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# 2019 Groundwater Monitoring Report
# Red Salmon Facility
# Naknek, Alaska

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# Red Salmon Facility
# Naknek, Alaska

Prepared for:

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

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# EXECUTIVE SUMMARY

Field work was completed by SLR International Corporation in two separate mobilizations; the first on May 1, 2019 and the second between September 5 and 7, 2019. Field activities conducted in May included collecting one confirmation sample from MW-9