014 (SLR, 2014). As part of the investigation activities, one test pit, TP1, was excavated to a depth of approximately 8 feet below ground surface (bgs) and 17 soil borings, SB-1 to SB-17, were advanced to approximately 1 to 4 feet bgs (at least 0.5-foot below the groundwater table) (SLR, 2014).

Concurrent with the 2014 excavation, soil samples were collected at approximately 1-foot depth interval. Soil types were classified in accordance with the Unified Soil Classification System (USCS) and were generally identified as sand and silt (SM). Soil samples were screened for the presence of petroleum hydrocarbons by using visual observation of staining, hydrocarbon odor, and heated headspace analyses with a photoionization detector (PID).

Field evidence indicated the presence of petroleum hydrocarbons in test pit TP1 and all of the soil borings. Hydrocarbon sheen was observed in TP1, SB-1, SB-12, and SB-13. The soil samples exhibiting the greatest evidence of contamination from the test pit TP1, and borings, SB-1, SB-3, SB-4, SB-5, SB-6, SB-8, SB-9, and SB-10, were submitted to SGS Environmental Services (SGS) in Anchorage, Alaska, for laboratory analyses. Each sample was analyzed for diesel-range organics (DRO) by Alaska Method 102 (AK 102) and residual-range organics (RRO) by AK103. The samples from test pit TP1 and soil boring SB-9 were also analyzed for polycyclic aromatic hydrocarbons (PAHs) by United States Environmental Protection Agency (USEPA) Method 8270D-Selective Ion Monitoring (SIM).

The analytical results showed that soil from test pit TP1 and borings SB-1, SB-3, and SB-10 contained DRO concentrations of 18,800 milligrams per kilograms (mg/kg), 63,100 mg/kg, 400 mg/kg, and 898 mg/kg, respectively, and exceeded the most stringent Alaska Department of Environmental Conservation (ADEC) Method Two soil cleanup level¹ of 250 mg/kg. No soil sample contained RRO or PAH concentrations greater than their respective ADEC Method Two soil cleanup levels.

¹ ADEC Method Two cleanup levels for Under 40 Inch Zone, with potential to migrate to groundwater, January 2009.

The 2014 soil screening PID readings and DRO analytical results are provided in Subsurface Investigation Report, Red Salmon Facility, Naknek, Alaska.

1.2 PHYSICAL SETTING

The Site is located in Naknek, Alaska, between the Alaska Peninsula Highway and the Naknek River (Figure 1). The facility is built on a southeast facing slope which descends towards the Naknek River. The depth to groundwater in the investigation area ranges from 0.5 feet (near the old valve box) to 8 feet bgs in areas farther upslope. The soil in the area consisted mostly of coarse brown sand.

1.3 OBJECTIVES AND SCOPE OF WORK

The objectives for the 2015 field investigation were to remove impacted soil identified during the September 2014 field investigation (up to 50 cubic yards [CY]), monitor for the presence or absence of surface water seeps during spring breakup downslope of the former valve box area, and evaluate petroleum hydrocarbon-impacts to groundwater. To achieve these objectives, the following scope of work was completed in accordance with the approved Work Plan:

- Inspected the area downslope of the Fisherman's Gear Storage Building (Figure 3);
- Analyzed water samples from seeps identified by NPSI personnel;
- Removed approximately 50 CY of impacted soil in the vicinity for TP1 on the west side of the Fisherman's Gear Storage Building (Figure 3);
- Collected confirmation soil samples from the floor and sidewalls of the excavation;
- Sampled soil from two test pits completed northwest of the Fisherman's Gear Storage Building (Figure 4); and
- Collected groundwater samples from four newly installed monitoring wells, one upslope, two downslope, and one within the area of contamination delineated in 2014 (Figure 4).

2. REGULATORY CRITERIA

According to the Department of Commerce, Community, and Economic Development Community and Regional Affairs, Naknek, Alaska receives an average of 19.5 inches of precipitation annually. ADEC Method Two soil and groundwater cleanup levels are specified in Title 18 of the Alaska Administrative Code (AAC), Chapter 75 (18 AAC 75) *Oil and Other Hazardous Substances Pollution Control* as amended through June 2014 (ADEC, 2015).

The soil cleanup levels in Tables B1 and B2 in 18 AAC 75.341 are applicable to the Site. The soil cleanup levels for the compounds analyzed are as follows:

- Benzene: 0.02 mg/kg
- Toluene: 5.4 mg/kg
- Ethylbenzene: 5.5 mg/kg
- Total xylenes: 78 mg/kg
- Gasoline-range organics (GRO): 300 mg/kg
- DRO: 250 mg/kg
- RRO: 10,000 mg/kg

The groundwater cleanup levels in Table C of 18 AAC 75.345 are applicable to the Site. The groundwater cleanup levels for the compounds analyzed are as follows:

- Benzene: 0.005 milligrams per liter (mg/L)
- Toluene: 1.0 mg/L
- Ethylbenzene: 0.7 mg/L
- Total xylenes: 10 mg/L
- GRO: 2.2 mg/L
- DRO: 1.5 mg/L
- RRO: 1.1 mg/L

The Alaska Water Quality Standards for Designated Uses [18 AAC 70.020(b)] are applicable to the Site. The water quality standards for the applicable compounds analyzed are as follows:

- Total aromatic hydrocarbons (TAH): 10 µg/L
- Total aqueous hydrocarbons (TAqH): 15 µg/L

3. FIELD ACTIVITIES

Field activities were completed on June 12, 2015, and between July 29 and August 3, 2015. Activities performed included: seep inspection and monitoring; excavation of hydrocarbon-impacted soil in the vicinity of the former valve box; excavation and soil sampling at two test pits; installation of four groundwater monitoring wells; and groundwater sampling.

Field activities were conducted by NPSI and SLR field staff. The SLR field staff met the criteria for “qualified environmental professional” under 18 AAC 75.333(c).

3.1 SOIL EXCAVATION

The extent of the proposed excavation area, 55-feet by 25-feet, was delineated and gridded based on the results from the 2014 investigation (SLR, 2014). The excavation grid was oriented parallel to the northwest wall of the Fisherman’s Gear Storage Building (Figure 3). Pin flags and surveyors lath were used to mark the corners (nodes) of each 5-foot by 5-foot grid cell in accordance with the Work Plan. NPSI personnel, with 24-hour HAZWOPER certification, operated excavation equipment under the direction of an SLR field geologist.

NPSI onsite personnel were consulted regarding the potential for active utilities in the area prior to excavation work. Once it was determined that there were no active utilities in the area, soil excavation proceeded as planned. An NPSI owned Case 580 Series backhoe and loader was used. The final excavated area was approximately 650 square feet, the average depth of the excavation was approximately 2-feet below ground surface (bgs), with a maximum excavation depth 5.5-feet bgs.

Excavated soil was containerized into 1 - CY Super Sacks at the excavation site. Super Sacks were filled over the open excavation to prevent spillage into clean areas (see photographs in Appendix A). The Super Sacks were labeled with an excavation grid cell identification number and then sequentially by order in which they were filled (e.g., A3-1 is the first sack filled from cell A3; A3-2 is the second sack filled from grid cell A3, etc.). A list of all Super Sack identification numbers is provided on the Super Sack Log in Appendix B. Once filled, the Super Sacks were placed, transferred to the temporary staging area near the facility office building (Figure 2), and placed on pallets arranged on a plastic liner. A total of 45 Super Sacks were filled.

Samples for field screening were collected within the gridded area at a frequency of roughly one sidewall sample per 5-linear feet and three floor samples for every 25-square feet. A total of 22 soil samples were collected for field screening, six from the sidewalls and 16 from the floor. All screening samples were collected in accordance with the Section 4.2 of the Work Plan and the ADEC *Field Sampling Guidance* (ADEC, 2010). Soil screening locations are shown on Figure 3.

All 22 samples were screened by heated headspace analyses using a PID, and nine samples were also screened using a PetroFLAG analyzer to measure total petroleum hydrocarbon. Heated headspace and PetroFLAG analyses were completed in accordance with ADEC *Field Sampling Guidance*, the PetroFLAG manufacturer’s instruction manual (Dexsil Corporation, 2009), and Section 4.2 of the Work Plan.

Screening results were used as the basis for expanding the excavation area laterally and vertically. To the extent practical, excavation boundaries were extended in areas where PID screening results exceeded 30 parts per million (ppm). The excavation was not expanded beneath the existing building. The depth of the excavation floor extended to the top of the water table. Excavation activities were halted once approximately 50 CY of soil had been removed in accordance with Section 3.4.2 of the Work Plan.

Field results were recorded on PID and PetroFLAG field forms provided in Appendix B.

3.1.1 CONFIRMATION SAMPLING

SLR field personnel field screened potential confirmation sidewall and floor samples. Six floor samples were collected once the maximum vertical extent was achieved (i.e., the top of the water table). Three sidewall confirmation samples were collected at locations with the highest headspace or/and PetroFLAG result. Sidewall samples were collected at a frequency of approximately one sample per 20 linear feet, and floor samples at a frequency of approximately one per 25 square feet based on recommendations in ADEC *Field Sampling Guidance*.

Soil samples were collected directly from the surface of the excavations using disposable stainless steel spoons. Samples were placed directly into laboratory provided sample containers in accordance with Section 4.3 of the Work Plan. Confirmation sample locations were marked on a scaled grid and swing ties were completed as needed. The field grid and swing tie measurements are provided in Field Notes in Appendix B.

Floor and sidewall soil samples were submitted to SGS in Anchorage, Alaska for the following analyses:

- Petroleum Hydrocarbons
 - GRO by AK101
 - DRO by AK102
 - RRO by AK103
- Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by USEPA Method 8021

3.1.2 BACKFILLING AND TREATMENT

The excavation was backfilled to grade with clean soil obtained onsite. Prior to backfilling, approximately 330 pounds of Regenesis ORC[®], an oxygenate compound engineered to accelerate the biological attenuation of remaining petroleum hydrocarbon concentrations in groundwater, was spread across the floor of the excavation.

Based on a 10% by weight oxygen, as indicated in the product specifications, the quantity of ORC[®] added was sufficient to remove approximately 10-pounds of hydrocarbon (applying a general rule of thumb of 3-pounds of oxygen required to degrade 1-pound of hydrocarbon).

ORC[®] was applied in accordance with the manufacturer's Application Instructions and the Work Plan Addendum (NPSI, 2015). Shipping, handling, storage, and disposal of the product were consistent with the product Safety Data Sheet.

3.2 TEST PITS

Because the extent of impacted soil exceeded the area estimated in the Work Plan, SLR advanced two “step-out” test pits, TP3 and TP2, approximately 50-feet and 160-feet northwest of the excavation area, respectively (Figure 4). The test pits were completed to depths of approximately 7-feet (TP3) and 8-feet (TP2) bgs, with the bottom of each being near or slightly below the water table.

SLR field personnel collected soil samples for heated headspace field screening at each step-out test pit on approximately 2-foot intervals, from the surface to just above the soil/groundwater interface. One soil sample from each test pit was selected based on potential hydrocarbon impacts (i.e., visual and olfactory observations, and PID measurements) for PetroFLAG screening and analytical testing.

Because of the depth of the test pits, soil samples were collected from the center of the backhoe bucket. Samples were collected using clean disposable stainless spoons as described in Section 4.3 of the Work Plan.

Field results were recorded on PID and PetroFLAG field forms provided in Appendix B

3.3 GROUNDWATER MONITORING WELL INSTALLATION

Following the excavation of impacted soil, SLR installed one upslope groundwater monitoring well, MW-3, two downslope monitoring wells, MW-2 and MW-4, and one well, MW-1, within the excavated area (Figure 4). Wells were installed in accordance with Section 3.7 of the Work Plan. The upgradient and downgradient monitoring wells were completed approximately 50-feet and 30-feet beyond the perimeter of the excavation, respectively. Monitoring well MW-1 was installed near TP1 (the location of the highest reported DRO and RRO concentrations during the September 2014 investigation).

Monitoring wells were installed in accordance with ADEC *Monitoring Well Guidance* (ADEC, 2013) using an excavator to dig well pits to a depth at least three feet below the water table. Soil samples were collected from each monitoring well test pit and logged by the onsite SLR geologist and classified using the Unified Soil Classification System.

Well screens were placed into the excavations inside eight-inch-diameter PVC piping (outer casing) that extended from the bottom of the screen to approximately two feet above the ground surface (see photographs in Appendix A). The well pits were then backfilled around the outer casing. After the well pits had been backfilled, the annular space between the pre-packed well screen and the casing was filled with a 10x20 silica sand filter pack that was placed concurrently with the removal of the outer casing. The filter pack was brought up to approximately 2-feet bgs. A bentonite seal was placed above the filter pack to a depth of 1-feet bgs. An above-ground well monument was installed in a concrete surface seal placed above the bentonite seal to the ground surface. Well construction details were documented on Well Installation Logs provided in Appendix B.

After each groundwater monitoring well was installed, the wells were developed to ensure hydraulic connectivity with the surrounding aquifer. The well materials were allowed to cure and settle for at least 24 hours before development. Well development was completed using surging

and pumping methods. A surge block that closely fits the inside diameter of the well casing was swept across the well screen in 2-foot intervals to settle the filter pack and to pull fine sediments into the well. After the entire screened interval had been surged, the well was pumped to remove the accumulated sediments. This process was repeated until the water discharging from the well was visibly clear. Well development is documented in the field notes from August 3, 2015 in Appendix B. Following well development, groundwater samples were collected.

3.4 GROUNDWATER SAMPLING

SLR conducted groundwater sampling activities at monitoring wells MW-1 through MW-4 on August 3, 2015.

Prior to sampling, groundwater gauging was conducted using an electronic water level indicator. The depth to water was measured to the nearest 0.01 feet and recorded.

Prior to purging, depth to water and total casing depth measurements were recorded and the well casing volume was calculated.

Water was purged from each well using a peristaltic pump, new Teflon[®]-lined polyethylene tubing, and in-line water quality monitoring equipment. Field measurements of temperature, pH, specific conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity were collected during the purging process. The purging process was considered complete once a minimum of three casing volumes had been purged.

Water quality parameters and other sampling information were recorded on Groundwater Sampling Forms and are provided in Appendix B.

The groundwater samples were submitted to SGS for analysis of:

- BTEX by USEPA Method 8260;
- GRO by Alaska Method AK101;
- DRO by Alaska Method AK102; and
- RRO by Alaska Method AK103.

One groundwater sample from MW-4 was also submitted for analysis of PAHs by USEPA Method 8270 Selective Ion Monitoring (SIM) Method.

3.5 SEEP MONITORING

Following the spring 2015 breakup, NPSI personnel inspected the hillslope to the east and southeast of the Fisherman's Gear Storage Building, beneath the Cold Storage Building (Figures 2 and 4), and the adjacent river bank for evidence of seeps and/or sheens. Two seeps, identified as Seep-1 and Seep-2, were observed on the northwest side of the Cold Storage Building (Figure 4). No seeps were observed beneath the Cold Storage Building, and no seep water was observed discharging to the Naknek River.

Seep water samples were collected by NPSI personnel on June 12, 2015. NPSI personnel drove 3-foot long, decontaminated, stainless steel, temporary well points horizontally into the

hillslope where the seeps emerged. However, no water was produced from either temporary well point, and as a result a small reservoir was dug just below each seep to collect water for sampling. Water was allowed to accumulate in the reservoirs until the sediment generated during digging settled out. Once the water appeared clear, surface water samples were collected by dipping a clean transfer bottle with no preservative, into the reservoir. The water collected in the transfer bottle was poured directly into an appropriate laboratory provided sample container, with preservatives if required by the analytical method.

Seep water samples were submitted to SGS for analyses of the following constituents:

- Petroleum Hydrocarbons
 - GRO by AK101
 - DRO by AK102
 - RRO by AK103
- BTEX by USEPA Method 8021
- PAHs by USEPA Method 8270 SIM.

SLR personnel resampled Seep-1 on August 3, 2015. The August sample was collected as described above and analyzed for BTEX and PAHs.

3.6 SAMPLE HANDLING

Procedures used to maintain the integrity of soil and groundwater samples collected for laboratory analysis began at the time of collection and continued until analysis. All samples were packaged and shipped in accordance with Section 4.6 of the Work Plan.

A bound field logbook, sample collection forms, and field logs were maintained to document the 2015 soil removal and sampling activities. Samples were assigned a unique identifier using project specific nomenclature. Field notes written in ink provided a record of information such as field staff, sample locations, field screening results, site observations, and work directives.

At the time of collection, sample containers appropriate for the specified analysis were filled and sealed. A blind sample designation was assigned to replicate samples and the collection time for these samples corresponded with the collection time of the primary sample. A trip blank was included in each cooler that contained samples to be analyzed for volatiles (i.e. GRO and BTEX). Labels indicating sample identification, date, time and the sampler's initials were affixed to the sample containers.

Chain of custody (COC) forms were completed as the samples were packaged into coolers for transport to the laboratory. Trip blanks, temperature blanks, and frozen gel ice packs were added to each cooler as required. The samples were maintained at a temperature of approximately 4 degrees Celsius (°C) from the time of collection until arrival at the laboratory. The samples were stored in a chilled cooler under NPSI's or SLR's custody or sealed with custody seals at all times. Samples were shipped or delivered by SLR personnel directly to SGS with sufficient time to allow for sample extraction within the holding time requirements of the test methods.

3.7 DECONTAMINATION AND WASTE MANAGEMENT

All soil samples were collected with either new or decontaminated stainless steel sampling equipment (i.e. spoons or hand augers). Sampling and monitoring equipment were decontaminated in accordance with the procedure described in Section 4.4 of the Work Plan. Disposable sampling materials were disposed of using a garbage bag and were placed in an appropriate receptacle at the Site. No hazardous waste was generated during this field effort.

Data from SLR's 2014 subsurface investigation (SLR, 2014) was used to characterize the excavated soil for disposal purposes. The manifested containers of excavated soil were transported by NPSI to CEMEX in Everett, Washington, a permitted soil treatment, storage, and disposal facility. Clean soil from test pits and/or hand auger borings was placed back into the test pits in the order in which it was removed. Purge water generated during well development and sampling was treated with a granulated activated carbon (GAC) filter and discharged to a vegetated area on-site. The GAC filter was taken off-site for disposal.

3.8 CALIBRATION PROCEDURES

Field instruments were calibrated according to manufacturer specifications prior to use and periodically during sampling if instrument drift is suspected. At a minimum, field instruments were calibrated daily during the field event. Documentation of calibration is provided in Appendix B.

3.9 TRANSPORTATION AND DISPOSAL

A Contaminated Soil Transport and Treatment Approval Form was submitted to ADEC by NPSI. This request listed the estimated volume of soil and the disposal facilities. This request was submitted prior to transportation of any soil from the Site. The form was signed by ADEC and returned to NPSI via email. A copy is provided in Appendix C.

Super Sacks containing excavated soil were placed in ocean going shipping containers for transport from the Site via Alaska Marine Line barge to Seattle, Washington. In Seattle, the containers were transferred to a flatbed trailer for transport to CEMEX in Everett, Washington, a permitted petroleum contaminated soil treatment facility, for final disposal. Copies of the CEMEX solid waste permit are provided in Appendix C.

All containers were properly placarded, tracked, and recorded. Shipping papers and non-hazardous waste manifests were prepared in accordance with US Department of Transportation Shipping Regulations (49 CFR 173-178). Copies of transportation manifests and certificates of disposal are provided in Appendix C.

3.10 HEALTH AND SAFETY

All field activities were conducted in accordance with the site-specific SLR Health, Safety, and Environmental Plan (HSEP). Additionally, all field personnel were required to adhere to the SLR and NPSI Corporate Health and Safety Plan.

3.11 DEVIATION FROM WORK PLAN

This section describes deviations from the ADEC-approved Work Plan (SLR, 2015) that were made during the 2015 field activities.

- Due to the fact that temporary drive points at the seep locations failed to produce water, small collection reservoirs were dug below each seep. Seep water samples were collected from the reservoirs as described in Section 3.5.
- No piping was removed from the remediation area as proposed in Section 3.3 of the Work Plan. Broken sections of pipe and other debris were encountered and removed. Two capped pipes were unearthed near base of the Fisherman's Gear Storage Building. These pipes were opened yielding approximately 5 gallons of thick bunker oil and water that was containerized and disposed. Once drained the pipes were resealed.
- Soil removal was not completed in the vicinity of the Laundry Building as proposed in Section 3.4.2 of the Work Plan. NPSI will be removing this material at a future date.
- Confirmation sample point locations were surveyed using swing ties. It was determined in the field that the swing tie method would provide better accuracy than the handheld geographic positioning system (GPS).
- Based on field observations indicating that groundwater impacts extended beyond the excavation area, the step-out distance for monitoring wells MW-2, MW-3, and MW-4 were increased outward from the proposed locations (Section 3.7 of the Work Plan) on the perimeter of the excavation.
- Groundwater samples were collected after removal of a minimum of three casing volumes of water and not by low-stress low flow sampling techniques.

4. RESULTS

This section provides a summary of field and analytical results.

4.1 SOIL EXCAVATION

Approximately 50 CY of petroleum contaminated soil was removed from the area adjacent to the northwest side of the Fisherman's Gear Storage Building. Nine samples, three sidewall and six floor samples, were collected for analytical testing to evaluate the remaining extent of impacted soil following excavation. The results of confirmation analyses are discussed below and presented in Table 2 and shown on Figure 3.

GRO was detected in all nine samples with concentration ranging from 2.09 milligram per kilogram (mg/kg) to 61.2 mg/kg. All GRO results were below the most stringent ADEC Method Two soil cleanup level of 300 mg/kg. RRO were also detected in all nine samples collected with concentration ranging from 156 mg/kg to 754 mg/kg. All RRO results were also below the most stringent ADEC Method Two soil cleanup level of 1,000 mg/kg.

DRO was detected in all nine samples with concentration ranging from 192 mg/kg to 20,000 mg/kg. With the exception of sidewall sample SWE4, all samples exceeded the ADEC Method Two soil cleanup level of 250 mg/kg. Two samples, sidewall sample SWB0 with a concentration of 20,000 mg/kg and floor sample SFB4 with a concentration of 13,000 mg/kg (Figure 3 and Table 2), also exceeded the ADEC Method Two soil cleanup levels for ingestion and inhalation of 10,250 mg/kg and 12,000 mg/kg, respectively.

All BTEX constituent concentrations were below ADEC Method Two soil cleanup levels. Benzene concentrations were below the limit of detection (LOD) in all nine samples analyzed. Toluene was detected in two samples with a maximum concentration of 0.09 mg/kg. Ethylbenzene was also detected in two samples with a maximum concentration of 0.89 mg/kg. Xylenes concentrations were reported in four samples with a maximum concentration of 2.03 mg/kg. The maximum concentrations of each constituent occurred in floor sample SFB4.

Heated headspace screening results exceeded 30 ppm in all floor and sidewall samples with the exception of sidewall locations 17 and SWE4 along northwest-central perimeter of the excavation area (Figure 3 and Table 1). The low headspace result recorded at SWE4 is consistent with the lower DRO concentration reported at this location of 192 mg/kg. SWE4 was the only location that did not exceed the ADEC Method Two soil cleanup level. Although the sidewall headspace results exceeded the criteria for additional excavation along most to the pit perimeter, the excavation was halted once a total of 50 CY of soil were excavated in accordance with the Work Plan.

All excavation floor heated headspace samples had PID results exceeding 30 ppm (Figure 3 and Table 1). However, these samples were collected at the soil/water interface or slightly below and may not be representative of unsaturated soil conditions.

4.2 GROUNDWATER SAMPLING

Four groundwater samples, one within the excavation area (MW-1), one upslope of the excavation area (MW-3), and two downslope of the excavation area (MW-2 and MW-4), were collected for analyses of GRO, DRO, RRO, and BTEX. Groundwater from monitoring well MW-2 was also analyzed for PAHs. Groundwater results are presented in Table 3 and shown on Figure 4.

GRO was detected in three of the four wells sampled with concentration ranging from 0.038 milligrams per liter (mg/L) in MW-2 to 0.362 mg/L in MW-1; GRO was not detected above the LOD in MW-3. RRO was not detected above the LOD in MW-4. All GRO results were below the ADEC groundwater cleanup level of 2.2 mg/L. RRO was also detected in three of the four wells sampled with concentration ranging from 0.276 mg/L in MW-1 to 1.05 mg/L in MW-2. All RRO results were below the ADEC groundwater cleanup level of 1.1 mg/L.

DRO was detected in all four groundwater samples with concentration ranging from 0.343 mg/L in MW-4 to 5.49 mg/L in MW-1. With the exception of the sample for MW-4, the other three samples were above the ADEC groundwater cleanup level of 1.5 mg/L.

One or more BTEX constituents were reported above the LOD in each of the four wells; however, all reported BTEX constituent concentrations were below ADEC groundwater cleanup levels. Benzene was reported in MW-1, MW-2, and MW-3 with concentrations ranging from 1.42 micrograms per liter $\mu\text{g/L}$ in MW-3 to 4.39 $\mu\text{g/L}$ in MW-1. Toluene was detected in MW-1 and MW-4 at concentrations of 6.33 $\mu\text{g/L}$ and 0.41 $\mu\text{g/L}$ respectively. Ethylbenzene was detected in MW-1 and MW-4 at concentrations of 7.16 $\mu\text{g/L}$ and 3.69 $\mu\text{g/L}$, respectively. Xylenes were detected in MW-1, MW-2, and MW-4 at concentrations of 60.0 $\mu\text{g/L}$, 0.75 $\mu\text{g/L}$, and 8.54 $\mu\text{g/L}$, respectively.

4.3 TEST PIT RESULTS

Test pits TP2 and TP3 were located approximately 160-feet and 50-feet northwest of the excavation area, respectively (Figure 4). The test pits were completed to depth of between 7-feet and 8-feet bgs. Heated headspace samples were collected from sidewall on 2-foot intervals from the surface to total depth and analyzed with a PID.

Heated headspace results at TP2 ranged from 3.5 ppm at 8-feet bgs to 13.4 ppm at 4-feet bgs. At TP3, heated headspace results ranged from 11.0 ppm at 7-feet bgs to 18.0 ppm at 3-feet bgs. The test pit headspace results roughly an order of magnitude lower than results from the excavation area. Headspace and PetroFLAG results are provided in Table 1.

Analytical results from soil samples collected at the two test pits near the soil/water interface were consistent with the relatively low headspace reading. At TP2, GRO, DRO, RRO and BTEX were reported below the LOD in a sample collected at 8-feet bgs. At TP3, in a sample collected at 7-feet bgs, DRO was estimated at a concentration of 10.2 mg/kg (NOTE: estimated concentration value was below limit of quantitation [LOQ]), but GRO, RRO, and BTEX were all below the LOD. Test pit analytical results are provided in Table 3.

4.4 SEEP SAMPLING

Two seeps were identified by NPSI personnel on the hillslope northeast of the Cold Storage Building (Figures 4). In June 2015, water from both seeps were sampled and analyzed for GRO, DRO, RRO, BTEX and PAHs. In August 2015 water from Seep-1 was resampled and analyzed for BTEX and PAHs only. All seep sample results are provided in Table 3.

GRO was only detected above the LOD in Seep-1 with a concentration of 0.3 mg/L which was below the ADEC groundwater cleanup level of 2.2 mg/L. DRO was detected at both Seep-1 and Seep-2, at concentrations of 0.826 mg/L and 6.05 mg/L, respectively. Only the DRO concentration reported at Seep-1 exceeded the ADEC groundwater cleanup level for DRO of 1.5 mg/L. RRO was also detected at both Seep-1 and Seep-2, at concentrations of 0.188 mg/L and 3.46 mg/L, respectively. Similar to DRO, only the RRO concentration reported at Seep-1 exceeded the ADEC groundwater cleanup level of 2.2 mg/L.

In June 2015, BTEX constituents were only reported at concentrations above the LOD at Seep-1, with benzene at 35.7 µg/L, toluene at 0.32 µg/L, ethylbenzene at 15 µg/L, and xylenes at 44.7 µg/L. Only benzene exceeded the ADEC groundwater cleanup level of 5 µg/L. The TAH value for Seep-1 was calculated (i.e., sum of the BTEX constituent concentrations) as 95.72 µg/L which exceeded the Alaska Water Quality Standard of 10 µg/L. Seep-1 water was resampled and analyzed in August 2015 with the following results: benzene at 28.2 µg/L, toluene at 10.8 µg/L, ethylbenzene below the LOD, and xylenes at 16.25 µg/L. Although BTEX concentrations were lower in August, the calculated TAH value of 55.25 µg/L continued to exceed the Alaska Water Quality Standard.

Multiple PAH constituents were reported above the LOD at both seep locations (Table 3); however, no individual PAH concentration exceeded an ADEC groundwater cleanup level. TAqH values were calculated (i.e., sum of BTEX and PAH constituent concentrations) for each seep. In June 2015, the TAqH value at Seep-2 was 5.27 µg/L and below the Alaska Water Quality Standard of 15 µg/L. At Seep-1, both the June and August TAqH exceeded Alaska Water Quality Standards with values of 110.46 µg/L and 74.20 µg/L, respectively.

No hydrocarbon sheen was observed from either seep location at the time of sampling. Upon inspection, no seeps were seen beneath the Cold Storage Building or discharging to the Naknek River.

4.5 QUALITY ASSURANCE AND QUALITY CONTROL

The analytical data were reviewed for consistency with the requirement of the Work Plan (SLR, 2015) and with *ADEC Technical Memorandum, Environmental Laboratory Data and Quality Assurance* (ADEC, 2009). The review was documented in the Data Quality Assessment (DQA) Review, which is provided in Appendix E. The DQA includes a list of all work order numbers for the project, a brief description of the type of samples analyzed, a Quality Assurance (QA) summary for the entire data set (except for waste characterization) and an ADEC Laboratory Data Review Checklist for each work order reviewed in the QA summary. The following data quality indicators were included in the review in order to evaluate the data against precision,

accuracy, representativeness, completeness, and sensitivity requirements established for the project.

- COC paperwork and custody seals;
- Preservation (thermal 4 ± 2 °C and chemical);
- Analytical method hold times;
- Blanks (trip blanks and method blanks);
- Continuous calibration verifications;
- Internal standards;
- Surrogate recoveries;
- Laboratory control sample and laboratory control sample duplicate (LCS/LCSD) recoveries as percent recovery and precision as relative percent difference (RPD);
- Matrix spike and matrix spike duplicate recoveries as percent recovery, and precision as RPD;
- Field replicates as RPD; and
- Laboratory method detection and reporting limits.

Anomalies identified are discussed in the DQA. Where applicable, the associated data was qualified by applying flags. The rationale for applying qualifiers to specific data sets is detailed in DQA Review. The data flags used are presented below:

Q - One or more laboratory quality control (QC) criteria (for example, LCS recovery or surrogate spike recovery) failed. Where applicable, an “H”, “L”, or “N” was appended to indicate positive, negative, or unknown bias, respectively.

J - Estimated: The analyte was positively identified but the result was outside the calibration range, between the limit of quantitation and the detection limit; the quantitation was an estimate.

M - The concentration was an estimate due to a sample matrix QC failure. Where applicable, an “H”, “L”, or “N” will be appended to indicate positive, negative, or unknown bias, respectively.

B - Blank contamination: The analyte was positively identified in the blank (e.g., trip blank and/or method blank) associated with the sample and the concentration reported for the sample was less than five times that of the blank (ten times for metals and common laboratory contaminants methylene chloride and acetone).

P - Sample preservation requirements were not satisfied.

The review indicated that the reported laboratory data met the data quality objectives. No data were rejected. A complete summary of the data review is provided in the DQA. Data qualifiers were added to the data tables and figures, where applicable.

5. DISCUSSION

The nature and extent of soil and groundwater impacts as well as a site conceptual model are discussed in this section.

5.1 NATURE AND EXTENT OF SOIL IMPACTS

Eight of nine confirmation results from the excavation area adjacent to the Fisherman's Gear Storage Building exceeded the ADEC Method Two soil cleanup levels for DRO when excavation work was halted. Soil cleanup criteria were met at SWE4 along the western perimeter of the excavation (Figure 3).

Although confirmation samples from the excavation floor exceeded soil cleanup levels, the excavation was not advanced to greater depth. Continuing to great depth would have required penetrating the saturated zone as the excavation floor was at the top of the water table when digging stopped. Impacts to the saturated zone are evaluated as part of the groundwater assessment. All excavation work was stopped once a total of 50 CY of material had been removed as per the Work Plan.

Based on results from 2014 and 2015, the extent of hydrocarbon impacted soil (i.e., headspace results greater than 30 ppm and/or DRO concentrations greater than 250 mg/kg) can be partially delineated in the vicinity of the Fisherman's Gear Storage Building (Figure 5). To the east of the building, impacted soil extends outward approximately 15-feet to 20-feet and is bounded by several locations where DRO concentrations were less than 50 mg/kg and PID readings were below 30 ppm (Figures 5). To the west, impacted soil extends approximately 20–feet to 25-feet from the building based on results from SC-17 and SWE4 (Figures 3 and 5). To the northwest of the building, data are limited but results from TP3 suggest that soil contamination does not extend more than approximately 50-feet (Figure 5). No data are available to the north in the vicinity of the former tank farm area.

5.2 NATURE AND EXTENT GROUNDWATER IMPACTS

Although groundwater elevation data are not available, groundwater flow is presumed to be from the northwest to the southeast based on surface topography. As a result, the reported increase in the dissolved phase DRO concentrations in the downslope (downgradient) direction from MW-3 at 3.25 mg/L to MW-1 at 5.49 mg/L, suggest potentially different source areas, as it is typical for dissolved phase concentrations to be highest nearest the source and decrease in the downgradient direction. The elevated dissolved phase DRO concentrations at MW-1, the highest observed in groundwater, were consistent with the high DRO concentrations in soil reported in floor samples of the excavation area (Figure 4). Similarly, based on the presumed groundwater flow direction it can be inferred that the dissolved phase DRO at MW-2 are related to the upslope impacts in the vicinity of MW-1.

In contrast to the groundwater results where dissolved phase RRO and benzene were not reported at significant concentrations, these compounds exceeded groundwater cleanup levels from water collected at Seep-1 (Table 3). The lack of, or low concentration of these compounds

at monitoring wells MW-1, MW-2, and MW-3, suggest a potentially unique, and localized source area for Seep-1, possibly unrelated to the groundwater sampled from the upslope wells.

Seep water was observed flowing on the surface and ponding against a retaining wall on the north side of the Cold Storage Building (Figure 5).

Based on the available soil, groundwater, and seep data, the extents of dissolved phase groundwater plumes in the vicinity of the Fisherman's Gear Storage Building have been inferred and are shown on Figure 5.

An oxygen releasing compound, ORC[®] by Regenesis, was applied to the floor of the excavation area prior to back filling. The intent of this application was to enhance anaerobic biological degradation of dissolved phase hydrocarbon beneath the excavation at MW-1 and the area downslope at MW-2.

5.3 CONCEPTUAL SITE MODEL

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

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

There are no current permanent residents at the Red Salmon facility. The facility has restricted access which precludes recreational activities. There are two deep water production wells upgradient of the excavation area that are occasional used. The facility property is fully developed with gravel roads, gravel and concrete pads, and building, and heavily used several months of the year. As a result, the facility provides little or no ecological habitat. The lack of habitat and access restrictions eliminates any potential for subsistence activities. The only potential receptors at the facility are indoor and outdoor commercial worker, construction worker, and site visitor.

Potential exposure media include groundwater, surface water, soil, and outdoor air. Potentially complete pathways include exposure to groundwater, surface water, soil, and outdoor air via direct contact to site commercial workers, construction workers, and site visitors.

6. CONCLUSIONS

Approximately 50 CY of hydrocarbon impacted soil was removed from the area on the northwest side of the Fisherman's Gear Storage Building (Figure 5). Hydrocarbon impacted soil in this area was investigated in 2014 in response to oil observed near an inactive valve box. The valve box was connected to a set of former above ground storage tanks that once contained Bunker C fuel oil. Based on the 2014 investigation, a soil removal action and groundwater investigation were proposed for 2015. Soil removal from around the valve box, and installation and sampling of monitoring wells was completed in July and August 2015.

Results of soil confirmation samples collected from the floor and sidewalls of the excavation pit showed DRO concentration remained above the most stringent ADEC Method Two soil cleanup level (i.e., migration to groundwater) after the 2015 excavation work was completed (Figure 5). Expansion of the excavation was halted once 50 CY of impacted soil had been removed due to limitations with storage and transportation, and in accordance with the Work Plan.

Two test pits were completed and sampled approximately 50-feet and 160-feet to the west-northwest of the excavation area to better delineate the extent of impacted soil (Figure 4). Analytical results from both test pits showed no hydrocarbon impacts in these areas. To the east-southeast, soil screening and analytical testing completed in 2014 delineated the extent of soil impacts to approximately 20-feet to 25-feet southeast of the Fisherman's Gear Storage Building (Figure 5).

During excavation activities, additional vertical digging was not practical for source removal as the excavation floor was at the top of the water table. Hydrocarbon impacts below the water table were assessed with the installation of groundwater monitoring wells, and groundwater and seep water sampling.

Four groundwater monitoring wells, one upslope of the excavation area (MW-3), one within the excavation area (MW-1), and two downslope of the excavation area (MW-2 and MW-4), were installed and sampled (Figure 5). With the exception of downslope well MW-4, groundwater from each well contained dissolved phase DRO concentrations exceeding ADEC groundwater cleanup levels.

Two seeps were identified and sampled downslope of the Fisherman's Gear Storage Building (Figure 5). Analytical results from seep water samples collected showed, in addition to dissolved phase DRO, RRO and benzene also exceeded ADEC groundwater cleanup levels. TAH and TAqH were calculated for the seep water, and both values exceeded Alaska Water Quality Standards. The occurrence of dissolved phase benzene and RRO in the seep water was in contrast to the impacts reported in groundwater at MW-1 and MW-2.

Upon completion of the excavation, clean backfill material was acquired and used to bring the excavation area back to grade. An application of RegenesiS ORC[®] was applied to the floor of the excavation prior to backfilling as a means to enhance biodegradation in the saturated zone adjacent to and downgradient of the Fisherman's Gear Storage Building.

In 2016, NPSI proposes to complete one monitoring event at the four existing groundwater monitoring wells, MW-1 through MW-4, and at the one surface water location Seep-1. In addition to the fuel hydrocarbon constituents, NPSI proposes to test for water quality parameters indicative of natural attenuation processes at selected wells. NPSI also proposes to install a monitoring well or well point, if possible, between Seep-1 and the Naknek River, and will continue to inspect the bank area for seeps.

NPSI believes these actions will provide the data necessary to evaluate the effects of the removal of the contaminated soil and the addition of ORC is having on groundwater. Should the results of the proposed samples show minimal improvement in the groundwater quality then NPSI will propose additional corrective actions.

7. REFERENCES

- Alaska Department of Environmental Conservation (ADEC). 2009. Environmental Laboratory Data and Quality Assurance Requirements. ADEC, Division of Spill Prevention and Response, Contaminated Sites Program Technical Memorandum 06-002. March 2009.
- ADEC. 2010. Draft Field Sampling Guidance. Division of Spill Prevention and Response, Contaminated Site Program. May.
- ADEC, 2013. ADEC Monitoring Well Guidance. Division of Spill Prevention and Response, Contaminated Site Program. September.
- ADEC. 2015. Alaska Administrative Code (18 AAC 75), Oil and Other Hazardous Substances Pollution Control, as amended through June 17.
- Dexsil Corporation, 2009. PetroFlag Hydrocarbon Analyzer User's Manual, April.
- NPSI, 2015. ADEC Spill #14269911201, Red Salmon Cannery, Work Plan Addendum. July 15, 2015.
- SLR International Corporation, 2014. Subsurface Investigation Report, Red Salmon Facility, Naknek, Alaska, November.
- SLR, 2015. Soil and Groundwater Assessment and Remediation Red Salmon Facility, Naknek, Alaska, Work Plan. March.

LIMITATIONS

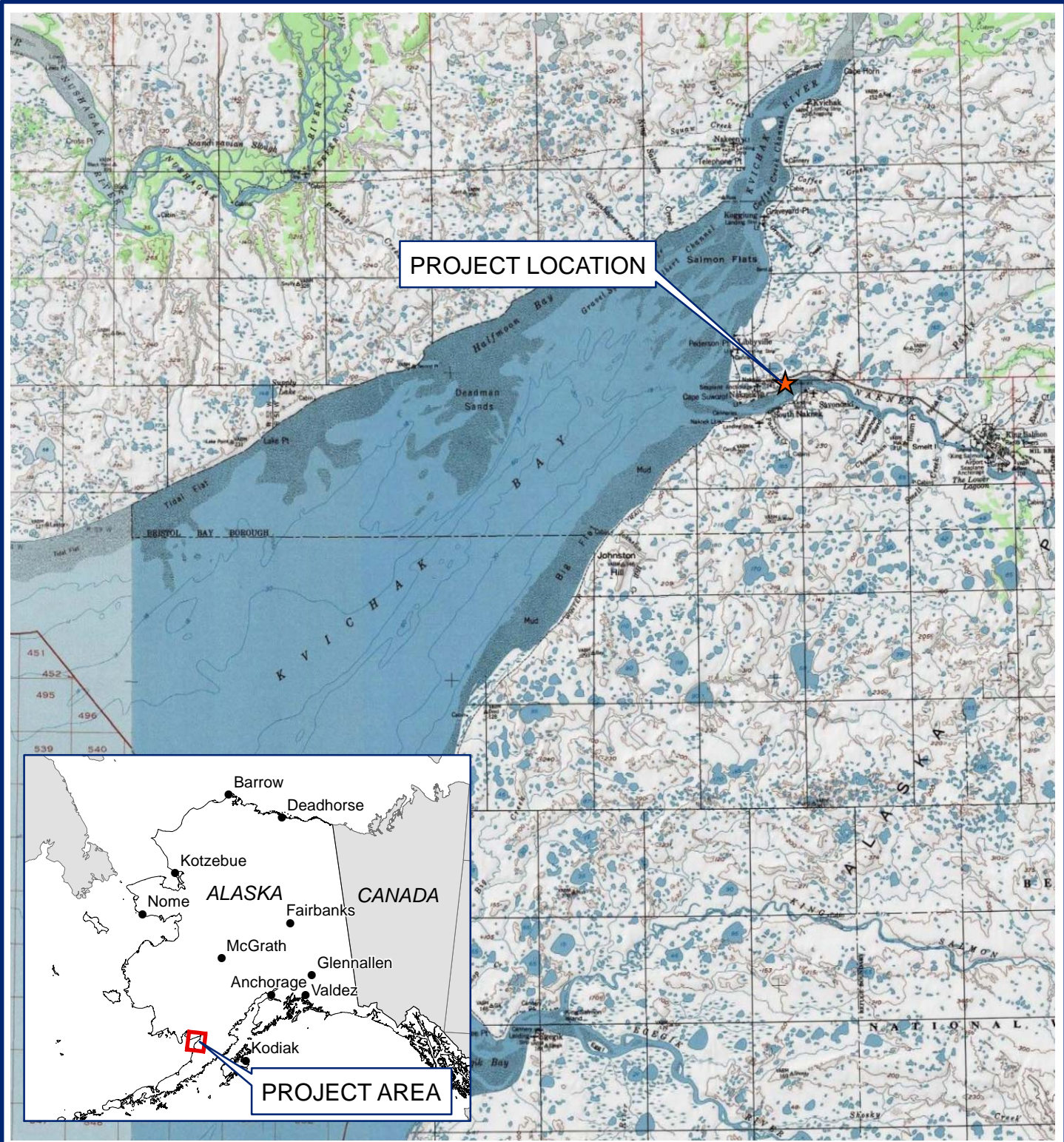
The services described in this work product were performed in accordance with generally accepted professional consulting principles and practices. No other representations or warranties, expressed or implied, are made. These services were performed consistent with our agreement with our client. This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

The purpose of an environmental assessment is to reasonably evaluate the potential for, or actual impact of, past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an appropriate level of analysis for each conceivable issue of potential concern. The following paragraph discusses the assumptions and parameters under which such an opinion is rendered.

No investigation can be thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, practical limitations, and cost of the work performed.

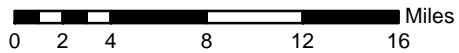
FIGURES

- Figure 1 Site Location Map
- Figure 2 Site Layout Map
- Figure 3 Excavation Area and Soil Sampling Results
- Figure 4 Test Pits, Groundwater, and Seep Sampling Results
- Figure 5 Estimate Extent of Hydrocarbon Impacts



PROJECT LOCATION

PROJECT AREA



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Site
**NORTH PACIFIC SEAFOODS, INC.
 RED SALMON FACILITY
 NAKNEK, ALASKA**

Report
**SOIL AND GROUNDWATER ASSESSMENT AND
 REMEDIATION AT RED SALMON FACILITY**

Drawing
SITE LOCATION MAP

Drawing September 2015
 File Name F1 NPS Red Salmon_15.mxd

Scale 1 in = 8 miles
 Project No. 101.00151.15005




Fig. No. **1**



DRAWING NOTES

Background aerial photography referenced from image DS_PHR1B_201410042149428_FR1_PX_W157N58_0123_00459, Production Date: 2015-01-23T09:22:30.599, ©CNES_2014, distribution Astrium Services / Spot Image S.A, France, all rights reserved, <http://www.astrium-geo.com>

LEGEND

-  MONITORING WELL
-  TEST PIT
-  SEEP SAMPLE

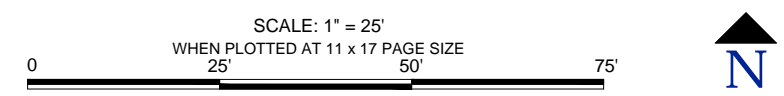
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NORTH PACIFIC SEAFOODS, INC.
RED SALMON FACILITY
NAKNEK, ALASKA

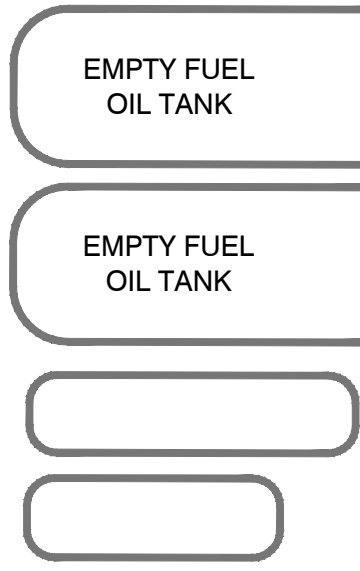
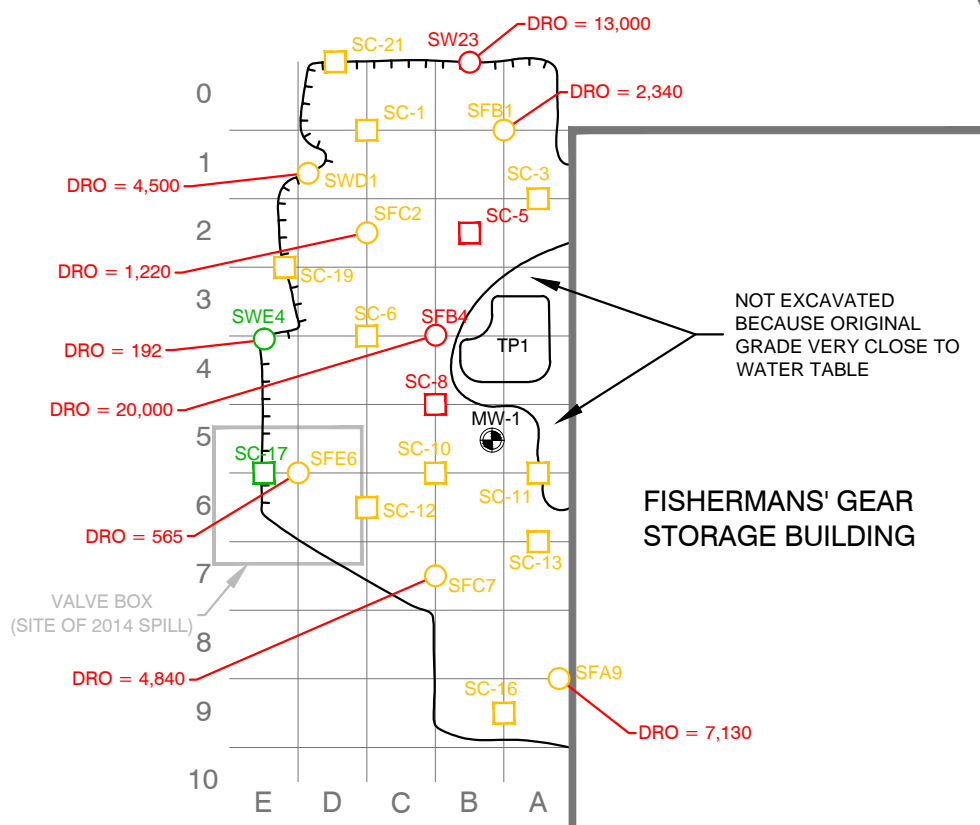
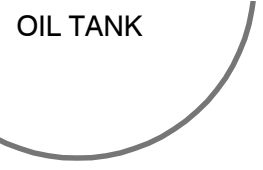
Report
SOIL AND GROUNDWATER ASSESSMENT AND REMEDIATION AT RED SALMON FACILITY

Drawing
SITE LAYOUT MAP

Date	November 2015	Scale	1" = 125 Feet	Fig. No.	2
File Name	F2-5 NPS Soil Assess RPT_15	Project No.	101.00151.15005		

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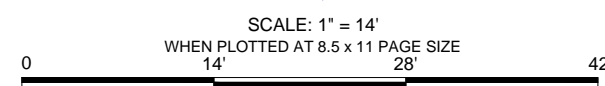
LEGEND

- SCREENING DATA**
- | | | |
|------|------|------------------|
| 2014 | 2015 | |
| | | PID < 30 ppm |
| | | PID 30 - 300 ppm |
| | | PID > 300 ppm |

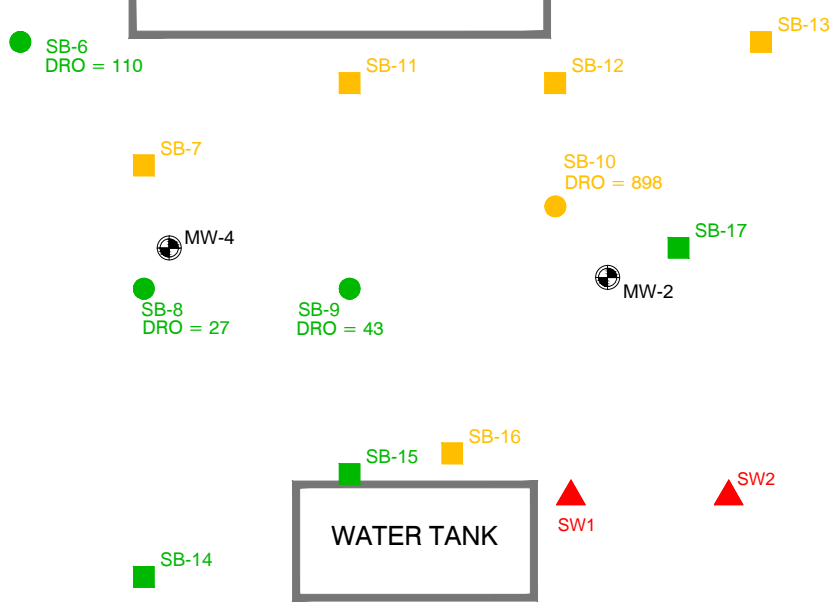
- ANALYTICAL DATA**
- | | | |
|------|------|------------------------|
| 2014 | 2015 | |
| | | DRO < 250 mg/Kg |
| | | DRO 250 - 10,250 mg/Kg |
| | | DRO > 10,250 mg/Kg |

- 2015 MONITORING WELL
- 2015 SEEP SAMPLE LOCATION
- EXCAVATION SIDEWALL (APPROX. 4 FEET DEEP)
- EXCAVATION BOUNDARY

DRO
ppm
DIESEL RANGE ORGANICS
PARTS PER MILLION
ALL DRO CONCENTRATIONS ARE SHOWN IN MILLIGRAMS PER LITER (mg/L) FOR WATER AND MILLIGRAMS PER KILOGRAM (mg/Kg) FOR SOIL



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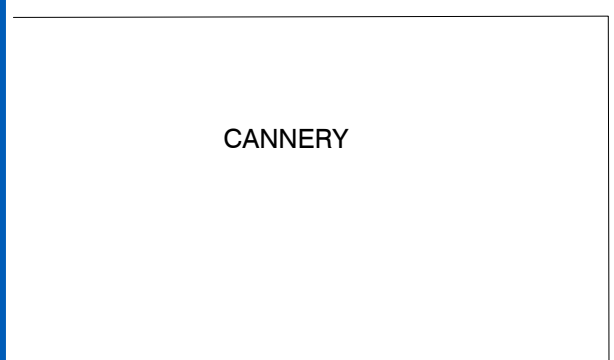
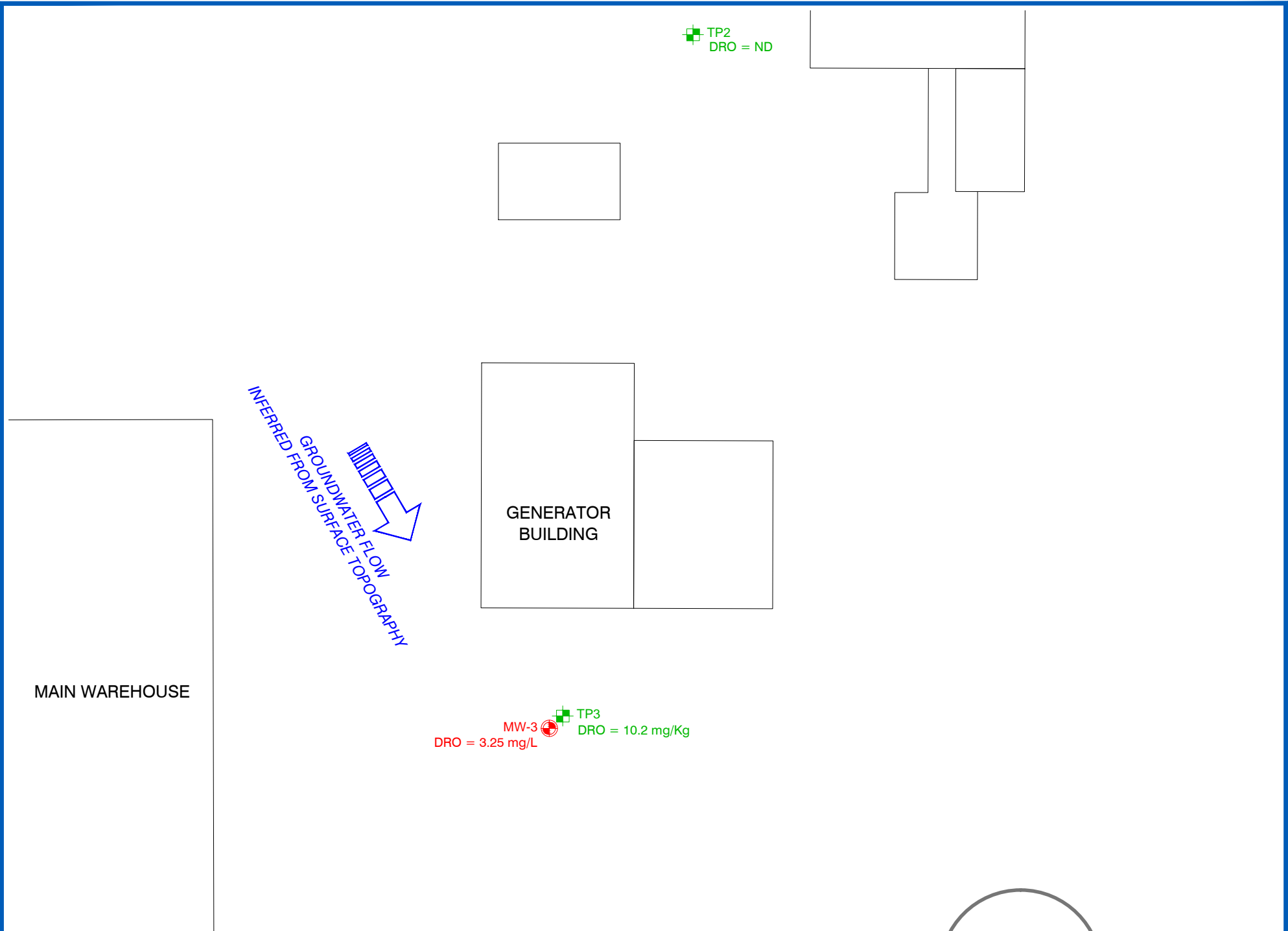


Site
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NAKNEK, ALASKA

Report
SOIL AND GROUNDWATER ASSESSMENT AND REMEDIATION
AT RED SALMON FACILITY

Drawing
EXCAVATION AREA AND SOIL SAMPLING RESULTS

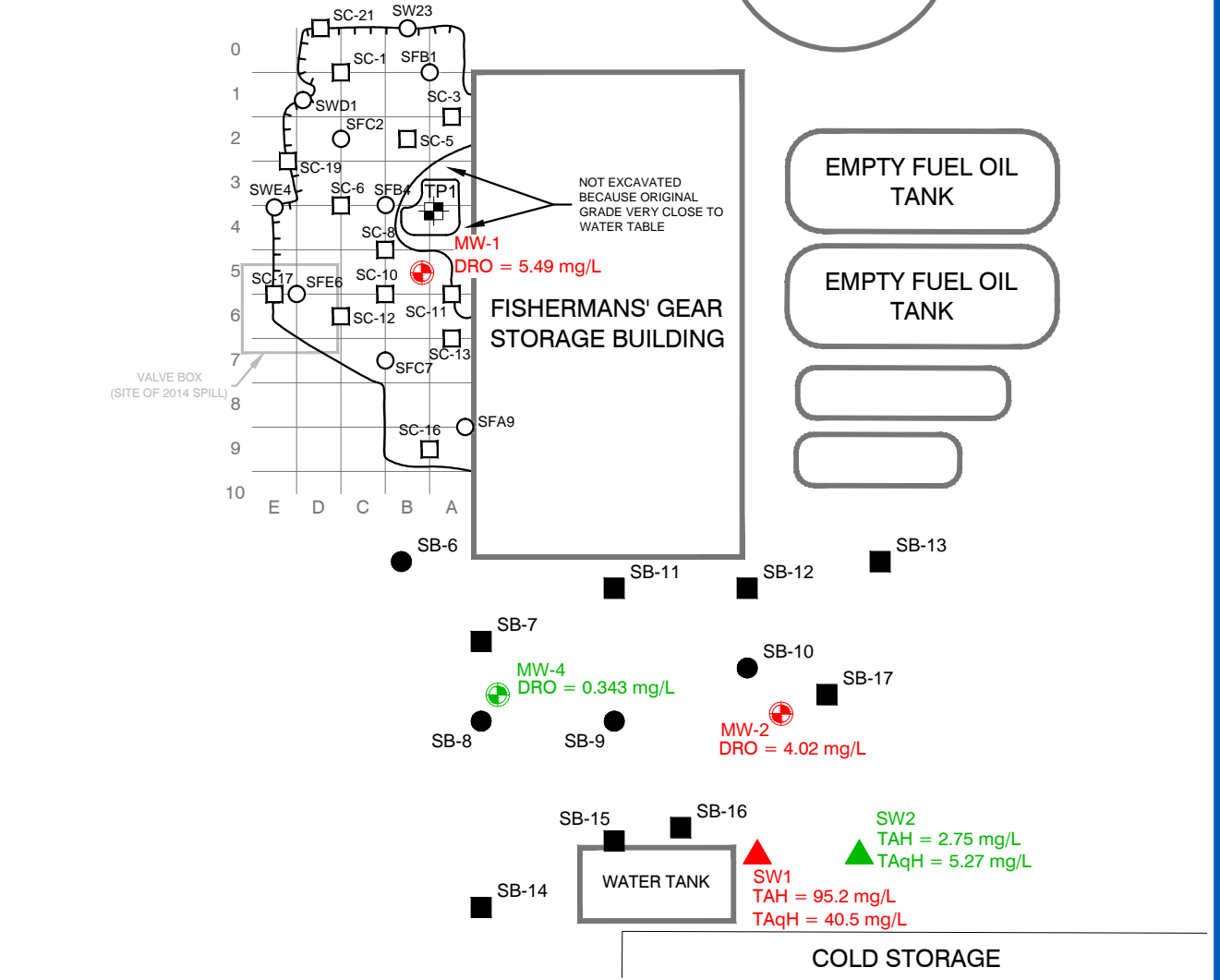
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File Name	F2-5 NPS Soil Assess RPT_15	Project No.	101.00151.15005		



LEGEND

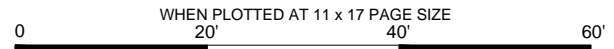
- 2014 PID SCREENING LOCATION
- 2014 ANALYTICAL SAMPLE LOCATION
- 2015 PID SCREENING LOCATION
- 2015 ANALYTICAL SAMPLE LOCATION
- ⊕ TEST PIT LOCATION
- ⊕ MONITORING WELL - DRO < 1.5 mg/L
- ⊕ MONITORING WELL - DRO > 1.5 mg/L
- ▲ SEEP SAMPLE LOCATION - TAH < 10 mg/L; TAqH < 15 mg/L
- ▲ SEEP SAMPLE LOCATION - TAH > 10 mg/L; TAqH > 15 mg/L
- ▬ EXCAVATION SIDEWALL (APPROX. 4 FEET DEEP)
- ▬ EXCAVATION BOUNDARY
- ➡ GROUNDWATER FLOW DIRECTION INFERRED FROM SURFACE TOPOGRAPHY
- DRO DIESEL RANGE ORGANICS
- TAH TOTAL AROMATIC HYDROCARBONS
- TAqH TOTAL AQUEOUS HYDROCARBONS

ALL DRO CONCENTRATIONS ARE SHOWN IN MILLIGRAMS PER LITER (mg/L) FOR WATER AND MILLIGRAMS PER KILOGRAM (mg/Kg) FOR SOIL



SCALE: 1" = 20'

WHEN PLOTTED AT 11 x 17 PAGE SIZE



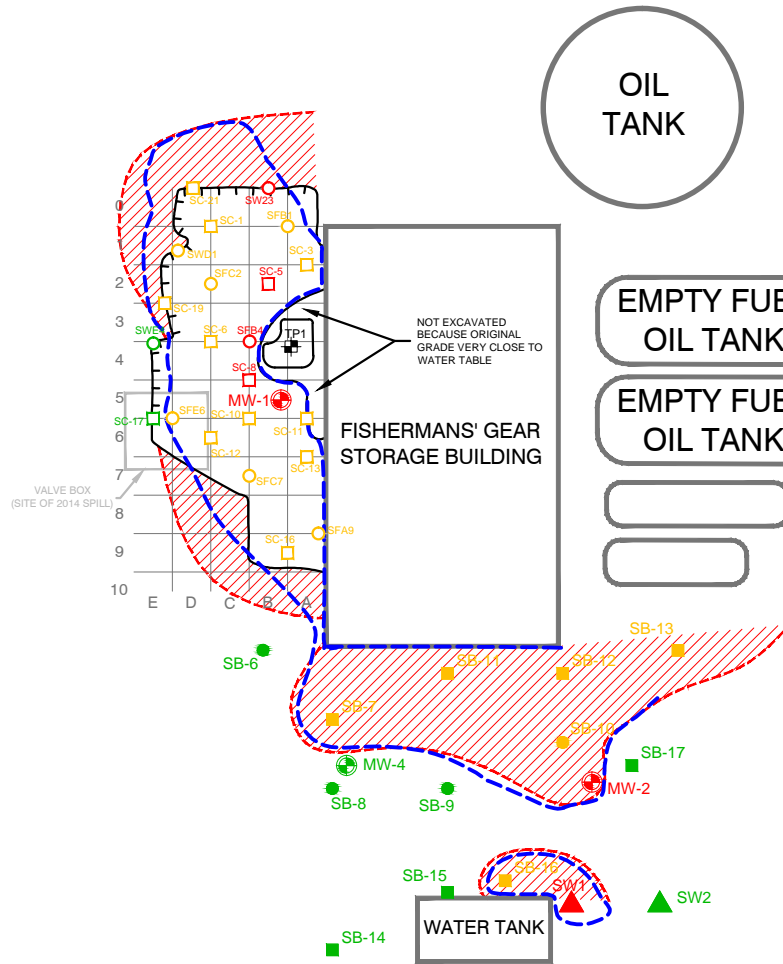
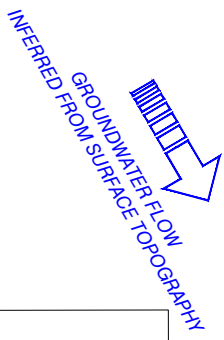
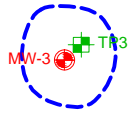
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Site	NORTH PACIFIC SEAFOODS, INC. RED SALMON FACILITY NAKNEK, ALASKA		
Report	SOIL AND GROUNDWATER ASSESSMENT AND REMEDIATION AT RED SALMON FACILITY		
Drawing	TEST PITS, GROUNDWATER, AND SEEP SAMPLING RESULTS		
Date	November 2015	Scale	1" = 20 Feet
File Name	F2-5 NPS Soil Assess RPT_15	Project No.	101.00151.15005
		Fig. No.	4

MAIN WAREHOUSE

CANNERY



LEGEND

SCREENING DATA

2014	2015	Description
Green square	Green square	PID < 30 PARTS PER MILLION (ppm)
Yellow square	Yellow square	PID 30 - 300 PARTS PER MILLION (ppm)
Red square	Red square	PID > 300 PARTS PER MILLION (ppm)

ANALYTICAL DATA

2014	2015	Description
Green circle	Green circle	DRO < 250 MILLIGRAMS PER KILOGRAM (mg/Kg)
Yellow circle	Yellow circle	DRO 250 - 10,250 MILLIGRAMS PER KILOGRAM (mg/Kg)
Red circle	Red circle	DRO > 10,250 MILLIGRAMS PER KILOGRAM (mg/Kg)

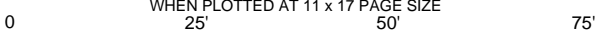
- PROPOSED WELL LOCATION
- ESTIMATED EXTENT OF SOIL EXCEEDING 250 MILLIGRAMS PER KILOGRAM (mg/Kg)
- ESTIMATED EXTENT OF GROUNDWATER EXCEEDING 1.5 MILLIGRAMS PER LITER (mg/L)
- MONITORING WELL - DRO < 1.5 mg/L
- MONITORING WELL - DRO > 1.5 mg/L
- GROUNDWATER FLOW DIRECTION INFERRED FROM SURFACE TOPOGRAPHY
- SEEP SAMPLE LOCATION - TAH < 10 mg/L; TAqH < 15 mg/L
- SEEP SAMPLE LOCATION - TAH > 10 mg/L; TAqH > 15 mg/L
- EXCAVATION SIDEWALL (APPROX. 4 FEET DEEP)
- EXCAVATION BOUNDARY
- DIESEL RANGE ORGANICS

ALL DRO CONCENTRATIONS ARE SHOWN IN MILLIGRAMS PER LITER (mg/L) FOR WATER AND MILLIGRAMS PER KILOGRAM (mg/Kg) FOR SOIL



SCALE: 1" = 25'

WHEN PLOTTED AT 11 x 17 PAGE SIZE



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NAKNEK RIVER

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 NAKNEK, ALASKA

Report
 SOIL AND GROUNDWATER ASSESSMENT AND REMEDIATION
 AT RED SALMON FACILITY

Drawing
 ESTIMATED EXTENT OF HYDROCARBON IMPACTS

Date November 2015

Scale 1" = 25 Feet

Fig. No. 5

File Name F2-5 NPS Soil Assess RPT_15

Project No. 101.00151.15005



TABLES

Table 1 2015 Field Screening and Analytical Sampling Summary

Table 2 2015 Soil Sampling Results

Table 3 2015 Groundwater Sampling Results

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Table 1 - 2015 Field Screening and Analytical Sampling Summary

PID Screening Location ID ¹	Excavation Grid Location ²	Screening Depth Interval (Feet BGS)	Screening Headspace TVOC (ppm)	Petroflag TPH Result (ppm)	Analytical Sample ID (duplicate in parentheses)	Analytical Sample Depth Interval (Feet BGS)	Analytical Sample DRO Result (mg/Kg) ³	Comments
TP2-2	--	1-2	10.7	--	--	--	--	
TP2-4	--	3-4	13.4	--	--	--	--	
TP2-6	--	5-6	12.3	--	--	--	--	
TP2-8	--	7-8	3.5	8	TP2	7-8	ND	
TP3-1	--	0.5-1	15.1	--	--	--	--	
TP3-3	--	2-3	18.0	--	--	--	--	
TP3-5	--	4-5	12.4	--	--	--	--	
TP3-7	--	6-7	11.0	63	TP3	6-7	10.2J	
MW2-2	--	1-2	76.4	--	--	--	--	Bunker oil visible - gooey
MW2-4	--	3-4	498.0	--	--	--	--	Dark sand, HC odor, Wet
SC01	C0-C1-D0-D1	0-0.5	74.8	--	--	--	--	
SC02	A0-A1-B0-B1	0-0.5	63.6	459	SFB1 (SFB91)	0-0.5	2340 (1900)	
SC03	A1-A2	0-0.5	59.1	--	--	--	--	
SC04	C2-D2	0-0.5	133.8	514	SFC2	0-0.5	1220	
SC05	B2	0-0.5	555.0	--	--	--	--	
SC06	C3-C4-D3-D4	0-0.5	136.9	--	--	--	--	
SC07	B3-B4-C3-C4	0-0.5	514.0	156	SFB4	0-0.5	20000	
SC08	B4-B5-C4-C5	0-0.5	513.0	--	--	--	--	
SC09	D5-D6-E5-E6	0-0.5	36.2	8	SFE6	0-0.5	565	
SC10	B5-B6-C5-C6	0-0.5	122.3	--	--	--	--	
SC11	A5-A6	0-0.5	257.0	--	--	--	--	
SC12	C6-D6	0-0.5	46.9	--	--	--	--	
SC13	A6-A7	0-0.5	107.1	--	--	--	--	
SC14	B7-C7	0-0.5	210.1	219	SFC7	0-0.5	4840	
SC15	A8-A9	0-0.5	79.9	131	SFA9	0-0.5	7130	
SC16	A9-B9	0-0.5	102.8	--	--	--	--	
SC17	E5-E6	1.5-2	22.6	--	--	--	--	Sidewall - 2ft depth
SC18	E3-E4	2.5-3	28.1	1	SWE4	2.5-3	192	Sidewall - 3ft depth
SC19	E2-E3	2.5-3	40.6	--	--	--	--	Sidewall - 3ft depth
SC20	D1	2.5-3	352.0	14	SWD1	2.5-3	4500	Sidewall - 3ft depth
SC21	D0	2.5-3	36.3	--	--	--	--	Sidewall - 3ft depth
SC22	B0	1.5-2	156.1	NR	SWB0	1.5-2	13000	Sidewall - 2ft depth; TPH reading may be over range

Abbreviations:

-- Not applicable; this data not collected.
 BGS - below ground surface.
 DRO - Diesel range organics
 J - Result is considered an estimated value because the level is below the laboratory limit of quantitation, but above the detection limit.
 mg/kg - Milligrams per kilogram
 ND - Not detected; result was lower than laboratory detection limit.
 NR - No reading; device would not produce reading for unknown reason.
 ppm - parts per million
 TPH - Total petroleum hydrocarbons
 TVOC (ppm) - Total volatile organic carbon (parts-per-million).

Notes:

- 1: Screening samples MW2-2 and MW2-4 were collected from the excavation in which monitoring well MW2 was installed.
- 2: Multiple grid squares listed indicates sample collected from line between 2 squares or corner of 4 squares. One grid square listed indicates sample collected from center of square.
- 3: Bold font indicates analytical sample DRO results above 250 mg/Kg.

Table 2 - 2015 Soil Sample Results

Method	Compound in milligrams per kilogram (mg/Kg)	Screening Criteria		Sample Identificaiton ⁴																								Maximum Concentration ^{3,5}		Frequency of Detection ⁶	Frequency Above Primary Screening Criteria ⁷
		ADEC Method Two Under 40 Inch Zone, Human Health Cleanup Level ^{1,3}	ADEC Method Two Under 40 Inch Zone, Migration to Groundwater Cleanup Level ^{2,3}	SFA9 7/29/2015 1154090009		SFB4 7/29/2015 1154090006		SFC2 7/29/2015 1154090005		SFC7 7/29/2015 1154090008		SFE6 7/29/2015 1154090007		SWB0 7/29/2015 1154090012		SWD1 7/29/2015 1154090011		SWE4 7/29/2015 1154090010		TP2 7/28/2015 1154090001		TP3 7/28/2015 1154090002		SFB1 (Primary) 7/29/2015 1154090003		SFB91 (Duplicate of SFB1) 7/29/2015 1154090004		Conc. ^{3,8}	Flag		
				Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag				
AK101	Gasoline Range Organics	300	--	12.6	=	61.2	=	8.35	=	23	=	2.35	J	16.5	=	94.5	=	1.66	J	[2.06]	ND	[1.60]	ND	2.09	J	1.93	J	61.2	=	9/11	0/11
AK102	Diesel Range Organics	250	--	7130	=	20000	=	1220	=	4840	=	565	=	13000	=	4500	=	192	=	[11.3]	ND	10.2	J	2340	=	1900	=	20000	=	10/11	8/11
AK103	Residual Range Organics	10000	--	747	=	495	=	172	=	754	=	498	=	194	=	156	=	29.3	=	[11.3]	ND	[11.1]	ND	169	=	166	=	747	=	9/11	0/11
SW8260B	Benzene	11	0.025	[0.0138]	ND	[0.01380]	ND	[0.0137]	ND	[0.01590]	ND	[0.0127]	ND	[0.00995]	ND	[0.0109]	ND	[0.0112]	ND	[0.0103]	ND	[0.008]	ND	[0.0150]	ND	[0.01340]	ND	[0.0150]	ND	0/11	0/11
	Ethylbenzene	110	6.9	[0.0276]	ND	0.189	=	[0.0273]	ND	[0.03170]	ND	[0.0254]	ND	[0.0199]	ND	0.0967	=	[0.0223]	ND	[0.0206]	ND	[0.0160]	ND	[0.0299]	ND	[0.0267]	ND	0.189	=	2/11	0/11
	o-Xylene	63	63	[0.0276]	ND	1.22	=	0.129	=	0.0234	J	[0.0254]	ND	[0.0199]	ND	1.01	=	[0.0223]	ND	[0.0206]	ND	[0.0160]	ND	[0.0299]	ND	[0.0267]	ND	1.22	=	4/11	0/11
	P & M -Xylene	63	63	[0.055]	ND	0.811	=	0.0688	J	[0.0635]	ND	[0.0505]	ND	[0.0398]	ND	0.705	=	[0.0447]	ND	[0.0411]	ND	[0.0320]	ND	[0.06]	ND	[0.0535]	ND	0.811	=	3/11	0/11
	Toluene	220	6.5	[0.0276]	ND	0.0847	=	[0.0273]	ND	[0.03170]	ND	[0.0254]	ND	[0.0199]	ND	0.0291	J	[0.0223]	ND	[0.0206]	ND	[0.0160]	ND	[0.0299]	ND	[0.0267]	ND	0.0847	=	2/11	0/11
SM21 2540G	Total Solids (%)	--	--	82.5	=	75.7	=	76.6	=	82.7	=	74.5	=	89.6	=	90.8	=	86.1	=	88.3	=	89.2	=	77.8	=	77.2	=	82.5	=	11/11	0/11

- Notes:**
- 1 - This screening level corresponds to ADEC Method Two cleanup level for the Under 40 Inch Zone, most stringent of direct contact or inhalation from 18 AAC 75.341, Tables B1 and B2 (October 1, 2014)
 - 2 - This screening level corresponds to ADEC Method Two cleanup level for the Under 40 Inch Zone, migration to groundwater from 18 AAC 75.341, Tables B1 and B2 (October 1, 2014).
 - 3 - Sample results above the most stringent screening level are shown in **BOLD** to indicate exceedance of screening criteria.
 - 4 - The field sample identification number, date collected, and laboratory sample identification number are provided.
 - 5 - The maximum concentration of a detected analyte is shown. If an analyte was not detected, then the highest LOD is shown in [brackets].
 - 6 - Number of primary results detected above the DL / Total number of primary field sample results. For duplicate sample pairs, only the higher result is counted as a primary sample.
 - 7 - Number of results exceeding the most stringent screening criteria (lessor of Human Health or Migration to Groundwater) / Total number of primary field sample results.
 - 8 - For detected results, the sample result is listed in this column. For results of non-detect, the LOD is listed in [] in this column.

Data Flags

- = Analyte detected at concentration listed in column to the left.
- J Result is considered an estimated value because the level is below the laboratory LOQ, but above the Detection Limit.
- ND Nondetect, LOD is in brackets in the concentration column, limit of quantitation is in brackets in the LOQ column.

Abbreviations

- Not applicable or screening criteria does not exist for this compound
- AAC Alaska Administrative Code
- ADEC Alaska Department of Environmental Conservation
- LOD Limit of Detection
- LOQ Limit of Quantitation
- mg/Kg milligrams per kilogram

Table 3 - 2015 Groundwater Sample Results

analysis method	analyte	units	Sample Identification ⁴										Maximum Concentration ^{3,5}		Frequency of Detection ⁶	Frequency Above Primary Screening Criteria ⁷		
			Screening Criteria		RS-MW1-080315	RS-MW2-080315	RS-MW3-080315	RS-MW4-080315	RS-MW99-080315			Conc. ^{3,8}	Flag					
			18 AAC 70 TAQ and TAqH ¹	18 AAC 75 Table C Groundwater Cleanup Levels ²	1154161001 8/3/2015	1154161002 8/3/2015	1154161003 8/3/2015	1154161004 8/3/2015	1154161005 8/3/2015	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag					
AK101	Gasoline Range Organics	mg/L	--	2.2	0.362		0.0379	J	<0.0500	ND	0.13		0.126		0.362		4/5	0/5
AK102	Diesel Range Organics	mg/L	--	1.5	5.49		4.02		3.25		0.343	J	0.422	J	5.49		5/5	3/5
AK103	Residual Range Organics	mg/L	--	1.1	0.276	J	1.05		0.433	J	<0.261	ND	<0.250	ND	1.05		3/5	0/5
SW 8021B	Benzene	ug/L	--	5	4.39		1.56		1.42		<0.200	ND	<0.200	ND	4.39		3/5	0/5
SW 8021B	Toluene	ug/L	--	1000	6.33		<0.500	ND	<0.500	ND	0.4	J	0.41	J	6.33		3/5	0/5
SW 8021B	Ethylbenzene	ug/L	--	700	7.16		<0.500	ND	<0.500	ND	3.5		3.69		7.16		3/5	0/5
SW 8021B	o-Xylene	ug/L	--	10000	31.3		<0.500	ND	<0.500	ND	1.97		1.94		31.3		3/5	0/5
SW 8021B	P & M -Xylene	ug/L	--	10000	28.8		0.75	J	<1.00	ND	6.33		6.6		28.8		4/5	0/5
SW 8270D SIMS (PAH)	1-Methylnaphthalene	ug/L	--	150							2.27		3.62		3.62		2/2	0/2
SW 8270D SIMS (PAH)	2-Methylnaphthalene	ug/L	--	150							2.11		3.31		3.31		2/2	0/2
SW 8270D SIMS (PAH)	Acenaphthene	ug/L	--	2200							0.125		0.16		0.16		2/2	0/2
SW 8270D SIMS (PAH)	Acenaphthylene	ug/L	--	2200							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Anthracene	ug/L	--	11000							0.0218	J	0.0267	J	0.0267	J	3/3	0/2
SW 8270D SIMS (PAH)	Benzo(a)Anthracene	ug/L	--	1.2							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Benzo[a]pyrene	ug/L	--	0.2							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Benzo[b]Fluoranthene	ug/L	--	1.2							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Benzo[g,h,i]perylene	ug/L	--	1100							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Benzo[k]fluoranthene	ug/L	--	12							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Chrysene	ug/L	--	120							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Dibenzo[a,h]anthracene	ug/L	--	0.12							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Fluoranthene	ug/L	--	1500							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Fluorene	ug/L	--	1500							0.417		0.641		0.641		2/2	0/2
SW 8270D SIMS (PAH)	Indeno[1,2,3-c,d] pyrene	ug/L	--	1.2							<0.0265	ND	<0.0271	ND	<0.0265	ND	0/3	0/2
SW 8270D SIMS (PAH)	Naphthalene	ug/L	--	730							2.28		3.71		3.71		2/2	0/2
SW 8270D SIMS (PAH)	Phenanthrene	ug/L	--	11000							0.404		0.593		0.593		2/2	0/2
SW 8270D SIMS (PAH)	Pyrene	ug/L	--	1100							0.0245	J	0.0349	J	0.0349	J	2/2	0/2

Notes:

- 1 - This screening level for TAH and TAqH from 18 AAC 70.020 (April 8, 2012)
- 2 - This screening level for individual compounds is from 18 AAC 75.345 table C (April 8, 2012)
- 3- Sample results above the most stringent screening level are shown in **BOLD** to indicate exceedance of screening criteria.
- 4 - The field sample identification number, date and time collected, and laboratory sample identification number are provided.
- 5 - The maximum concentration of a detected analyte is shown. If an analyte was not detected, then the highest LOD is shown in [brackets].
- 6 - Number of results detected above the DL / Total number of primary field sample results.
- 7 - Number of results exceeding the most stringent screening criteria / Total number of primary field sample results.
- 8 - For detected results, the sample result is listed in this column. For results of non-detect, the LOD is listed preceded with <.
- 9 - For individual analyte that were not detected in the sample, the value of the analyte LOD is included in the For TAH, PAH and and TAqH totals.

Data Flags

- = Analyte detected at concentration listed in column to the left.
- J Result is considered an estimated value because the level is below the laboratory LOQ, but above the DL.
- ND Nondetect, LOD is in brackets in the concentration column.

Abbreviations

- Not applicable or screening criteria does not exist for this compound
- AAC Alaska Administrative Code
- LOD Limit of Detection

Table 4 - 2015 Seep Water Sample Results

Analysis	Analyte	Unit	Sample Identification ⁴														Maximum Concentration ^{3,5}	Frequency of Detection ⁶	Frequency Above Primary Screening Criteria ⁷	
			Screening Criteria		SEEP1-061215		SEEP1DUP061215		SEEP2-061215		TB1		RS-SW1-080315 (Primary)		RS-SW99-08031					
			18 AAC 70 TAH and TAqH ¹	18 AAC 75 Table C Groundwater	1152812001 6/12/2015	1152812004 6/12/2015	1152812002 6/12/2015	1152812003 6/12/2015	1154161005 8/3/2015	(Dup of RS-SW1-080315) 1154161007 8/3/2015	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag	Conc. ^{3,8}	Flag				Conc. ^{3,8}
AK102	Diesel Range Organics	mg/L	--	1.5	4.86		6.05		0.826								6.05		2/2	1/2
AK103	Residual Range Organics	mg/L	--	1.1	2.05		3.46		0.188	J							3.46		2/2	1/2
AK101	Gasoline Range Organics	mg/L	--	2.2	0.294		0.3		<.05	ND	<.05	ND					0.3		1/2	0/2
SW 8021B	Benzene	ug/L	--	5	35.4		35.7		<.25	ND	<.25	ND	28.2		24.5		35.7		3/4	3/4
SW 8021B	Ethylbenzene	ug/L	--	700	14.9		15		<.5	ND	<.5	ND	<0.500	ND	<0.500	ND	15		1/4	0/4
SW 8021B	o-Xylene	ug/L	--	10000	19.4		19.5		<.5	ND	<.5	ND	7.49		7.02		19.5		3/4	0/4
SW 8021B	P & M -Xylene	ug/L	--	10000	25.2		25.2		<1.	ND	<1.	ND	8.76		8.49		25.2		3/4	0/4
SW 8021B	Toluene	ug/L	--	1000	0.32	J	<.5	ND	<.5	ND	<.5	ND	10.8		10.2		10.8	J	3/4	0/4
TAH	TAH	ug/L	10	--	95.22		95.9		<2.75	ND	<2.75	ND	55.45		50.41		95.9		3/4	3/4
SW 8270D SIMS (PAH)	1-Methylnaphthalene	ug/L	--	150	5.49		4.44		0.117						4.49		5.49		4/4	0/4
SW 8270D SIMS (PAH)	2-Methylnaphthalene	ug/L	--	150	0.816		0.666		<.0338	ND			2.51		1.54		2.51		4/4	0/4
SW 8270D SIMS (PAH)	Acenaphthene	ug/L	--	2200	0.472		0.577		0.214				0.866		0.512		0.866		4/4	0/4
SW 8270D SIMS (PAH)	Acenaphthylene	ug/L	--	2200	<.0278	ND	<.0276	ND	<.0338	ND			<0.130	ND	<0.0262	ND	0	ND	0/4	0/4
SW 8270D SIMS (PAH)	Anthracene	ug/L	--	11000	0.257		0.418		0.0571	J			0.259	J	0.142		0.418		4/4	0/4
SW 8270D SIMS (PAH)	Benzo(a)Anthracene	ug/L	--	1.2	0.0887		0.104		<.0338	ND			<0.130	ND	<0.0262	ND	0.104		2/4	0/4
SW 8270D SIMS (PAH)	Benzo[a]pyrene	ug/L	--	0.2	0.0467	J	0.0643		<.0338	ND			<0.130	ND	<0.0262	ND	0.0643		2/4	0/4
SW 8270D SIMS (PAH)	Benzo[b]Fluoranthene	ug/L	--	1.2	<.0278	ND	<.0276	ND	<.0338	ND			<0.130	ND	<0.0262	ND	0	ND	0/4	0/4
SW 8270D SIMS (PAH)	Benzo[g,h,i]perylene	ug/L	--	1100	0.0219	J	0.039	J	<.0338	ND			<0.130	ND	<0.0262	ND	0.039	J	2/4	0/4
SW 8270D SIMS (PAH)	Benzo[k]fluoranthene	ug/L	--	12	<.0278	ND	<.0276	ND	<.0338	ND			<0.130	ND	<0.0262	ND	0	ND	0/4	0/4
SW 8270D SIMS (PAH)	Chrysene	ug/L	--	120	0.189		0.275		<.0338	ND			<0.130	ND	<0.0262	ND	0.275		2/4	0/4
SW 8270D SIMS (PAH)	Dibenzo[a,h]anthracene	ug/L	--	0.12	<.0278	ND	<.0276	ND	<.0338	ND			<0.130	ND	<0.0262	ND	0	ND	0/4	0/4
SW 8270D SIMS (PAH)	Fluoranthene	ug/L	--	1500	0.0698		0.084		<.0338	ND			<0.130	ND	<0.0262	ND	0.084		2/4	0/4
SW 8270D SIMS (PAH)	Fluorene	ug/L	--	1500	0.895		1.09		1.39				1.69		0.963		1.69		4/4	0/4
SW 8270D SIMS (PAH)	Indeno[1,2,3-c,d] pyrene	ug/L	--	1.2	<.0278	ND	<.0276	ND	<.0338	ND			<0.130	ND	<0.0262	ND	0	ND	0/4	0/4
SW 8270D SIMS (PAH)	Naphthalene	ug/L	--	730	5.06		2.69		0.299				4.39		3.63		5.06		4/4	0/4
SW 8270D SIMS (PAH)	Phenanthrene	ug/L	--	11000	1.24		1.48		<.0338	ND			2.16		1.15		2.16		3/4	0/4
SW 8270D SIMS (PAH)	Pyrene	ug/L	--	1100	0.457		0.514		<.0338	ND			0.286		0.0857		0.514		3/4	0/4
	Total PAH	ug/L	--	--	15.2421		12.5793		2.52				18.751		12.7747		18.751		-	-
	TAqH	ug/L	15	--	110.4621		108.4793		5.27				74.201		63.1847		110.46		3/4	3/4

Notes:

- 1 - This screening level for TAH and TAqH from 18 AAC 70.020 (April 8, 2012)
- 2 - This screening level for individual compounds is from 18 AAC 75.345 table C (April 8, 2012)
- 3 - Sample results above the most stringent screening level are shown in **BOLD** to indicate exceedance of screening criteria.
- 4 - The field sample identification number, date and time collected, and laboratory sample identification number are provided.
- 5 - The maximum concentration of a detected analyte is shown. If an analyte was not detected, then the highest LOD is shown in [brackets]. Trip blanks are not included.
- 6 - Number of results detected above the DL / Total number of primary field sample results.
- 7 - Number of results exceeding the most stringent screening criteria / Total number of primary field sample results.
- 8 - For detected results, the sample result is listed in this column. For results of non-detect, the LOD is listed preceded with <.

Data Flags

- = Analyte detected at concentration listed in column to the left.
- J Result is considered an estimated value because the level is below the laboratory LOQ, but above the DL.
- ND Nondetect, LOD is in brackets in the concentration column.

Abbreviations

- Not applicable or screening criteria does not exist for this compound
- AAC Alaska Administrative Code
- LOD Limit of Detection

APPENDIX A
PHOTOGRAPH LOG



Photo 1: TP1 Pre-excavation



Photo 2: Poned areas mid-excavation



SITE PHOTOGRAPHS
July/August, 2015

Soil and Groundwater Assessment and Remediation
Red Salmon Facility
Naknek, Alaska

Job No: 105.00151.15005



Photo 3: Loading Supersacks



Photo 4: Supersack Staging Area



Photo 5: Excavating monitoring well MW-1, photo facing south.



Photo 6: Installing monitoring well MW-1



SITE PHOTOGRAPHS
July/August, 2015

Soil and Groundwater Assessment and Remediation
Red Salmon Facility
Naknek, Alaska

Job No: 105.00151.15005



Photo 7: Installing monitoring well MW-2



Photo 8: Re-graded excavation area (post-excitation), photo facing north towards completed monitoring wells MW-3 (left, background) and MW-1 (right, foreground)



SITE PHOTOGRAPHS
July/August, 2015

Soil and Groundwater Assessment and Remediation
Red Salmon Facility
Naknek, Alaska

Job No: 105.00151.15005



Photo 9: Monitoring well MW-1



Photo 10: Sampling surface water seep SW-1 next to temporary drive point, south of monitoring well MW2.



SITE PHOTOGRAPHS
July/August, 2015

Soil and Groundwater Assessment and Remediation
Red Salmon Facility
Naknek, Alaska


Job No: 105.00151.15005



Photo 11: Sampling monitoring well MW-3 after developing with surge block.



Photo 12: Monitoring wells were surged and purged to remove sediment until purge water was visibly clear.

	Soil and Groundwater Assessment and Remediation Red Salmon Facility Naknek, Alaska
SITE PHOTOGRAPHS July/August, 2015	Job No: 105.00151.15005

APPENDIX B
FIELD FORMS AND FIELD NOTES

Red Salmon

7/26/15

NPSI
Ben Swiec

- 1030 Arrive in King Salmon
Rain. Pick up cargo
- 1130 Arrive Red Salmon site.
- 1148 Calibrate PID to 100ppm.
- 1200 Tailgate safety meeting
- 1215 Begin work - stop for lunch
- 1315 Finished with lunch
- 1320 Excavation start - with
Grid A4
- 1340 Filled one sack. ID: A4B4-1
Sacks are NOT lined. Don
looking for tote liners to contain
moisture in super sacks.
- 1405 Broken pipe section unearthed in
grid A5. 1ft depth.
Various broken pipes and wood
debris throughout.
- 1645 Diesel smelled in sand in B3 area,
at 3-4ft depth, probably continuing
under water table. Unknown source.
- 2000 Stop for the day. Filled 18 Sacks.

BS 9/26/15

Red Salmon

7/27/15

NPSI
Ben Swiec

- 0700 Meet with crew in dining hall
- 0725 On site setting up.
Plan is to continue excavating
and screening to the south,
the work north.
Excavation has gathered surface
runoff from overnight rains.
PID bump check: outside air: 0.2
100ppm Iso: 85. Will calibrate
later before official screening.
- 0800 Start digging - grid squares D6, D7
- 1130 Finish southern part of
excavation. Contain remains
in floor but can't excavate in
water table. Moving to
northern area.
1230. 1330. Lunch
1355. Encounter 2 pipes near north
edge of building. Don opens
their end caps, finds black oil,
closes caps.
- 1410 Empty drum on site. About 5
gal of thick black bunker oil and
water drained from 2 pipes

Location Red Salmon

Date 7/27/15

Project / Client NPSI

Ben Siwiec

in to barrell/drum. Drum moved into warehouse, will be shipped out with other oily water drums.

1800 Excavating in area D2 - encountered gray strong HC odor at & below water table - In situ PID hits of 300-400 ppm (very high)

1830 Don informs me that he will need to escort Wendy for a few hours so I'll need to work alone. I'll use this time to collect confirmation screening and samples.

1925 Done for the day. Not able to confirm ~~exact~~ bunker pipes as related to DED in groundwater. Will test pit tomorrow.

BS
7/27/15

Location Red Salmon

Date 7/28/15

Project / Client NPSI

Ben Siwiec

0700 Meet with crew in dining hall.

Cloudy, cool, some light mist

0730 Getting started. Don will be occupied with Wendy today. He is training new backhoe operator to do test pits and wells with me.

0800 Don has set up 2 helpers as operators on 2 backhoes, digging 2 test pits - up and down from gen bldg.

0830 Collect soil sample from TP2 - pit above gen bldg and headspace screening sample. Depth: 7.8 ft. Appears to be around WL line. Pit finished at 8 ft. Sampled from bucket.

0940 Collect soil sample ~~at~~ from near TP3 - pit below gen bldg and headspace screening sample. Depth: 6.7 ft. Appears to be at WL line. Sampled from bucket. TP2 & TP3 not safe to enter.

0945 Finished digging hole for well in excavation. Getting well materials.

- 1015 Collect headspace bags from every 2 ft of TP2 and TP3 using soil auger. Work on installing well in excavation
- 1230 Well MW-1 installed. Still needs cement base and monument.
Well screen: 5.05 ft
Sump: 0.46 ft
Right now: bottom of well (sump) is 6.1 ft bgs
TOC is 4.4 ft above ground.
Bentonite SSC to 1 ft bgs
Sand 1 ft bgs to 6 ft bgs
Current WL in casing: 4.8 ft btoc or 0.4 ft bgs
- 1350 Begin excavation for downgradient monitoring well. This is the SE one.
- 1430 Finished jiggling, installing well
- 1545 Well installed, backfilling hole, must finish back filling by hand, excavator can't reach all soil.
- 1645 While removing 2" PVC sheath, well pulls up about 1 foot.

- Now well screen is above surface, by a few inches
WL in casing 1 ft off bottom.
Don't want to re-dig this hole.
Don't have time anyway.
- 1715 Set monument and poured bentonite inside monument and hydrated. Bentonite covers up to top of screen.
- 1735 New WL and TD for MW-2: 6.63 and 8.10
- 1860 Install monument on MW-1 cut PVC sump up to 3.55 ft.
- 1810 Begin installing well at TP-3 near gen bldg. MW-3
- 1900 Finish well, backfill hole
- 1920 Crew done for the day
- 2025 Ben back at site to do confirmation screen and sample.
- 2200 Collected confirmation screening samples. 16 floor + 6 s down
- 2225 Read headspace on all
Lab samples will be collected from PID sites 2, 4, 7, 9, 14, 15, 18, 20, 22

Location Red SalmonDate 7/28/15Project / Client NPSI

Ben Siwiec

2230 Begin prep for Petroflag analyses.
Analyzing same as will be sampled
for lab analyses.

0000 - Midnight - Finish Petroflag. To bed!
Soil Samples to be collected
and corresponding Screening locations:

PID Loc	Lab ID
SC02	SFB1
SC04	SFC2
SC07	SFB4
SC09	SFEG
SC14	SFC7
SC15	SFA9
SC18	SWE4
SC20	SWD1
SC22	SWB0

Note: PID was calibrated to 100 ppm
at 0730 this morning.

BS
7/28/15

Location Red SalmonDate 7/29/15Project / Client NPSI

Ben Siwiec

700 Meet with Don in dining hall
0715 On site. Weather cloudy, cool.
Soil Samples to be collected on
opposite purge.

0730 Prepping to excavate and install
Well MW-4, also prepping
for soil sampling.

0815 Andy Dimitriou calls for
update, plans conf call
with Phil Mollia and I
for 9:00.

0830 WL checks at wells

MW-1: 3.99 bTOC

- Stickup: 3.53

WL: 0.46 bgs

MW-2: 6.62 bTOC

- Stickup: 2.35 (on high side)

WL: 4.27 bgs

MW-3: 9.26 bTOC

- Stickup: 1.60

WL: 7.66 bgs

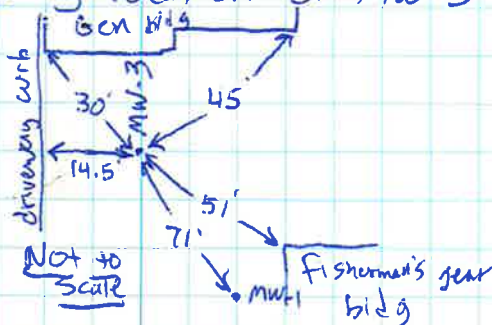
TD: 10.3 bTOC

0900-0920 Phone call with Andy & Phil
0930 Finished installing MW-4

No samples collected during excavation of MW-4 - observation was sheeny water oozing from soil.

- 1000 Collect sample SFB1 and duplicate SFB92. Soil moist to saturated sand. - brown
- 1005 Collect SFC2. Moist-sat sand, brown
- 1015 Collect SFB4 Moist-sat sand, gray
- 1018 Collect SFC6 Moist sand, brown
- 1022 Collect SFC7 Moist sand, brown
- 1030 Collect SFA9^{BS} Moist sand, brown
- 1035 Collect SWE4 Moist sand, brown
- 1040 Collect SWD1 Moist sand, gr-brown
- 1045 Collect SWB0 Moist sand, brown
- 1130 All soil samples collected, labeled and COL prepared.
- 1145 Check seep #1 - no water flow! Only damp area with small stagnant pool.
- 1150 Check new MW-4: 4.40 BTOC
Stickup: 2.25 ft
WL: 2.15 bgs
TD: 10.15 btoc
- Clean up equipment / soil bags

- 1230 Talk to Andy D on the phone - instructions
- 1300 Set up tire pt well at Seep 1
Installed drive point 6 ft east of water tank at foot of bluff.
Paved fine sand around screen and bentonite above sand - attempt to make seal.
- 1340 Measuring location of MW-3



- 1350 Package soil samples, continue cleaning up equip, make arrangements.
- 1500 Leave site.
- 1530 Ship samples on Pen Air. will arrive in ANC on 7/30/15.

Location Red SalmonDate 8/3/15Project / Client NPSISLR Alex Wing

- 0630 Arrive @ Airport in Anchorage
- 0730 Fog delay announced, call Andy Dimitriou
- 1100 Arrive in King Salmon, get rental truck. Reserve Room at King Salmon Lodge.
- 1200 Arrive at Red Salmon Plant, find Jim Yount. Jim shows where gear has been stored and shows site/where to park. Cannery is in shut down, today is last day at site.
- 1205 notice sample coolers have been stored near gasoline Jerry cans.
- 1210 Survey site & take site photos
- 1230 SLR Safety meeting.
Topics - working alone
- Direct sun
- 1235 Begin Developing MW-3
DTW 9:18 TD 10:45
Surge & purge 2 gallons of Brown (silty) water, ~~then~~ with water tubing & foot valve by

Location Red SalmonDate 8/3/15Project / Client NPSISLR Alex Wing

- hand, then purge an additional 1/2 gallon with peri pump to clean out sump until water is clear
- 1356 hook up YSI w/ flow through cell,
- *1420 Sample RS-MW3-080315
- 1448 Begin developing MW-4
DTW TD 10:15
Surged/purged 5 gallons dark brown heavily silted water, switched to peri & pumped out sump, purge along screened interval, purge water has 00L sheen
- *1605 Sample MW-4; RS-MW4-080315
Dup RS-MW99-080315
- 1634 MW 2 DTW 6:80
surged/purged 2 gallons light br water before started clearing up,
- 1650 switch to peri pump

Location Red Salmon Date 8/3/15Project / Client NPSISLR Alex wing

*1721 Sample RS-MW2-080315

1732 Begin Development MW-1

TD 9.5 DTW 4.33

purge/surge 7.5 gallons dark brown silty water. 1900 switch to peri pump, pump out sump, pump an additional 1.5 gal until clear.

1814 seep drive point immediately purged drg. water is fairly clear. will sample @ slowest possible flow rate. did not get parameters. Drive point does not provide enough water for samples. sampled surface seep

1829 water next to DP instead.

→ RS-SW1-080315 / RS-SW99-080315

clear w/ some turbidity, POL obs

*1928 Sample RS-MW1-080315

Location Red Salmon Date 8/3/15Project / Client NPSISLR Alex wing

1835 Speak with Jim Yount (NPSI). Excavated soil has been shipped off site.

1938 pack up sampling equipment

2030 Arrive in King Salmon

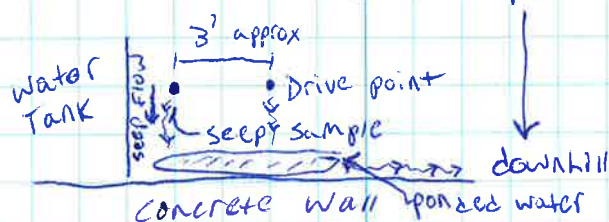
Additional Notes on Seep Sample:

Surface seep is actively flowing beneath thick platy biogenic sheen.

Sample location is approx. 3 feet cross-gradient of the drive point.

Sample collected via peri pump directly into containers for BTEX + PAH to calculate TAH/TA_{GH} as per work plan.

• mw-2 uphill

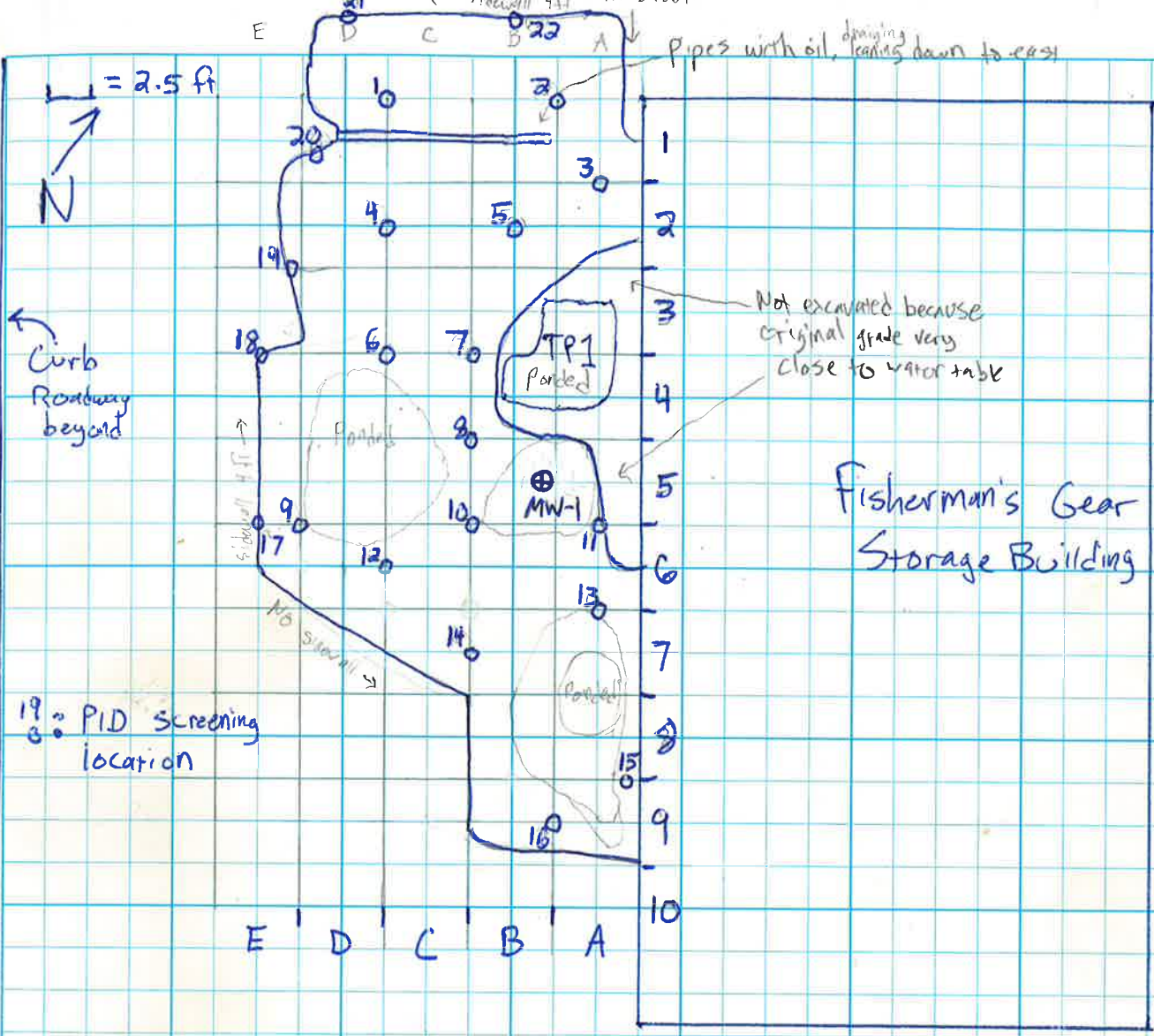


* Drawing not to scale



SCALE: 1" = 125'
WHEN PLOTTED AT 11 x 17 PAGE SIZE
125' 250' 375'



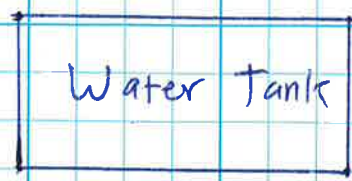


Curb
driveway on other side of curb

⊕ MW-4

⊕ MW-2

Red Salmon Excavation Map
7/26 - 7/29/15
Ben Siwiec



⊕ Temp drive point

This is a scale drawing. All locations were measured from Fisherman's gear building.
Rite in the Rain



Client / Site Name: NPSI Red Salmon Facility	PID Model/Unit #: MIMD/AE 3000
Project #: 105.00151.15005	Lamp Strength:
Weather: Cloudy	Field Personnel: Ben Sivree

GPS Data					
Sample ID	Sample Date (mm/dd/yy)	Sample Time (24-hr)	Measurement Time (24-hr)	Value (ppm)	Comments (instrument malfunctions or anomalies)
TP2-8	7/28	0830	1015	3.5	
TP3-7	7/28	0940	1015	11.0	
TP2-2		1015	1045	10.7	
TP2-4		1015	1045	13.4	
TP2-6		1015	1045	12.3	
TP3-1		1030	1045	15.1	
TP3-3		1030	1045	18.0	
TP3-5		1030	1045	12.4	
MW2-2		1400	1510	76.4	Bunker oil visible - gooey
MW2-4		1415	1510	49.8	dark sand, HC odor, wet
SC01		2130	2200	74.8	Grid Floor
SC02				63.6	
SC03				59.1	
SC04				133.8	
SC05				555	
SC06				136.9	
SC07				514	
SC08				513	
SC09				36.2	
SC10				172.3	
SC11				257	
SC12				46.4	
SC13				167.1	
SC14				210.1	
SC15				74.9 102.8	
SC16				182.8	
SC17				22.6	Sidewalk - 2ft depth
SC18				28.1	3ft depth
SC19				40.6	3ft depth
SC20				352	3ft depth
SC21				36.3	3ft depth
SC22				156.1	2ft depth

Notes:



Hydrocarbon Test Kit - Field Data Sheet

Date: 7/28/15
 Operator: Ben Siwiec
 Location: Red Salmon

Calibration Time/Date: ^{B8}~~1030~~ 2230 7/28/15
 Calibration Temperature: 15°C

No.	Sample ID	Weight	Time/Date	Reading (ppm)	DF ¹	RF ²	Actual (ppm)	Comments
1	SC02	~10g	2305	459	1	5	459	
2	SC04		2310	514	1	5	514	
3	SC07		2315	156	1	5	156	
4	SC09		2320	8	1	5	8	
5	SC14		2325	219	1	5	219	
6	SC15		2330	131	1	5	131	
7	SC18		2335	1	1	5	1	
8	SC20		2340	14	1	5	14	
9	SC22		2345	EEEE	1	5	—	Too high?
10	TP2		2350	8	1	5	8	
11	TP3		2355	63	1	5	63	
12								
13								
14								
15								
16								
17								
18								
19								
20								

¹DF = Dilution Factor, e.g., for 5 gram soil sample DF=10g/5g=2, and actual concentration equals reading times DF (reading (ppm) x DF = actual concentration).

²RF = Response Factor, selected for the hydrocarbon contamination at the site.



Soil Sampling Form

Client/Site Name: Red Salmon

Project #: 105-00151.15005

Sample ID: <u>TP2</u>		Location/Area: <u>Test Pit 2</u>	
Sampled By: <u>B Swiec</u>		Sample Time: <u>0830</u> Sample Date: <u>7/28/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID:	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Test Pit (floor / <u>sidewalk</u>) <input type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>7-8</u>	
Water level Depth (ft bgs): <u>8</u>		Frozen Soil Depth (ft bgs): <u>ND</u>	
Note- If not known at sample location, list as not determined "ND"			
Sample Description			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC	
		SILT (< 0.003 IN) ML	
		CLAY (NO GRAINS VISIBLE) CL OL MH CH OH	
Color: <u>Brown</u>		%Coarse: <u>99</u> %Fines: <u>1</u> Peat/Organic Soil Likely Present (Y/N): <u>N</u>	
Moisture (circle one): Dry, <u>Moist</u> , Wet/Saturated		Stained: Y or <u>N</u> Odor (describe nature and intensity): <u>None</u>	
PID: <u>3.5</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
Collection Method: <u>Soil Auger, spoon</u>			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Uphill from generator building</u>			

Sample ID: <u>TP3</u>		Location/Area: <u>Test Pit 3</u>	
Sampled By: <u>B Swiec</u>		Sample Time: <u>0940</u> Sample Date: <u>7/28/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID:	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Test Pit (floor / <u>sidewalk</u>) <input type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>6-7 ft</u>	
Water level Depth (ft bgs): <u>7</u>		Frozen Soil Depth (ft bgs): <u>ND</u>	
Note- If not known at sample location, list as not determined "ND"			
Sample Description			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC	
		SILT (< 0.003 IN) ML	
		CLAY (NO GRAINS VISIBLE) CL OL MH CH OH	
Color: <u>Brown</u>		%Coarse: <u>99</u> %Fines: <u>1</u> Peat/Organic Soil Likely Present (Y/N): <u>N</u>	
Moisture (circle one): Dry, <u>Moist</u> , Wet/Saturated		Stained: Y or <u>N</u> Odor (describe nature and intensity): <u>None</u>	
PID: <u>11.0</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
Collection Method: <u>Soil Auger, spoon</u>			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Downhill from generator building, up hill from main excavation</u>			



Soil Sampling Form

Client/Site Name: Red Salmon

Project #: 105.00151.15005

Sample ID: <u>SFB1</u>		Location/Area: <u>Main excavation</u>	
Sampled By: <u>B Siwiec</u>		Sample Time: <u>1000</u> Sample Date: <u>7/29/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: <u>SFB91</u>	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>375 0-0.5</u>	
Water level Depth (ft bgs) <u>0.5-1</u>		Frozen Soil Depth (ft bgs) <u>ND</u>	
Note- If not known at sample location, list as not determined "ND"			
Sample Description			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC	
SILT (< 0.003 IN) ML		CLAY (NO GRAINS VISIBLE) CL OL MH CH OH	
Color: <u>brown</u> %Coarse <u>99</u> %Fines <u>1</u>		Peat/Organic Soil Likely Present (Y/N) <u>N</u>	
Moisture (circle one): Dry, <u>Moist</u> , Wet, Saturated		Stained: Y or <u>N</u> Odor (describe nature and intensity) <u>HC</u>	
PID <u>63.6</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
RCRA Metal			
Lead (only)			
Collection Method <u>Spoon</u>			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Grid square B1, PID location SCO2</u>			

Sample ID: <u>SFC2</u>		Location/Area: <u>Main excavation</u>	
Sampled By: <u>B Siwiec</u>		Sample Time: <u>1005</u> Sample Date: <u>7/29/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: <u>-</u>	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>0-0.5</u>	
Water level Depth (ft bgs) <u>0.5-1</u>		Frozen Soil Depth (ft bgs) <u>ND</u>	
Note- If not known at sample location, list as not determined "ND"			
Sample Description			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC	
SILT (< 0.003 IN) ML		CLAY (NO GRAINS VISIBLE) CL OL MH CH OH	
Color: <u>Gray</u> %Coarse <u>99</u> %Fines <u>1</u>		Peat/Organic Soil Likely Present (Y/N) <u>N</u>	
Moisture (circle one): Dry, <u>Moist</u> , Wet, Saturated		Stained: Y or <u>N</u> Odor (describe nature and intensity) <u>HC</u>	
PID <u>133.8</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
RCRA Metal			
Lead (only)			
Collection Method _____			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Grid square C2. PID location SCO4</u>			



Soil Sampling Form

Client/Site Name: Red Salmon

Project #: 105.00151.15005

Sample ID: <u>SFB4</u>		Location/Area: <u>Main excavation</u>																	
Sampled By: <u>B. Swiec</u>		Sample Time: <u>1015</u>	Sample Date: <u>7/29/15</u>																
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: <u>—</u>																	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																	
Location Information																			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>0-0.5</u>																	
Water level Depth (ft bgs): <u>0.5</u>		Frozen Soil Depth (ft bgs): <u>ND</u>																	
Note- If not known at sample location, list as not determined "ND"																			
Sample Description																			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC																	
		SILT (< 0.003 IN) ML																	
CLAY (NO GRAINS VISIBLE) CL OL MH CH OH																			
Color: <u>Gray</u>		%Coarse: <u>99</u>	%Fines: <u>1</u>																
Moisture (circle one): <u>Moist</u>		Stained: <u>Y or N</u>	Odor (describe nature and intensity): <u>Strong HC</u>																
PID: <u>514</u> ppm		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>																	
<table border="1"> <thead> <tr> <th>Analyses</th> <th>Check Applicable</th> </tr> </thead> <tbody> <tr> <td>VOCs</td> <td></td> </tr> <tr> <td>BTEX</td> <td><u>X</u></td> </tr> <tr> <td>GRO</td> <td><u>X</u></td> </tr> </tbody> </table>		Analyses	Check Applicable	VOCs		BTEX	<u>X</u>	GRO	<u>X</u>	<table border="1"> <thead> <tr> <th>Analyses</th> <th>Check Applicable</th> </tr> </thead> <tbody> <tr> <td>DRO/RRO</td> <td><u>X</u></td> </tr> <tr> <td>PAHs</td> <td></td> </tr> <tr> <td>PCBs</td> <td></td> </tr> </tbody> </table>		Analyses	Check Applicable	DRO/RRO	<u>X</u>	PAHs		PCBs	
Analyses	Check Applicable																		
VOCs																			
BTEX	<u>X</u>																		
GRO	<u>X</u>																		
Analyses	Check Applicable																		
DRO/RRO	<u>X</u>																		
PAHs																			
PCBs																			
Collection Method: <u>Spoon</u>																			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Brid square B4. PID location SC07</u>																			

Sample ID: <u>SFEG</u>		Location/Area: <u>Main excavation</u>																	
Sampled By: <u>B. Swiec</u>		Sample Time: <u>1018</u>	Sample Date: <u>7/29/15</u>																
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: <u>—</u>																	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																	
Location Information																			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>0-0.5</u>																	
Water level Depth (ft bgs): <u>0.5-1</u>		Frozen Soil Depth (ft bgs): <u>ND</u>																	
Note- If not known at sample location, list as not determined "ND"																			
Sample Description																			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC																	
		SILT (< 0.003 IN) ML																	
CLAY (NO GRAINS VISIBLE) CL OL MH CH OH																			
Color: <u>Brown</u>		%Coarse: <u>99</u>	%Fines: <u>1</u>																
Moisture (circle one): <u>Moist</u>		Stained: <u>Y or N</u>	Odor (describe nature and intensity): <u>None</u>																
PID: <u>36.2</u> ppm		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>																	
<table border="1"> <thead> <tr> <th>Analyses</th> <th>Check Applicable</th> </tr> </thead> <tbody> <tr> <td>VOCs</td> <td></td> </tr> <tr> <td>BTEX</td> <td><u>X</u></td> </tr> <tr> <td>GRO</td> <td><u>X</u></td> </tr> </tbody> </table>		Analyses	Check Applicable	VOCs		BTEX	<u>X</u>	GRO	<u>X</u>	<table border="1"> <thead> <tr> <th>Analyses</th> <th>Check Applicable</th> </tr> </thead> <tbody> <tr> <td>DRO/RRO</td> <td><u>X</u></td> </tr> <tr> <td>PAHs</td> <td></td> </tr> <tr> <td>PCBs</td> <td></td> </tr> </tbody> </table>		Analyses	Check Applicable	DRO/RRO	<u>X</u>	PAHs		PCBs	
Analyses	Check Applicable																		
VOCs																			
BTEX	<u>X</u>																		
GRO	<u>X</u>																		
Analyses	Check Applicable																		
DRO/RRO	<u>X</u>																		
PAHs																			
PCBs																			
Collection Method: <u>Spoon</u>																			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Brid square EG Pid location SC09</u>																			



Soil Sampling Form

Client/Site Name: Red Salmon

Project #: 165.00151.15005

Sample ID: <u>SFC7</u>		Location/Area: <u>Main excavation</u>	
Sampled By: <u>B. Swiec</u>		Sample Time: <u>1022</u> Sample Date: <u>7/29/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: <u>-</u>	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>0-0.5</u>	
Water level Depth (ft bgs) <u>0.5-1</u> Frozen Soil Depth (ft bgs) <u>ND</u>		Note- If not known at sample location, list as not determined "ND"	
Sample Description			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC	
SILT (< 0.003 IN) ML		CLAY (NO GRAINS VISIBLE) CL OL MH CH OH	
Color <u>Brown</u> %Coarse <u>99</u> %Fines <u>1</u> Peat/Organic Soil Likely Present (Y/N) <u>N</u>		Moisture (circle one): Dry <input type="checkbox"/> Moist <input checked="" type="checkbox"/> Wet/Saturated <input type="checkbox"/> Stained: Y or <u>N</u> Odor (describe nature and intensity) <u>HC</u>	
PID <u>210.1</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
RCRA Metal			
Lead (only)			
Collection Method <u>Spoon</u>			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Grid square C7. PID location SC14</u>			

Sample ID: <u>SFA9</u>		Location/Area: <u>Main excavation</u>	
Sampled By: <u>B. Swiec</u>		Sample Time: <u>1030</u> Sample Date: <u>7/29/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: <u>-</u>	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>0-0.5</u>	
Water level Depth (ft bgs) <u>0.5</u> Frozen Soil Depth (ft bgs) <u>ND</u>		Note- If not known at sample location, list as not determined "ND"	
Sample Description			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC	
SILT (< 0.003 IN) ML		CLAY (NO GRAINS VISIBLE) CL OL MH CH OH	
Color <u>Brown</u> %Coarse <u>99</u> %Fines <u>1</u> Peat/Organic Soil Likely Present (Y/N) <u>N</u>		Moisture (circle one): Dry <input type="checkbox"/> Moist <input checked="" type="checkbox"/> Wet/Saturated <input type="checkbox"/> Stained: Y or <u>N</u> Odor (describe nature and intensity) <u>HC - light</u>	
PID <u>79.9</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
RCRA Metal			
Lead (only)			
Collection Method <u>Spoon</u>			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Grid square A9. PID location SC15</u>			



Soil Sampling Form

Client/Site Name: Red Salmon

Project #: 105-00151.15005

Sample ID: <u>SWIE4</u>		Location/Area: <u>Main excavation</u>	
Sampled By: <u>B Swirec</u>		Sample Time: <u>1035</u> Sample Date: <u>7/29/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: <u>-</u>	
Weather Conditions: <u>cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>3</u>	
Water level Depth (ft bgs): <u>4-5</u>		Frozen Soil Depth (ft bgs): <u>ND</u>	
Note- If not known at sample location, list as not determined "ND"			
Sample Description			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC	
		SILT (< 0.003 IN) ML	
		CLAY (NO GRAINS VISIBLE) CL OL MH CH OH	
Color <u>Brown</u> %Coarse <u>99</u> %Fines <u>1</u>		Peat/Organic Soil Likely Present (Y/N) <u>N</u>	
Moisture (circle one): <u>Mois</u> Dry, <u>Mois</u> Wet/Saturated Stained: <u>Y</u> or <u>N</u>		Odor (describe nature and intensity) <u>None</u>	
PID <u>28-1</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
Collection Method <u>Spoon</u>			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Sidewall - grid square E4. PID location SC18</u>			

Sample ID: <u>SWDI</u>		Location/Area: <u>Main excavation</u>	
Sampled By: <u>B Swirec</u>		Sample Time: <u>1040</u> Sample Date: <u>7/29/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: <u>-</u>	
Weather Conditions: <u>cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>3</u>	
Water level Depth (ft bgs): <u>4-5</u>		Frozen Soil Depth (ft bgs): <u>ND</u>	
Note- If not known at sample location, list as not determined "ND"			
Sample Description			
GRAVEL (3 - 0.08 IN) GW GP GM GC		SAND (0.08 - 0.003 IN) SW <u>SP</u> SM SC	
		SILT (< 0.003 IN) ML	
		CLAY (NO GRAINS VISIBLE) CL OL MH CH OH	
Color <u>Gray-brown</u> %Coarse <u>99</u> %Fines <u>1</u>		Peat/Organic Soil Likely Present (Y/N) <u>N</u>	
Moisture (circle one): <u>Mois</u> Dry, <u>Mois</u> Wet/Saturated Stained: <u>Y</u> or <u>N</u>		Odor (describe nature and intensity) <u>HC-Strong</u>	
PID <u>352</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MiniRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
Collection Method <u>Spoon</u>			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above): <u>Sidewall Grid square DI PID location SC20</u>			



Soil Sampling Form

Client/Site Name: Red Salmon

Project #: 105-00151.15005

Sample ID: <u>SWB0</u>		Location/Area: <u>Main Excavation</u>	
Sampled By: <u>B. Swiec</u>		Sample Time: <u>1045</u> Sample Date: <u>7/29/15</u>	
Approx. Air Temperature (°F): <u>60</u>		Duplicate ID: _____	
Weather Conditions: <u>Cloudy</u>		MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input checked="" type="checkbox"/> Excavation		Sample Depth (ft bgs): <u>2</u>	
Water level Depth (ft bgs) <u>2-3</u>		Frozen Soil Depth (ft bgs) <u>ND</u>	
Note- If not known at sample location, list as not determined "ND"			
Sample Description			
GRAVEL (3 - 0.08 IN)		SAND (0.08 - 0.003 IN)	
GW GP GM GC		SW <u>SP</u> SM SC	
		SILT (< 0.003 IN)	
		ML	
		CLAY (NO GRAINS VISIBLE)	
		CL OL MH CH OH	
Color <u>Brown</u> %Coarse <u>21</u> %Fines <u>1</u> Peat/Organic Soil Likely Present (Y/N) <u>N</u>			
Moisture (circle one): <u>Dry</u> <input checked="" type="radio"/> <u>Moist</u> <input type="radio"/> <u>Wet/Saturated</u> <input type="radio"/> Stained: <u>Y</u> or <u>N</u> <input checked="" type="radio"/> <u>Odor</u> (describe nature and intensity) <u>HC</u>			
PID <u>156.1</u> ppm <input checked="" type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) <u>MINIRAE 3000</u>	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	PAHs	
GRO	<input checked="" type="checkbox"/>	PCBs	
RCRA Metal		Lead (only)	
Collection Method <u>Spoon</u>			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above):			
<u>Sidewall - Grid square B0. PID location SC22</u>			

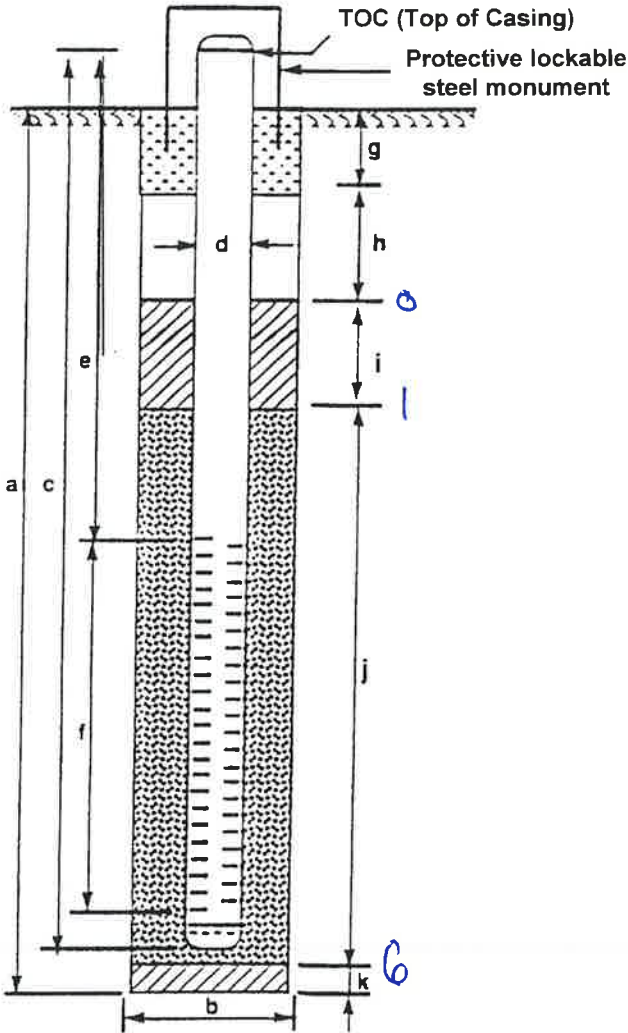
Sample ID: _____		Location/Area: _____	
Sampled By: _____		Sample Time: _____ Sample Date: _____	
Approx. Air Temperature (°F): _____		Duplicate ID: _____	
Weather Conditions: _____		MS/MSD <input type="checkbox"/> Yes <input type="checkbox"/> No Trip Blank Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Location Information			
<input type="checkbox"/> Surface <input type="checkbox"/> Boring <input type="checkbox"/> Test Pit (floor / sidewall) <input type="checkbox"/> Excavation		Sample Depth (ft bgs): _____	
Water level Depth (ft bgs) _____		Frozen Soil Depth (ft bgs) _____	
Note- If not known at sample location, list as not determined "ND"			
Sample Description			
GRAVEL (3 - 0.08 IN)		SAND (0.08 - 0.003 IN)	
GW GP GM GC		SW SP SM SC	
		SILT (< 0.003 IN)	
		ML	
		CLAY (NO GRAINS VISIBLE)	
		CL OL MH CH OH	
Color _____ %Coarse _____ %Fines _____ Peat/Organic Soil Likely Present (Y/N) _____			
Moisture (circle one): <u>Dry</u> <input type="radio"/> <u>Moist</u> <input type="radio"/> <u>Wet/Saturated</u> <input type="radio"/> Stained: <u>Y</u> or <u>N</u> <input type="radio"/> <u>Odor</u> (describe nature and intensity) _____			
PID _____ ppm <input type="checkbox"/> Headspace <input type="checkbox"/> In-Sampler <input type="checkbox"/> In-Situ		PID/FID Model/SN: (IF USED) _____	
Analyses	Check Applicable	Analyses	Check Applicable
VOCs		DRO/RRO	
BTEX		PAHs	
GRO		PCBs	
RCRA Metal		Lead (only)	
Collection Method _____			
Notes/Comments (indicate general location, and possible other relevant conditions not listed above):			

Red Salmon Excavation Super Sack Log

ID	Date	Time	Notes
A4B4-1	7/26	1330	Not lined, heaping full.
A5B5-1		1355	Lined with tote liner
A5B5-2		1410	Lined, Contam-gray
A5B5-3		1440	Lined - smelly - high contam.
A5B5-4		1500	
B5C5-1		1545	
B5C5-2		1610	
B3-1		1645	Desel noted in sand at 3-4 ft depth
B3-2		1705	
B3B4-1		1720	
B3B4-2		1740	
B3B4-3		1805	
B3B4-4		1815	
C4C5-1		1845	
D4C4-1		1900	
C4C5-2		1915	
D4D5-1		1940	
D5D6-1		2000	
D6D7-1	7/27	0815	Depth 0-1
D6D7-2		0830	Depth 1-2
C6C7-1		0905	Depth 0-1
B6B7-1		0935	Depth 0-1
A7B7-1		0955	Depth 0-2
A7B8-1		1015	Depth 0-2
A8A9-1		1105	Depth 0-1
B8B9-1		1125	Depth 0-1
B1B2-1		1205	Depths 0-4
B2C2-1		1225	Depths 0-5
C2-1		1350	Depths 0-5
A1B1-1		1440	Depths 0-2
A1B1-2		1515	Depths 0-2
A1B1-3		1535	Depths 0-3
A0B0-1		1550	Depths 0-3
D3D4-1		1615	Depths 0-3
D2D3-1		1625	Depths 0-3
C1C2-1		1640	Depths 0-3

ID	Date	Time	Notes
D1D2-1	7/27	1655	Very strong HC odor
D1D2-2		1715	"
D2D3-2		1745	Depth 0-3
D2D3-3		1800	Very strong odor gray color
D1D2-4		1815	
B0C0-1		1830	
D2D3-3		1850	Depth 0-3
D0-1		1910	
C0-D0-1		1925	Farthest North

Project Name: <u>NPSI Red Salmon</u>	Boring ID: <u>MW-1</u>	Well Type: <input type="checkbox"/> Check boxes?
Project #: <u>105-00151.15005</u>	Top of Casing El: _____	
Installation Date: <u>7/28/15</u>	Northing: _____	
Well Owner: <u>NPSI</u>	Easting: _____	
Completion Method: _____	Coord System: _____	



EXPLORATORY BORING

- a. Borehole depth 6.1 ft.
- b. Borehole diameter - in.
- Drilling method Backhoe

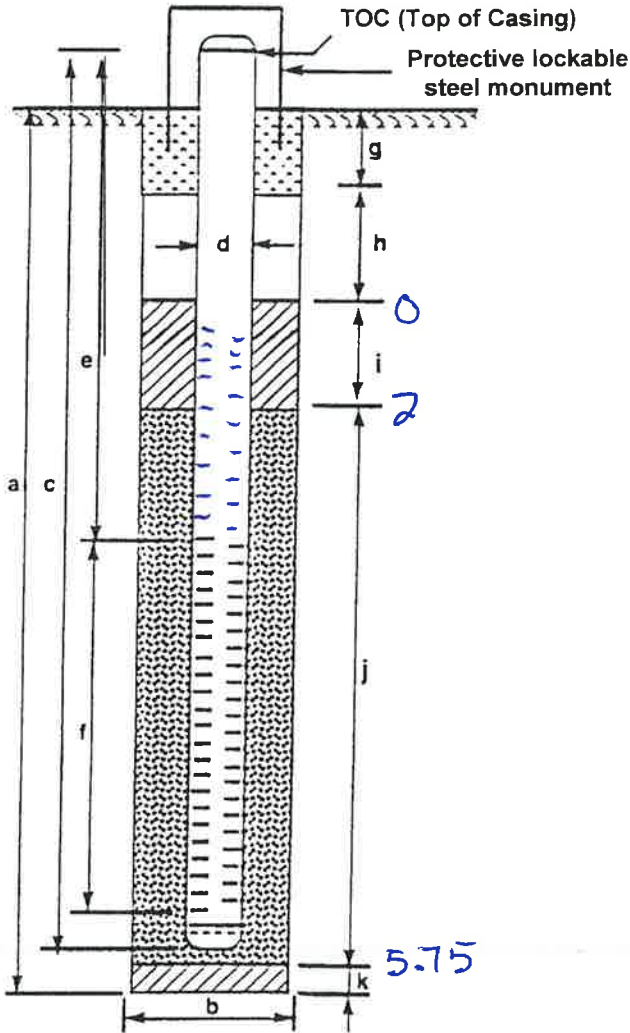
WELL CONSTRUCTION

- c. Screen and casing riser length ^{B8} 10.5 ft. 9.63
- Material PVC
- d. Inside diameter 2 in.
- e. Depth to top of screen 0.6 ft.
- f. Screen length 5.05 ft.
- Perforated interval from 0.6 to 5.6 ft.
- Perforation type PVC
- Perforation size 0.020 in.
- g. Surface seal - ft. bgs
- Seal material cement
- h. Backfill 0 ft.
- Backfill material -
- i. Seal 1 ft.
- Seal material bentonite
- j. Filter pack (length) 5 ft.
- Pack material Silica sand
- k. Bottom seal - ft.
- Seal material -
- l. Stickup ~~4.4~~ ^{B8} 3.53 ft. (aboveground surface)

Form prepared by Ben Swiec
Date 7/30/15

Remarks: Used pre-packed well screen. Additional filter sand installed around pre-packed screen.

Project Name: <u>NPSI Red Salmon</u>	Boring ID: <u>MW-2</u>	Well Type: <input type="checkbox"/> Check boxes?
Project #: <u>105.00151.15005</u>	Top of Casing El: _____	
Installation Date: <u>7/28/15</u>	Northing: _____	
Well Owner: <u>NPSI</u>	Easting: _____	
Completion Method: _____	Coord System: _____	



EXPLORATORY BORING

- a. Borehole depth 5.75 ft.
- b. Borehole diameter - in.
- Drilling method Backhoe

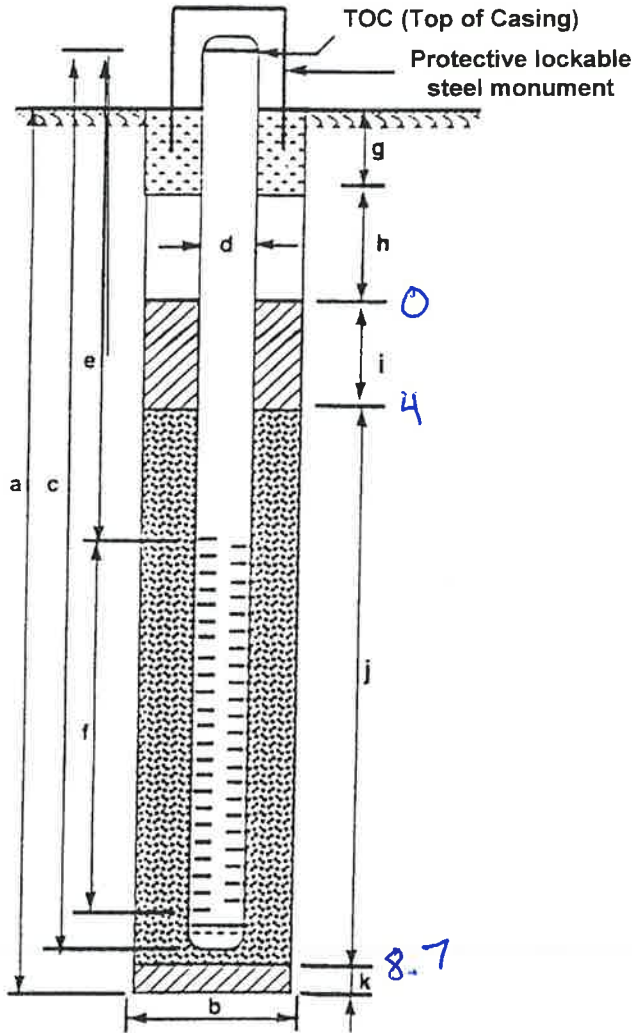
WELL CONSTRUCTION

- c. Screen and casing riser length 8.1 ft.
Material PVC
- d. Inside diameter 2 in.
- e. Depth to top of screen 0.24 ft. BGS
- f. Screen length 5.05 ft.
Perforated interval from 0.24 to 5.29 ft.
Perforation type PVC
Perforation size 0.020 in.
- g. Surface seal - ft. bgs
Seal material Cement
- h. Backfill Ø ft.
Backfill material -
- i. Seal 2 ft.
Seal material bentonite
- j. Filter pack (length) 3.75 ft.
Pack material silica sand
- k. Bottom seal - ft.
Seal material -
- l. Stickup 2.35 ft.
(aboveground surface)

Form prepared by Ben Siwiec
Date 7/30/15

Remarks: Used pre-packed well screen. Additional filter sand installed around pre-packed screen.

Project Name: <u>NPSI Red Salmon</u>	Boring ID: <u>MW-3/TP-3</u>	Well Type: <u>3</u>	Check boxes?
Project #: <u>105.0051.15005</u>	Top of Casing El:		
Installation Date: <u>7/28/15</u>	Northing:		
Well Owner: <u>NPSI</u>	Easting:		
Completion Method:	Coord System:		



EXPLORATORY BORING

- a. Borehole depth 8.7 ft.
- b. Borehole diameter - in.
- Drilling method Backhoe

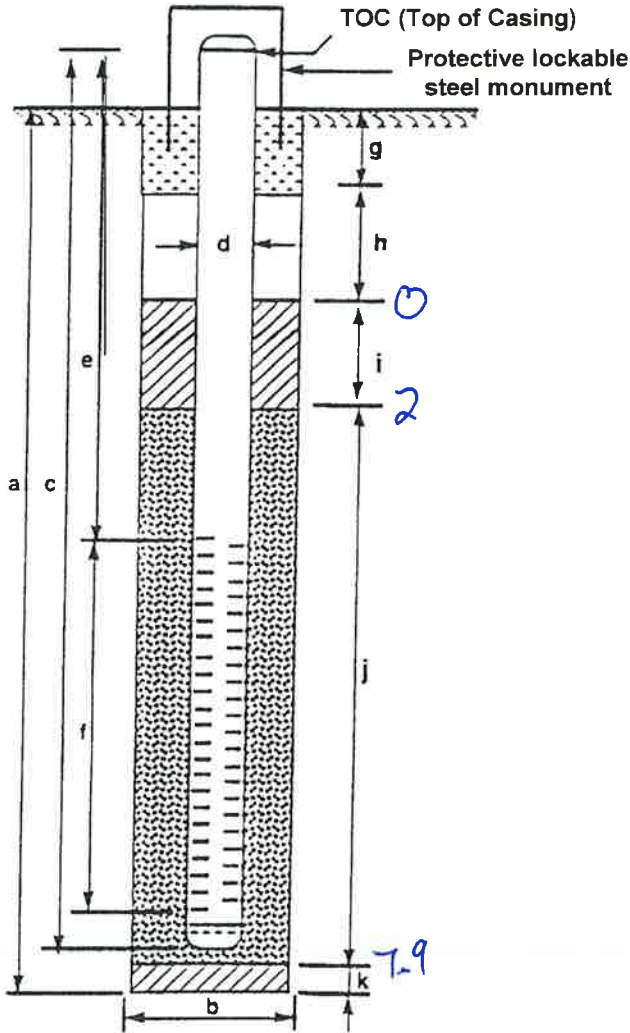
WELL CONSTRUCTION

- c. Screen and casing riser length 10.3 ft.
- Material PVC
- d. Inside diameter 2 in.
- e. Depth to top of screen 4.79 ft.
- f. Screen length 5.05 ft.
- Perforated interval from 4.79 to 9.84 ft.
- Perforation type PVC
- Perforation size 0.020 in.
- g. Surface seal - ft. bgs
- Seal material Cement
- h. Backfill 0 ft.
- Backfill material -
- i. Seal 4 ft.
- Seal material bentonite
- j. Filter pack (length) 4.7 ft.
- Pack material Silica Sand
- k. Bottom seal - ft.
- Seal material -
- l. Stickup 1.6 ft.
- (aboveground surface)

Form prepared by Ben Simirec
 Date 7/30/15

Remarks: Used pre-packed well screen. Additional filter sand installed around pre-packed screen.

Project Name: <u>NPSI Red Salmon</u>	Boring ID: <u>MW-4</u>	Well Type: <input type="checkbox"/> Check boxes?
Project #: <u>105.00151-15005</u>	Top of Casing El: _____	
Installation Date: <u>7/29/15</u>	Northing: _____	
Well Owner: <u>NPSI</u>	Easting: _____	
Completion Method: _____	Coord System: _____	



EXPLORATORY BORING

- a. Borehole depth 7.9 ft.
- b. Borehole diameter - in.
- Drilling method Backhoe

WELL CONSTRUCTION

- c. Screen and casing riser length 10.15 ft.
Material PVC
- d. Inside diameter 2 in.
- e. Depth to top of screen 4.64 ft. 2.39
- f. Screen length 5.05 ft. 2.39
Perforated interval from 4.64 to 9.69 ft. 7.44
Perforation type PVC
Perforation size 0.020 in.
- g. Surface seal - ft. bgs
Seal material Cement
- h. Backfill 0 ft.
Backfill material -
- i. Seal 2 ft.
Seal material bentonite
- j. Filter pack (length) 5.9 ft.
Pack material Silica sand
- k. Bottom seal - ft.
Seal material -
- l. Stickup 2.25 ft.
(aboveground surface)

Form prepared by Ben Siwrec
Date 7/30/15

Remarks: Used pre-packed well screen. Additional filter sand installed around pre-packed screen.

Site/Client Name: NPSI Red Salmon Facility					Well ID: MW-1					
Project #: 105.00151.15005					Sample ID: RS-MW1-080315					
Sampled By: A Wing					Sample Time: 1928		Sample Date: 8/3/15			
Weather Conditions: Partly cloudy, 60s °F					Duplicate ID: _____					
Sampling Method: <input type="checkbox"/> Low Flow <input checked="" type="checkbox"/> Other <u>23 well vol</u>					MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Well Information										
Well Type: <input checked="" type="checkbox"/> Permanent <input type="checkbox"/> Temporary			Well Diameter: <u>2 in</u>		Screen Interval: <u>4</u> ft. BTOC to <u>9</u> ft BTOC					
Well Condition: <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor (if fair or poor explain in Notes)					Stickup <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No; If yes, <u>3</u> ft above ground					
Gauging/Purging Information										
Depth to Water (ft BTOC): <u>4.33</u>					Tubing/Pump Depth (ft. BTOC): <u>9</u>					
Total Depth (ft. BTOC): <u>9.5</u>					Purge Start Time (24-hr) <u>1900 After Devel.</u>					
Depth to Product (ft. BTOC) _____					Purge End Time (24-hr) _____					
Product Thickness (ft) _____					Total Purge Time (min) _____					
<p>LOW FLOW: Max Draw Down = _____ (Tubing Depth – Top of Screen Depth in ft) X 0.25 = _____ (ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.; achieve stable parameter for 3 consecutive reading (each reading taken after pumping a minimum of 1 flow through cell volume).</p> <p>OTHER: Purge Volume minimum of 3 casing volume and stable parameters for 3 consecutive readings, or maximum of 10 casing volumes purged. Purge Volume = 3.14 X _____ (well radius squared in ft.) X _____ (water column in ft.) X _____ (number of casing volume to be purge) X 28.3 = _____ (liters) (1 gallon = 3.79 liters)</p>										
1" Casing Vol (liters) = 0.154 * Water Column (ft)			2" Casing Vol (liters) = 0.617 * Water Column (ft)			4" Casing Vol (liters) = 2.47 * Water Column (ft)				
Water Quality Parameters										
Time (24-hr)	Flow Rate (liters or gal/minute)	Purge Volume (liters or gal)	Temp (°C) (± 3%)	Specific Conductance (µS/cm°) (± 3%)	DO (mg/L) (± 10%)	ORP (mV) (± 10mV)	pH (± 0.1)	Turbidity (NTU) (± 10%)	DTW (ft BTOC)	Drawdown (ft) (Max _____ ft.)
1920	0.15	9	12.47	332	2.58	-3.0	5.10	8.57	9.30	
Sample after Develop/purge 9+ gallons										
Sample Color: <u>clear</u>			Sample Odor: <u>PO2</u>			Sheen: <input type="checkbox"/> none <input checked="" type="checkbox"/> light <input type="checkbox"/> med <input type="checkbox"/> heavy				
Analytical Sampling										
Analyses	Number/Type of Bottle	Preservative/Comments	Analyses	Number/Type of Bottle	Preservative/Comments					
GRO/BTEX	3x40mL VOA	HCl								
DRO	2x250mL AG	HCl								
RRO	With DRO									
Notes: _____										
Equipment Used: Pump Type _____ Tubing (Type/Length) _____ Bailer Type _____										
Water Level Meter _____ Multi-Parameter Meter (Make/SN#) <u>YSI 556</u>										
Turbidity Meter (Make/SN#) <u>Lemotte</u> Filter Lot # _____										
IDW Disposal: <input type="checkbox"/> Discharged to surface <input checked="" type="checkbox"/> Treated (how?) <u>BAC</u> <input type="checkbox"/> Other: _____										



Groundwater Sampling Form

Site/Client Name: NPSI Red Salmon Facility	Well ID: MW-2
Project #: 105.00151.15005	Sample ID: RS-MW2-080315
Sampled By: A. Wing	Sample Time: 1721 Sample Date: 080315
Weather Conditions: Sunny, 70s °F	Duplicate ID: ---
Sampling Method: <input type="checkbox"/> Low Flow <input checked="" type="checkbox"/> Other 3 well vol	MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Well Information	
Well Type: <input checked="" type="checkbox"/> Permanent <input type="checkbox"/> Temporary	Well Diameter: 2 1/2"
Well Condition: <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor (if fair or poor explain in Notes)	Screen Interval: 3 ft. BTOC to 8 ft. BTOC
	Stickup: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No; If yes, 3 ft above ground

Gauging/Purging Information	
Depth to Water (ft BTOC): 6.80	Tubing/Pump Depth (ft. BTOC): 7.5
Total Depth (ft BTOC): 8.20	Purge Start Time (24-hr): 1705 after devel
Depth to Product (ft. BTOC): ---	Purge End Time (24-hr): ---
Product Thickness (ft): ---	Total Purge Time (min): ---

LOW FLOW: Max Draw Down = _____ (Tubing Depth - Top of Screen Depth in ft) X 0.25 = _____ (ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.; achieve stable parameter for 3 consecutive reading (each reading taken after pumping a minimum of 1 flow through cell volume).

OTHER: Purge Volume minimum of 3 casing volume and stable parameters for 3 consecutive readings, or maximum of 10 casing volumes purged.
Purge Volume = 3.14 X _____ (well radius squared in ft.) X _____ (water column in ft.) X _____ (number of casing volume to be purged) X 28.3 = _____ (liters) (1 gallon = 3.79 liters) **0.62 * 1.5 * 3 = 2.73**

1" Casing Vol (liters) = 0.154 * Water Column (ft) 2" Casing Vol (liters) = 0.617 * Water Column (ft) 4" Casing Vol (liters) = 2.47 * Water Column (ft)

Water Quality Parameters										
Time (24-hr)	Flow Rate (liters or gal/minute)	Purge Volume (liters or gal)	Temp (°C) (± 3%)	Specific Conductance (µS/cm ⁵) (± 3%)	DO (mg/L) (± 10%)	ORP (mV) (± 10mV)	pH (± 0.1)	Turbidity (NTU) (± 10%)	DTW (ft BTOC)	Drawdown (ft) (Max _____ ft.)
1708		3.5	11.31	178	0.71	-69.7	5.34	87.5	7.50	
1711	0.2	3.15	11.40	177	0.72	-75.5	5.40	51.8	7.38	
1714	0.2	3.8	11.86	180	0.90	-80.1	5.41	47.1	7.33	
Sample after develop/purge 4+ gallons										

Sample Color: Clear	Sample Odor: slight PCL	Sheen: <input checked="" type="checkbox"/> none <input type="checkbox"/> light <input type="checkbox"/> med <input type="checkbox"/> heavy
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Analytical Sampling					
Analyses	Number/Type of Bottle	Preservative/Comments	Analyses	Number/Type of Bottle	Preservative/Comments
GRO/BTEX	3x40mL VOA	HCl			
DRO	2x250mL AG	HCl			
RRO	With DRO				

Notes: _____

Equipment Used: Pump Type **Geotech peri** Tubing (Type/Length) **Tef-lined/12'** Bailer Type **---**

Water Level Meter _____ Multi-Parameter Meter (Make/SN#) **YSI 556**

Turbidity Meter (Make/SN#) **Lemotte** Filter Lot # _____

IDW Disposal: Discharged to surface Treated (how?) **SAC** Other: _____



Groundwater Sampling Form

Site/Client Name: NPSI Red Salmon Facility	Well ID: MV-3
Project #: 105.00151.15005	Sample ID: RS-MW3-080315
Sampled By: A. Wing	Sample Time: 1420 Sample Date: 8/3/15
Weather Conditions: Sunny, 70s °F	Duplicate ID: _____
Sampling Method: <input type="checkbox"/> Low Flow <input checked="" type="checkbox"/> Other > 3 well vol	MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Well Information	
Well Type: <input checked="" type="checkbox"/> Permanent <input type="checkbox"/> Temporary	Well Diameter: 2.2 ft Screen Interval: 5 ft. BTOC to 10 ft BTOC
Well Condition: <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor (if fair or poor explain in Notes)	Stickup <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No; If yes, 3 ft above ground

Gauging/Purging Information	
Depth to Water (ft BTOC): 9.34	Tubing/Pump Depth (ft. BTOC): 10
Total Depth (ft BTOC): 10.45	Purge Start Time (24-hr) 1403 + Development
Depth to Product (ft. BTOC)	Purge End Time (24-hr)
Product Thickness (ft)	Total Purge Time (min)

LOW FLOW: Max Draw Down = _____ (Tubing Depth - Top of Screen Depth in ft) X 0.25 = _____ (ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.; achieve stable parameter for 3 consecutive reading (each reading taken after pumping a minimum of 1 flow through cell volume).

OTHER: Purge Volume minimum of 3 casing volume and stable parameters for 3 consecutive readings, or maximum of 10 casing volumes purged.
 Purge Volume = 3.14 X _____ (well radius squared in ft.) X _____ (water column in ft.) X _____ (number of casing volume to be purge) X 28.3 = _____ (liters) (1 gallon = 3.79 liters) **6.62 * 3 = 19**

1" Casing Vol (liters) = 0.154 * Water Column (ft) | 2" Casing Vol (liters) = 0.617 * Water Column (ft) | 4" Casing Vol (liters) = 2.47 * Water Column (ft)

Water Quality Parameters										
Time (24-hr)	Flow Rate (liters or gal/minute)	Purge Volume (liters or gal)	Temp (°C) (± 3%)	Specific Conductance (µS/cm ²) (± 3%)	DO (mg/L) (± 10%)	ORP (mV) (± 10mV)	pH (± 0.1)	Turbidity (NTU) (± 10%)	DTW (ft BTOC)	Drawdown (ft) (Max _____ ft.)
1404	0.15	2.75	12.46	254	1.74	-124.6	7.79	clear	9.35	0.01
1407	0.15	3	11.66	244	1.81	-130.6	7.68	clear	9.39	0.05
1415			11.87	243	2.08	-132.7	6.97	5.10	9.39	0.05
Sample after develop/purge 3+ gallons										

Sample Color: clear	Sample Odor: none	Sheen: <input checked="" type="checkbox"/> none <input type="checkbox"/> light <input type="checkbox"/> med <input type="checkbox"/> heavy
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Analytical Sampling					
Analyses	Number/Type of Bottle	Preservative/Comments	Analyses	Number/Type of Bottle	Preservative/Comments
GRO/BTEX	3x40mL VOA	HCl			
DRO	2x250mL AG	HCl			
RRO	With DRO				

Notes: _____

Equipment Used: Pump Type **geotach per.** Tubing (Type/Length) **Tef-lined/15'** Bailer Type _____
 Water Level Meter _____ Multi-Parameter Meter (Make/SN#) _____
 Turbidity Meter (Make/SN#) _____ Filter Lot # _____

IDW Disposal: Discharged to surface Treated (how?) **SAC** Other: _____



Groundwater Sampling Form

Site/Client Name: NPSI Red Salmon Facility	Well ID: MW-4
Project #: 105.00151.15005	Sample ID: RS-MW4-080315
Sampled By: A. Wang	Sample Time: 1605 Sample Date: 8/3/15
Weather Conditions: Sunny, 70s °F	Duplicate ID: RS-MW99-080315
Sampling Method: <input type="checkbox"/> Low Flow <input checked="" type="checkbox"/> Other 25 well vol	MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trip Blank Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Well Information	
Well Type: <input checked="" type="checkbox"/> Permanent <input type="checkbox"/> Temporary	Well Diameter: 2 in
Well Condition: <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor (if fair or poor explain in Notes)	Screen Interval: 10 ft. BTOC to 5 ft BTOC
	Stickup <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No; If yes, 2.5 ft above ground

Gauging/Purging Information	
Depth to Water (ft BTOC): 6.10	Tubing/Pump Depth (ft. BTOC): 9
Total Depth (ft BTOC): 10.15	Purge Start Time (24-hr) 1530 after devel.
Depth to Product (ft. BTOC) —	Purge End Time (24-hr) —
Product Thickness (ft) —	Total Purge Time (min) —

LOW FLOW: Max Draw Down = _____ (Tubing Depth - Top of Screen Depth in ft) X 0.25 = _____ (ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.; achieve stable parameter for 3 consecutive reading (each reading taken after pumping a minimum of 1 flow through cell volume).

OTHER: Purge Volume minimum of 3 casing volume and stable parameters for 3 consecutive readings, or maximum of 10 casing volumes purged. Purge Volume = 3.14 X _____ (well radius squared in ft.) X _____ (water column in ft.) X _____ (number of casing volume to be purge) X 28.3 = _____ (liters) (1 gallon = 3.79 liters)

1" Casing Vol (liters) = 0.154 * Water Column (ft) 2" Casing Vol (liters) = 0.617 * Water Column (ft) 4" Casing Vol (liters) = 2.47 * Water Column (ft)

Water Quality Parameters										
Time (24-hr)	Flow Rate (liters or gal/minute)	Purge Volume (liters or gal)	Temp (°C) (± 3%)	Specific Conductance (µS/cm²) (± 3%)	DO (mg/L) (± 10%)	ORP (mV) (± 10mV)	pH (± 0.1)	Turbidity (NTU) (± 10%)	DTW (ft BTOC)	Drawdown (ft) (Max _____ ft.)
1545	0.2	~7gal	11.68	244	0.26	-66.1	5.92	99.7	6.10	
1548	0.2	~7.5	11.79	254	0.26	-76.4	5.94	86.9	5.81	
1551	0.2		11.78	268	0.33	-80.4	5.95	60.2	5.74	
1557	0.2	~8gal	11.64	210	0.42	-82.3	5.96	46.6	5.62	
1600			11.72	208	0.50	-63.8	5.95	76.1	5.50	
Sample after develop/purge 8+ gallons										

Sample Color: clear	Sample Odor: hydrocarbon	Sheen: <input type="checkbox"/> none <input checked="" type="checkbox"/> light <input type="checkbox"/> med <input type="checkbox"/> heavy
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Analytical Sampling					
Analyses	Number/Type of Bottle	Preservative/Comments	Analyses	Number/Type of Bottle	Preservative/Comments
GRO/BTEX	3x40mL VOA	HCl			
DRO	2x250mL AG	HCl			
RRO	With DRO				

Notes: _____

Equipment Used: Pump Type peri-geotech Tubing (Type/Length) Tef-lined/13' Bailer Type _____
 Water Level Meter _____ Multi-Parameter Meter (Make/SN#) YSI 556
 Turbidity Meter (Make/SN#) Le motte Filter Lot # _____

IDW Disposal: Discharged to surface Treated (how?) GAC Other: _____



SGS North America Inc.
CHAIN OF CUSTODY RECORD

1154161

Locations Nationwide
Alaska
New Jersey
North Carolina
West Virginia
Maryland
New York
Indiana
Kentucky



www.us.sgs.com

Page 1 of 1

Instructions: Sections 1 - 3 must be filled out.
Omissions may delay the onset of analysis.

Section 1
CLIENT: SLR International Corporation
CONTACT: Alex Wing
PHONE NO: 719.238.0120
PROJECT: NPSI Red Salmon
PWSID/ PERMIT#: [blank]
REPORTS TO: Jason Stacy
E-MAIL: jstacy@slrconsulting.com
INVOICE TO: Stan Fliegel
QUOTE #: P.O. #: 105-00151.15005

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	SECTION	Type C = COMP G = GRAB M = Multi I = Inert S = Soils	HCI	PAH SIM	REMARKS/ LOC ID
	RS-MW1-080315	08/03/15	1928	SW	8	G			
	RS-MW2-080315		1721		8		DRO/RRO AK102/103		
	RS-MW3-080315		1420		8				
	RS-MW4-080315		1605		10		DRO AK101		
	RS-MW99-080315		1605		10				
	RS-SW1-080315		1829	SW	5		BTEX 8260		
	RS-SW99-080315		1829	SW	5		PAH SIM		
	TR-080315		1420	TB	TB	N/A			Trip Blank

Section 2

Relinquished By: (1) [Signature] Date: 8/14/15 Time: 0730 Received By: [Signature] Date: 8/14/15 Time: 1134

Relinquished By: (2) [Signature] Date: 8/14/15 Time: 1450 Received By: [Signature]

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

Relinquished By: (4) [Signature] Date: 8/11/15 Time: 15:25 Received For Laboratory By: [Signature]

Section 3
Preservative

Section 4
Cooler ID: Standard TAT
DOD Project? Yes/No: No
Data Deliverable Requirements: Level II

Temp Blank °C: 5.7 ± 0.38
or Ambient (1) 3.3 ± 0.71
(See attached Sample Receipt Form)

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

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

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

APPENDIX C

**TRANSPORT, TREATMENT, AND DISPOSAL
DOCUMENTATION**



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

Transport, Treatment, & Disposal Approval Form for Contaminated Media

DEC HAZARD/SPILL ID #		NAME OF SPILL OR CONTAMINATED SITE	
14269911201		Red Salmon Cannery	
SITE OR SPILL LOCATION			
Red Salmon Cannery, near Fisherman's Gear Storage Building			
CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA		SOURCE OF THE CONTAMINATION	
Red Salmon Cannery, POL contaminated soil		POL from above ground storage tanks	
COMPOUNDS OF CONCERN	ESTIMATED VOLUME	DATE(S) GENERATED	
GRO, DRO, RRO, BTEX	46 cubic yards	7/26/2015 - 7/27/2015	
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)			
Disposal contractor has reviewed soil sample results from 2014 investigation and found them acceptable.			
COMMENTS			

Facility Accepting the Contaminated Media

NAME OF THE FACILITY	PHYSICAL ADDRESS/PHONE NUMBER
Cemex	6300 Glenwood Avenue; Everett, WA 98203

Responsible Party and Contractor Information

BUSINESS/NAME	ADDRESS/PHONE NUMBER
North Pacific Seafoods, Inc./ Philip Mobilia	4 Nickerson St.; Suite 400; Seattle, WA 98109; 206-812-4231

Philip Mobilia

EHS Manager - North Pacific Seafoods, Inc.

Name of the Person Requesting Approval (printed)

Title/Association

Philip Mobilia

8/25/15

206.812.4231

Signature

Date

Phone Number

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

Based on the information provided, ADEC approves transport of the above-described media for treatment in accordance with the approved facility operations plan. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight/volume receipts of the loads transported to the facility and a post treatment analytical report. If the media is contaminated soil, it shall be transported as a covered load in compliance with 18 AAC 60.015.

Joshua Barris

EPS III

DEC Project Manager Name (printed)

Project Manager Title

[Signature]

8-26-2015

(907) 269-7691

Signature

Date

Phone Number



P.O. Box 24348 • Seattle, WA 98124-4348
(800) 426-3113 Fax (206) 764-5782

CARGO RECEIPT

Receipt No. 25983

CARGO RECEIPT INSTRUCTIONS AS GIVEN BY SHIPPER OR HIS REPRESENTATIVE

DATE <u>7/30/15</u>	BOOKING NO.	VESSEL AND VOYAGE NO.	CONTROL NO.
PORT OF LOADING <u>NAK-RSC</u>	PORT OF DISCHARGE <u>SEA</u>	DESTINATION <u>Seattle</u>	BEYOND CARRIER <u>NSI</u>
SHIPPER <u>NPSI Red Salmon Cannery</u>		CONSIGNEE <u>NPSI Warehouse</u>	COLLECT PREPAID OTHER Please Specify <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
<u>4 Nickerson Street</u>		<u>2440 W Commodore Way</u>	BILL TO: Please show complete address - include zip <u>NPSI Red Salmon Cannery</u>
<u>Seattle, WA 98109</u>		<u>STE 200 Seattle WA 98109</u>	<u>4 Nickerson Street</u>
<u>Seattle, WA 98109</u>			<u>Seattle, WA 98109</u>
TELEPHONE <u>(206) 726-9900</u>	TELEPHONE <u>(206) 402-2056</u>		

CONTAINER NO. <u>FBLU 300738</u>	CONTAINER TYPE	SEAL NO. <u>0215552</u>	LOAD DATE <u>7/30/15</u>	SET TEMP. °F/°C	PROCESSOR / SUPPLIER <u>Red Salmon</u>
LOAD TYPE Palletized: <input type="checkbox"/> Hand Stacked: <input type="checkbox"/> Mixed or other (Please describe):					

NO OF PIECES	KIND OF PACKAGE	HM	DESCRIPTION OF GOODS PROVIDED BY SHIPPER	NET WEIGHT	GROSS WEIGHT
<u>12</u>	<u>bag</u>		<u>Sail</u>		<u>36,145</u>
			<u>Cannery Plunder</u>		
			<u>boxes for Kerry M,</u>		
			<u>box Mike Tesachto</u>		
			<u>Cannery Rotary Unit</u>		
			<u>Straight Head Cutter</u>		

This is to certify that the above named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. If the shipment is of a hazardous nature and has been tendered in a container, it is declared that the packing of the container has been carried out in accordance with the provisions of 49 CFR 176.27 (c).

Shipper: NPSI Red Salmon Cannery Date: 7/30/15

This document merely represents a transfer of goods. Receipt, storage, transportation, liability and delivery of the cargo is subject to the terms and conditions of the applicable contract of affreightment and/or bill(s) of lading of the Beyond Carrier.

Signed: _____
Shipper: _____
Agent: _____
Date: _____

Received for Carrier in good order, count, and condition unless otherwise noted hereon.

Date: 7/30/15 Time: 1558
Received By: [Signature]
Quantity or Equipment size / type: 20CS
Container Number & Prefix: FBLU 300738
Seal Number: 0215552
Temperature Received: _____

ALASKA MARINE LINES

P.O. Box 24348 • Seattle, WA 98124-4348
(800) 426-3113 Fax (206) 764-5782

CARGO RECEIPT

Receipt No. 25986

CARGO RECEIPT INSTRUCTIONS AS GIVEN BY SHIPPER OR HIS REPRESENTATIVE

DATE	BOOKING NO.	VESSEL AND VOYAGE NO.	CONTROL NO.
PORT OF LOADING	PORT OF DISCHARGE	DESTINATION	BEYOND CARRIER
SHIPPER	CONSIGNEE		COLLECT PREPAID OTHER Please Specify
PORT OF LOADING	PORT OF DISCHARGE	DESTINATION	BEYOND CARRIER
TELEPHONE	TELEPHONE		

CONTAINER NO.	CONTAINER TYPE	SEAL NO.	LOAD DATE	SET TEMP.	PROCESSOR / SUPPLIER
TRIU 352 003	20'	0215553	7/30/15	°F/C	Red Salmon

LOAD TYPE Palletized: Hand Stacked: Mixed or other (Please describe):

NO OF PIECES	KIND OF PACKAGE	HM	DESCRIPTION OF GOODS PROVIDED BY SHIPPER	NET WEIGHT	GROSS WEIGHT
17			Bags of Soil		49,352

This is to certify that the above named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. If the shipment is of a hazardous nature and has been tendered in a container, it is declared that the packing of the container has been carried out in accordance with the provisions of 49 CFR 176.27 (c).

Shipper: NPSI Red Salmon Cannery Date: 7/30/15

This document merely represents a transfer of goods. Receipt, storage, transportation, liability and delivery of the cargo is subject to the terms and conditions of the applicable contract of affreightment and/or bill(s) of lading of the Beyond Carrier.

Signed:
Shipper: _____
Agent: _____
Date: _____

Received for Carrier in good order, count, and condition unless otherwise noted hereon.

Date: 7-30-15 Time: 1140

Received By: DE

Quantity or Equipment size / type: 20CS

Container Number & Prefix: TRIU 352003

Seal Number: 0215553

Temperature Received: _____



Release of Liability/Certificate of Disposal

North Pacific Seafoods Inc: is released from liability for all petroleum contaminated soil from:

**Red Salmon Cannery Project,
Mile 1.5 Alaska Peninsula Highway,
Naknek, Alaska 99633**

and transported to:

**CEMEX Soil Remediation Facility
6300 Glenwood Ave.
Everett WA 98203**

from **10/22/2015** through **11/04/2015**

A total of 50.86 tons of petroleum-contaminated soil was transported to the above facility. The material was disposed of in the following manner:

**Thermal Desorption and Landfill for
Reclamation**

Disposal of the contaminated debris was performed in accordance with all applicable federal, state, and local laws and regulations.

Signed:

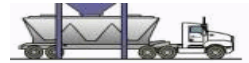
Date: November 11, 2015

A handwritten signature in cursive script that reads "Larry W. Baker".

Larry W. Baker
CEMEX USA.
Operations Manager
Soil Remediation Division



Ticket List By Customer\Order\Product



Date From 10/15/2015 To 11/11/2015
 Location(s) 1876
 Order: 41038354

Date	TicketNo	Delivery Address	Vehicle	TimeIn	TicketTime	Qty	Unit	S h i p	C a s h	V o i d
Scale Tickets										
NORTH PACIFIC SEAFOODS INC										
41038354										
1192508										
10/22/15	1876084378	P: RED SALMON CANNERY	1877-1,ARLINGTON AGG	11:41:00	12:36:00	17.54	TON			
10/26/15	1876084394	P: RED SALMON CANNERY	1876-1,EVERETT SOIL GENERIC	0:00:00	7:42:00	7.15	TON			
11/4/15	1876084541	P: RED SALMON CANNERY	1876-1,EVERETT SOIL GENERIC	0:00:00	15:28:00	26.17	TON			
Product Totals	3				Qty	50.86	TON			
Order Totals	3				Qty	50.86	TON			
Customer Totals	3				Qty	50.86	TON			
Grand Total	3				Qty	50.86	TON			

APPENDIX D
SGS LABORATORY DATA REPORTS



Laboratory Report of Analysis

To: SLR Alaska-Anchorage
2700 Gambell St Suite 200
Anchorage, AK 99503
(907)222-1112

Report Number: **1152812**

Client Project: **Red Salmon**

Dear Jason Gray,

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

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

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

Sincerely,
SGS North America Inc.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Print Date: 07/06/2015 1:51:00PM

Case Narrative

SGS Client: **SLR Alaska-Anchorage**

SGS Project: **1152812**

Project Name/Site: **Red Salmon**

Project Contact: **Jason Gray**

Refer to sample receipt form for information on sample condition.

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

Print Date: 07/06/2015 1:51:02PM

Laboratory Qualifiers

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

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

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

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CCCV	Closing Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

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

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
SEEP1-061215	1152812001	06/12/2015	06/15/2015	Water (Surface, Eff., Ground)
SEEP2-061215	1152812002	06/12/2015	06/15/2015	Water (Surface, Eff., Ground)
TB1	1152812003	06/12/2015	06/15/2015	Water (Surface, Eff., Ground)
SEEP1DUP061215	1152812004	06/12/2015	06/15/2015	Water (Surface, Eff., Ground)

<u>Method</u>	<u>Method Description</u>
8270D SIMS (PAH)	8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.
AK101	AK101/8021 Combo.
SW8021B	AK101/8021 Combo.
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water

Print Date: 07/06/2015 1:51:04PM

Detectable Results Summary

Client Sample ID: **SEEP1-061215**

Lab Sample ID: 1152812001

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	5.49	ug/L
2-Methylnaphthalene	0.816	ug/L
Acenaphthene	0.472	ug/L
Anthracene	0.257	ug/L
Benzo(a)Anthracene	0.0887	ug/L
Benzo[a]pyrene	0.0467J	ug/L
Benzo[g,h,i]perylene	0.0219J	ug/L
Chrysene	0.189	ug/L
Fluoranthene	0.0698	ug/L
Fluorene	0.895	ug/L
Naphthalene	5.06	ug/L
Phenanthrene	1.24	ug/L
Pyrene	0.457	ug/L
Diesel Range Organics	4.86	mg/L
Residual Range Organics	2.05	mg/L
Benzene	35.4	ug/L
Ethylbenzene	14.9	ug/L
Gasoline Range Organics	0.294	mg/L
o-Xylene	19.4	ug/L
P & M -Xylene	25.2	ug/L
Toluene	0.320J	ug/L

Semivolatile Organic Fuels

Volatile Fuels

Client Sample ID: **SEEP2-061215**

Lab Sample ID: 1152812002

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	0.117	ug/L
Acenaphthene	0.214	ug/L
Anthracene	0.0571J	ug/L
Fluorene	1.39	ug/L
Naphthalene	0.299	ug/L
Diesel Range Organics	0.826	mg/L
Residual Range Organics	0.188J	mg/L

Semivolatile Organic Fuels

Detectable Results Summary

Client Sample ID: **SEEP1DUP061215**

Lab Sample ID: 1152812004

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	4.44	ug/L
2-Methylnaphthalene	0.666	ug/L
Acenaphthene	0.577	ug/L
Anthracene	0.418	ug/L
Benzo(a)Anthracene	0.104	ug/L
Benzo[a]pyrene	0.0643	ug/L
Benzo[g,h,i]perylene	0.0390J	ug/L
Chrysene	0.275	ug/L
Fluoranthene	0.0840	ug/L
Fluorene	1.09	ug/L
Naphthalene	2.69	ug/L
Phenanthrene	1.48	ug/L
Pyrene	0.514	ug/L
Semivolatile Organic Fuels		
Diesel Range Organics	6.05	mg/L
Residual Range Organics	3.46	mg/L
Volatile Fuels		
Benzene	35.7	ug/L
Ethylbenzene	15.0	ug/L
Gasoline Range Organics	0.300	mg/L
o-Xylene	19.5	ug/L
P & M -Xylene	25.2	ug/L

Print Date: 07/06/2015 1:51:05PM



Results of **SEEP1-061215**

Client Sample ID: **SEEP1-061215**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812001
Lab Project ID: 1152812

Collection Date: 06/12/15 07:15
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	5.49	0.278	0.0833	ug/L	5		06/23/15 18:41
2-Methylnaphthalene	0.816	0.0556	0.0167	ug/L	1		06/22/15 21:39
Acenaphthene	0.472	0.0556	0.0167	ug/L	1		06/22/15 21:39
Acenaphthylene	0.0278 U	0.0556	0.0167	ug/L	1		06/22/15 21:39
Anthracene	0.257	0.0556	0.0167	ug/L	1		06/22/15 21:39
Benzo(a)Anthracene	0.0887	0.0556	0.0167	ug/L	1		06/22/15 21:39
Benzo[a]pyrene	0.0467 J	0.0556	0.0167	ug/L	1		06/22/15 21:39
Benzo[b]Fluoranthene	0.0278 U	0.0556	0.0167	ug/L	1		06/22/15 21:39
Benzo[g,h,i]perylene	0.0219 J	0.0556	0.0167	ug/L	1		06/22/15 21:39
Benzo[k]fluoranthene	0.0278 U	0.0556	0.0167	ug/L	1		06/22/15 21:39
Chrysene	0.189	0.0556	0.0167	ug/L	1		06/22/15 21:39
Dibenzo[a,h]anthracene	0.0278 U	0.0556	0.0167	ug/L	1		06/22/15 21:39
Fluoranthene	0.0698	0.0556	0.0167	ug/L	1		06/22/15 21:39
Fluorene	0.895	0.0556	0.0167	ug/L	1		06/22/15 21:39
Indeno[1,2,3-c,d] pyrene	0.0278 U	0.0556	0.0167	ug/L	1		06/22/15 21:39
Naphthalene	5.06	0.556	0.172	ug/L	5		06/23/15 18:41
Phenanthrene	1.24	0.0556	0.0167	ug/L	1		06/22/15 21:39
Pyrene	0.457	0.0556	0.0167	ug/L	1		06/22/15 21:39
Surrogates							
2-Fluorobiphenyl (surr)	54.3	53-106		%	1		06/22/15 21:39
Terphenyl-d14 (surr)	92.1	58-132		%	1		06/22/15 21:39

Batch Information

Analytical Batch: XMS8725
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 06/23/15 18:41
Container ID: 1152812001-E

Prep Batch: XXX33312
Prep Method: SW3520C
Prep Date/Time: 06/17/15 12:15
Prep Initial Wt./Vol.: 900 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS8726
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 06/22/15 21:39
Container ID: 1152812001-E

Prep Batch: XXX33312
Prep Method: SW3520C
Prep Date/Time: 06/17/15 12:15
Prep Initial Wt./Vol.: 900 mL
Prep Extract Vol: 1 mL



Results of **SEEP1-061215**

Client Sample ID: **SEEP1-061215**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812001
Lab Project ID: 1152812

Collection Date: 06/12/15 07:15
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	4.86	0.682	0.205	mg/L	1		07/01/15 01:27
Surrogates							
5a Androstane (surr)	100	50-150		%	1		07/01/15 01:27

Batch Information

Analytical Batch: XFC11917
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 07/01/15 01:27
Container ID: 1152812001-A

Prep Batch: XXX33380
Prep Method: SW3520C
Prep Date/Time: 06/25/15 11:30
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	2.05	0.568	0.170	mg/L	1		07/01/15 01:27
Surrogates							
n-Triacontane-d62 (surr)	101	50-150		%	1		07/01/15 01:27

Batch Information

Analytical Batch: XFC11917
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 07/01/15 01:27
Container ID: 1152812001-A

Prep Batch: XXX33380
Prep Method: SW3520C
Prep Date/Time: 06/25/15 11:30
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL



Results of **SEEP1-061215**

Client Sample ID: **SEEP1-061215**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812001
Lab Project ID: 1152812

Collection Date: 06/12/15 07:15
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.294	0.100	0.0310	mg/L	1		06/19/15 13:30

Surrogates

4-Bromofluorobenzene (surr)	114	50-150		%	1		06/19/15 13:30
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Batch Information

Analytical Batch: VFC12472
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/19/15 13:30
Container ID: 1152812001-B

Prep Batch: VXX27465
Prep Method: SW5030B
Prep Date/Time: 06/19/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	35.4	0.500	0.150	ug/L	1		06/19/15 13:30
Ethylbenzene	14.9	1.00	0.310	ug/L	1		06/19/15 13:30
o-Xylene	19.4	1.00	0.310	ug/L	1		06/19/15 13:30
P & M -Xylene	25.2	2.00	0.620	ug/L	1		06/19/15 13:30
Toluene	0.320 J	1.00	0.310	ug/L	1		06/19/15 13:30

Surrogates

1,4-Difluorobenzene (surr)	85.7	77-115		%	1		06/19/15 13:30
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Batch Information

Analytical Batch: VFC12472
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/19/15 13:30
Container ID: 1152812001-B

Prep Batch: VXX27465
Prep Method: SW5030B
Prep Date/Time: 06/19/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **SEEP2-061215**

Client Sample ID: **SEEP2-061215**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812002
Lab Project ID: 1152812

Collection Date: 06/12/15 09:20
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.117	0.0676	0.0203	ug/L	1		06/19/15 22:28
2-Methylnaphthalene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Acenaphthene	0.214	0.0676	0.0203	ug/L	1		06/19/15 22:28
Acenaphthylene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Anthracene	0.0571 J	0.0676	0.0203	ug/L	1		06/19/15 22:28
Benzo(a)Anthracene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Benzo[a]pyrene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Benzo[b]Fluoranthene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Benzo[g,h,i]perylene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Benzo[k]fluoranthene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Chrysene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Dibenzo[a,h]anthracene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Fluoranthene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Fluorene	1.39	0.0676	0.0203	ug/L	1		06/19/15 22:28
Indeno[1,2,3-c,d] pyrene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Naphthalene	0.299	0.135	0.0419	ug/L	1		06/19/15 22:28
Phenanthrene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Pyrene	0.0338 U	0.0676	0.0203	ug/L	1		06/19/15 22:28
Surrogates							
2-Fluorobiphenyl (surr)	63.8	53-106		%	1		06/19/15 22:28
Terphenyl-d14 (surr)	83.6	58-132		%	1		06/19/15 22:28

Batch Information

Analytical Batch: XMS8719
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 06/19/15 22:28
Container ID: 1152812002-F

Prep Batch: XXX33312
Prep Method: SW3520C
Prep Date/Time: 06/17/15 12:15
Prep Initial Wt./Vol.: 740 mL
Prep Extract Vol: 1 mL



Results of **SEEP2-061215**

Client Sample ID: **SEEP2-061215**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812002
Lab Project ID: 1152812

Collection Date: 06/12/15 09:20
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	0.826	0.600	0.180	mg/L	1		07/01/15 01:47

Surrogates

5a Androstane (surr)	93.9	50-150		%	1		07/01/15 01:47
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Batch Information

Analytical Batch: XFC11917
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 07/01/15 01:47
Container ID: 1152812002-A

Prep Batch: XXX33380
Prep Method: SW3520C
Prep Date/Time: 06/25/15 11:30
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.188 J	0.500	0.150	mg/L	1		07/01/15 01:47

Surrogates

n-Triacontane-d62 (surr)	93.5	50-150		%	1		07/01/15 01:47
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Batch Information

Analytical Batch: XFC11917
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 07/01/15 01:47
Container ID: 1152812002-A

Prep Batch: XXX33380
Prep Method: SW3520C
Prep Date/Time: 06/25/15 11:30
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



Results of **SEEP2-061215**

Client Sample ID: **SEEP2-061215**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812002
Lab Project ID: 1152812

Collection Date: 06/12/15 09:20
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		06/19/15 13:49

Surrogates

4-Bromofluorobenzene (surr)	95.7	50-150		%	1		06/19/15 13:49
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Batch Information

Analytical Batch: VFC12472
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/19/15 13:49
Container ID: 1152812002-C

Prep Batch: VXX27465
Prep Method: SW5030B
Prep Date/Time: 06/19/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.250 U	0.500	0.150	ug/L	1		06/19/15 13:49
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/19/15 13:49
o-Xylene	0.500 U	1.00	0.310	ug/L	1		06/19/15 13:49
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		06/19/15 13:49
Toluene	0.500 U	1.00	0.310	ug/L	1		06/19/15 13:49

Surrogates

1,4-Difluorobenzene (surr)	86	77-115		%	1		06/19/15 13:49
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Batch Information

Analytical Batch: VFC12472
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/19/15 13:49
Container ID: 1152812002-C

Prep Batch: VXX27465
Prep Method: SW5030B
Prep Date/Time: 06/19/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of TB1

Client Sample ID: **TB1**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812003
Lab Project ID: 1152812

Collection Date: 06/12/15 07:15
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		06/19/15 12:33

Surrogates

4-Bromofluorobenzene (surr)	102	50-150		%	1		06/19/15 12:33
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Batch Information

Analytical Batch: VFC12472
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/19/15 12:33
Container ID: 1152812003-A

Prep Batch: VXX27465
Prep Method: SW5030B
Prep Date/Time: 06/19/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.250 U	0.500	0.150	ug/L	1		06/19/15 12:33
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/19/15 12:33
o-Xylene	0.500 U	1.00	0.310	ug/L	1		06/19/15 12:33
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		06/19/15 12:33
Toluene	0.500 U	1.00	0.310	ug/L	1		06/19/15 12:33

Surrogates

1,4-Difluorobenzene (surr)	85.8	77-115		%	1		06/19/15 12:33
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Batch Information

Analytical Batch: VFC12472
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/19/15 12:33
Container ID: 1152812003-A

Prep Batch: VXX27465
Prep Method: SW5030B
Prep Date/Time: 06/19/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of SEEP1DUP061215

Client Sample ID: SEEP1DUP061215
Client Project ID: Red Salmon
Lab Sample ID: 1152812004
Lab Project ID: 1152812

Collection Date: 06/12/15 07:15
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their surrogate compounds with associated quality and detection data.

Batch Information

Analytical Batch: XMS8719
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 06/19/15 22:45
Container ID: 1152812004-F

Prep Batch: XXX33312
Prep Method: SW3520C
Prep Date/Time: 06/17/15 12:15
Prep Initial Wt./Vol.: 905 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS8728
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 06/24/15 20:20
Container ID: 1152812004-F

Prep Batch: XXX33312
Prep Method: SW3520C
Prep Date/Time: 06/17/15 12:15
Prep Initial Wt./Vol.: 905 mL
Prep Extract Vol: 1 mL



Results of **SEEP1DUP061215**

Client Sample ID: **SEEP1DUP061215**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812004
Lab Project ID: 1152812

Collection Date: 06/12/15 07:15
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	6.05	0.600	0.180	mg/L	1		07/01/15 02:08

Surrogates

5a Androstane (surr)	102	50-150		%	1		07/01/15 02:08
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Batch Information

Analytical Batch: XFC11917
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 07/01/15 02:08
Container ID: 1152812004-A

Prep Batch: XXX33380
Prep Method: SW3520C
Prep Date/Time: 06/25/15 11:30
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	3.46	0.500	0.150	mg/L	1		07/01/15 02:08

Surrogates

n-Triacontane-d62 (surr)	98.6	50-150		%	1		07/01/15 02:08
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Batch Information

Analytical Batch: XFC11917
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 07/01/15 02:08
Container ID: 1152812004-A

Prep Batch: XXX33380
Prep Method: SW3520C
Prep Date/Time: 06/25/15 11:30
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



Results of **SEEP1DUP061215**

Client Sample ID: **SEEP1DUP061215**
Client Project ID: **Red Salmon**
Lab Sample ID: 1152812004
Lab Project ID: 1152812

Collection Date: 06/12/15 07:15
Received Date: 06/15/15 08:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.300	0.100	0.0310	mg/L	1		06/19/15 14:08

Surrogates

4-Bromofluorobenzene (surr)	115	50-150		%	1		06/19/15 14:08
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Batch Information

Analytical Batch: VFC12472
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/19/15 14:08
Container ID: 1152812004-C

Prep Batch: VXX27465
Prep Method: SW5030B
Prep Date/Time: 06/19/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	35.7	0.500	0.150	ug/L	1		06/19/15 14:08
Ethylbenzene	15.0	1.00	0.310	ug/L	1		06/19/15 14:08
o-Xylene	19.5	1.00	0.310	ug/L	1		06/19/15 14:08
P & M -Xylene	25.2	2.00	0.620	ug/L	1		06/19/15 14:08
Toluene	0.500 U	1.00	0.310	ug/L	1		06/19/15 14:08

Surrogates

1,4-Difluorobenzene (surr)	85.7	77-115		%	1		06/19/15 14:08
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Batch Information

Analytical Batch: VFC12472
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 06/19/15 14:08
Container ID: 1152812004-C

Prep Batch: VXX27465
Prep Method: SW5030B
Prep Date/Time: 06/19/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1711375 [VXX/27465]
 Blank Lab ID: 1272247

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1152812001, 1152812002, 1152812003, 1152812004

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	109	50-150		%

Batch Information

Analytical Batch: VFC12472
 Analytical Method: AK101
 Instrument: Agilent 7890 PID/FID
 Analyst: ST
 Analytical Date/Time: 6/19/2015 10:00:00AM

Prep Batch: VXX27465
 Prep Method: SW5030B
 Prep Date/Time: 6/19/2015 8:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Print Date: 07/06/2015 1:51:08PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1152812 [VXX27465]
 Blank Spike Lab ID: 1272250
 Date Analyzed: 06/19/2015 10:57

Spike Duplicate ID: LCSD for HBN 1152812 [VXX27465]
 Spike Duplicate Lab ID: 1272251
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1152812001, 1152812002, 1152812003, 1152812004

Results by AK101

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	1.00	1.11	111	1.00	1.12	112	(60-120)	1.10	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	0.0500	104	104	0.0500	98.4	98	(50-150)	5.70	
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Batch Information

Analytical Batch: **VFC12472**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **ST**

Prep Batch: **VXX27465**
 Prep Method: **SW5030B**
 Prep Date/Time: **06/19/2015 08:00**
 Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1711375 [VXX/27465]
 Blank Lab ID: 1272247

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1152812001, 1152812002, 1152812003, 1152812004

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.250U	0.500	0.150	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L

Surrogates

1,4-Difluorobenzene (surr)	86.8	77-115		%
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Batch Information

Analytical Batch: VFC12472
 Analytical Method: SW8021B
 Instrument: Agilent 7890 PID/FID
 Analyst: ST
 Analytical Date/Time: 6/19/2015 10:00:00AM

Prep Batch: VXX27465
 Prep Method: SW5030B
 Prep Date/Time: 6/19/2015 8:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Print Date: 07/06/2015 1:51:12PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1152812 [VXX27465]
 Blank Spike Lab ID: 1272248
 Date Analyzed: 06/19/2015 10:38

Spike Duplicate ID: LCSD for HBN 1152812 [VXX27465]
 Spike Duplicate Lab ID: 1272249
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1152812001, 1152812002, 1152812003, 1152812004

Results by SW8021B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	100	112	112	100	110	110	(80-120)	2.40	(< 20)
Ethylbenzene	100	114	114	100	112	112	(75-125)	1.80	(< 20)
o-Xylene	100	111	111	100	109	109	(80-120)	1.80	(< 20)
P & M -Xylene	200	226	113	200	222	111	(75-130)	1.60	(< 20)
Toluene	100	114	114	100	111	111	(75-120)	2.70	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	50	93.1	93	50	95.1	95	(77-115)	2.10	

Batch Information

Analytical Batch: **VFC12472**
 Analytical Method: **SW8021B**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **ST**

Prep Batch: **VXX27465**
 Prep Method: **SW5030B**
 Prep Date/Time: **06/19/2015 08:00**
 Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1711181 [XXX/33312]
Blank Lab ID: 1271572

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1152812001, 1152812002, 1152812004

Results by 8270D SIMS (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
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 (surr)	61.4	53-106		%
Terphenyl-d14 (surr)	83.7	58-132		%

Batch Information

Analytical Batch: XMS8719
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: SP
Analytical Date/Time: 6/19/2015 8:44:00PM

Prep Batch: XXX33312
Prep Method: SW3520C
Prep Date/Time: 6/17/2015 12:15:13PM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 07/06/2015 1:51:13PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1152812 [XXX33312]
 Blank Spike Lab ID: 1271573
 Date Analyzed: 06/19/2015 21:01

Spike Duplicate ID: LCSD for HBN 1152812
 [XXX33312]
 Spike Duplicate Lab ID: 1271574
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1152812001, 1152812002, 1152812004

Results by 8270D SIMS (PAH)

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	0.5	0.305	61	0.5	0.293	59	(41-115)	4.20	(< 20)
2-Methylnaphthalene	0.5	0.319	64	0.5	0.295	59	(39-114)	7.80	(< 20)
Acenaphthene	0.5	0.321	64	0.5	0.313	63	(48-114)	2.50	(< 20)
Acenaphthylene	0.5	0.334	67	0.5	0.317	63	(35-121)	5.20	(< 20)
Anthracene	0.5	0.355	71	0.5	0.341	68	(53-119)	3.80	(< 20)
Benzo(a)Anthracene	0.5	0.404	81	0.5	0.420	84	(59-120)	4.00	(< 20)
Benzo[a]pyrene	0.5	0.377	75	0.5	0.386	77	(53-120)	2.30	(< 20)
Benzo[b]Fluoranthene	0.5	0.391	78	0.5	0.407	81	(53-126)	4.00	(< 20)
Benzo[g,h,i]perylene	0.5	0.394	79	0.5	0.401	80	(44-128)	1.80	(< 20)
Benzo[k]fluoranthene	0.5	0.432	86	0.5	0.445	89	(54-125)	2.90	(< 20)
Chrysene	0.5	0.436	87	0.5	0.447	89	(57-120)	2.50	(< 20)
Dibenzo[a,h]anthracene	0.5	0.419	84	0.5	0.431	86	(44-131)	2.70	(< 20)
Fluoranthene	0.5	0.417	84	0.5	0.434	87	(58-120)	4.00	(< 20)
Fluorene	0.5	0.349	70	0.5	0.333	67	(50-118)	4.80	(< 20)
Indeno[1,2,3-c,d] pyrene	0.5	0.402	80	0.5	0.406	81	(48-130)	1.10	(< 20)
Naphthalene	0.5	0.344	69	0.5	0.321	64	(43-114)	6.90	(< 20)
Phenanthrene	0.5	0.378	76	0.5	0.366	73	(53-115)	3.20	(< 20)
Pyrene	0.5	0.404	81	0.5	0.422	85	(53-121)	4.50	(< 20)
Surrogates									
2-Fluorobiphenyl (surr)	0.5	67.2	67	0.5	64.5	65	(53-106)	4.10	
Terphenyl-d14 (surr)	0.5	82.9	83	0.5	86.6	87	(58-132)	4.40	

Batch Information

Analytical Batch: XMS8719
 Analytical Method: 8270D SIMS (PAH)
 Instrument: HP 6890/5973 MS SVQA
 Analyst: SP

Prep Batch: XXX33312
 Prep Method: SW3520C
 Prep Date/Time: 06/17/2015 12:15
 Spike Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1711769 [XXX/33380]
 Blank Lab ID: 1273194

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1152812001, 1152812002, 1152812004

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	0.0750U	0.150	0.0450	mg/L
Surrogates				
5a Androstane (surr)	98.6	60-120		%

Batch Information

Analytical Batch: XFC11917
 Analytical Method: AK102
 Instrument: HP 7890A FID SV E F
 Analyst: KJO
 Analytical Date/Time: 7/1/2015 12:25:00AM

Prep Batch: XXX33380
 Prep Method: SW3520C
 Prep Date/Time: 6/25/2015 11:30:58AM
 Prep Initial Wt./Vol.: 1000 mL
 Prep Extract Vol: 1 mL

Print Date: 07/06/2015 1:51:15PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1152812 [XXX33380]
 Blank Spike Lab ID: 1273195
 Date Analyzed: 07/01/2015 00:46

Spike Duplicate ID: LCSD for HBN 1152812 [XXX33380]
 Spike Duplicate Lab ID: 1273196
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1152812001, 1152812002, 1152812004

Results by AK102

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	5	5.87	117	5	6.00	120	(75-125)	2.30	(< 20)
Surrogates									
5a Androstane (surr)	0.1	104	104	0.1	105	105	(60-120)	0.63	

Batch Information

Analytical Batch: **XFC11917**
 Analytical Method: **AK102**
 Instrument: **HP 7890A FID SV E F**
 Analyst: **KJO**

Prep Batch: **XXX33380**
 Prep Method: **SW3520C**
 Prep Date/Time: **06/25/2015 11:30**
 Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1711769 [XXX/33380]
 Blank Lab ID: 1273194

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1152812001, 1152812002, 1152812004

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	0.0625U	0.125	0.0375	mg/L
Surrogates				
n-Triacontane-d62 (surr)	99	60-120		%

Batch Information

Analytical Batch: XFC11917
 Analytical Method: AK103
 Instrument: HP 7890A FID SV E F
 Analyst: KJO
 Analytical Date/Time: 7/1/2015 12:25:00AM

Prep Batch: XXX33380
 Prep Method: SW3520C
 Prep Date/Time: 6/25/2015 11:30:58AM
 Prep Initial Wt./Vol.: 1000 mL
 Prep Extract Vol: 1 mL

Print Date: 07/06/2015 1:51:19PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1152812 [XXX33380]
 Blank Spike Lab ID: 1273195
 Date Analyzed: 07/01/2015 00:46

Spike Duplicate ID: LCSD for HBN 1152812 [XXX33380]
 Spike Duplicate Lab ID: 1273196
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1152812001, 1152812002, 1152812004

Results by AK103

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	5	4.15	83	5	4.22	84	(60-120)	1.60	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.1	106	106	0.1	110	110	(60-120)	4.10	

Batch Information

Analytical Batch: **XFC11917**
 Analytical Method: **AK103**
 Instrument: **HP 7890A FID SV E F**
 Analyst: **KJO**

Prep Batch: **XXX33380**
 Prep Method: **SW3520C**
 Prep Date/Time: **06/25/2015 11:30**
 Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

1152812



SGS North America Inc.
:CHAIN OF CUSTODY RECORD

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

CLIENT: SLR International CONTACT: Jason Gray, Ben Siwiec PHONE #: 264-6965, 563-2126 PROJECT NAME: Red Salmon Project #: 105.00151.15005 task 0002 REPORTS TO: Jason Gray, Ben Siwiec E-MAIL: jgray@slrconsulting.com, bsiwiec@slrconsulting.com INVOICE TO: SLR International QUOTE #: 2015 SLR General P.O. #:		Section 3 Preservative Pres: Type: _____ Comp _____ Grab _____ MI (Multi-Incre-mental) _____ DRO/RRO by AK102/103 _____ GRO by AK101 / BTEX by 8021b _____ PAH by 8270D-SIM _____		REMARKS/LOC ID	
Section 4 # CONTAINERS 7 7 3 7		Pres: Type: _____ Comp _____ Grab _____ MI (Multi-Incre-mental) _____ DRO/RRO by AK102/103 _____ GRO by AK101 / BTEX by 8021b _____ PAH by 8270D-SIM _____		REMARKS/LOC ID	
Section 5 RESERVED for lab use DA-F SEEP1-061215 DA-G SEEP2-061215 DA-C TB1 DA-G SEEP1 DUPO61215		DATE mm/dd/yy 06/12/15 06/12/15 06/12/15 06/12/15		TIME HH:MM 0715 0920 0715 0715	
Section 5 SAMPLE IDENTIFICATION MATRIX/MATRIX CODE liquid liquid liquid liquid		DATE mm/dd/yy 06/12/15 06/12/15 06/12/15 06/12/15		TIME HH:MM 0715 0920 0715 0715	
Section 5 Relinquished By: (1) <i>[Signature]</i>		Date 06/12/15		Time 0945	
Section 5 Relinquished By: (2)		Date		Time	
Section 5 Relinquished By: (3)		Date		Time	
Section 5 Relinquished By: (4)		Date 6/15/15		Time 08:05	
Section 5 Received For Laboratory By: <i>[Signature]</i>		Date 6/15/15		Time 08:05	
Section 4 Cooler ID: _____ Requested Turnaround Time and/or Special Instructions: STANDARD		Section 4 DOD Project? No		Data Deliverable Requirements: LVL2	
Section 5 Chain of Custody Seal: (Circle) IF INTACT <input checked="" type="checkbox"/> BROKEN <input type="checkbox"/> ABSENT <input type="checkbox"/>		Temp Blank °C 4.3 / #240 or Ambient []		Chain of Custody Seal: (Circle) INTACT <input checked="" type="checkbox"/> BROKEN <input type="checkbox"/> ABSENT <input type="checkbox"/>	
Section 5 Relinquished By: (4)		Date 6/15/15		Time 08:05	

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

[] 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

339

0 257 8800

339

0 257 8800

SHIPPER'S NAME AND ADDRESS
Red Salmon
NARRK AK

SHIPPER'S ACCOUNT NUMBER
6610

NOT NEGOTIABLE

AIR WAYBILL
(AIR CONSIGNMENT NOTE)

PenAir

6100 BOEING AVE
ANCHORAGE, ALASKA 99502

Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity.

CONSIGNEE'S NAME AND ADDRESS
S&S Labs
NCA 907 562 2343

CONSIGNEE'S ACCOUNT NUMBER

If the carriage involves an ultimate destination or stop in a country other than the country of departure, the Warsaw Convention may be applicable and the Convention governs and in most cases limits the liability of carriers in respect of loss or damage to cargo. Agreed stopping places are those places (other than the places of departure and destination) shown under requested routing and/or those places shown in carriers' timetables as scheduled stopping places for the route. Address of first carrier is the airport of departure. SEE CONDITIONS ON REVERSE HEREOF.

Received in good condition at _____ on _____ Date/Time
(LOCATION) *AKN* *8/15*

Please print your name _____

Signature _____

<input type="checkbox"/> PRIORITY	<input type="checkbox"/> ECONOMY	DATE	TIME	PHONE	PERSON CONTACTED	BY	INSTRUCTIONS TO CARRIER
TO EXPEDITE MOVEMENT, SHIPMENT MAY BE DIVERTED TO MOTOR OR OTHER CARRIER UNLESS SHIPPER GIVES OTHER INSTRUCTIONS HEREON.							

AGENTS IATA CODE _____ ACCOUNT NO. _____

AIRPORT OF DEPARTURE (ADDR OF FIRST CARRIER) AND REQUESTED ROUTING
AKN

Domestic Liability: If no value declared PEN AIR liability will not exceed \$.50 per lb. plus transportation costs. See rule G32B5 A.T.P.

ROUTING AND DESTINATION

TO	BY FIRST CARRIER	TO	BY	TO	BY
	AKN				

AIRPORT OF DESTINATION
AKN

FOR CARRIER USE ONLY


FLIGHT/DATE	FLIGHT/DATE

CURRENCY	DECL. VAL FOR CARRIAGE	DECL. VAL FOR CUSTOMS
PK		

1152812

paid on acct.

HANDLING INFORMATION These commodities licensed by US for ultimate destination. Diversion contrary to US law is prohibited.



NO. OF PIECES RCP	GROSS WEIGHT	kg lb	RATE CLASS		CHARGEABLE WEIGHT	RATE / CHARGE	TOTAL	NATURE AND QUANTITY OF GOODS (INCL. DIMENSIONS OR VOLUME)
			COMMODITY ITEM NO.					
1	45					MIN		1 cooler H2O sample

PREPAID	WEIGHT CHARGE	COLLECT	P-UP ZONE	PICKUP CHARGES	ORIGIN ADVANCE CHARGES	DESCRIPTION OF ORIGIN ADVANCE	ITEMS PREPAID
A.							
	VALUATION CHARGE		DEL ZONE	DELIVERY CHARGES	DEST. ADVANCE CHARGES	DESCRIPTION OF DEST. ADVANCE	ITEMS COLLECT
D.							
	TAX		SHIPPER'S R.F.C. (AMOUNT TO BE ENTERED BY SHIPPER)		OTHER CHARGES AND DESCRIPTION		
I.							

TOTAL OTHER CHARGES DUE AGENT _____

TOTAL OTHER CHARGES DUE CARRIER _____

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods (hazardous materials) such part is properly described by name and is in proper condition for carriage by air according to the applicable government regulations and, for international shipments, the current International Air Transport Association's Dangerous Goods Regulations. It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage. SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF, THE SHIPPER'S ATTENTION IS DRAWN OF THE NOTICE CONCERNING CARRIERS LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and pay a supplemental charge if required.

PRINTED NAME _____ SIGNATURE OF SHIPPER OR HIS AGENT AND INITIAL APPROPRIATE BOX BELOW _____

COD → CURRENCY _____

TOTAL PREPAID _____ TOTAL COLLECT _____

CURRENCY CONVERSION RATES _____ TOTAL COLLECT IN DESTINATION CURRENCY _____

EXECUTED ON **8/15 AKN** at _____ (Place) _____

(Date) (Time) SIGNATURE OF ISSUING CARRIER OR ITS AGENT _____

FOR CARRIERS USE ONLY AT DESTINATION (ALL COLLECT CHARGES IN DESTINATION CURRENCY)

CHARGES AT DESTINATION _____

TOTAL COLLECT CHARGES _____

0 257 8800 28 of 31

Alert Expeditors Inc.

#355693

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

Date 07/15
From Rd Salmon
To 5-3

Collect <input type="checkbox"/>	Prepay <input type="checkbox"/> Account <input type="checkbox"/>	Advance Charges <input type="checkbox"/>
Job #	PO#	

1 Cooler
257 8700
Ken



Shipped Sig

Received By: Wanda Stone
07/15 Total Charge 29 of 31



1152812



1 1 5 2 8 1 2

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were custody seals intact? Note # & location, if applicable. COC accompanied samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if sampler hand carries/delivers.</i> 1F
Temperature blank compliant* (i.e., 0-6°C after CF)? <i>If >6°C, were samples collected <8 hours ago?</i> <i>If <0°C, were all sample containers ice free?</i> Cooler ID: <u>1</u> @ <u>7.3</u> w/ Therm.ID: #240 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled."	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Exemption permitted if chilled & collected <8 hrs ago.</i> Proceed with analysis per JAN. <i>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</i>
Delivery method (specify all that apply): <input type="checkbox"/> Client (hand carried) <input type="checkbox"/> USPS <input type="checkbox"/> Lynden <input type="checkbox"/> AK Air <input checked="" type="checkbox"/> Alert Courier <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> RAVN <input type="checkbox"/> C&D Delivery <input type="checkbox"/> Carlife <input checked="" type="checkbox"/> Pen Air <input type="checkbox"/> Warp Speed <input type="checkbox"/> Other: _____ → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Yes	N/A	No	
Were samples received within hold time? Do samples match COC* (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Note: Refer to form F-083 "Sample Guide" for hold times.</i> <i>Note: If times differ <1hr, record details and login per COC.</i> *
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): <input checked="" type="checkbox"/> Bubble Wrap <input type="checkbox"/> Separate plastic bags <input type="checkbox"/> Vermiculite <input type="checkbox"/> Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were proper containers (type/mass/volume/preservative*) used? Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials free of headspace (i.e., bubbles ≤6 mm)? Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <i>Exemption permitted for metals (e.g., 200.8/6020A).</i> One Trip Blank container has a bubble greater than 6mm.
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)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For special handling (e.g., "MI" soils, foreign soils, lab filter for dissolved..., lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For RUSH/SHORT Hold Time , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP , were containers / paperwork flagged accordingly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SRF Completed by: D.C 06/15/2015 PM notified: JAN
Was PEER REVIEW of <i>sample numbering/labeling completed</i> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Peer Reviewed by: VDL
Additional notes (if applicable): *Missing one container for DRO/RRO Low Volume Analysis (sample SEEP1-061215 (1152812-001)). *Sample 1152812-001B does not have the date and time on the container. Sample 1152812-002G does not have a sample ID on the container label (retrieved the sample ID from the container cap).				
<i>Note to Client: Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.</i>				



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1152812001-A	HCL to pH < 2	OK			
1152812001-B	HCL to pH < 2	OK			
1152812001-C	HCL to pH < 2	OK			
1152812001-D	HCL to pH < 2	OK			
1152812001-E	No Preservative Required	OK			
1152812001-F	No Preservative Required	OK			
1152812002-A	HCL to pH < 2	OK			
1152812002-B	HCL to pH < 2	OK			
1152812002-C	HCL to pH < 2	OK			
1152812002-D	HCL to pH < 2	OK			
1152812002-E	HCL to pH < 2	OK			
1152812002-F	No Preservative Required	OK			
1152812002-G	No Preservative Required	OK			
1152812003-A	HCL to pH < 2	OK			
1152812003-B	HCL to pH < 2	OK			
1152812003-C	HCL to pH < 2	OK			
1152812004-A	HCL to pH < 2	OK			
1152812004-B	HCL to pH < 2	OK			
1152812004-C	HCL to pH < 2	OK			
1152812004-D	HCL to pH < 2	OK			
1152812004-E	HCL to pH < 2	OK			
1152812004-F	No Preservative Required	OK			
1152812004-G	No Preservative Required	OK			

Container Condition Glossary

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

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

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

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

Laboratory Report of Analysis

To: SLR Alaska-Anchorage
2700 Gambell St Suite 200
Anchorage, AK 99503
(907)222-1112

Report Number: **1154090**

Client Project: **105.00151.15005 Red Salmon**

Dear Jason Gray,

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

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

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

Sincerely,
SGS North America Inc.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1154090**
Project Name/Site: **105.00151.15005 Red Salmon**
Project Contact: **Jason Gray**

Refer to sample receipt form for information on sample condition.

SFB4 (1154090006) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (191%) does not meet QC criteria due to matrix interference.
AK102 - Surrogate recovery for 5a-androstane (0%) does not meet QC criteria due to sample dilution (40X).

SFC7 (1154090008) PS

AK102 - Surrogate recovery for 5a-androstane (0%) does not meet QC criteria due to sample dilution (10X).

SFA9 (1154090009) PS

AK102 - Surrogate recovery for 5a-androstane (0%) does not meet QC criteria due to sample dilution (20X).

SWD1 (1154090011) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (353%) does not meet QC criteria due to matrix interference.
AK102 - Surrogate recovery for 5a-androstane (0%) does not meet QC criteria due to sample dilution (10X).

SWB0 (1154090012) PS

AK102 - Surrogate recovery for 5a-androstane (0%) does not meet QC criteria due to sample dilution (40X).

1158395001(1281090MS) (1281091) MS

8260B —MS recovery for Hexachlorobutadiene does not meet QC criteria. Refer to LCS for accuracy.

1154022001(1280940MSD) (1280942) MSD

8260B —MS/MSD RPD for Chloroethane do not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

1158395001(1281090MSD) (1281092) MSD

8260B —MSD recovery for Hexachlorobutadiene does not meet QC criteria. Refer to LCS for accuracy.

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

Laboratory Qualifiers

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

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

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

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

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

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
TP2	1154090001	07/28/2015	07/30/2015	Soil/Solid (dry weight)
TP3	1154090002	07/28/2015	07/30/2015	Soil/Solid (dry weight)
SFB1	1154090003	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SFB91	1154090004	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SFC2	1154090005	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SFB4	1154090006	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SFE6	1154090007	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SFC7	1154090008	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SFA9	1154090009	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SWE4	1154090010	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SWD1	1154090011	07/29/2015	07/30/2015	Soil/Solid (dry weight)
SWB0	1154090012	07/29/2015	07/30/2015	Soil/Solid (dry weight)
TB1	1154090013	07/28/2015	07/30/2015	Solid/Soil (Wet Weight)

Method

AK102

AK103

AK101

SM21 2540G

SW8260B

Method Description

Diesel/Residual Range Organics

Diesel/Residual Range Organics

Gasoline Range Organics (S)

Percent Solids SM2540G

Volatile Organic Compounds (S) FIELD EXT

Detectable Results Summary

Client Sample ID: TP3			
Lab Sample ID: 1154090002	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	10.2J	mg/Kg
Client Sample ID: SFB1			
Lab Sample ID: 1154090003	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	2340	mg/Kg
	Residual Range Organics	169	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.09J	mg/Kg
Client Sample ID: SFB91			
Lab Sample ID: 1154090004	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	1900	mg/Kg
	Residual Range Organics	166	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.93J	mg/Kg
Client Sample ID: SFC2			
Lab Sample ID: 1154090005	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	1220	mg/Kg
	Residual Range Organics	172	mg/Kg
Volatile Fuels	Gasoline Range Organics	8.35	mg/Kg
Volatile Gas Chromatography/Mass Spectrom	o-Xylene	129	ug/Kg
	P & M -Xylene	68.8J	ug/Kg
Client Sample ID: SFB4			
Lab Sample ID: 1154090006	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	20000	mg/Kg
	Residual Range Organics	495	mg/Kg
Volatile Fuels	Gasoline Range Organics	61.2	mg/Kg
Volatile Gas Chromatography/Mass Spectrom	Ethylbenzene	189	ug/Kg
	o-Xylene	1220	ug/Kg
	P & M -Xylene	811	ug/Kg
	Toluene	84.7	ug/Kg
Client Sample ID: SFE6			
Lab Sample ID: 1154090007	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	565	mg/Kg
	Residual Range Organics	498	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.35J	mg/Kg
Client Sample ID: SFC7			
Lab Sample ID: 1154090008	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	4840	mg/Kg
	Residual Range Organics	754	mg/Kg
Volatile Fuels	Gasoline Range Organics	23.0	mg/Kg
Volatile Gas Chromatography/Mass Spectrom	o-Xylene	23.4J	ug/Kg

Print Date: 08/12/2015 5:03:02PM

Detectable Results Summary

Client Sample ID: **SFA9**
 Lab Sample ID: 1154090009
Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	7130	mg/Kg
Residual Range Organics	747	mg/Kg
Gasoline Range Organics	12.6	mg/Kg

Volatile Fuels

Client Sample ID: **SWE4**
 Lab Sample ID: 1154090010
Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	192	mg/Kg
Residual Range Organics	29.3	mg/Kg
Gasoline Range Organics	1.66J	mg/Kg

Volatile Fuels

Client Sample ID: **SWD1**
 Lab Sample ID: 1154090011
Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	4500	mg/Kg
Residual Range Organics	156	mg/Kg
Gasoline Range Organics	94.5	mg/Kg
Volatile Gas Chromatography/Mass Spectrom		
Ethylbenzene	96.7	ug/Kg
o-Xylene	1010	ug/Kg
P & M -Xylene	705	ug/Kg
Toluene	29.1J	ug/Kg

Volatile Fuels

Client Sample ID: **SWB0**
 Lab Sample ID: 1154090012
Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	13000	mg/Kg
Residual Range Organics	194	mg/Kg
Gasoline Range Organics	16.5	mg/Kg

Volatile Fuels

Results of TP2

Client Sample ID: **TP2**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090001
 Lab Project ID: 1154090

Collection Date: 07/28/15 08:30
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):88.3
 Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	11.3 U	22.5	6.98	mg/Kg	1		08/07/15 17:38

Surrogates

5a Androstane (surr)	74.2	50-150		%	1		08/07/15 17:38
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Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK102
 Analyst: AYC
 Analytical Date/Time: 08/07/15 17:38
 Container ID: 1154090001-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.187 g
 Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	11.3 U	22.5	6.98	mg/Kg	1		08/07/15 17:38

Surrogates

n-Triacontane-d62 (surr)	84.2	50-150		%	1		08/07/15 17:38
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Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK103
 Analyst: AYC
 Analytical Date/Time: 08/07/15 17:38
 Container ID: 1154090001-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.187 g
 Prep Extract Vol: 1 mL

Results of TP2

Client Sample ID: **TP2**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090001
 Lab Project ID: 1154090

Collection Date: 07/28/15 08:30
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):88.3
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.06 U	4.11	1.23	mg/Kg	1		08/07/15 16:23
Surrogates							
4-Bromofluorobenzene (surr)	107	50-150		%	1		08/07/15 16:23

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 16:23
 Container ID: 1154090001-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/28/15 08:30
 Prep Initial Wt./Vol.: 41.143 g
 Prep Extract Vol: 29.8306 mL

Results of TP2

Client Sample ID: **TP2**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090001
 Lab Project ID: 1154090

Collection Date: 07/28/15 08:30
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):88.3
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	10.3 U	20.5	6.41	ug/Kg	1		08/03/15 14:46
Ethylbenzene	20.6 U	41.1	12.8	ug/Kg	1		08/03/15 14:46
o-Xylene	20.6 U	41.1	12.8	ug/Kg	1		08/03/15 14:46
P & M -Xylene	41.1 U	82.2	24.6	ug/Kg	1		08/03/15 14:46
Toluene	20.6 U	41.1	12.8	ug/Kg	1		08/03/15 14:46
Surrogates							
1,2-Dichloroethane-D4 (surr)	118	71-136		%	1		08/03/15 14:46
4-Bromofluorobenzene (surr)	107	55-151		%	1		08/03/15 14:46
Toluene-d8 (surr)	112	85-116		%	1		08/03/15 14:46

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 14:46
 Container ID: 1154090001-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/28/15 08:30
 Prep Initial Wt./Vol.: 41.143 g
 Prep Extract Vol: 29.8306 mL



Results of TP3

Client Sample ID: TP3
Client Project ID: 105.00151.15005 Red Salmon
Lab Sample ID: 1154090002
Lab Project ID: 1154090

Collection Date: 07/28/15 09:40
Received Date: 07/30/15 11:56
Matrix: Soil/Solid (dry weight)
Solids (%):89.2
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 10.2 J, 22.1, 6.86, mg/Kg, 1, 08/07/15 17:48

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 84.5, 50-150, %, 1, 08/07/15 17:48

Batch Information

Analytical Batch: XFC11994
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 08/07/15 17:48
Container ID: 1154090002-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.409 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 11.1 U, 22.1, 6.86, mg/Kg, 1, 08/07/15 17:48

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 98.6, 50-150, %, 1, 08/07/15 17:48

Batch Information

Analytical Batch: XFC11994
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 08/07/15 17:48
Container ID: 1154090002-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.409 g
Prep Extract Vol: 1 mL

Results of TP3

Client Sample ID: **TP3**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090002
 Lab Project ID: 1154090

Collection Date: 07/28/15 09:40
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):89.2
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.60 U	3.19	0.958	mg/Kg	1		08/07/15 16:42
Surrogates							
4-Bromofluorobenzene (surr)	106	50-150		%	1		08/07/15 16:42

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 16:42
 Container ID: 1154090002-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/28/15 09:40
 Prep Initial Wt./Vol.: 54.183 g
 Prep Extract Vol: 30.8646 mL

Results of TP3

Client Sample ID: **TP3**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090002
 Lab Project ID: 1154090

Collection Date: 07/28/15 09:40
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):89.2
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	8.00 U	16.0	4.98	ug/Kg	1		08/03/15 15:02
Ethylbenzene	15.9 U	31.9	9.96	ug/Kg	1		08/03/15 15:02
o-Xylene	15.9 U	31.9	9.96	ug/Kg	1		08/03/15 15:02
P & M -Xylene	31.9 U	63.9	19.2	ug/Kg	1		08/03/15 15:02
Toluene	15.9 U	31.9	9.96	ug/Kg	1		08/03/15 15:02
Surrogates							
1,2-Dichloroethane-D4 (surr)	119	71-136		%	1		08/03/15 15:02
4-Bromofluorobenzene (surr)	110	55-151		%	1		08/03/15 15:02
Toluene-d8 (surr)	113	85-116		%	1		08/03/15 15:02

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 15:02
 Container ID: 1154090002-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/28/15 09:40
 Prep Initial Wt./Vol.: 54.183 g
 Prep Extract Vol: 30.8646 mL



Results of **SFB1**

Client Sample ID: **SFB1**
Client Project ID: **105.00151.15005 Red Salmon**
Lab Sample ID: 1154090003
Lab Project ID: 1154090

Collection Date: 07/29/15 10:00
Received Date: 07/30/15 11:56
Matrix: Soil/Solid (dry weight)
Solids (%):77.8
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	2340	102	31.6	mg/Kg	4		08/07/15 18:37

Surrogates

5a Androstane (surr)	143	50-150		%	4		08/07/15 18:37
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Batch Information

Analytical Batch: XFC11994
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 08/07/15 18:37
Container ID: 1154090003-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.282 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	169	102	31.6	mg/Kg	4		08/07/15 18:37

Surrogates

n-Triacontane-d62 (surr)	100	50-150		%	4		08/07/15 18:37
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Batch Information

Analytical Batch: XFC11994
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 08/07/15 18:37
Container ID: 1154090003-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.282 g
Prep Extract Vol: 1 mL

Results of SFB1

Client Sample ID: **SFB1**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090003
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:00
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):77.8
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.09 J	5.98	1.79	mg/Kg	1		08/07/15 17:01
Surrogates							
4-Bromofluorobenzene (surr)	104	50-150		%	1		08/07/15 17:01

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 17:01
 Container ID: 1154090003-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:00
 Prep Initial Wt./Vol.: 35.237 g
 Prep Extract Vol: 32.812 mL

Results of SFB1

Client Sample ID: **SFB1**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090003
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:00
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):77.8
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	14.9 U	29.9	9.33	ug/Kg	1		08/03/15 15:18
Ethylbenzene	29.9 U	59.8	18.7	ug/Kg	1		08/03/15 15:18
o-Xylene	29.9 U	59.8	18.7	ug/Kg	1		08/03/15 15:18
P & M -Xylene	60.0 U	120	35.9	ug/Kg	1		08/03/15 15:18
Toluene	29.9 U	59.8	18.7	ug/Kg	1		08/03/15 15:18
Surrogates							
1,2-Dichloroethane-D4 (surr)	118	71-136		%	1		08/03/15 15:18
4-Bromofluorobenzene (surr)	103	55-151		%	1		08/03/15 15:18
Toluene-d8 (surr)	113	85-116		%	1		08/03/15 15:18

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 15:18
 Container ID: 1154090003-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:00
 Prep Initial Wt./Vol.: 35.237 g
 Prep Extract Vol: 32.812 mL

Results of SFB91

Client Sample ID: **SFB91**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090004
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:00
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):77.2
 Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1900	103	31.9	mg/Kg	4		08/07/15 18:47

Surrogates

5a Androstane (surr)	127	50-150		%	4		08/07/15 18:47
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Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK102
 Analyst: AYC
 Analytical Date/Time: 08/07/15 18:47
 Container ID: 1154090004-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.157 g
 Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	166	103	31.9	mg/Kg	4		08/07/15 18:47

Surrogates

n-Triacontane-d62 (surr)	88.4	50-150		%	4		08/07/15 18:47
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Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK103
 Analyst: AYC
 Analytical Date/Time: 08/07/15 18:47
 Container ID: 1154090004-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.157 g
 Prep Extract Vol: 1 mL

Results of SFB91

Client Sample ID: **SFB91**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090004
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:00
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):77.2
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.93 J	5.34	1.60	mg/Kg	1		08/07/15 17:21
Surrogates							
4-Bromofluorobenzene (surr)	96.5	50-150		%	1		08/07/15 17:21

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 17:21
 Container ID: 1154090004-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:00
 Prep Initial Wt./Vol.: 41.836 g
 Prep Extract Vol: 34.5191 mL

Results of SFB91

Client Sample ID: **SFB91**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090004
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:00
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):77.2
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	13.4 U	26.7	8.33	ug/Kg	1		08/03/15 15:34
Ethylbenzene	26.7 U	53.4	16.7	ug/Kg	1		08/03/15 15:34
o-Xylene	26.7 U	53.4	16.7	ug/Kg	1		08/03/15 15:34
P & M -Xylene	53.5 U	107	32.0	ug/Kg	1		08/03/15 15:34
Toluene	26.7 U	53.4	16.7	ug/Kg	1		08/03/15 15:34
Surrogates							
1,2-Dichloroethane-D4 (surr)	116	71-136		%	1		08/03/15 15:34
4-Bromofluorobenzene (surr)	99.8	55-151		%	1		08/03/15 15:34
Toluene-d8 (surr)	112	85-116		%	1		08/03/15 15:34

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 15:34
 Container ID: 1154090004-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:00
 Prep Initial Wt./Vol.: 41.836 g
 Prep Extract Vol: 34.5191 mL



Results of **SFC2**

Client Sample ID: **SFC2**
Client Project ID: **105.00151.15005 Red Salmon**
Lab Sample ID: 1154090005
Lab Project ID: 1154090

Collection Date: 07/29/15 10:05
Received Date: 07/30/15 11:56
Matrix: Soil/Solid (dry weight)
Solids (%):76.6
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1220	104	32.2	mg/Kg	4		08/11/15 12:40

Surrogates

5a Androstane (surr)	131	50-150		%	4		08/11/15 12:40
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Batch Information

Analytical Batch: XFC12000
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 08/11/15 12:40
Container ID: 1154090005-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.225 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	172	25.9	8.04	mg/Kg	1		08/07/15 17:58

Surrogates

n-Triacontane-d62 (surr)	104	50-150		%	1		08/07/15 17:58
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Batch Information

Analytical Batch: XFC11994
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 08/07/15 17:58
Container ID: 1154090005-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.225 g
Prep Extract Vol: 1 mL

Results of SFC2

Client Sample ID: **SFC2**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090005
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:05
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):76.6
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	8.35	5.46	1.64	mg/Kg	1		08/07/15 17:40
Surrogates							
4-Bromofluorobenzene (surr)	115	50-150		%	1		08/07/15 17:40

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 17:40
 Container ID: 1154090005-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:05
 Prep Initial Wt./Vol.: 41.522 g
 Prep Extract Vol: 34.7356 mL

Results of SFC2

Client Sample ID: **SFC2**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090005
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:05
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):76.6
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	13.7 U	27.3	8.52	ug/Kg	1		08/03/15 15:50
Ethylbenzene	27.3 U	54.6	17.0	ug/Kg	1		08/03/15 15:50
o-Xylene	129	54.6	17.0	ug/Kg	1		08/03/15 15:50
P & M -Xylene	68.8 J	109	32.8	ug/Kg	1		08/03/15 15:50
Toluene	27.3 U	54.6	17.0	ug/Kg	1		08/03/15 15:50
Surrogates							
1,2-Dichloroethane-D4 (surr)	118	71-136		%	1		08/03/15 15:50
4-Bromofluorobenzene (surr)	106	55-151		%	1		08/03/15 15:50
Toluene-d8 (surr)	112	85-116		%	1		08/03/15 15:50

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 15:50
 Container ID: 1154090005-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:05
 Prep Initial Wt./Vol.: 41.522 g
 Prep Extract Vol: 34.7356 mL



Results of **SFB4**

Client Sample ID: **SFB4**
Client Project ID: **105.00151.15005 Red Salmon**
Lab Sample ID: 1154090006
Lab Project ID: 1154090

Collection Date: 07/29/15 10:15
Received Date: 07/30/15 11:56
Matrix: Soil/Solid (dry weight)
Solids (%):75.7
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	20000	1050	325	mg/Kg	40		08/11/15 13:00

Surrogates

5a Androstane (surr)	0 *	50-150		%	40		08/11/15 13:00
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Batch Information

Analytical Batch: XFC12000
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 08/11/15 13:00
Container ID: 1154090006-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.258 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	495	105	32.5	mg/Kg	4		08/07/15 18:57

Surrogates

n-Triacontane-d62 (surr)	91.6	50-150		%	4		08/07/15 18:57
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Batch Information

Analytical Batch: XFC11994
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 08/07/15 18:57
Container ID: 1154090006-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.258 g
Prep Extract Vol: 1 mL

Results of SFB4

Client Sample ID: **SFB4**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090006
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:15
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):75.7
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	61.2		5.50	1.65	mg/Kg	1		08/07/15 17:59
Surrogates								
4-Bromofluorobenzene (surr)	191	*	50-150		%	1		08/07/15 17:59

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 17:59
 Container ID: 1154090006-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:15
 Prep Initial Wt./Vol.: 42.423 g
 Prep Extract Vol: 35.3089 mL

Results of SFB4

Client Sample ID: **SFB4**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090006
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:15
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):75.7
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	13.8 U	27.5	8.58	ug/Kg	1		08/03/15 16:06
Ethylbenzene	189	55.0	17.2	ug/Kg	1		08/03/15 16:06
o-Xylene	1220	55.0	17.2	ug/Kg	1		08/03/15 16:06
P & M -Xylene	811	110	33.0	ug/Kg	1		08/03/15 16:06
Toluene	84.7	55.0	17.2	ug/Kg	1		08/03/15 16:06
Surrogates							
1,2-Dichloroethane-D4 (surr)	114	71-136		%	1		08/03/15 16:06
4-Bromofluorobenzene (surr)	100	55-151		%	1		08/03/15 16:06
Toluene-d8 (surr)	112	85-116		%	1		08/03/15 16:06

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 16:06
 Container ID: 1154090006-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:15
 Prep Initial Wt./Vol.: 42.423 g
 Prep Extract Vol: 35.3089 mL



Results of SFE6

Client Sample ID: SFE6
Client Project ID: 105.00151.15005 Red Salmon
Lab Sample ID: 1154090007
Lab Project ID: 1154090

Collection Date: 07/29/15 10:18
Received Date: 07/30/15 11:56
Matrix: Soil/Solid (dry weight)
Solids (%):74.5
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 565, 26.7, 8.29, mg/Kg, 1, 08/07/15 18:07

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 94.2, 50-150, %, 1, 08/07/15 18:07

Batch Information

Analytical Batch: XFC11994
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 08/07/15 18:07
Container ID: 1154090007-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.114 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 498, 26.7, 8.29, mg/Kg, 1, 08/07/15 18:07

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 86.4, 50-150, %, 1, 08/07/15 18:07

Batch Information

Analytical Batch: XFC11994
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 08/07/15 18:07
Container ID: 1154090007-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.114 g
Prep Extract Vol: 1 mL

Results of SFE6

Client Sample ID: **SFE6**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090007
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:18
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):74.5
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.35 J	5.07	1.52	mg/Kg	1		08/07/15 18:18
Surrogates							
4-Bromofluorobenzene (surr)	98.7	50-150		%	1		08/07/15 18:18

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 18:18
 Container ID: 1154090007-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:18
 Prep Initial Wt./Vol.: 49.888 g
 Prep Extract Vol: 37.6999 mL

Results of SFE6

Client Sample ID: **SFE6**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090007
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:18
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):74.5
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	12.7 U	25.3	7.91	ug/Kg	1		08/03/15 16:22
Ethylbenzene	25.4 U	50.7	15.8	ug/Kg	1		08/03/15 16:22
o-Xylene	25.4 U	50.7	15.8	ug/Kg	1		08/03/15 16:22
P & M -Xylene	50.5 U	101	30.4	ug/Kg	1		08/03/15 16:22
Toluene	25.4 U	50.7	15.8	ug/Kg	1		08/03/15 16:22
Surrogates							
1,2-Dichloroethane-D4 (surr)	117	71-136		%	1		08/03/15 16:22
4-Bromofluorobenzene (surr)	105	55-151		%	1		08/03/15 16:22
Toluene-d8 (surr)	112	85-116		%	1		08/03/15 16:22

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 16:22
 Container ID: 1154090007-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:18
 Prep Initial Wt./Vol.: 49.888 g
 Prep Extract Vol: 37.6999 mL



Results of **SFC7**

Client Sample ID: **SFC7**
Client Project ID: **105.00151.15005 Red Salmon**
Lab Sample ID: 1154090008
Lab Project ID: 1154090

Collection Date: 07/29/15 10:22
Received Date: 07/30/15 11:56
Matrix: Soil/Solid (dry weight)
Solids (%):82.7
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	4840	239	74.2	mg/Kg	10		08/11/15 13:20

Surrogates

5a Androstane (surr)	0 *	50-150		%	10		08/11/15 13:20
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Batch Information

Analytical Batch: XFC12000
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 08/11/15 13:20
Container ID: 1154090008-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.319 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	754	95.8	29.7	mg/Kg	4		08/07/15 19:07

Surrogates

n-Triacontane-d62 (surr)	83.4	50-150		%	4		08/07/15 19:07
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Batch Information

Analytical Batch: XFC11994
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 08/07/15 19:07
Container ID: 1154090008-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.319 g
Prep Extract Vol: 1 mL

Results of SFC7

Client Sample ID: **SFC7**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090008
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:22
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):82.7
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	23.0	6.33	1.90	mg/Kg	1		08/07/15 18:37
Surrogates							
4-Bromofluorobenzene (surr)	118	50-150		%	1		08/07/15 18:37

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 18:37
 Container ID: 1154090008-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:22
 Prep Initial Wt./Vol.: 28.62 g
 Prep Extract Vol: 29.9636 mL

Results of SFC7

Client Sample ID: **SFC7**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090008
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:22
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):82.7
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	15.9 U	31.7	9.88	ug/Kg	1		08/03/15 16:38
Ethylbenzene	31.6 U	63.3	19.8	ug/Kg	1		08/03/15 16:38
o-Xylene	23.4 J	63.3	19.8	ug/Kg	1		08/03/15 16:38
P & M -Xylene	63.5 U	127	38.0	ug/Kg	1		08/03/15 16:38
Toluene	31.6 U	63.3	19.8	ug/Kg	1		08/03/15 16:38
Surrogates							
1,2-Dichloroethane-D4 (surr)	118	71-136		%	1		08/03/15 16:38
4-Bromofluorobenzene (surr)	106	55-151		%	1		08/03/15 16:38
Toluene-d8 (surr)	111	85-116		%	1		08/03/15 16:38

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 16:38
 Container ID: 1154090008-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:22
 Prep Initial Wt./Vol.: 28.62 g
 Prep Extract Vol: 29.9636 mL



Results of SFA9

Client Sample ID: SFA9
Client Project ID: 105.00151.15005 Red Salmon
Lab Sample ID: 1154090009
Lab Project ID: 1154090

Collection Date: 07/29/15 10:30
Received Date: 07/30/15 11:56
Matrix: Soil/Solid (dry weight)
Solids (%):82.5
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC12000
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 08/11/15 13:30
Container ID: 1154090009-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.467 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC11994
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 08/07/15 19:17
Container ID: 1154090009-A

Prep Batch: XXX33725
Prep Method: SW3550C
Prep Date/Time: 08/02/15 11:05
Prep Initial Wt./Vol.: 30.467 g
Prep Extract Vol: 1 mL

Results of SFA9

Client Sample ID: **SFA9**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090009
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:30
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):82.5
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	12.6	5.51	1.65	mg/Kg	1		08/07/15 19:54
Surrogates							
4-Bromofluorobenzene (surr)	110	50-150		%	1		08/07/15 19:54

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 19:54
 Container ID: 1154090009-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:30
 Prep Initial Wt./Vol.: 33.98 g
 Prep Extract Vol: 30.932 mL

Results of SFA9

Client Sample ID: **SFA9**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090009
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:30
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):82.5
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	13.8 U	27.6	8.60	ug/Kg	1		08/03/15 16:54
Ethylbenzene	27.6 U	55.1	17.2	ug/Kg	1		08/03/15 16:54
o-Xylene	27.6 U	55.1	17.2	ug/Kg	1		08/03/15 16:54
P & M -Xylene	55.0 U	110	33.1	ug/Kg	1		08/03/15 16:54
Toluene	27.6 U	55.1	17.2	ug/Kg	1		08/03/15 16:54
Surrogates							
1,2-Dichloroethane-D4 (surr)	117	71-136		%	1		08/03/15 16:54
4-Bromofluorobenzene (surr)	107	55-151		%	1		08/03/15 16:54
Toluene-d8 (surr)	112	85-116		%	1		08/03/15 16:54

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 16:54
 Container ID: 1154090009-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:30
 Prep Initial Wt./Vol.: 33.98 g
 Prep Extract Vol: 30.932 mL

Results of SWE4

Client Sample ID: **SWE4**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090010
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:35
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.1
 Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	192	23.2	7.18	mg/Kg	1		08/07/15 18:17

Surrogates

5a Androstane (surr)	94.5	50-150		%	1		08/07/15 18:17
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Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK102
 Analyst: AYC
 Analytical Date/Time: 08/07/15 18:17
 Container ID: 1154090010-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.096 g
 Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	29.3	23.2	7.18	mg/Kg	1		08/07/15 18:17

Surrogates

n-Triacontane-d62 (surr)	101	50-150		%	1		08/07/15 18:17
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Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK103
 Analyst: AYC
 Analytical Date/Time: 08/07/15 18:17
 Container ID: 1154090010-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.096 g
 Prep Extract Vol: 1 mL

Results of SWE4

Client Sample ID: **SWE4**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090010
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:35
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.1
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.66 J	4.46	1.34	mg/Kg	1		08/07/15 20:13
Surrogates							
4-Bromofluorobenzene (surr)	103	50-150		%	1		08/07/15 20:13

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 20:13
 Container ID: 1154090010-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:35
 Prep Initial Wt./Vol.: 39.72 g
 Prep Extract Vol: 30.5291 mL

Results of SWE4

Client Sample ID: **SWE4**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090010
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:35
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.1
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	11.2 U	22.3	6.96	ug/Kg	1		08/03/15 17:10
Ethylbenzene	22.3 U	44.6	13.9	ug/Kg	1		08/03/15 17:10
o-Xylene	22.3 U	44.6	13.9	ug/Kg	1		08/03/15 17:10
P & M -Xylene	44.6 U	89.3	26.8	ug/Kg	1		08/03/15 17:10
Toluene	22.3 U	44.6	13.9	ug/Kg	1		08/03/15 17:10
Surrogates							
1,2-Dichloroethane-D4 (surr)	116	71-136		%	1		08/03/15 17:10
4-Bromofluorobenzene (surr)	105	55-151		%	1		08/03/15 17:10
Toluene-d8 (surr)	114	85-116		%	1		08/03/15 17:10

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 17:10
 Container ID: 1154090010-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:35
 Prep Initial Wt./Vol.: 39.72 g
 Prep Extract Vol: 30.5291 mL

Results of SWD1

Client Sample ID: **SWD1**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090011
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:40
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):90.8
 Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	4500	220	68.2	mg/Kg	10		08/11/15 13:40

Surrogates

5a Androstane (surr)	0 *	50-150		%	10		08/11/15 13:40
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Batch Information

Analytical Batch: XFC12000
 Analytical Method: AK102
 Analyst: AYC
 Analytical Date/Time: 08/11/15 13:40
 Container ID: 1154090011-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.05 g
 Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	156	88.0	27.3	mg/Kg	4		08/07/15 19:27

Surrogates

n-Triacontane-d62 (surr)	77.7	50-150		%	4		08/07/15 19:27
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Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK103
 Analyst: AYC
 Analytical Date/Time: 08/07/15 19:27
 Container ID: 1154090011-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.05 g
 Prep Extract Vol: 1 mL

Results of SWD1

Client Sample ID: **SWD1**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090011
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:40
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):90.8
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	94.5		4.34	1.30	mg/Kg	1		08/07/15 20:32
Surrogates								
4-Bromofluorobenzene (surr)	353	*	50-150		%	1		08/07/15 20:32

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 20:32
 Container ID: 1154090011-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:40
 Prep Initial Wt./Vol.: 35.931 g
 Prep Extract Vol: 28.3061 mL

Results of SWD1

Client Sample ID: **SWD1**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090011
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:40
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):90.8
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	10.9 U	21.7	6.77	ug/Kg	1		08/03/15 17:26
Ethylbenzene	96.7	43.4	13.5	ug/Kg	1		08/03/15 17:26
o-Xylene	1010	43.4	13.5	ug/Kg	1		08/03/15 17:26
P & M -Xylene	705	86.8	26.0	ug/Kg	1		08/03/15 17:26
Toluene	29.1 J	43.4	13.5	ug/Kg	1		08/03/15 17:26
Surrogates							
1,2-Dichloroethane-D4 (surr)	112	71-136		%	1		08/03/15 17:26
4-Bromofluorobenzene (surr)	106	55-151		%	1		08/03/15 17:26
Toluene-d8 (surr)	110	85-116		%	1		08/03/15 17:26

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 17:26
 Container ID: 1154090011-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:40
 Prep Initial Wt./Vol.: 35.931 g
 Prep Extract Vol: 28.3061 mL



Results of SWB0

Client Sample ID: **SWB0**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090012
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:45
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):89.6
 Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13000	885	274	mg/Kg	40		08/11/15 12:50

Surrogates

5a Androstane (surr)	0 *	50-150		%	40		08/11/15 12:50
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Batch Information

Analytical Batch: XFC12000
 Analytical Method: AK102
 Analyst: AYC
 Analytical Date/Time: 08/11/15 12:50
 Container ID: 1154090012-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.289 g
 Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	194	22.1	6.86	mg/Kg	1		08/07/15 18:27

Surrogates

n-Triacontane-d62 (surr)	87.4	50-150		%	1		08/07/15 18:27
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Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK103
 Analyst: AYC
 Analytical Date/Time: 08/07/15 18:27
 Container ID: 1154090012-A

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 08/02/15 11:05
 Prep Initial Wt./Vol.: 30.289 g
 Prep Extract Vol: 1 mL

Results of SWB0

Client Sample ID: **SWB0**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090012
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:45
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):89.6
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	16.5	3.98	1.19	mg/Kg	1		08/07/15 20:52
Surrogates							
4-Bromofluorobenzene (surr)	118	50-150		%	1		08/07/15 20:52

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 20:52
 Container ID: 1154090012-B

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:45
 Prep Initial Wt./Vol.: 41.077 g
 Prep Extract Vol: 29.2882 mL

Results of SWB0

Client Sample ID: **SWB0**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090012
 Lab Project ID: 1154090

Collection Date: 07/29/15 10:45
 Received Date: 07/30/15 11:56
 Matrix: Soil/Solid (dry weight)
 Solids (%):89.6
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	9.95 U	19.9	6.21	ug/Kg	1		08/03/15 17:42
Ethylbenzene	19.9 U	39.8	12.4	ug/Kg	1		08/03/15 17:42
o-Xylene	19.9 U	39.8	12.4	ug/Kg	1		08/03/15 17:42
P & M -Xylene	39.8 U	79.6	23.9	ug/Kg	1		08/03/15 17:42
Toluene	19.9 U	39.8	12.4	ug/Kg	1		08/03/15 17:42
Surrogates							
1,2-Dichloroethane-D4 (surr)	117	71-136		%	1		08/03/15 17:42
4-Bromofluorobenzene (surr)	105	55-151		%	1		08/03/15 17:42
Toluene-d8 (surr)	110	85-116		%	1		08/03/15 17:42

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 08/03/15 17:42
 Container ID: 1154090012-B

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 07/29/15 10:45
 Prep Initial Wt./Vol.: 41.077 g
 Prep Extract Vol: 29.2882 mL

Results of TB1

Client Sample ID: **TB1**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090013
 Lab Project ID: 1154090

Collection Date: 07/28/15 08:30
 Received Date: 07/30/15 11:56
 Matrix: Solid/Soil (Wet Weight)
 Solids (%):
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.25 U	2.50	0.749	mg/Kg	1		08/07/15 16:04
Surrogates							
4-Bromofluorobenzene (surr)	104	50-150		%	1		08/07/15 16:04

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/07/15 16:04
 Container ID: 1154090013-A

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 07/28/15 08:30
 Prep Initial Wt./Vol.: 50.097 g
 Prep Extract Vol: 25 mL

Results of TB1

Client Sample ID: **TB1**
 Client Project ID: **105.00151.15005 Red Salmon**
 Lab Sample ID: 1154090013
 Lab Project ID: 1154090

Collection Date: 07/28/15 08:30
 Received Date: 07/30/15 11:56
 Matrix: Solid/Soil (Wet Weight)
 Solids (%):
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	6.25 U	12.5	3.89	ug/Kg	1		07/31/15 17:52
Ethylbenzene	12.5 U	25.0	7.78	ug/Kg	1		07/31/15 17:52
o-Xylene	12.5 U	25.0	7.78	ug/Kg	1		07/31/15 17:52
P & M -Xylene	24.9 U	49.9	15.0	ug/Kg	1		07/31/15 17:52
Toluene	12.5 U	25.0	7.78	ug/Kg	1		07/31/15 17:52
Surrogates							
1,2-Dichloroethane-D4 (surr)	106	71-136		%	1		07/31/15 17:52
4-Bromofluorobenzene (surr)	98.5	55-151		%	1		07/31/15 17:52
Toluene-d8 (surr)	97	85-116		%	1		07/31/15 17:52

Batch Information

Analytical Batch: VMS15136
 Analytical Method: SW8260B
 Analyst: ST
 Analytical Date/Time: 07/31/15 17:52
 Container ID: 1154090013-A

Prep Batch: VXX27656
 Prep Method: SW5035A
 Prep Date/Time: 07/28/15 08:30
 Prep Initial Wt./Vol.: 50.097 g
 Prep Extract Vol: 25 mL



Method Blank

Blank ID: MB for HBN 1715459 [SPT/9678]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1280698

QC for Samples:

1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012

Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

Batch Information

Analytical Batch: SPT9678

Analytical Method: SM21 2540G

Instrument:

Analyst: A.R

Analytical Date/Time: 7/31/2015 6:55:00PM

Print Date: 08/12/2015 5:03:16PM

Duplicate Sample Summary

Original Sample ID: 1154038008

Duplicate Sample ID: 1280699

QC for Samples:

1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008

Analysis Date: 07/31/2015 18:55

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	96.3	96.3	%	0.08	(< 15)

Batch Information

Analytical Batch: SPT9678

Analytical Method: SM21 2540G

Instrument:

Analyst: A.R

Print Date: 08/12/2015 5:03:18PM

Duplicate Sample Summary

Original Sample ID: 1154090008

Duplicate Sample ID: 1280700

QC for Samples:

1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008,
1154090009, 1154090010, 1154090011, 1154090012

Analysis Date: 07/31/2015 18:55

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	82.7	82.3	%	0.48	(< 15)

Batch Information

Analytical Batch: SPT9678

Analytical Method: SM21 2540G

Instrument:

Analyst: A.R

Print Date: 08/12/2015 5:03:18PM

Duplicate Sample Summary

Original Sample ID: 1158371002

Duplicate Sample ID: 1280701

QC for Samples:

1154090009, 1154090010, 1154090011, 1154090012

Analysis Date: 07/31/2015 18:55

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	79.1	79.6	%	0.68	(< 15)

Batch Information

Analytical Batch: SPT9678

Analytical Method: SM21 2540G

Instrument:

Analyst: A.R

Print Date: 08/12/2015 5:03:18PM

Method Blank

Blank ID: MB for HBN 1715789 [VXX/27656]
 Blank Lab ID: 1280938

Matrix: Soil/Solid (dry weight)

QC for Samples:
 1154090013

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	6.25U	12.5	3.90	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	107	71-136		%
4-Bromofluorobenzene (surr)	95.4	55-151		%
Toluene-d8 (surr)	95.9	85-116		%

Batch Information

Analytical Batch: VMS15136
 Analytical Method: SW8260B
 Instrument: Agilent 7890-75MS
 Analyst: ST
 Analytical Date/Time: 7/31/2015 3:21:00PM

Prep Batch: VXX27656
 Prep Method: SW5035A
 Prep Date/Time: 7/31/2015 8:00:00AM
 Prep Initial Wt./Vol.: 50 g
 Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154090 [VXX27656]
 Blank Spike Lab ID: 1280939
 Date Analyzed: 07/31/2015 15:50

Matrix: Soil/Solid (dry weight)

QC for Samples: 1154090013

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Benzene	750	750	100	(77-121)
Ethylbenzene	750	756	101	(76-122)
o-Xylene	750	757	101	(77-123)
P & M -Xylene	1500	1510	100	(77-124)
Toluene	750	696	93	(77-121)
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	98.4	98	(71-136)
4-Bromofluorobenzene (surr)	750	96.1	96	(55-151)
Toluene-d8 (surr)	750	95.7	96	(85-116)

Batch Information

Analytical Batch: **VMS15136**
 Analytical Method: **SW8260B**
 Instrument: **Agilent 7890-75MS**
 Analyst: **ST**

Prep Batch: **VXX27656**
 Prep Method: **SW5035A**
 Prep Date/Time: **07/31/2015 08:00**
 Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1280940
 MS Sample ID: 1280941 MS
 MSD Sample ID: 1280942 MSD

Analysis Date: 07/31/2015 18:24
 Analysis Date: 07/31/2015 16:32
 Analysis Date: 07/31/2015 16:48
 Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1154090013

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	5.40U	649	647	100	649	682	105	77-121	5.20	(< 20)
Ethylbenzene	10.8U	649	641	99	649	668	103	76-122	4.10	(< 20)
o-Xylene	10.8U	649	647	100	649	671	103	77-123	3.70	(< 20)
P & M -Xylene	21.6U	1300	1280	99	1300	1340	103	77-124	4.20	(< 20)
Toluene	10.8U	649	627	97	649	619	95	77-121	1.20	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		649	649	100	649	671	103	71-136	3.20	
4-Bromofluorobenzene (surr)		1730	1370	79	1730	1420	82	55-151	3.50	
Toluene-d8 (surr)		649	647	100	649	639	99	85-116	1.20	

Batch Information

Analytical Batch: VMS15136
 Analytical Method: SW8260B
 Instrument: Agilent 7890-75MS
 Analyst: ST
 Analytical Date/Time: 7/31/2015 4:32:00PM

Prep Batch: VXX27656
 Prep Method: Vol. Extraction SW8260 Field Extracted L
 Prep Date/Time: 7/31/2015 8:00:00AM
 Prep Initial Wt./Vol.: 57.81g
 Prep Extract Vol: 25.00mL

Method Blank

Blank ID: MB for HBN 1715860 [VXX/27661]
 Blank Lab ID: 1281088

Matrix: Soil/Solid (dry weight)

QC for Samples:

1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	6.25U	12.5	3.90	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	110	71-136		%
4-Bromofluorobenzene (surr)	91	55-151		%
Toluene-d8 (surr)	97.5	85-116		%

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Instrument: VQA 7890/5975 GC/MS
 Analyst: ST
 Analytical Date/Time: 8/3/2015 10:59:00AM

Prep Batch: VXX27661
 Prep Method: SW5035A
 Prep Date/Time: 8/3/2015 8:00:00AM
 Prep Initial Wt./Vol.: 50 g
 Prep Extract Vol: 25 mL

Print Date: 08/12/2015 5:03:24PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154090 [VXX27661]

Blank Spike Lab ID: 1281089

Date Analyzed: 08/03/2015 11:34

Matrix: Soil/Solid (dry weight)

QC for Samples: 1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Benzene	750	767	102	(77-121)
Ethylbenzene	750	749	100	(76-122)
o-Xylene	750	755	101	(77-123)
P & M -Xylene	1500	1480	99	(77-124)
Toluene	750	729	97	(77-121)
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	106	106	(71-136)
4-Bromofluorobenzene (surr)	750	96	96	(55-151)
Toluene-d8 (surr)	750	104	104	(85-116)

Batch Information

Analytical Batch: VMS15139

Analytical Method: SW8260B

Instrument: VQA 7890/5975 GC/MS

Analyst: ST

Prep Batch: VXX27661

Prep Method: SW5035A

Prep Date/Time: 08/03/2015 08:00

Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL

Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1281090
 MS Sample ID: 1281091 MS
 MSD Sample ID: 1281092 MSD

Analysis Date: 08/03/2015 13:42
 Analysis Date: 08/03/2015 12:06
 Analysis Date: 08/03/2015 12:22
 Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	6.30U	757	791	104	757	780	103	77-121	1.30	(< 20)
Ethylbenzene	12.6U	757	779	103	757	768	101	76-122	1.40	(< 20)
o-Xylene	12.6U	757	764	101	757	766	101	77-123	0.20	(< 20)
P & M -Xylene	25.3U	1510	1510	100	1510	1500	99	77-124	1.10	(< 20)
Toluene	12.6U	757	762	101	757	755	100	77-121	0.86	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		757	781	103	757	788	104	71-136	0.80	
4-Bromofluorobenzene (surr)		2020	1720	85	2020	1760	87	55-151	2.30	
Toluene-d8 (surr)		757	793	105	757	787	104	85-116	0.73	

Batch Information

Analytical Batch: VMS15139
 Analytical Method: SW8260B
 Instrument: VQA 7890/5975 GC/MS
 Analyst: ST
 Analytical Date/Time: 8/3/2015 12:06:00PM

Prep Batch: VXX27661
 Prep Method: Vol. Extraction SW8260 Field Extracted L
 Prep Date/Time: 8/3/2015 8:00:00AM
 Prep Initial Wt./Vol.: 49.54g
 Prep Extract Vol: 25.00mL

Method Blank

Blank ID: MB for HBN 1716662 [VXX/27686]
 Blank Lab ID: 1282341

Matrix: Soil/Solid (dry weight)

QC for Samples:

1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012, 1154090013

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.784J	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	105	50-150		%

Batch Information

Analytical Batch: VFC12570
 Analytical Method: AK101
 Instrument: Agilent 7890A PID/FID
 Analyst: CRD
 Analytical Date/Time: 8/7/2015 1:13:00PM

Prep Batch: VXX27686
 Prep Method: SW5035A
 Prep Date/Time: 8/7/2015 8:00:00AM
 Prep Initial Wt./Vol.: 50 g
 Prep Extract Vol: 25 mL

Print Date: 08/12/2015 5:03:27PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154090 [VXX27686]
 Blank Spike Lab ID: 1282344
 Date Analyzed: 08/07/2015 14:10

Spike Duplicate ID: LCSD for HBN 1154090 [VXX27686]
 Spike Duplicate Lab ID: 1282345
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012, 1154090013

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	10.0	9.61	96	10.0	9.79	98	(60-120)	1.80	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	107	107	1.25	108	108	(50-150)	0.09	
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Batch Information

Analytical Batch: **VFC12570**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890A PID/FID**
 Analyst: **CRD**

Prep Batch: **VXX27686**
 Prep Method: **SW5035A**
 Prep Date/Time: **08/07/2015 08:00**
 Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Print Date: 08/12/2015 5:03:28PM

Method Blank

Blank ID: MB for HBN 1715655 [XXX/33725]
 Blank Lab ID: 1280753

Matrix: Soil/Solid (dry weight)

QC for Samples:

1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	73.8	60-120		%

Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK102
 Instrument: HP 6890 Series II FID SV D R
 Analyst: AYC
 Analytical Date/Time: 8/7/2015 5:08:00PM

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 8/2/2015 11:05:26AM
 Prep Initial Wt./Vol.: 30 g
 Prep Extract Vol: 1 mL

Print Date: 08/12/2015 5:03:30PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154090 [XXX33725]
 Blank Spike Lab ID: 1280754
 Date Analyzed: 08/07/2015 17:18

Spike Duplicate ID: LCSD for HBN 1154090 [XXX33725]
 Spike Duplicate Lab ID: 1280755
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012

Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	148	89	167	130	78	(75-125)	12.50	(< 20)

Surrogates

5a Androstane (surr)	3.33	96.8	97	3.33	85	85	(60-120)	13.00	
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Batch Information

Analytical Batch: **XFC11994**
 Analytical Method: **AK102**
 Instrument: **HP 6890 Series II FID SV D R**
 Analyst: **AYC**

Prep Batch: **XXX33725**
 Prep Method: **SW3550C**
 Prep Date/Time: **08/02/2015 11:05**
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1715655 [XXX/33725]
 Blank Lab ID: 1280753

Matrix: Soil/Solid (dry weight)

QC for Samples:

1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007, 1154090008, 1154090009, 1154090010, 1154090011, 1154090012

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	83.8	60-120		%

Batch Information

Analytical Batch: XFC11994
 Analytical Method: AK103
 Instrument: HP 6890 Series II FID SV D R
 Analyst: AYC
 Analytical Date/Time: 8/7/2015 5:08:00PM

Prep Batch: XXX33725
 Prep Method: SW3550C
 Prep Date/Time: 8/2/2015 11:05:26AM
 Prep Initial Wt./Vol.: 30 g
 Prep Extract Vol: 1 mL

Print Date: 08/12/2015 5:03:34PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154090 [XXX33725]
 Blank Spike Lab ID: 1280754
 Date Analyzed: 08/07/2015 17:18

Spike Duplicate ID: LCSD for HBN 1154090
 [XXX33725]
 Spike Duplicate Lab ID: 1280755
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1154090001, 1154090002, 1154090003, 1154090004, 1154090005, 1154090006, 1154090007,
 1154090008, 1154090009, 1154090010, 1154090011, 1154090012

Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	167	123	74	167	112	67	(60-120)	9.40	(< 20)

Surrogates

n-Triacontane-d62 (surr)	3.33	86.1	86	3.33	80.3	80	(60-120)	7.00	
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Batch Information

Analytical Batch: **XFC11994**
 Analytical Method: **AK103**
 Instrument: **HP 6890 Series II FID SV D R**
 Analyst: **AYC**

Prep Batch: **XXX33725**
 Prep Method: **SW3550C**
 Prep Date/Time: **08/02/2015 11:05**
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 08/12/2015 5:03:35PM



SGS North
CHAIN OF CUSTODY

1154090



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

CLIENT: SLR International Corp
CONTACT: Jason Gray
PHONE NO: 907-727-1172
PROJECT/PWSID/PERMIT#: 105.00151.15005
E-MAIL: jgray@slrconsulting.com
REPORTS TO: Jason Gray
INVOICE TO: Jason Gray
QUOTE #: P.O. #:

Section 1
Section 3
Section 4
Section 5

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX MATRIX CODE	#	Type C = COMP G = GRAB M = Multi I = Incre- mental S = Soils	Section 3	Section 4	Section 5	REMARKS/ LOC ID
	1A-B TP2	7/28/15	0830	S	2	6	GRD AK101	DRD AK102	RBD AK103	
	2A-B TP3	7/28/15	0940							
	3A-B SFB1	7/29/15	1000							
	4A-B SFB91		1000							
	5A-B SFC2		1005							
	6A-B SFB4		1615							
	7A-B SFE6		1018							
	8A-B SFC7		1028							
	9A-B SFA9		1030							
	10A-B SWE4		1635							

Section 5
Relinquished By: (1) *BRB*
Relinquished By: (2)
Relinquished By: (3)
Relinquished By: (4)

Date: 7/31/15 11:30
Date:
Date:
Date: 7/31/15 11:56

Received By:
Received By:
Received By:
Received For Laboratory By: *[Signature]*

Section 4
Cooler ID:
Requested Turnaround Time and/or Special Instructions: *Standard*

Section 3
DOD Project? Yes No

Data Deliverable Requirements:

Temp Blank °C: *59 & 108*
or Ambient []

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

(See attached Sample Receipt Form)



SGS | CHAIN O

1154090



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

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

Page 1 of 2

CLIENT: SIR International Corp CONTACT: Jason Gray PHONE NO: 907-222-1112 PROJECT PWSID/ PERMIT#: 105.08151.150615 NAME: Red Salmer REPORTS TO: Jason Gray E-MAIL: jgray@skrconsulting.com INVOICE TO: Jason Gray QUOTE #: _____ P.O. #: _____		Section 3 # CONTAINERS Type C = COMP G = GRAB M = Multi-Incre-mental S = Soils		Section 4 DOD Project? Yes/No Cooler ID: _____ Requested Turnaround Time and/or Special Instructions: Regular		Data Deliverable Requirements:			
Section 1 RESERVED for lab use		Section 2 SAMPLE IDENTIFICATION SWDI SWB0 TBI		Section 3 DATE mm/dd/yy 7/29/15 7/29/15 7/28/15		Section 4 TIME HH:MM 1040 1045 0830		Section 5 MATRIX/MATRIX CODE S S TB	
Relinquished By: (1) 		Relinquished By: (2) 		Relinquished By: (3) 		Relinquished By: (4) 		Chain of Custody Seal: (Circle) CONTACT BROKEN ABSENT Temp Blank °C: 59 F08 or Ambient [] (See attached Sample Receipt Form)	



1154090



1 1 5 4 0 9 0

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were custody seals intact? Note # & location, if applicable. COC accompanied samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if sampler hand carries/delivers.</i> 2F
Temperature blank compliant* (i.e., 0-6°C after CF)? <i>If >6°C, were samples collected <8 hours ago?</i> <i>If <0°C, were all sample containers ice free?</i> Cooler ID: <u>1</u> @ <u>5.9</u> w/ Therm.ID: <u>D8</u> Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled."	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if chilled & collected <8 hrs ago.</i> <i>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</i>
Delivery method (specify all that apply): <input checked="" type="checkbox"/> Client (hand carried) <input type="checkbox"/> USPS <input type="checkbox"/> Lynden <input type="checkbox"/> AK Air <input type="checkbox"/> Alert Courier <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> RAVN <input type="checkbox"/> C&D Delivery <input type="checkbox"/> Carlie <input type="checkbox"/> Pen Air <input type="checkbox"/> Warp Speed <input type="checkbox"/> Other: _____ → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Yes	N/A	No	
Were samples received within hold time? Do samples match COC* (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Note: Refer to form F-083 "Sample Guide" for hold times.</i> <i>Note: If times differ <1hr, record details and login per COC.</i>
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): <input type="checkbox"/> Bubble Wrap <input type="checkbox"/> Separate plastic bags <input type="checkbox"/> Vermiculite <input type="checkbox"/> Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were proper containers (type/mass/volume/preservative*) used? Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials free of headspace (i.e., bubbles ≤6 mm)? Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <i>Exemption permitted for metals (e.g., 200.8/6020A).</i>
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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For special handling (e.g., "MI" soils, foreign soils, lab filter for dissolved..., lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For RUSH/SHORT Hold Time , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP , were containers / paperwork flagged accordingly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SRF Completed by: D.C 07/30/2015 PM notified:
Was PEER REVIEW of <i>sample numbering/labeling completed</i> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Peer Reviewed by: VDL
Additional notes (if applicable):				

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



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1154090001-A	No Preservative Required	OK			
1154090001-B	Methanol field pres. 4 C	OK			
1154090002-A	No Preservative Required	OK			
1154090002-B	Methanol field pres. 4 C	OK			
1154090003-A	No Preservative Required	OK			
1154090003-B	Methanol field pres. 4 C	OK			
1154090004-A	No Preservative Required	OK			
1154090004-B	Methanol field pres. 4 C	OK			
1154090005-A	No Preservative Required	OK			
1154090005-B	Methanol field pres. 4 C	OK			
1154090006-A	No Preservative Required	OK			
1154090006-B	Methanol field pres. 4 C	OK			
1154090007-A	No Preservative Required	OK			
1154090007-B	Methanol field pres. 4 C	OK			
1154090008-A	No Preservative Required	OK			
1154090008-B	Methanol field pres. 4 C	OK			
1154090009-A	No Preservative Required	OK			
1154090009-B	Methanol field pres. 4 C	OK			
1154090010-A	No Preservative Required	OK			
1154090010-B	Methanol field pres. 4 C	OK			
1154090011-A	No Preservative Required	OK			
1154090011-B	Methanol field pres. 4 C	OK			
1154090012-A	No Preservative Required	OK			
1154090012-B	Methanol field pres. 4 C	OK			
1154090013-A	Methanol field pres. 4 C	OK			

Container Condition Glossary

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

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

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

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

Laboratory Report of Analysis

To: SLR Alaska-Anchorage
2700 Gambell St Suite 200
Anchorage, AK 99503
(907)222-1112

Report Number: **1154161**

Client Project: **105.00151.15005NPSI Red Salmon**

Dear Jason Gray,

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

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

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

Sincerely,
SGS North America Inc.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1154161**
Project Name/Site: **105.00151.15005NPSI Red Salmon**
Project Contact: **Jason Gray**

Refer to sample receipt form for information on sample condition.

RS-SW1-080315 (1154161006) PS

8270D SIM - PAH LOQs are elevated due to sample dilution. The sample was analyzed at a dilution due to matrix interference with internal standards.

8270D SIM - PAH surrogate recovery for Acetyphenyl-d14 (159%) does not meet QC criteria due to sample dilution (5X).

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

Print Date: 08/19/2015 3:41:49PM

Laboratory Qualifiers

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

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

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

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

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

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
RS-MW1-080315	1154161001	08/03/2015	08/04/2015	Water (Surface, Eff., Ground)
RS-MW2-080315	1154161002	08/03/2015	08/04/2015	Water (Surface, Eff., Ground)
RS-MW3-080315	1154161003	08/03/2015	08/04/2015	Water (Surface, Eff., Ground)
RS-MW4-080315	1154161004	08/03/2015	08/04/2015	Water (Surface, Eff., Ground)
RS-MW99-080315	1154161005	08/03/2015	08/04/2015	Water (Surface, Eff., Ground)
RS-SW1-080315	1154161006	08/03/2015	08/04/2015	Water (Surface, Eff., Ground)
RS-SW99-080315	1154161007	08/03/2015	08/04/2015	Water (Surface, Eff., Ground)
TB-080315	1154161008	08/03/2015	08/04/2015	Water (Surface, Eff., Ground)

Method

8270D SIMS (PAH)
 AK102
 AK103
 AK101
 SW8260B

Method Description

8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.
 DRO/RRO Low Volume Water
 DRO/RRO Low Volume Water
 Gasoline Range Organics (W)
 Volatile Organic Compounds (W)

Detectable Results Summary

Client Sample ID: **RS-MW1-080315**

Lab Sample ID: 1154161001

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	5.49	mg/L
Residual Range Organics	0.276J	mg/L

Volatile Fuels

Gasoline Range Organics	0.362	mg/L
-------------------------	-------	------

Volatile Gas Chromatography/Mass Spectrom

Benzene	4.39	ug/L
Ethylbenzene	7.16	ug/L
o-Xylene	31.3	ug/L
P & M -Xylene	28.8	ug/L
Toluene	6.33	ug/L

Client Sample ID: **RS-MW2-080315**

Lab Sample ID: 1154161002

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	4.02	mg/L
Residual Range Organics	1.05	mg/L

Volatile Fuels

Gasoline Range Organics	0.0379J	mg/L
-------------------------	---------	------

Volatile Gas Chromatography/Mass Spectrom

Benzene	1.56	ug/L
P & M -Xylene	0.750J	ug/L

Client Sample ID: **RS-MW3-080315**

Lab Sample ID: 1154161003

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	3.25	mg/L
Residual Range Organics	0.433J	mg/L

Volatile Gas Chromatography/Mass Spectrom

Benzene	1.42	ug/L
---------	------	------

Client Sample ID: **RS-MW4-080315**

Lab Sample ID: 1154161004

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	2.27	ug/L
2-Methylnaphthalene	2.11	ug/L
Acenaphthene	0.125	ug/L
Anthracene	0.0218J	ug/L
Fluorene	0.417	ug/L
Naphthalene	2.28	ug/L
Phenanthrene	0.404	ug/L
Pyrene	0.0245J	ug/L

Semivolatile Organic Fuels

Diesel Range Organics	0.343J	mg/L
-----------------------	--------	------

Volatile Fuels

Gasoline Range Organics	0.130	mg/L
-------------------------	-------	------

Volatile Gas Chromatography/Mass Spectrom

Ethylbenzene	3.50	ug/L
o-Xylene	1.97	ug/L
P & M -Xylene	6.33	ug/L
Toluene	0.400J	ug/L

Detectable Results Summary

Client Sample ID: **RS-MW99-080315**

Lab Sample ID: 1154161005

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	3.62	ug/L
2-Methylnaphthalene	3.31	ug/L
Acenaphthene	0.160	ug/L
Anthracene	0.0267J	ug/L
Fluorene	0.641	ug/L
Naphthalene	3.71	ug/L
Phenanthrene	0.593	ug/L
Pyrene	0.0349J	ug/L
Diesel Range Organics	0.422J	mg/L
Gasoline Range Organics	0.126	mg/L
Volatile Gas Chromatography/Mass Spectrom Ethylbenzene	3.69	ug/L
o-Xylene	1.94	ug/L
P & M -Xylene	6.60	ug/L
Toluene	0.410J	ug/L

Client Sample ID: **RS-SW1-080315**

Lab Sample ID: 1154161006

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	5.29	ug/L
2-Methylnaphthalene	2.51	ug/L
Acenaphthene	0.866	ug/L
Anthracene	0.259J	ug/L
Fluorene	1.69	ug/L
Naphthalene	4.39	ug/L
Phenanthrene	2.16	ug/L
Pyrene	0.286	ug/L
Volatile Gas Chromatography/Mass Spectrom Benzene	28.2	ug/L
Ethylbenzene	7.49	ug/L
o-Xylene	8.76	ug/L
P & M -Xylene	10.8	ug/L

Client Sample ID: **RS-SW99-080315**

Lab Sample ID: 1154161007

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	4.49	ug/L
2-Methylnaphthalene	1.54	ug/L
Acenaphthene	0.512	ug/L
Anthracene	0.142	ug/L
Fluorene	0.963	ug/L
Naphthalene	3.63	ug/L
Phenanthrene	1.15	ug/L
Pyrene	0.0857	ug/L
Volatile Gas Chromatography/Mass Spectrom Benzene	24.5	ug/L
Ethylbenzene	7.02	ug/L
o-Xylene	8.49	ug/L
P & M -Xylene	10.2	ug/L



Results of **RS-MW1-080315**

Client Sample ID: **RS-MW1-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161001
Lab Project ID: 1154161

Collection Date: 08/03/15 19:28
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	5.49	0.600	0.180	mg/L	1		08/17/15 15:17

Surrogates

5a Androstane (surr)	99.3	50-150		%	1		08/17/15 15:17
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Batch Information

Analytical Batch: XFC12017
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 08/17/15 15:17
Container ID: 1154161001-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.276 J	0.500	0.150	mg/L	1		08/17/15 15:17

Surrogates

n-Triacontane-d62 (surr)	98.6	50-150		%	1		08/17/15 15:17
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Batch Information

Analytical Batch: XFC12017
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 08/17/15 15:17
Container ID: 1154161001-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



Results of RS-MW1-080315

Client Sample ID: **RS-MW1-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161001
Lab Project ID: 1154161

Collection Date: 08/03/15 19:28
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.362	0.100	0.0310	mg/L	1		08/07/15 00:09
Surrogates							
4-Bromofluorobenzene (surr)	99.6	50-150		%	1		08/07/15 00:09

Batch Information

Analytical Batch: VFC12566
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 08/07/15 00:09
Container ID: 1154161001-C

Prep Batch: VXX27678
Prep Method: SW5030B
Prep Date/Time: 08/06/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **RS-MW1-080315**

Client Sample ID: **RS-MW1-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161001
Lab Project ID: 1154161

Collection Date: 08/03/15 19:28
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrometry**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	4.39	0.400	0.120	ug/L	1		08/13/15 01:39
Ethylbenzene	7.16	1.00	0.310	ug/L	1		08/13/15 01:39
o-Xylene	31.3	1.00	0.310	ug/L	1		08/13/15 01:39
P & M -Xylene	28.8	2.00	0.620	ug/L	1		08/13/15 01:39
Toluene	6.33	1.00	0.310	ug/L	1		08/13/15 01:39
Surrogates							
1,2-Dichloroethane-D4 (surr)	104	81-118		%	1		08/13/15 01:39
4-Bromofluorobenzene (surr)	95.5	85-114		%	1		08/13/15 01:39
Toluene-d8 (surr)	101	89-112		%	1		08/13/15 01:39

Batch Information

Analytical Batch: VMS15165
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 08/13/15 01:39
Container ID: 1154161001-F

Prep Batch: VXX27709
Prep Method: SW5030B
Prep Date/Time: 08/12/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **RS-MW2-080315**

Client Sample ID: **RS-MW2-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161002
Lab Project ID: 1154161

Collection Date: 08/03/15 17:21
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	4.02	0.600	0.180	mg/L	1		08/17/15 15:38

Surrogates

5a Androstane (surr)	97	50-150		%	1		08/17/15 15:38
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Batch Information

Analytical Batch: XFC12017
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 08/17/15 15:38
Container ID: 1154161002-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	1.05	0.500	0.150	mg/L	1		08/17/15 15:38

Surrogates

n-Triacontane-d62 (surr)	93.2	50-150		%	1		08/17/15 15:38
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Batch Information

Analytical Batch: XFC12017
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 08/17/15 15:38
Container ID: 1154161002-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



Results of **RS-MW2-080315**

Client Sample ID: **RS-MW2-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161002
Lab Project ID: 1154161

Collection Date: 08/03/15 17:21
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0379 J	0.100	0.0310	mg/L	1		08/07/15 00:28
Surrogates							
4-Bromofluorobenzene (surr)	84.4	50-150		%	1		08/07/15 00:28

Batch Information

Analytical Batch: VFC12566
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 08/07/15 00:28
Container ID: 1154161002-C

Prep Batch: VXX27678
Prep Method: SW5030B
Prep Date/Time: 08/06/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of RS-MW2-080315

Client Sample ID: **RS-MW2-080315**
 Client Project ID: **105.00151.15005NPSI Red Salmon**
 Lab Sample ID: 1154161002
 Lab Project ID: 1154161

Collection Date: 08/03/15 17:21
 Received Date: 08/04/15 15:25
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	1.56	0.400	0.120	ug/L	1		08/13/15 01:22
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		08/13/15 01:22
o-Xylene	0.500 U	1.00	0.310	ug/L	1		08/13/15 01:22
P & M -Xylene	0.750 J	2.00	0.620	ug/L	1		08/13/15 01:22
Toluene	0.500 U	1.00	0.310	ug/L	1		08/13/15 01:22
Surrogates							
1,2-Dichloroethane-D4 (surr)	104	81-118		%	1		08/13/15 01:22
4-Bromofluorobenzene (surr)	97.2	85-114		%	1		08/13/15 01:22
Toluene-d8 (surr)	99.7	89-112		%	1		08/13/15 01:22

Batch Information

Analytical Batch: VMS15165
 Analytical Method: SW8260B
 Analyst: NRB
 Analytical Date/Time: 08/13/15 01:22
 Container ID: 1154161002-F

Prep Batch: VXX27709
 Prep Method: SW5030B
 Prep Date/Time: 08/12/15 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of **RS-MW3-080315**

Client Sample ID: **RS-MW3-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161003
Lab Project ID: 1154161

Collection Date: 08/03/15 14:20
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	3.25	0.600	0.180	mg/L	1		08/17/15 15:59

Surrogates

5a Androstane (surr)	95.4	50-150		%	1		08/17/15 15:59
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Batch Information

Analytical Batch: XFC12017
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 08/17/15 15:59
Container ID: 1154161003-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.433 J	0.500	0.150	mg/L	1		08/17/15 15:59

Surrogates

n-Triacontane-d62 (surr)	97.8	50-150		%	1		08/17/15 15:59
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Batch Information

Analytical Batch: XFC12017
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 08/17/15 15:59
Container ID: 1154161003-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



Results of **RS-MW3-080315**

Client Sample ID: **RS-MW3-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161003
Lab Project ID: 1154161

Collection Date: 08/03/15 14:20
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		08/07/15 00:47
Surrogates							
4-Bromofluorobenzene (surr)	84.7	50-150		%	1		08/07/15 00:47

Batch Information

Analytical Batch: VFC12566
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 08/07/15 00:47
Container ID: 1154161003-C

Prep Batch: VXX27678
Prep Method: SW5030B
Prep Date/Time: 08/06/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of RS-MW3-080315

Client Sample ID: **RS-MW3-080315**
 Client Project ID: **105.00151.15005NPSI Red Salmon**
 Lab Sample ID: 1154161003
 Lab Project ID: 1154161

Collection Date: 08/03/15 14:20
 Received Date: 08/04/15 15:25
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	1.42	0.400	0.120	ug/L	1		08/13/15 19:34
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		08/13/15 19:34
o-Xylene	0.500 U	1.00	0.310	ug/L	1		08/13/15 19:34
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		08/13/15 19:34
Toluene	0.500 U	1.00	0.310	ug/L	1		08/13/15 19:34
Surrogates							
1,2-Dichloroethane-D4 (surr)	104	81-118		%	1		08/13/15 19:34
4-Bromofluorobenzene (surr)	106	85-114		%	1		08/13/15 19:34
Toluene-d8 (surr)	102	89-112		%	1		08/13/15 19:34

Batch Information

Analytical Batch: VMS15171
 Analytical Method: SW8260B
 Analyst: NRB
 Analytical Date/Time: 08/13/15 19:34
 Container ID: 1154161003-F

Prep Batch: VXX27718
 Prep Method: SW5030B
 Prep Date/Time: 08/13/15 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of **RS-MW4-080315**

Client Sample ID: **RS-MW4-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161004
Lab Project ID: 1154161

Collection Date: 08/03/15 16:05
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	2.27	0.0529	0.0159	ug/L	1		08/07/15 19:35
2-Methylnaphthalene	2.11	0.0529	0.0159	ug/L	1		08/07/15 19:35
Acenaphthene	0.125	0.0529	0.0159	ug/L	1		08/07/15 19:35
Acenaphthylene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Anthracene	0.0218 J	0.0529	0.0159	ug/L	1		08/07/15 19:35
Benzo(a)Anthracene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Benzo[a]pyrene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Benzo[b]Fluoranthene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Benzo[g,h,i]perylene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Benzo[k]fluoranthene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Chrysene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Dibenzo[a,h]anthracene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Fluoranthene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Fluorene	0.417	0.0529	0.0159	ug/L	1		08/07/15 19:35
Indeno[1,2,3-c,d] pyrene	0.0265 U	0.0529	0.0159	ug/L	1		08/07/15 19:35
Naphthalene	2.28	0.106	0.0328	ug/L	1		08/07/15 19:35
Phenanthrene	0.404	0.0529	0.0159	ug/L	1		08/07/15 19:35
Pyrene	0.0245 J	0.0529	0.0159	ug/L	1		08/07/15 19:35
Surrogates							
2-Fluorobiphenyl (surr)	72.1	53-106		%	1		08/07/15 19:35
Terphenyl-d14 (surr)	110	58-132		%	1		08/07/15 19:35

Batch Information

Analytical Batch: XMS8849
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 08/07/15 19:35
Container ID: 1154161004-I

Prep Batch: XXX33764
Prep Method: SW3520C
Prep Date/Time: 08/06/15 10:10
Prep Initial Wt./Vol.: 945 mL
Prep Extract Vol: 1 mL



Results of **RS-MW4-080315**

Client Sample ID: **RS-MW4-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161004
Lab Project ID: 1154161

Collection Date: 08/03/15 16:05
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	0.343 J	0.625	0.188	mg/L	1		08/17/15 16:19

Surrogates

5a Androstane (surr)	88.9	50-150		%	1		08/17/15 16:19
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Batch Information

Analytical Batch: XFC12017
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 08/17/15 16:19
Container ID: 1154161004-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.261 U	0.521	0.156	mg/L	1		08/17/15 16:19

Surrogates

n-Triacontane-d62 (surr)	94	50-150		%	1		08/17/15 16:19
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Batch Information

Analytical Batch: XFC12017
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 08/17/15 16:19
Container ID: 1154161004-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL



Results of **RS-MW4-080315**

Client Sample ID: **RS-MW4-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161004
Lab Project ID: 1154161

Collection Date: 08/03/15 16:05
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.130	0.100	0.0310	mg/L	1		08/07/15 01:06
Surrogates							
4-Bromofluorobenzene (surr)	99.3	50-150		%	1		08/07/15 01:06

Batch Information

Analytical Batch: VFC12566
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 08/07/15 01:06
Container ID: 1154161004-C

Prep Batch: VXX27678
Prep Method: SW5030B
Prep Date/Time: 08/06/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **RS-MW4-080315**

Client Sample ID: **RS-MW4-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161004
Lab Project ID: 1154161

Collection Date: 08/03/15 16:05
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrometry**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.200 U	0.400	0.120	ug/L	1		08/13/15 19:51
Ethylbenzene	3.50	1.00	0.310	ug/L	1		08/13/15 19:51
o-Xylene	1.97	1.00	0.310	ug/L	1		08/13/15 19:51
P & M -Xylene	6.33	2.00	0.620	ug/L	1		08/13/15 19:51
Toluene	0.400 J	1.00	0.310	ug/L	1		08/13/15 19:51
Surrogates							
1,2-Dichloroethane-D4 (surr)	103	81-118		%	1		08/13/15 19:51
4-Bromofluorobenzene (surr)	96.8	85-114		%	1		08/13/15 19:51
Toluene-d8 (surr)	101	89-112		%	1		08/13/15 19:51

Batch Information

Analytical Batch: VMS15171
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 08/13/15 19:51
Container ID: 1154161004-F

Prep Batch: VXX27718
Prep Method: SW5030B
Prep Date/Time: 08/13/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of RS-MW99-080315

Client Sample ID: RS-MW99-080315
Client Project ID: 105.00151.15005NPSI Red Salmon
Lab Sample ID: 1154161005
Lab Project ID: 1154161

Collection Date: 08/03/15 16:05
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Polynuclear Aromatics GC/MS

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

Batch Information

Analytical Batch: XMS8849
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 08/07/15 19:53
Container ID: 1154161005-I

Prep Batch: XXX33764
Prep Method: SW3520C
Prep Date/Time: 08/06/15 10:10
Prep Initial Wt./Vol.: 925 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS8851
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 08/12/15 16:12
Container ID: 1154161005-I

Prep Batch: XXX33764
Prep Method: SW3520C
Prep Date/Time: 08/06/15 10:10
Prep Initial Wt./Vol.: 925 mL
Prep Extract Vol: 1 mL



Results of **RS-MW99-080315**

Client Sample ID: **RS-MW99-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161005
Lab Project ID: 1154161

Collection Date: 08/03/15 16:05
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	0.422 J	0.600	0.180	mg/L	1		08/17/15 16:40
Surrogates							
5a Androstane (surr)	88.4	50-150		%	1		08/17/15 16:40

Batch Information

Analytical Batch: XFC12017
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 08/17/15 16:40
Container ID: 1154161005-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.250 U	0.500	0.150	mg/L	1		08/17/15 16:40
Surrogates							
n-Triacontane-d62 (surr)	92.2	50-150		%	1		08/17/15 16:40

Batch Information

Analytical Batch: XFC12017
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 08/17/15 16:40
Container ID: 1154161005-A

Prep Batch: XXX33862
Prep Method: SW3520C
Prep Date/Time: 08/16/15 11:45
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



Results of **RS-MW99-080315**

Client Sample ID: **RS-MW99-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161005
Lab Project ID: 1154161

Collection Date: 08/03/15 16:05
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.126	0.100	0.0310	mg/L	1		08/07/15 01:25
Surrogates							
4-Bromofluorobenzene (surr)	98.7	50-150		%	1		08/07/15 01:25

Batch Information

Analytical Batch: VFC12566
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 08/07/15 01:25
Container ID: 1154161005-C

Prep Batch: VXX27678
Prep Method: SW5030B
Prep Date/Time: 08/06/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **RS-MW99-080315**

Client Sample ID: **RS-MW99-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161005
Lab Project ID: 1154161

Collection Date: 08/03/15 16:05
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrometry**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.200 U	0.400	0.120	ug/L	1		08/13/15 20:07
Ethylbenzene	3.69	1.00	0.310	ug/L	1		08/13/15 20:07
o-Xylene	1.94	1.00	0.310	ug/L	1		08/13/15 20:07
P & M -Xylene	6.60	2.00	0.620	ug/L	1		08/13/15 20:07
Toluene	0.410 J	1.00	0.310	ug/L	1		08/13/15 20:07
Surrogates							
1,2-Dichloroethane-D4 (surr)	107	81-118		%	1		08/13/15 20:07
4-Bromofluorobenzene (surr)	96.1	85-114		%	1		08/13/15 20:07
Toluene-d8 (surr)	101	89-112		%	1		08/13/15 20:07

Batch Information

Analytical Batch: VMS15171
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 08/13/15 20:07
Container ID: 1154161005-F

Prep Batch: VXX27718
Prep Method: SW5030B
Prep Date/Time: 08/13/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of RS-SW1-080315

Client Sample ID: RS-SW1-080315
Client Project ID: 105.00151.15005NPSI Red Salmon
Lab Sample ID: 1154161006
Lab Project ID: 1154161

Collection Date: 08/03/15 18:29
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their surrogate compounds with associated quality and detection data.

Batch Information

Analytical Batch: XMS8863
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 08/17/15 10:48
Container ID: 1154161006-D

Prep Batch: XXX33764
Prep Method: SW3520C
Prep Date/Time: 08/06/15 10:10
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Results of RS-SW1-080315

Client Sample ID: **RS-SW1-080315**
 Client Project ID: **105.00151.15005NPSI Red Salmon**
 Lab Sample ID: 1154161006
 Lab Project ID: 1154161

Collection Date: 08/03/15 18:29
 Received Date: 08/04/15 15:25
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Gas Chromatography/Mass Spectrometry

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	28.2	0.400	0.120	ug/L	1		08/13/15 20:24
Ethylbenzene	7.49	1.00	0.310	ug/L	1		08/13/15 20:24
o-Xylene	8.76	1.00	0.310	ug/L	1		08/13/15 20:24
P & M -Xylene	10.8	2.00	0.620	ug/L	1		08/13/15 20:24
Toluene	0.500 U	1.00	0.310	ug/L	1		08/13/15 20:24
Surrogates							
1,2-Dichloroethane-D4 (surr)	114	81-118		%	1		08/13/15 20:24
4-Bromofluorobenzene (surr)	98.9	85-114		%	1		08/13/15 20:24
Toluene-d8 (surr)	98.2	89-112		%	1		08/13/15 20:24

Batch Information

Analytical Batch: VMS15171
 Analytical Method: SW8260B
 Analyst: NRB
 Analytical Date/Time: 08/13/15 20:24
 Container ID: 1154161006-B

Prep Batch: VXX27718
 Prep Method: SW5030B
 Prep Date/Time: 08/13/15 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of **RS-SW99-080315**

Client Sample ID: **RS-SW99-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161007
Lab Project ID: 1154161

Collection Date: 08/03/15 18:29
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	4.49	0.262	0.0785	ug/L	5		08/12/15 16:30
2-Methylnaphthalene	1.54	0.0524	0.0157	ug/L	1		08/07/15 20:28
Acenaphthene	0.512	0.0524	0.0157	ug/L	1		08/07/15 20:28
Acenaphthylene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Anthracene	0.142	0.0524	0.0157	ug/L	1		08/07/15 20:28
Benzo(a)Anthracene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Benzo[a]pyrene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Benzo[b]Fluoranthene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Benzo[g,h,i]perylene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Benzo[k]fluoranthene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Chrysene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Dibenzo[a,h]anthracene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Fluoranthene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Fluorene	0.963	0.0524	0.0157	ug/L	1		08/07/15 20:28
Indeno[1,2,3-c,d] pyrene	0.0262 U	0.0524	0.0157	ug/L	1		08/07/15 20:28
Naphthalene	3.63	0.524	0.162	ug/L	5		08/12/15 16:30
Phenanthrene	1.15	0.0524	0.0157	ug/L	1		08/07/15 20:28
Pyrene	0.0857	0.0524	0.0157	ug/L	1		08/07/15 20:28
Surrogates							
2-Fluorobiphenyl (surr)	69.5	53-106		%	1		08/07/15 20:28
Terphenyl-d14 (surr)	107	58-132		%	1		08/07/15 20:28

Batch Information

Analytical Batch: XMS8849
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 08/07/15 20:28
Container ID: 1154161007-D

Prep Batch: XXX33764
Prep Method: SW3520C
Prep Date/Time: 08/06/15 10:10
Prep Initial Wt./Vol.: 955 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS8851
Analytical Method: 8270D SIMS (PAH)
Analyst: SP
Analytical Date/Time: 08/12/15 16:30
Container ID: 1154161007-D

Prep Batch: XXX33764
Prep Method: SW3520C
Prep Date/Time: 08/06/15 10:10
Prep Initial Wt./Vol.: 955 mL
Prep Extract Vol: 1 mL



Results of **RS-SW99-080315**

Client Sample ID: **RS-SW99-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161007
Lab Project ID: 1154161

Collection Date: 08/03/15 18:29
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrometry**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	24.5	0.400	0.120	ug/L	1		08/13/15 20:41
Ethylbenzene	7.02	1.00	0.310	ug/L	1		08/13/15 20:41
o-Xylene	8.49	1.00	0.310	ug/L	1		08/13/15 20:41
P & M -Xylene	10.2	2.00	0.620	ug/L	1		08/13/15 20:41
Toluene	0.500 U	1.00	0.310	ug/L	1		08/13/15 20:41
Surrogates							
1,2-Dichloroethane-D4 (surr)	108	81-118		%	1		08/13/15 20:41
4-Bromofluorobenzene (surr)	101	85-114		%	1		08/13/15 20:41
Toluene-d8 (surr)	96.3	89-112		%	1		08/13/15 20:41

Batch Information

Analytical Batch: VMS15171
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 08/13/15 20:41
Container ID: 1154161007-B

Prep Batch: VXX27718
Prep Method: SW5030B
Prep Date/Time: 08/13/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of TB-080315

Client Sample ID: **TB-080315**
 Client Project ID: **105.00151.15005NPSI Red Salmon**
 Lab Sample ID: 1154161008
 Lab Project ID: 1154161

Collection Date: 08/03/15 14:20
 Received Date: 08/04/15 15:25
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		08/06/15 23:12
Surrogates							
4-Bromofluorobenzene (surr)	87.4	50-150		%	1		08/06/15 23:12

Batch Information

Analytical Batch: VFC12566
 Analytical Method: AK101
 Analyst: CRD
 Analytical Date/Time: 08/06/15 23:12
 Container ID: 1154161008-A

Prep Batch: VXX27678
 Prep Method: SW5030B
 Prep Date/Time: 08/06/15 08:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of **TB-080315**

Client Sample ID: **TB-080315**
Client Project ID: **105.00151.15005NPSI Red Salmon**
Lab Sample ID: 1154161008
Lab Project ID: 1154161

Collection Date: 08/03/15 14:20
Received Date: 08/04/15 15:25
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrometry**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.200 U	0.400	0.120	ug/L	1		08/13/15 18:31
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		08/13/15 18:31
o-Xylene	0.500 U	1.00	0.310	ug/L	1		08/13/15 18:31
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		08/13/15 18:31
Toluene	0.500 U	1.00	0.310	ug/L	1		08/13/15 18:31
Surrogates							
1,2-Dichloroethane-D4 (surr)	103	81-118		%	1		08/13/15 18:31
4-Bromofluorobenzene (surr)	102	85-114		%	1		08/13/15 18:31
Toluene-d8 (surr)	101	89-112		%	1		08/13/15 18:31

Batch Information

Analytical Batch: VMS15168
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 08/13/15 18:31
Container ID: 1154161008-B

Prep Batch: VXX27715
Prep Method: SW5030B
Prep Date/Time: 08/13/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1716174 [VXX/27678]
Blank Lab ID: 1281999

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1154161001, 1154161002, 1154161003, 1154161004, 1154161005, 1154161008

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	88	50-150		%

Batch Information

Analytical Batch: VFC12566
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 8/6/2015 9:36:00PM

Prep Batch: VXX27678
Prep Method: SW5030B
Prep Date/Time: 8/6/2015 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/19/2015 3:41:55PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154161 [VXX27678]
 Blank Spike Lab ID: 1282002
 Date Analyzed: 08/06/2015 20:58

Spike Duplicate ID: LCSD for HBN 1154161 [VXX27678]
 Spike Duplicate Lab ID: 1282003
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154161001, 1154161002, 1154161003, 1154161004, 1154161005, 1154161008

Results by AK101

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	1.00	1.02	102	1.00	0.946	95	(60-120)	7.60	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	0.0500	87.7	88	0.0500	89.8	90	(50-150)	2.40	
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Batch Information

Analytical Batch: **VFC12566**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **CRD**

Prep Batch: **VXX27678**
 Prep Method: **SW5030B**
 Prep Date/Time: **08/06/2015 08:00**
 Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1716983 [VXX/27709]

Blank Lab ID: 1283415

QC for Samples:

1154161001, 1154161002

Matrix: Water (Surface, Eff., Ground)

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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 (surr)	103	81-118		%
4-Bromofluorobenzene (surr)	97.8	85-114		%
Toluene-d8 (surr)	98.8	89-112		%

Batch Information

Analytical Batch: VMS15165
 Analytical Method: SW8260B
 Instrument: VPA 780/5975 GC/MS
 Analyst: NRB
 Analytical Date/Time: 8/12/2015 5:33:00PM

Prep Batch: VXX27709
 Prep Method: SW5030B
 Prep Date/Time: 8/12/2015 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154161 [VXX27709]
 Blank Spike Lab ID: 1283416
 Date Analyzed: 08/12/2015 18:45

Spike Duplicate ID: LCSD for HBN 1154161 [VXX27709]
 Spike Duplicate Lab ID: 1283417
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154161001, 1154161002

Results by SW8260B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	30	27.6	92	30	28.5	95	(79-120)	3.40	(< 20)
Ethylbenzene	30	28.3	94	30	28.4	95	(79-121)	0.14	(< 20)
o-Xylene	30	29.8	99	30	29.3	98	(78-122)	1.60	(< 20)
P & M -Xylene	60	58.1	97	60	58.1	97	(80-121)	0.02	(< 20)
Toluene	30	26.5	88	30	26.3	88	(80-121)	0.72	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	97.4	97	30	102	102	(81-118)	4.40	
4-Bromofluorobenzene (surr)	30	97.1	97	30	101	101	(85-114)	3.80	
Toluene-d8 (surr)	30	99	99	30	97.4	97	(89-112)	1.60	

Batch Information

Analytical Batch: **VMS15165**
 Analytical Method: **SW8260B**
 Instrument: **VPA 780/5975 GC/MS**
 Analyst: **NRB**

Prep Batch: **VXX27709**
 Prep Method: **SW5030B**
 Prep Date/Time: **08/12/2015 06:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1717070 [VXX/27715]
 Blank Lab ID: 1283619

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1154161008

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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 (surr)	101	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	101	89-112		%

Batch Information

Analytical Batch: VMS15168
 Analytical Method: SW8260B
 Instrument: VPA 780/5975 GC/MS
 Analyst: NRB
 Analytical Date/Time: 8/13/2015 2:57:00PM

Prep Batch: VXX27715
 Prep Method: SW5030B
 Prep Date/Time: 8/13/2015 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154161 [VXX27715]
 Blank Spike Lab ID: 1283620
 Date Analyzed: 08/13/2015 16:12

Spike Duplicate ID: LCSD for HBN 1154161 [VXX27715]
 Spike Duplicate Lab ID: 1283621
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154161008

Results by SW8260B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	30	26.9	90	30	26.8	89	(79-120)	0.26	(< 20)
Ethylbenzene	30	28.4	95	30	28.6	95	(79-121)	0.67	(< 20)
o-Xylene	30	29.3	98	30	29.4	98	(78-122)	0.31	(< 20)
P & M -Xylene	60	57.7	96	60	58.0	97	(80-121)	0.40	(< 20)
Toluene	30	26.9	90	30	27.0	90	(80-121)	0.48	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	98.4	98	30	97.5	98	(81-118)	0.88	
4-Bromofluorobenzene (surr)	30	98.6	99	30	99.6	100	(85-114)	1.00	
Toluene-d8 (surr)	30	102	102	30	102	102	(89-112)	0.65	

Batch Information

Analytical Batch: VMS15168
 Analytical Method: SW8260B
 Instrument: VPA 780/5975 GC/MS
 Analyst: NRB

Prep Batch: VXX27715
 Prep Method: SW5030B
 Prep Date/Time: 08/13/2015 06:00
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1717083 [VXX/27718]
 Blank Lab ID: 1283688

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1154161003, 1154161004, 1154161005, 1154161006, 1154161007

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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 (surr)	103	81-118		%
4-Bromofluorobenzene (surr)	104	85-114		%
Toluene-d8 (surr)	101	89-112		%

Batch Information

Analytical Batch: VMS15171
 Analytical Method: SW8260B
 Instrument: HP 5890 Series II MS3 VNA
 Analyst: NRB
 Analytical Date/Time: 8/13/2015 2:54:00PM

Prep Batch: VXX27718
 Prep Method: SW5030B
 Prep Date/Time: 8/13/2015 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154161 [VXX27718]
 Blank Spike Lab ID: 1283689
 Date Analyzed: 08/13/2015 16:09

Spike Duplicate ID: LCSD for HBN 1154161 [VXX27718]
 Spike Duplicate Lab ID: 1283690
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154161003, 1154161004, 1154161005, 1154161006, 1154161007

Results by SW8260B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	30	32.3	108	30	31.1	104	(79-120)	3.90	(< 20)
Ethylbenzene	30	32.5	108	30	31.1	104	(79-121)	4.50	(< 20)
o-Xylene	30	33.8	113	30	32.6	109	(78-122)	3.60	(< 20)
P & M -Xylene	60	67.4	112	60	63.8	106	(80-121)	5.40	(< 20)
Toluene	30	29.9	100	30	29.8	99	(80-121)	0.44	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	98.4	98	30	97	97	(81-118)	1.40	
4-Bromofluorobenzene (surr)	30	97.7	98	30	95.9	96	(85-114)	1.90	
Toluene-d8 (surr)	30	100	100	30	101	101	(89-112)	0.53	

Batch Information

Analytical Batch: VMS15171
 Analytical Method: SW8260B
 Instrument: HP 5890 Series II MS3 VNA
 Analyst: NRB

Prep Batch: VXX27718
 Prep Method: SW5030B
 Prep Date/Time: 08/13/2015 06:00
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1716057 [XXX/33764]
 Blank Lab ID: 1281642

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1154161004, 1154161005, 1154161006, 1154161007

Results by 8270D SIMS (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.0227J	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0204J	0.0500	0.0150	ug/L
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	0.0517J	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 (surr)	85.1	53-106		%
Terphenyl-d14 (surr)	115	58-132		%

Batch Information

Analytical Batch: XMS8851
 Analytical Method: 8270D SIMS (PAH)
 Instrument: HP 6890/5973 MS SVQA
 Analyst: SP
 Analytical Date/Time: 8/12/2015 11:19:00AM

Prep Batch: XXX33764
 Prep Method: SW3520C
 Prep Date/Time: 8/6/2015 10:10:35AM
 Prep Initial Wt./Vol.: 1000 mL
 Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154161 [XXX33764]
 Blank Spike Lab ID: 1281643
 Date Analyzed: 08/12/2015 11:36

Spike Duplicate ID: LCSD for HBN 1154161 [XXX33764]
 Spike Duplicate Lab ID: 1281644
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154161004, 1154161005, 1154161006, 1154161007

Results by 8270D SIMS (PAH)

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	0.5	0.368	74	0.5	0.406	81	(41-115)	9.80	(< 20)
2-Methylnaphthalene	0.5	0.341	68	0.5	0.379	76	(39-114)	10.70	(< 20)
Acenaphthene	0.5	0.360	72	0.5	0.363	73	(48-114)	0.88	(< 20)
Acenaphthylene	0.5	0.374	75	0.5	0.388	78	(35-121)	3.80	(< 20)
Anthracene	0.5	0.419	84	0.5	0.407	82	(53-119)	2.80	(< 20)
Benzo(a)Anthracene	0.5	0.515	103	0.5	0.506	101	(59-120)	1.90	(< 20)
Benzo[a]pyrene	0.5	0.462	92	0.5	0.454	91	(53-120)	1.90	(< 20)
Benzo[b]Fluoranthene	0.5	0.484	97	0.5	0.482	96	(53-126)	0.43	(< 20)
Benzo[g,h,i]perylene	0.5	0.465	93	0.5	0.464	93	(44-128)	0.34	(< 20)
Benzo[k]fluoranthene	0.5	0.443	89	0.5	0.476	95	(54-125)	7.20	(< 20)
Chrysene	0.5	0.541	108	0.5	0.502	100	(57-120)	7.40	(< 20)
Dibenzo[a,h]anthracene	0.5	0.529	106	0.5	0.501	100	(44-131)	5.40	(< 20)
Fluoranthene	0.5	0.492	98	0.5	0.458	92	(58-120)	7.30	(< 20)
Fluorene	0.5	0.403	81	0.5	0.413	83	(50-118)	2.40	(< 20)
Indeno[1,2,3-c,d] pyrene	0.5	0.530	106	0.5	0.502	100	(48-130)	5.50	(< 20)
Naphthalene	0.5	0.374	75	0.5	0.415	83	(43-114)	10.40	(< 20)
Phenanthrene	0.5	0.412	82	0.5	0.415	83	(53-115)	0.71	(< 20)
Pyrene	0.5	0.470	94	0.5	0.455	91	(53-121)	3.20	(< 20)
Surrogates									
2-Fluorobiphenyl (surr)	0.5	78	78	0.5	76.7	77	(53-106)	1.70	
Terphenyl-d14 (surr)	0.5	117	117	0.5	108	108	(58-132)	7.60	

Batch Information

Analytical Batch: XMS8851
 Analytical Method: 8270D SIMS (PAH)
 Instrument: HP 6890/5973 MS SVQA
 Analyst: SP

Prep Batch: XXX33764
 Prep Method: SW3520C
 Prep Date/Time: 08/06/2015 10:10
 Spike Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1717316 [XXX/33862]
 Blank Lab ID: 1283927

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1154161001, 1154161002, 1154161003, 1154161004, 1154161005

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	100	60-120		%

Batch Information

Analytical Batch: XFC12017
 Analytical Method: AK102
 Instrument: HP 7890A FID SV E F
 Analyst: KJO
 Analytical Date/Time: 8/17/2015 12:12:00PM

Prep Batch: XXX33862
 Prep Method: SW3520C
 Prep Date/Time: 8/16/2015 11:45:45AM
 Prep Initial Wt./Vol.: 250 mL
 Prep Extract Vol: 1 mL

Print Date: 08/19/2015 3:42:09PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154161 [XXX33862]
 Blank Spike Lab ID: 1283928
 Date Analyzed: 08/17/2015 12:33

Spike Duplicate ID: LCSD for HBN 1154161 [XXX33862]
 Spike Duplicate Lab ID: 1283929
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154161001, 1154161002, 1154161003, 1154161004, 1154161005

Results by AK102

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	20	22.6	113	20	22.7	114	(75-125)	0.43	(< 20)

Surrogates

5a Androstane (surr)	0.4	108	108	0.4	108	108	(60-120)	0.57	
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Batch Information

Analytical Batch: **XFC12017**
 Analytical Method: **AK102**
 Instrument: **HP 7890A FID SV E F**
 Analyst: **KJO**

Prep Batch: **XXX33862**
 Prep Method: **SW3520C**
 Prep Date/Time: **08/16/2015 11:45**
 Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1717316 [XXX/33862]
 Blank Lab ID: 1283927

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1154161001, 1154161002, 1154161003, 1154161004, 1154161005

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	100	60-120		%

Batch Information

Analytical Batch: XFC12017
 Analytical Method: AK103
 Instrument: HP 7890A FID SV E F
 Analyst: KJO
 Analytical Date/Time: 8/17/2015 12:12:00PM

Prep Batch: XXX33862
 Prep Method: SW3520C
 Prep Date/Time: 8/16/2015 11:45:45AM
 Prep Initial Wt./Vol.: 250 mL
 Prep Extract Vol: 1 mL

Print Date: 08/19/2015 3:42:13PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1154161 [XXX33862]
 Blank Spike Lab ID: 1283928
 Date Analyzed: 08/17/2015 12:33

Spike Duplicate ID: LCSD for HBN 1154161 [XXX33862]
 Spike Duplicate Lab ID: 1283929
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154161001, 1154161002, 1154161003, 1154161004, 1154161005

Results by AK103

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	20	18.1	91	20	17.9	90	(60-120)	0.98	(< 20)

Surrogates

n-Triacontane-d62 (surr)	0.4	102	102	0.4	108	108	(60-120)	6.60	
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Batch Information

Analytical Batch: **XFC12017**
 Analytical Method: **AK103**
 Instrument: **HP 7890A FID SV E F**
 Analyst: **KJO**

Prep Batch: **XXX33862**
 Prep Method: **SW3520C**
 Prep Date/Time: **08/16/2015 11:45**
 Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL



SGS North America Inc.
CHAIN OF CUSTODY RECORD

1154161



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

Instructions: Sections 1 - 3 must be filled out. Omissions may delay the onset of analysis.

Page 1 of 1

Section 1

CLIENT: SLR International Corporation
 CONTACT: Alex Wing
 PHONE NO: 719.238.0120
 PROJECT PWSID/ PERMIT#:
 NAME: NPSI Red Salmon
 REPORTS TO: Jason Gray
 E-MAIL: jgray@slrconsulting.com
 INVOICE TO: Stan Flager
 QUOTE #:
 P.O. #: 105-00151.15005

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX CODE	#	CONTAINER	Type C = COMP G = GRAB MW = Multi-Incre-mental Soils	Section 3	Section 4	DOD Project? Yes/No	Data Deliverable Requirements:
	① A-H RS-MW1-080315	8/3/15	1928	GW	8		G	DRP/RD AK102/103	HCL		
	② A-H RS-MW2-080315		1721		8				HCL		
	③ A-H RS-MW3-080315		1420		8				HCL		
	④ A-J RS-MW4-080315		1605		10						
	⑤ A-J RS-MW99-080315		1605		10						
	⑥ A-E RS-SW1-080315		1829	SW	5						
	⑦ A-E RS-SW99-080315		1829	SW	5						
	⑧ A-C TR-080315		1420	TB	TB		N/A				

Section 5

Relinquished By: (1) *[Signature]* Received By: *[Signature]* 8/4/15 1134
 Relinquished By: (2) *[Signature]* Received By: *[Signature]*
 Relinquished By: (3) *[Signature]* Received By: *[Signature]*
 Relinquished By: (4) *[Signature]* Received For Laboratory By: *[Signature]*

Requested Turnaround Time and/or Special Instructions: Standard TAT

Temp Blank °C: 5.7 # 238 or Ambient [] 3.3 # 71

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

Section 4 Cooler ID: Level II



Returned Bottles Inventory

Name of individual returning bottles:

—

Date Received:

8/5/2015

Client Name:

SLR

Received by:

D.C

Project Name:

Red Salmon

SGS PM:

JN

HDPE/Nalgene:	1-L	14				
	500-ml					
	250-ml or 8-oz	13				
	125-ml or 4-oz					
	60-ml or 2-oz					
	other					
amber glass:	1-L					
	500-ml					
	250-ml or 8-oz					
	125-ml or 4-oz with or without septa					
	40-ml VOA vial	33				
	other					
Subtotal:		60				

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

Amount to Invoice Client \$:

240

WO#:

115



1154161



1 1 5 4 1 6 1

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were custody seals intact? Note # & location, if applicable. COC accompanied samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if sampler hand carries/delivers.</i> IF
Temperature blank compliant* (i.e., 0-6°C after CF)? <i>If >6°C, were samples collected <8 hours ago?</i> <i>If <0°C, were all sample containers ice free?</i> Cooler ID: <u>1</u> @ <u>5.7</u> w/ Therm.ID: <u>238</u> Cooler ID: <u>2</u> @ <u>3.3</u> w/ Therm.ID: <u>71</u> Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled."	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if chilled & collected <8 hrs ago.</i> <i>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</i>
Delivery method (specify all that apply): <input checked="" type="checkbox"/> Client (hand carried) <input type="checkbox"/> USPS <input type="checkbox"/> Lynden <input type="checkbox"/> AK Air <input type="checkbox"/> Alert Courier <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> RAVN <input type="checkbox"/> C&D Delivery <input type="checkbox"/> Carlie <input type="checkbox"/> Pen Air <input type="checkbox"/> Warp Speed <input type="checkbox"/> Other: _____ → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Yes	N/A	No	
Were samples received within hold time? Do samples match COC* (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Note: Refer to form F-083 "Sample Guide" for hold times.</i> <i>Note: If times differ <1hr, record details and login per COC.</i>
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): <input checked="" type="checkbox"/> Bubble Wrap <input type="checkbox"/> Separate plastic bags <input type="checkbox"/> Vermiculite <input type="checkbox"/> Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were proper containers (type/mass/volume/preservative*) used? Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials free of headspace (i.e., bubbles ≤6 mm)? Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <i>Exemption permitted for metals (e.g., 200.8/6020A).</i>
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)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For special handling (e.g., "MI" soils, foreign soils, lab filter for dissolved..., lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Trip Blank Limited Volume.
For RUSH/SHORT Hold Time , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP , were containers / paperwork flagged accordingly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SRF Completed by: D.C 08/04/2015 PM notified:
Was PEER REVIEW of <i>sample numbering/labeling completed</i> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Peer Reviewed by: EDJ
Additional notes (if applicable):				

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



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1154161001-A	HCL to pH < 2	OK	1154161005-I	No Preservative Required	OK
1154161001-B	HCL to pH < 2	OK	1154161005-J	No Preservative Required	OK
1154161001-C	HCL to pH < 2	OK	1154161006-A	HCL to pH < 2	OK
1154161001-D	HCL to pH < 2	OK	1154161006-B	HCL to pH < 2	OK
1154161001-E	HCL to pH < 2	OK	1154161006-C	HCL to pH < 2	OK
1154161001-F	HCL to pH < 2	OK	1154161006-D	No Preservative Required	OK
1154161001-G	HCL to pH < 2	OK	1154161006-E	No Preservative Required	OK
1154161001-H	HCL to pH < 2	OK	1154161007-A	HCL to pH < 2	OK
1154161002-A	HCL to pH < 2	OK	1154161007-B	HCL to pH < 2	OK
1154161002-B	HCL to pH < 2	OK	1154161007-C	HCL to pH < 2	OK
1154161002-C	HCL to pH < 2	OK	1154161007-D	No Preservative Required	OK
1154161002-D	HCL to pH < 2	OK	1154161007-E	No Preservative Required	OK
1154161002-E	HCL to pH < 2	OK	1154161008-A	HCL to pH < 2	OK
1154161002-F	HCL to pH < 2	OK	1154161008-B	HCL to pH < 2	OK
1154161002-G	HCL to pH < 2	OK	1154161008-C	HCL to pH < 2	OK
1154161002-H	HCL to pH < 2	OK			
1154161003-A	HCL to pH < 2	OK			
1154161003-B	HCL to pH < 2	OK			
1154161003-C	HCL to pH < 2	OK			
1154161003-D	HCL to pH < 2	OK			
1154161003-E	HCL to pH < 2	OK			
1154161003-F	HCL to pH < 2	OK			
1154161003-G	HCL to pH < 2	OK			
1154161003-H	HCL to pH < 2	OK			
1154161004-A	HCL to pH < 2	OK			
1154161004-B	HCL to pH < 2	OK			
1154161004-C	HCL to pH < 2	OK			
1154161004-D	HCL to pH < 2	OK			
1154161004-E	HCL to pH < 2	OK			
1154161004-F	HCL to pH < 2	OK			
1154161004-G	HCL to pH < 2	OK			
1154161004-H	HCL to pH < 2	OK			
1154161004-I	No Preservative Required	OK			
1154161004-J	No Preservative Required	OK			
1154161005-A	HCL to pH < 2	OK			
1154161005-B	HCL to pH < 2	OK			
1154161005-C	HCL to pH < 2	OK			
1154161005-D	HCL to pH < 2	OK			
1154161005-E	HCL to pH < 2	OK			
1154161005-F	HCL to pH < 2	OK			
1154161005-G	HCL to pH < 2	OK			
1154161005-H	HCL to pH < 2	OK			

Container Id

Preservative

Container Condition

Container Id

Preservative

Container Condition

Container Condition Glossary

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

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

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

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

APPENDIX E

**DATA QUALITY ASSESSMENT AND ADEC LABORATORY
CHECKLIST**

Data Quality Assessment (DQA)
Soil and Groundwater Assessment and Remediation
Red Salmon Facility, Naknek, Alaska

This Data Quality Assessment (DQA) was Prepared By: Jason Gray, SLR
Reviewed By: Jennifer McLean, SLR

SLR International Corporation, (SLR) conducted a Data Quality Assessment (DQA) for the laboratory data generated by the associated 2015 Soil and Groundwater Assessment and Remediation of the Red Salmon Facility located in Naknek, Alaska. The DQA covers all laboratory analysis of soil, groundwater, surface water and seep water samples collected for the project from June 12th through August 8th of 2015. Samples were collected in accordance with the Final Work Plan for Soil and Groundwater Assessment and Remediation Red Salmon Facility, Naknek, Alaska (SLR 2015). The analytical method specifications for glassware, preservation, and holding time requirements for the analysis methods that were utilized are summarized in Table 1.

Table 1 Summary of Sample Containers and Preservatives

Parameter (Method)	Media	Container Volume	Container Material	Preservative	Hold time (days)	Trip Blank ¹
GRO/BTEX ² (AK101/SW8260)	Soil	1 x 4 oz	Glass	MeOH 4°C (±2°)	14	Required
DRO/RRO (AK102/AK103)	Soil	1 x 4 oz	Glass	4°C (±2°)	14	Not Required
Total Solids (SM21 25240G)	Soil	1 x 4 oz	Glass	4°C (±2°)	14	Not Required
GRO (AK101)	Water	3 x 40 ml	Glass	HCl 4°C (±2°)	14	Required
BTEX (SW8260)	Water	3 x 40 ml	Glass	HCl 4°C (±2°)	14	Required
DRO/RRO (AK102/AK103)	Water	2 x 250 ml	Glass	HCl 4°C (±2°)	14	Not Required
PAH (8270D- SIM)	Water	2 x 1L	Glass	4°C (±2°)	7	Not Required

Notes:

1 - A trip blank is required for this type of analysis with the trip blank included on the COC.

2 - A separate, unpreserved jar is required for total solids for this analysis.

± - plus or minus

BTEX - benzene, toluene, ethylbenzene, and total xylenes

°C - degrees Celsius

DRO - diesel range organics

GRO - gasoline range organics

MeOH - methanol

ml - Milliliters

oz - ounce

PAH SIM - polynuclear aromatic hydrocarbons selective ion monitoring

RRO - residual range organics

SGS North America, Inc. (SGS) laboratory in Anchorage, Alaska provided the analytical support for this project and performed the analysis of all project samples. SGS maintains a current Alaska Department of Environmental Conservation (ADEC) Contaminated Sites approval number (UST-005) for analytical methods of interest. Laboratory final reports were presented as Level II deliverables and include the documentation of each delivery group chain-of-custody (COC) and sample receipt condition. A Microsoft Access compatible electronic data deliverable (EDD) was also provided for each report. The laboratory electronic PDF reports along the EDD are provided on CD as Attachment 2. Table 2 provides the SGS work order number, samples and corresponding cooler receipt information.

Table 2 Summary of Work Orders, Samples and Cooler Receipt Information

Lab SDG Number	Sample Matix	Samples	Requested Analyses	Date Received by Lab	Temperature Blank
1152812	Seep water samples	SEEP1-061215(Primary), SEEP1-061215DUP, SEEP2-061215	DRO/RRO, GRO/BTEX, PAH SIM,	6/15/2015	7.3°C
1154090	Soil Samples	TP2,TP3,SFB1(Primary), SFB91 (Blind Duplicate of SFB1), SFC2, SFB4, SFE6, SFC7, SFA9, SWE4, SWD1, SWB0	GRO/BTEX, DRO/RRO, Total Solids	7/2/2015	5.9°C
1154161	Ground Water	RS-MW1, RS-MW2, RS-MW3	DRO/RRO, GRO/BTEX,	8/4/2015	Cooler 1, 5.7°C Cooler 2, 3.3°C
		RS-MW4 (Primary), RS-MW99 (Blind Duplicate of RS-MW4)	DRO/RRO, GRO/BTEX, PAH SIM,		
	Surface Water	RS-SW1 (Primary), RS-SW99 (Blind Duplicate of RS-SW1),	BTEX, PAH SIM,		

The analytical data was reviewed for consistency with the project Workplan and with *ADEC Technical Memorandum, Environmental Laboratory Data and Quality Assurance* (ADEC 2009a) requirements. An ADEC Laboratory Data Review Checklist was completed for each analytical work order reviewed, and is included as Attachment 1 to this DQA. A review for any anomalies to the project requirements for precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS) is provided below for the three laboratory work orders containing the 2015 Red Salmon project samples referenced in Table 2.

Application of Data Flags

A range of potential data qualifiers which could be applied to sample results is presented in Table 3. Data flags were appended to the data if necessary to indicate quality control anomalies.

Table 3 Data Qualifiers

Qualifier	Description
Q	One or more laboratory quality control criteria (for example, laboratory control sample (LCS) recovery or surrogate spike recovery) failed. Where applicable, an “H”, “L”, or “N” was appended to indicate positive, negative, or unknown bias, respectively.
J	Estimated: The analyte was positively identified but the result was outside the calibration range, between the limit of quantitation (LOQ) and the detection limit (DL); the quantitation was an estimate.
M	The concentration was an estimate due to a sample matrix quality control failure. Where applicable, an “H”, “L”, or “N” will be appended to indicate positive, negative, or unknown bias, respectively.
B	Blank contamination: The analyte was positively identified in the blank (e.g., trip blank and/or method blank) associated with the sample and the concentration reported for the sample was less than five times that of the blank (ten times for metals and common laboratory contaminants methylene chloride and acetone).
P	Sample preservation requirements were not satisfied.
HT	Sample holding time requirements were not met.

A discussion of the project data quality relative to PARCCS goals and summary of any anomalies or failures requiring data qualifiers follows.

Sample Receipt, Preservation (Temperature and Chemical), and Hold Time

Cooler receipt temperatures were considered acceptable between “not frozen” and 6.0°C for all analyses provided there was no evidence of freezing noted by the receiving laboratory. Individual cooler receipt temperatures are listed in Table 2. The Seep water samples contained in SDG 1152812 were received at a temperature of 7.2°C, slightly above the required preservation temperature. Remote site shipping logistics resulted in three days travel time between shipment from the cooler at the site and subsequent receipt at the laboratory and may have contributed to the resulting cooler temperature. The DRO/RRO, GRO/BTEX and PAH results the seep samples of this report were flagged as “P” to indicate a temperature preservation anomaly. Additionally within SDG 1152812, as documented on the laboratory cooler receipt form, one of the two containers for DRO/RRO sample SEEP1-061215 indicated on the COC was not physically present in cooler and there were two anomalies with sample container labeling. The laboratory was able to sufficiently determine the sample IDs corresponding with COC and sufficient volume of DRO/RRO sample was still available from the one container received for sample SEEP1-061215 to perform the analysis. One of the three trip blank BTEX vials contained a bubble >6mm in size, the trip blank analysis was successfully completed utilizing the other two bubble free containers for this sample. The Seep samples from this report are useable as qualified for the purpose of screening for potential contamination sources, these same seeps were subsequently re-sampled for confirmation as part of report 1154161.

Report SDG 1154161 contained 8 samples documented on a single COC was delivered in two coolers without documentation of which samples were present in which cooler. While both cooler temperature blanks were within acceptable range and the trip blank sample was free of GRO/BTEX contamination, it is recommended that separate COCs should be prepared for each cooler in order to document the association of samples. All other sample receipt, preservation, and holding time requirements were met and no other flagging of samples for receipt, preservation or hold time issues was required.

1.1 PRECISION

Analytical batch precision was evaluated using the Relative Percent Difference (RPD) between the results for the Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD), and/or from the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) as applicable. A field duplicate sample was requested and analyzed from each applicable matrix for each delivery of samples. The project duplicate samples consisted of two seep surface water samples, a single groundwater sample and a single soil sample.

LCS/LCSD and MS/MSD RPD

LCS/LCSD and MS/MSD pairs were prepared and analyzed at the appropriate frequency for the methods requested within the batches containing the analytical samples from the project. GRO and DRO/RRO soil sample batches contained a LCS/LCSD sample pair for the evaluation of batch precision. BTEX soil batches contained a MS/MSD sample set prepared from non-project samples. No project specific MS/MSD samples were required by the project workplan. All LCS/LCSD and MS/MSD sample pairs had RPD within precision control limits demonstrating acceptable laboratory batch precision. All of the project sample results are useable as intended with respect to batch precision without requiring qualification for batch precision exceedances.

Field Duplicates

The Association of primary and duplicate field samples is shown in table 2. Note that the sample duplicate of primary sample SEEP1-061215 was identified on the COC and not submitted as a blind sample, the other two water samples and the soil sample from subsequent sample deliveries were submitted blind to the laboratory. One duplicate soil sample was submitted with 11 primary soil samples, slightly below the recommended 1 in 10 duplicate sample frequency. All Duplicate soil sample results were within ADEC recommended 50% RPD criteria. Surface and Ground Water duplicate samples were submitted well above the 1 per 10 primary sample recommended frequency. The water samples show in table 4 had results in excess of the ADEC recommended 30% RPD criteria indicating potentially non-homogenous samples for these duplicate pairs. The individual water sample analyte results that were in exceedance of the 30% RPD criteria was flagged as M (matrix effects) to indicate the potential for variability of the analyte at the sample location. The higher of each of the duplicate pair result should be used for verifying compliance with cleanup levels, the date is otherwise usable as flagged.

Table 4 Blind Duplicate Water Sample Results in exceedance of 30% RPD Criteria

SAMPLE ID	SAMPLE TYPE	ANALYTE	ANALYTICAL METHOD	RESULT	LAB FLAG	Dup RPD (%)	Data Flag
RS-MW4-080315	Primary	1-Methylnaphthalene	8270D SIMS (PAH)	2.27	=	46%	M
RS-MW99-080315	Duplicate	1-Methylnaphthalene	8270D SIMS (PAH)	3.62	=	46%	M
RS-MW4-080315	Primary	2-Methylnaphthalene	8270D SIMS (PAH)	2.11	=	44%	M
RS-MW99-080315	Duplicate	2-Methylnaphthalene	8270D SIMS (PAH)	3.31	=	44%	M
RS-MW4-080315	Primary	Fluorene	8270D SIMS (PAH)	0.417	=	42%	M
RS-MW99-080315	Duplicate	Fluorene	8270D SIMS (PAH)	0.641	=	42%	M
RS-MW4-080315	Primary	Naphthalene	8270D SIMS (PAH)	2.28	=	48%	M
RS-MW99-080315	Duplicate	Naphthalene	8270D SIMS (PAH)	3.71	=	48%	M
RS-MW4-080315	Primary	Phenanthrene	8270D SIMS (PAH)	0.404	=	38%	M
RS-MW99-080315	Duplicate	Phenanthrene	8270D SIMS (PAH)	0.593	=	38%	M
RS-MW4-080315	Primary	Pyrene	8270D SIMS (PAH)	0.0245	J	35%	M
RS-MW99-080315	Duplicate	Pyrene	8270D SIMS (PAH)	0.0349	J	35%	M
RS-SW1-080315	Primary	2-Methylnaphthalene	8270D SIMS (PAH)	2.51	=	48%	M
RS-SW99-080315	Duplicate	2-Methylnaphthalene	8270D SIMS (PAH)	1.54	=	48%	M
RS-SW1-080315	Primary	Acenaphthene	8270D SIMS (PAH)	0.866	=	51%	M
RS-SW99-080315	Duplicate	Acenaphthene	8270D SIMS (PAH)	0.512	=	51%	M
RS-SW1-080315	Primary	Anthracene	8270D SIMS (PAH)	0.259	J	58%	M
RS-SW99-080315	Duplicate	Anthracene	8270D SIMS (PAH)	0.142	=	58%	M
RS-SW1-080315	Primary	Fluorene	8270D SIMS (PAH)	1.69	=	55%	M
RS-SW99-080315	Duplicate	Fluorene	8270D SIMS (PAH)	0.963	=	55%	M
RS-SW1-080315	Primary	Phenanthrene	8270D SIMS (PAH)	2.16	=	61%	M
RS-SW99-080315	Duplicate	Phenanthrene	8270D SIMS (PAH)	1.15	=	61%	M
RS-SW1-080315	Primary	Pyrene	8270D SIMS (PAH)	0.286	=	108%	M
RS-SW99-080315	Duplicate	Pyrene	8270D SIMS (PAH)	0.0857	=	108%	M
SEEP1-061215	Primary	RRO	AK103	2.05	=	51%	M
SEEP1DUP061215	Duplicate	RRO	AK103	3.46	=	51%	M
SEEP1-061215	Primary	Anthracene	8270D SIMS (PAH)	0.257	=	48%	M
SEEP1DUP061215	Duplicate	Anthracene	8270D SIMS (PAH)	0.418	=	48%	M
SEEP1-061215	Primary	Benzo[a]pyrene	8270D SIMS (PAH)	0.0467	J	32%	M
SEEP1DUP061215	Duplicate	Benzo[a]pyrene	8270D SIMS (PAH)	0.0643	=	32%	M
SEEP1-061215	Primary	Benzo[g,h,i]perylene	8270D SIMS (PAH)	0.0219	J	56%	M
SEEP1DUP061215	Duplicate	Benzo[g,h,i]perylene	8270D SIMS (PAH)	0.039	J	56%	M
SEEP1-061215	Primary	Chrysene	8270D SIMS (PAH)	0.189	=	37%	M
SEEP1DUP061215	Duplicate	Chrysene	8270D SIMS (PAH)	0.275	=	37%	M
SEEP1-061215	Primary	Naphthalene	8270D SIMS (PAH)	5.06	=	61%	M
SEEP1DUP061215	Duplicate	Naphthalene	8270D SIMS (PAH)	2.69	=	61%	M

1.2 ACCURACY

Accuracy of analytical results for the project was evaluated from laboratory QC samples including LCS, LCS/LCSD and MS/MSD spiked analyte recovery, surrogate recovery, and internal standards. Accuracy was also evaluated by determining whether any deviations to method or laboratory requirements for continuing calibration verification (CCV) or initial calibration verification (ICV) were noted in the case narrative or present in the data deliverables.

Continuing Calibration Verification (CCV)

The case narratives noted no failures of the CCV sample. The laboratory included CCV information in the electronic data deliverable which documented acceptable CCV performance within control limits.

Surrogates

Sample spiked surrogate recoveries were all reported within QC limits except as noted below in Table 5.

Table 5 Samples with Exceedances of Surrogate Recovery Criteria

SAMPLE ID	MATRIX	Surrogate	ANALYTICAL METHOD	Extract Dilution Level	PERCENT RECOVERED (%)	REC LIMIT LOW	REC LIMIT HIGH	Data Flag
SWD1	Soil	4-Bromofluorobenzene	AK101	1	353	50	150	QH
SFB4	Soil	4-Bromofluorobenzene	AK101	1	191	50	150	QH
SFA9	Soil	5a Androstane	AK102	20	0	50	150	
SFB4	Soil	5a Androstane	AK102	40	0	50	150	
SFC7	Soil	5a Androstane	AK102	10	0	50	150	
SWB0	Soil	5a Androstane	AK102	40	0	50	150	
SWD1	Soil	5a Androstane	AK102	10	0	50	150	
RS-SW1-080315	Water	Terphenyl-d14	8270D SIM	5	159	58	132	

Two of the AK101 GRO soil samples analyzed at original undiluted extract concentration experienced high surrogate recovery, likely due in part background sample hydrocarbon matrix effects interfering with quantitation of the spiked surrogate peak. These results are flagged as QH to indicate a potential for high bias to the samples GRO result as demonstrated by the surrogate recovery. Five of the AK102 DRO soil samples and one 8270D PAH water samples were analyzed from extracts diluted 5X or more due to high background levels of hydrocarbon present in the sample. Accurate quantitation of surrogates is not typically obtained from samples with sufficiently high background levels of hydrocarbon to require extract dilution. No data flags were applied to these DRO or PAH samples exhibiting this interference of surrogate recovery performance typical for high background hydrocarbon samples.

Impact of the flagged sample results on use of the sample GRO data is minimal. While there is a potential for a high bias to the associated GRO results for flagged samples, any such high bias conservatively ensures that the sample GRO result is not actually higher than reported. The

surrogate recovery criteria were otherwise met and no other data was flagged for exceeding surrogate recovery limits.

LCS and LCS/LCSD Recovery

A single LCS or a LCS/LCSD pair as applicable for the method were analyzed at the appropriate frequency for each of the analytical sample batches containing project samples. All associated LCS and LCSD and percent recoveries were within acceptable limits demonstrating acceptable batch accuracy. No associated project field samples required data flags due to LCS or LCS/LCSD recovery exceedances.

Internal Standards

No internal standards were noted in the case narratives as being outside of acceptance limits. Internal standard performance was not otherwise presented in the report or in the electronic data deliverable. Internal standards criteria were considered met.

1.3 REPRESENTATIVENESS

The data deliverables were consistent with the site conditions. Samples were collected from planned locations according to the 2015 Red Salmon project workplan and following ADEC recommended sampling protocols.

1.4 COMPARABILITY

Samples were all submitted to SGS laboratory which utilized approved Standard Methods, ADEC and EPA SW-846 methodology to perform the requested analysis. The data for this project were considered to be comparable.

1.5 COMPLETENESS

Completeness was measured as the number of usable results versus the total number of results. The data set was 100% complete with no omissions or rejections with respect to analysis. The information fulfilled the data quality objectives and was considered usable for the intended purposes, as qualified.

1.6 SENSITIVITY

Sensitivity was measured by evaluating if the Limit of Detection (LOD) was less than the associated project cleanup level. Additionally, sensitivity was evaluated by assessing method blank and trip blank results.

Method Blanks

One method blank was analyzed for every analytical batch of twenty samples or less. No target analytes were detected above the LOD in any of the associated batch method blank samples with exception of Naphthalene detected in PAH method batch xxx33764 slightly above the LOD but below the Limit of Quantitation (LOQ) as shown in table 6. Additionally, analytes 1-Methylnaphthalene and 2-Methylnaphthalene were detected in this same method blank sample below the LOQ but above the LOQ. All of the associated batch field sample results for these three

PAH analytes were well above 10X the level detected in the MB sample, therefore the field sample results were not qualified as potentially impacted by this method blank contamination.

Additionally, one GRO batch MB sample had analytes detected above the detection limit (DL) but below the LOD as shown in Table 6. Five of the associated field sample GRO results from this same batch had similar levels of GRO detected within 5X the level of the MB sample as shown in table 7. These GRO samples results were data flagged as B to indicate to potential for similar contamination as observed in the method blank impacting field sample result.

Table 6 – Method Blank Contamination

SAMPLE ID	LAB SAMPLE ID	SAMPLE TYPE	ANL BATCH	PREP BATCH	ANALYTE	ANALYTICAL METHOD	RESULT	LAB FLAG	UNITS	Data Flag
MB for HBN 171666 [VXX/27686]	1282341	MB	VFC12570	VXX27686	GRO	AK101	0.78	J	mg/Kg	B
MB for HBN 171605 [XXX/33764]	1281642	MB	XMS8851	XXX33764	Naphthalene	8270D SIMS	0.051	J	ug/L	B
MB for HBN 171605 [XXX/33764]	1281642	MB	XMS8851	XXX33764	1-Methylnaphthalene	8270D SIMS	0.022	J	ug/L	B
MB for HBN 171605 [XXX/33764]	1281642	MB	XMS8851	XXX33764	2-Methylnaphthalene	8270D SIMS	0.020	J	ug/L	B

Table 7– Field Samples Results Impacted by Method Blank Contamination

SAMPLE ID	LAB SAMPLE ID	SAMPLE TYPE	ANL BATCH	PREP BATCH	ANALYTE	ANALYTICAL METHOD	RESULT	LAB FLAG	UNITS	Data Flag
SFB1	1154090003	Primary	VFC12570	VXX27686	GRO	AK101	2.09	J	mg/Kg	B
SFB91	1154090004	Duplicate	VFC12570	VXX27686	GRO	AK101	1.93	J	mg/Kg	B
SFE6	1154090007	Primary	VFC12570	VXX27686	GRO	AK101	2.35	J	mg/Kg	B
SWE4	1154090010	Primary	VFC12570	VXX27686	GRO	AK101	1.66	J	mg/Kg	B

Trip Blanks

One trip blank was analyzed from each of the sample coolers submitted with volatile analyses (GRO/BTEX). No contamination was detected in any of the GRO/BTEX trip blank samples.

Reporting Limits

For results of non-detect, LODs were evaluated against ADEC regulatory criteria for GRO, BTEX, PAH, DRO, and RRO analytes from 18 AAC 75.341 Tables B1 and B2 for under 40 inch Zone Method Two Soil cleanup levels (June, 2015) and for 18 AAC 75.341 Tables C for groundwater cleanup levels. The LOD for all target analytes were all well below project goals.

1.7 SUMMARY

The data were considered of good quality and usable with several qualifications noted. No data were rejected. Table 8 contains a listing of all field sample data that was validation flagged. Project goals were considered met.

Table 8 – Final Summary of Qualified Field Sample Data

FIELD SAMPLE ID	SDG	LAB SAMPLE ID	ANALYTE	ANALYSIS METHOD	RESULT	LAB RESULT FLAG	LOD	UNITS	DATA FLAG ¹
RS-MW4-080315	1154161	1154161004	1-Methylnaphthalene	8270D SIMS	2.27	=	0.0265	ug/L	M
RS-MW4-080315	1154161	1154161004	2-Methylnaphthalene	8270D SIMS	2.11	=	0.0265	ug/L	M
RS-MW4-080315	1154161	1154161004	Fluorene	8270D SIMS	0.417	=	0.0265	ug/L	M
RS-MW4-080315	1154161	1154161004	Naphthalene	8270D SIMS	2.28	=	0.053	ug/L	M
RS-MW4-080315	1154161	1154161004	Phenanthrene	8270D SIMS	0.404	=	0.0265	ug/L	M
RS-MW4-080315	1154161	1154161004	Pyrene	8270D SIMS	0.0245	J	0.0265	ug/L	M
RS-MW99-080315	1154161	1154161005	1-Methylnaphthalene	8270D SIMS	3.62	=	0.135	ug/L	M
RS-MW99-080315	1154161	1154161005	2-Methylnaphthalene	8270D SIMS	3.31	=	0.135	ug/L	M
RS-MW99-080315	1154161	1154161005	Fluorene	8270D SIMS	0.641	=	0.0271	ug/L	M
RS-MW99-080315	1154161	1154161005	Naphthalene	8270D SIMS	3.71	=	0.271	ug/L	M
RS-MW99-080315	1154161	1154161005	Phenanthrene	8270D SIMS	0.593	=	0.0271	ug/L	M
RS-MW99-080315	1154161	1154161005	Pyrene	8270D SIMS	0.0349	J	0.0271	ug/L	M
RS-SW1-080315	1154161	1154161006	2-Methylnaphthalene	8270D SIMS	2.51	=	0.13	ug/L	M
RS-SW1-080315	1154161	1154161006	Acenaphthene	8270D SIMS	0.866	=	0.13	ug/L	M
RS-SW1-080315	1154161	1154161006	Anthracene	8270D SIMS	0.259	J	0.13	ug/L	M
RS-SW1-080315	1154161	1154161006	Fluorene	8270D SIMS	1.69	=	0.13	ug/L	M
RS-SW1-080315	1154161	1154161006	Phenanthrene	8270D SIMS	2.16	=	0.13	ug/L	M
RS-SW1-080315	1154161	1154161006	Pyrene	8270D SIMS	0.286	=	0.13	ug/L	M
RS-SW99-080315	1154161	1154161007	2-Methylnaphthalene	8270D SIMS	1.54	=	0.0262	ug/L	M
RS-SW99-080315	1154161	1154161007	Acenaphthene	8270D SIMS	0.512	=	0.0262	ug/L	M
RS-SW99-080315	1154161	1154161007	Anthracene	8270D SIMS	0.142	=	0.0262	ug/L	M
RS-SW99-080315	1154161	1154161007	Fluorene	8270D SIMS	0.963	=	0.0262	ug/L	M
RS-SW99-080315	1154161	1154161007	Phenanthrene	8270D SIMS	1.15	=	0.0262	ug/L	M
RS-SW99-080315	1154161	1154161007	Pyrene	8270D SIMS	0.0857	=	0.0262	ug/L	M
SEEP1-061215	1152812	1152812001	1-Methylnaphthalene	8270D SIMS	5.49	=	0.139	ug/L	P
SEEP1-061215	1152812	1152812001	2-Methylnaphthalene	8270D SIMS	0.816	=	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Acenaphthene	8270D SIMS	0.472	=	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Acenaphthylene	8270D SIMS	0	U	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Anthracene	8270D SIMS	0.257	=	0.0278	ug/L	P,M
SEEP1-061215	1152812	1152812001	Benzo(a)Anthracene	8270D SIMS	0.0887	=	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Benzo[a]pyrene	8270D SIMS	0.0467	J	0.0278	ug/L	P,M
SEEP1-061215	1152812	1152812001	Benzo[b]Fluoranthene	8270D SIMS	0	U	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Benzo[g,h,i]perylene	8270D SIMS	0.0219	J	0.0278	ug/L	P,M
SEEP1-061215	1152812	1152812001	Benzo[k]fluoranthene	8270D SIMS	0	U	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Chrysene	8270D SIMS	0.189	=	0.0278	ug/L	P,M
SEEP1-061215	1152812	1152812001	Dibenzo[a,h]anthracene	8270D SIMS	0	U	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Fluoranthene	8270D SIMS	0.0698	=	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Fluorene	8270D SIMS	0.895	=	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Indeno[1,2,3-c,d] pyrene	8270D SIMS	0	U	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Naphthalene	8270D SIMS	5.06	=	0.278	ug/L	P,M
SEEP1-061215	1152812	1152812001	Phenanthrene	8270D SIMS	1.24	=	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	Pyrene	8270D SIMS	0.457	=	0.0278	ug/L	P
SEEP1-061215	1152812	1152812001	GRO	AK101	0.294	=	0.05	mg/L	P
SEEP1-061215	1152812	1152812001	DRO	AK102	4.86	=	0.341	mg/L	P
SEEP1-061215	1152812	1152812001	RRO	AK103	2.05	=	0.284	mg/L	P,M
SEEP1-061215	1152812	1152812001	Benzene	SW8021B	35.4	=	0.25	ug/L	P
SEEP1-061215	1152812	1152812001	Ethylbenzene	SW8021B	14.9	=	0.5	ug/L	P
SEEP1-061215	1152812	1152812001	o-Xylene	SW8021B	19.4	=	0.5	ug/L	P
SEEP1-061215	1152812	1152812001	P & M -Xylene	SW8021B	25.2	=	1	ug/L	P
SEEP1-061215	1152812	1152812001	Toluene	SW8021B	0.32	J	0.5	ug/L	P

1- See table 2 for definitions of data qualifier flags.

Table 8 (continued) – Final Summary of Qualified Field Sample Data

FIELD SAMPLE ID	SDG	LAB SAMPLE ID	ANALYTE	ANALYSIS METHOD	RESULT	LAB RESULT FLAG	LOD	UNITS	DATA FLAG
SEEP1DUP061215	1152812	1152812004	1-Methylnaphthalene	8270D SIMS	4.44	=	0.138	ug/L	P
SEEP1DUP061215	1152812	1152812004	2-Methylnaphthalene	8270D SIMS	0.666	=	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Acenaphthene	8270D SIMS	0.577	=	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Acenaphthylene	8270D SIMS	0	U	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Anthracene	8270D SIMS	0.418	=	0.0276	ug/L	P,M
SEEP1DUP061215	1152812	1152812004	Benzo(a)Anthracene	8270D SIMS	0.104	=	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Benzo[a]pyrene	8270D SIMS	0.0643	=	0.0276	ug/L	P,M
SEEP1DUP061215	1152812	1152812004	Benzo[b]Fluoranthene	8270D SIMS	0	U	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Benzo[g,h,i]perylene	8270D SIMS	0.039	J	0.0276	ug/L	P,M
SEEP1DUP061215	1152812	1152812004	Benzo[k]fluoranthene	8270D SIMS	0	U	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Chrysene	8270D SIMS	0.275	=	0.0276	ug/L	P,M
SEEP1DUP061215	1152812	1152812004	Dibenzo[a,h]anthracene	8270D SIMS	0	U	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Fluoranthene	8270D SIMS	0.084	=	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Fluorene	8270D SIMS	1.09	=	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Indeno[1,2,3-c,d] pyrene	8270D SIMS	0	U	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Naphthalene	8270D SIMS	2.69	=	0.055	ug/L	P,M
SEEP1DUP061215	1152812	1152812004	Phenanthrene	8270D SIMS	1.48	=	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	Pyrene	8270D SIMS	0.514	=	0.0276	ug/L	P
SEEP1DUP061215	1152812	1152812004	GRO	AK101	0.3	=	0.05	mg/L	P
SEEP1DUP061215	1152812	1152812004	DRO	AK102	6.05	=	0.3	mg/L	P
SEEP1DUP061215	1152812	1152812004	RRO	AK103	3.46	=	0.25	mg/L	P,M
SEEP1DUP061215	1152812	1152812004	Benzene	SW8021B	35.7	=	0.25	ug/L	P
SEEP1DUP061215	1152812	1152812004	Ethylbenzene	SW8021B	15	=	0.5	ug/L	P
SEEP1DUP061215	1152812	1152812004	o-Xylene	SW8021B	19.5	=	0.5	ug/L	P
SEEP1DUP061215	1152812	1152812004	P & M -Xylene	SW8021B	25.2	=	1	ug/L	P
SEEP1DUP061215	1152812	1152812004	Toluene	SW8021B	0	U	0.5	ug/L	P
SEEP2-061215	1152812	1152812002	1-Methylnaphthalene	8270D SIMS	0.117	=	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	2-Methylnaphthalene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Acenaphthene	8270D SIMS	0.214	=	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Acenaphthylene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Anthracene	8270D SIMS	0.0571	J	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Benzo(a)Anthracene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Benzo[a]pyrene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Benzo[b]Fluoranthene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Benzo[g,h,i]perylene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Benzo[k]fluoranthene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Chrysene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Dibenzo[a,h]anthracene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Fluoranthene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Fluorene	8270D SIMS	1.39	=	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Indeno[1,2,3-c,d] pyrene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Naphthalene	8270D SIMS	0.299	=	0.0675	ug/L	P
SEEP2-061215	1152812	1152812002	Phenanthrene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	Pyrene	8270D SIMS	0	U	0.0338	ug/L	P
SEEP2-061215	1152812	1152812002	GRO	AK101	0	U	0.05	mg/L	P
SEEP2-061215	1152812	1152812002	DRO	AK102	0.826	=	0.3	mg/L	P
SEEP2-061215	1152812	1152812002	RRO	AK103	0.188	J	0.25	mg/L	P
SEEP2-061215	1152812	1152812002	Benzene	SW8021B	0	U	0.25	ug/L	P
SEEP2-061215	1152812	1152812002	Ethylbenzene	SW8021B	0	U	0.5	ug/L	P
SEEP2-061215	1152812	1152812002	o-Xylene	SW8021B	0	U	0.5	ug/L	P
SEEP2-061215	1152812	1152812002	P & M -Xylene	SW8021B	0	U	1	ug/L	P
SEEP2-061215	1152812	1152812002	Toluene	SW8021B	0	U	0.5	ug/L	P
SFB1	1154090	1154090003	GRO	AK101	2.09	J	2.99	mg/Kg	B
SFB4	1154090	1154090006	GRO	AK101	61.2	=	2.75	mg/Kg	QH
SFB91	1154090	1154090004	GRO	AK101	1.93	J	2.67	mg/Kg	B
SFE6	1154090	1154090007	GRO	AK101	2.35	J	2.54	mg/Kg	B
SWD1	1154090	1154090011	GRO	AK101	94.5	=	2.17	mg/Kg	QH
SWE4	1154090	1154090010	GRO	AK101	1.66	J	2.23	mg/Kg	B

References

Alaska Department of Environmental Conservation (ADEC). 2009a. Environmental Laboratory Data and Quality Assurance Requirements. Technical Memorandum. March.

SLR International Corporation (SLR). 2015. Work Plan for Soil and Groundwater Assessment and Remediation Red Salmon Facility, Naknek, Alaska. Final. March.

Attachments

Attachment 1 – ADEC Data Review Checklists

Attachment 2 – Laboratory Deliverables (on CD)

Attachment 1

ADEC Data Review Checklists

Attachment 2

Laboratory Deliverables on Compact Disc

(Data packages and electronic files)

Laboratory Data Review Checklist

Completed by:

Title: Date:

CS Report Name: Report Date:

Consultant Firm:

Laboratory Name: Laboratory Report Number:

ADEC File Number: 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 ($4^{\circ} \pm 2^{\circ} \text{C}$)?
 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:

Sample documented on cooler receipt form as received in good condition with exception that one of three trip blank vials received contained a bubble > 6mm.

- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
 Yes No NA (Please explain.) Comments:

Only 1 of 2 fractions for DRO sample SEEP1-061215 indicated on COC were received at lab, sample 1152812-001B did not have the date and time on the container, sample 1152812-002G did not have a sample ID on the container label (retrieved the sample ID from the container cap). See DQA for further discussion.

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

Sample results flagged for cooler temperature exceedance, other sample receipt discrepancies resolved without effect on data quality or usability.

4. Case Narrative

- a. Present and understandable?
 Yes No NA (Please explain.) Comments:

A case narrative is present and understandable.

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

No errors or QC failures occurred during analysis of the sample requiring identification in case narrative.

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

No corrective actions were required.

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

The case narrative did not attribute data quality or usability effects.

5. Samples Results

- a. Correct analyses performed/reported as requested on COC?
 Yes No NA (Please explain.) Comments:

DRO/RRO, GRO, BTEX, and PAH analysis performed as requested.

b. All applicable holding times met?

Yes No NA (Please explain.)

Comments:

All samples analyzed within applicable method holding times.

c. All soils reported on a dry weight basis?

Yes No NA (Please explain.)

Comments:

All samples of report are water matrix,

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:

LOQ reported by lab are sufficient for determining compliance with applicable cleanup levels.

e. Data quality or usability affected?

Comments:

No sample data quality or usability was affected.

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:

All MB results below were below LOQ and LOD.

iii. If above PQL, what samples are affected?

Comments:

No samples affected.

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

Yes No NA (Please explain.)

Comments:

No field sample results were affected by MB contamination.

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

Comments:

No sample data quality or usability was affected.

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

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

Yes No NA (Please explain.) Comments:

An LCS/LCSD pair was analyzed with each batch containing PAH, BTEX, GRO, DRO and RRO samples.

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

Yes No NA (Please explain.) Comments:

No metals or organics batches in project.

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

Yes No NA (Please explain.) Comments:

All batch LCS and LCSD spike recoveries were within control limits.

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

Yes No NA (Please explain.) Comments:

Batch LCS/LCSD had acceptable RPD.

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

Comments:

Batch LCS/LCSD all had acceptable RPD and % recovery.

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

Yes No NA (Please explain.) Comments:

No affected results requiring data flags.

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

Comments:

No sample data quality or usability was affected.

c. Surrogates – Organics Only

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

Yes No NA (Please explain.) Comments:

All spiked sample surrogate recoveries were reported.

- 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:

All surrogates reported and recovered from project field samples within control limits.

- 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:

All surrogates reported and recovered from project field samples within control limits.

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

Comments:

No sample data quality or usability was 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:

Sample TB1 was included as BTEX/GRO trip blank.

- 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:

Cooler is not identified on COC however only one cooler was used for delivery of all SDG samples.

- iii. All results less than PQL?

Yes No NA (Please explain.) Comments:

All TB sample analytes <LOQ and <LOD.

- iv. If above PQL, what samples are affected?

Comments:

No samples affected.

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

Comments:

No sample data quality or usability was affected.

e. Field Duplicate

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

Sample SEEP1-061215DUP is a duplicate of primary sample SEEP1-061215.

- ii. Submitted blind to lab?
 Yes No NA (Please explain.) Comments:

Sample SEEP1-061215DUP was not identified in a manner that it was blind to the lab.

- 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:

Most duplicate water sample analyte results agreed within 30% RPD with exception six analytes. See DQA Field Duplicate section for further discussion and details.

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

Comments:

The affected analytes were flagged as "M" to indicate potential matrix effects. The data is useable as flagged. No other samples data quality or usability was affected. See DQA for details.

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

- Yes No NA (Please explain.) Comments:

Disposable sampling equipment utilized.

- i. All results less than PQL?

- Yes No NA (Please explain.) Comments:

Not applicable, no Equipment Blank evaluated.

- ii. If above PQL, what samples are affected?

Comments:

Not applicable, no Equipment Blank evaluated.

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

No data quality or usability affected.

Comments:

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

a. Defined and appropriate?

Yes

No

NA (Please explain.)

Comments:

See lab report and DQA for full definition of lab and validation qualifiers.

Laboratory Data Review Checklist

Completed by:

Title: Date:

CS Report Name: Report Date:

Consultant Firm:

Laboratory Name: Laboratory Report Number:

ADEC File Number: 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 ($4^{\circ} \pm 2^{\circ} \text{C}$)?
 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:

Sample documented as all received in good condition.

- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
 Yes No NA (Please explain.) Comments:

No sample discrepancies occurred.

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

Comments:

No sample data quality or usability was affected.

4. Case Narrative

- a. Present and understandable?

Yes No NA (Please explain.) Comments:

A case narrative is present and understandable.

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

Yes No NA (Please explain.) Comments:

Surrogate recovery exceedances, MS/MSD recovery issues for non-project, non-target analytes noted in case narrative.

- c. Were all corrective actions documented?

Yes No NA (Please explain.) Comments:

No corrective actions were required.

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

Comments:

The case narrative did not attribute data quality or usability effects.

5. Samples Results

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

Yes No NA (Please explain.) Comments:

DRO/RRO, GRO, and BTEX analysis performed as requested.

- b. All applicable holding times met?

Yes No NA (Please explain.) Comments:

All samples analyzed within applicable method holding times.

c. All soils reported on a dry weight basis?

Yes No NA (Please explain.)

Comments:

All soil samples results reported on dry weight basis.

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:

LOQ reported by lab are sufficient for determining compliance with applicable cleanup levels.

e. Data quality or usability affected?

Comments:

No sample data quality or usability was affected.

6. QC Samples

a. Method Blank

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

Yes No NA (Please explain.)

Comments:

All sample batches included MB.

ii. All method blank results less than PQL?

Yes No NA (Please explain.)

Comments:

All MB results below were below LOQ however GRO MB sample had contamination reported between LOD and DL.

iii. If above PQL, what samples are affected?

Comments:

GRO results for samples SFB1, SFB91, SFE6 and SWE4 were within 10X the level of contamination reported in MB so were flagged B, see DQA MB section for details and further discussion.

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

Yes No NA (Please explain.)

Comments:

Field sample GRO results for SFB1, SFB91, SFE6 and SWE4 were validation qualified with a "B" flag to indicate potential for impacts from similar contamination as observed in MB sample.

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

Comments:

GRO results for SFB1, SFB91, SFE6 and SWE4 may be bias high due to VOC contamination of samples. No other sample data quality or usability was affected by MB contamination.

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:

An LCS/LCSD pair was analyzed with each batch containing GRO, DRO and RRO samples. LCS and a non-project MS/MSD analyzed with SW8260B BTEX sample batch.

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

Yes No NA (Please explain.) Comments:

No metals or organics batches in project.

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

Yes No NA (Please explain.) Comments:

All batch LCS and LCSD spike recoveries were within control limits.

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

Yes No NA (Please explain.) Comments:

AK Petroleum batch LCS/LCSD, BTEX batch MS/MSD and percent solids duplicate sample all has had acceptable RPD.

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

Comments:

All batch RPD and % recovery were within control limits for requested analytes.

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

Yes No NA (Please explain.) Comments:

No affected results requiring data flags.

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

Comments:

No sample data quality or usability was affected.

c. Surrogates – Organics Only

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

Yes No NA (Please explain.) Comments:

All spiked sample surrogate recoveries were reported with exception that four DRO samples analyzed at 10X and greater extract concentration were reported as 0% recovery, see DQA surrogate section.

- 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:

All surrogates recoveries were within control limits with exception of GRO samples SWD1 and SFB4 and from the diluted sample extracts of the 5 DRO samples SFB4, SFA9, SFC7, SWB0, and SWD1, see DQA surrogate section for details and discussion.

- 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:

Failed surrogate recoveries identified by lab and qualified as needed during validation. See DQA surrogate section for details and discussion. Data flags are defined.

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

GRO samples SWD1 and SFB4 were flagged as QH to indicate potential for high bias, no other sample data quality or usability was affected by surrogate recovery. See DQA surrogate section for details and discussion.

- 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:

Sample TB1 was included as BTEX/GRO trip blank.

- 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:

Cooler ID is not identified on COC however only one cooler was used for delivery of all SDG samples.

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

No analyte contamination was detected in the TB sample.

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

No samples affected.

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

No sample data quality or usability was affected.

Comments:

e. Field Duplicate

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

A single field duplicate sample SFB91 is a blind field duplicate of primary sample SFB1 and is associated with 11 primary project soil samples, the frequency of at least 1 FD per 10 primary samples was not met.

- ii. Submitted blind to lab?
 Yes No NA (Please explain.) Comments:

Sample SFB91 is a blind field duplicate of primary sample SFB1.

- 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:

All soil duplicate analyte results agreed within 50% RPD.

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

Comments:

No sample data quality or usability was affected.

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

- Yes No NA (Please explain.) Comments:

Disposable sampling equipment utilized.

- i. All results less than PQL?
 Yes No NA (Please explain.) Comments:

Not applicable, no Equipment Blank evaluated.

- ii. If above PQL, what samples are affected?

Comments:

Not applicable, no Equipment Blank evaluated.

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

Comments:

No data quality or usability affected.

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

a. Defined and appropriate?

Yes

No

NA (Please explain.)

Comments:

See lab report and DQA for full definition of lab and validation qualifiers.

Laboratory Data Review Checklist

Completed by:

Title: Date:

CS Report Name: Report Date:

Consultant Firm:

Laboratory Name: Laboratory Report Number:

ADEC File Number: 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 ($4^{\circ} \pm 2^{\circ} \text{C}$)?
 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:

Cooler receipt documentation confirms that all sample containers were received in good condition.

- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
 Yes No NA (Please explain.) Comments:

No sample discrepancies occurred.

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

Comments:

No sample data quality or usability was affected.

4. Case Narrative

- a. Present and understandable?

Yes No NA (Please explain.)

Comments:

A case narrative is present and understandable.

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

Yes No NA (Please explain.)

Comments:

Sample RS-SW1-080315, PAH surrogate recovery discussed.

- c. Were all corrective actions documented?

Yes No NA (Please explain.)

Comments:

No corrective actions were required.

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

Comments:

The case narrative did not attribute data quality or usability effects.

5. Samples Results

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

Yes No NA (Please explain.)

Comments:

DRO/RRO, PAH, GRO, and BTEX analysis performed as requested.

- b. All applicable holding times met?

Yes No NA (Please explain.)

Comments:

All samples analyzed within applicable method holding times.

c. All soils reported on a dry weight basis?

Yes No NA (Please explain.)

Comments:

All samples consist of water matrix, no soils.

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:

LOQ reported by lab are sufficient for determining compliance with applicable cleanup levels.

e. Data quality or usability affected?

Comments:

No sample data quality or usability was affected.

6. QC Samples

a. Method Blank

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

Yes No NA (Please explain.)

Comments:

All sample batches included MB.

ii. All method blank results less than PQL?

Yes No NA (Please explain.)

Comments:

All MB results were below the LOQ however PAH analyte Naphthalene had MB contamination reported between the LOQ and LOD, and PAH analytes 1-Methylnaphthalene, and 2-Methylnaphthalene were detected <LOD but above the DL.

iii. If above PQL, what samples are affected?

Comments:

No field samples were affected by PAH MB contamination, all associated field sample results were >10X the level of contamination reported in PAH MB so did not require qualification, see DQA MB section for details and further discussion.

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

Yes No NA (Please explain.)

Comments:

No field samples were affected by MB contamination which required data flags.

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

Comments:

No sample data quality or usability was affected.

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

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

Yes No NA (Please explain.) Comments:

An LCS/LCSD pair was analyzed with each batch containing project samples.

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

Yes No NA (Please explain.) Comments:

No metals or organics batches in project.

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

Yes No NA (Please explain.) Comments:

All batch LCS and LCSD spike recoveries were within control limits.

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

Yes No NA (Please explain.) Comments:

All batch LCS/LCSD sample pairs all has had acceptable RPD. No MS/MSD was requested or performed for 8260B BTEX or 8270D SIM PAH methods

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

Comments:

All batch RPD and % recovery were within control limits for requested analytes.

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

Yes No NA (Please explain.) Comments:

No sample results were affected requiring data flags.

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

Comments:

No sample data quality or usability was affected.

c. Surrogates – Organics Only

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

Yes No NA (Please explain.) Comments:

All spiked sample surrogate recoveries were reported.

- 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:

All surrogates recoveries were within control limits with exception of PAH surrogate Terphenyl-d14 from the 5x diluted sample extract of samples RS-SW1-080315, see DQA surrogate section for details and discussion.

- 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:

Failed surrogate recovery for sample RS-SW1-080315 identified by lab, no further validation qualification was required for this sample exhibiting typical surrogate recovery for a diluted sample with high levels of hydrocarbon, see DQA surrogate section for details and discussion. Data flags are defined.

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

No sample data quality or usability was 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:

Sample TB-080315 was included as BTEX and GRO trip blank.

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

The Cooler ID containing the volatile samples and trip blank is not identified on COC or sample receipt documentation.

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

No analyte contamination was detected in the TB sample.

- iv. If above PQL, what samples are affected?

No samples affected.

Comments:

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

Comments:

Without the samples identified to a particular cooler, it is not possible to definitively associate potential cooler specific contamination of the sample GRO and BTEX results to the specific trip blank. The trip blank would still be representative of the overall shipment of both coolers but not to a specific cooler. In this instance, no trip blank contamination was observed so there were minimal impacts to the sample data quality or usability.

e. Field Duplicate

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

Two blank field duplicates were submitted for the associated 5 water samples (1 surface water duplicate and 1 groundwater duplicate).

ii. Submitted blind to lab?
 Yes No NA (Please explain.) Comments:

Surface water sample RS-SW99-080315 is a blind field duplicate of primary sample RS-SW1-080315 and groundwater sample RS-MW99-080315 is a blind field duplicate of primary sample RS-MW1-080315.

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No NA (Please explain.) Comments:

All water duplicate analyte results agreed within 30% RPD with exception of 12 instances of PAH analytes that were > 30% RPD. See DQA for details and discussion.

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

Comments:

Results for 12 PAH analytes from among the two duplicate sample pairs were qualified as potentially impacted, this data was validation flagged as “M” to indicate the potential for matrix effects from non-homogenous samples yielding variable results.

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

Yes No NA (Please explain.) Comments:

Disposable sampling equipment utilized.

i. All results less than PQL?

Yes No NA (Please explain.)

Comments:

Not applicable, no Equipment Blank evaluated.

ii. If above PQL, what samples are affected?

Comments:

Not applicable, no Equipment Blank evaluated.

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

Comments:

No data quality or usability affected.

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

a. Defined and appropriate?

Yes No NA (Please explain.)

Comments:

See lab report and DQA for full definition of lab and validation qualifiers.

APPENDIX F

**ADEC CONCEPTUAL SITE MODEL WORKSHEET AND
GRAPHIC**

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: _____

Completed By: _____

Date Completed: _____

Instructions: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.

(1) Media	(2) Transport Mechanisms
<input type="checkbox"/> Surface Soil (0-2 ft bgs)	<input type="checkbox"/> Direct release to surface soil <i>check soil</i>
	<input type="checkbox"/> Migration to subsurface <i>check soil</i>
	<input type="checkbox"/> Migration to groundwater <i>check groundwater</i>
	<input type="checkbox"/> Volatilization <i>check air</i>
	<input type="checkbox"/> Runoff or erosion <i>check surface water</i>
	<input type="checkbox"/> Uptake by plants or animals <i>check biota</i>
<input type="checkbox"/> Other (list): _____	
<input type="checkbox"/> Subsurface Soil (2-15 ft bgs)	<input type="checkbox"/> Direct release to subsurface soil <i>check soil</i>
	<input type="checkbox"/> Migration to groundwater <i>check groundwater</i>
	<input type="checkbox"/> Volatilization <i>check air</i>
	<input type="checkbox"/> Uptake by plants or animals <i>check biota</i>
	<input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Ground-water	<input type="checkbox"/> Direct release to groundwater <i>check groundwater</i>
	<input type="checkbox"/> Volatilization <i>check air</i>
	<input type="checkbox"/> Flow to surface water body <i>check surface water</i>
	<input type="checkbox"/> Flow to sediment <i>check sediment</i>
	<input type="checkbox"/> Uptake by plants or animals <i>check biota</i>
<input type="checkbox"/> Other (list): _____	
<input type="checkbox"/> Surface Water	<input type="checkbox"/> Direct release to surface water <i>check surface water</i>
	<input type="checkbox"/> Volatilization <i>check air</i>
	<input type="checkbox"/> Sedimentation <i>check sediment</i>
	<input type="checkbox"/> Uptake by plants or animals <i>check biota</i>
	<input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Sediment	<input type="checkbox"/> Direct release to sediment <i>check sediment</i>
	<input type="checkbox"/> Resuspension, runoff, or erosion <i>check surface water</i>
	<input type="checkbox"/> Uptake by plants or animals <i>check biota</i>
	<input type="checkbox"/> Other (list): _____

(3) Exposure Media	(4) Exposure Pathway/Route	(5) Current & Future Receptors						
		Residents (adults or children)	Commercial or Industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
<input type="checkbox"/> soil	<input type="checkbox"/> Incidental Soil Ingestion							
	<input type="checkbox"/> Dermal Absorption of Contaminants from Soil							
	<input type="checkbox"/> Inhalation of Fugitive Dust							
<input type="checkbox"/> groundwater	<input type="checkbox"/> Ingestion of Groundwater							
	<input type="checkbox"/> Dermal Absorption of Contaminants in Groundwater							
	<input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water							
<input type="checkbox"/> air	<input type="checkbox"/> Inhalation of Outdoor Air							
	<input type="checkbox"/> Inhalation of Indoor Air							
	<input type="checkbox"/> Inhalation of Fugitive Dust							
<input type="checkbox"/> surface water	<input type="checkbox"/> Ingestion of Surface Water							
	<input type="checkbox"/> Dermal Absorption of Contaminants in Surface Water							
	<input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water							
<input type="checkbox"/> sediment	<input type="checkbox"/> Direct Contact with Sediment							
<input type="checkbox"/> biota	<input type="checkbox"/> Ingestion of Wild or Farmed Foods							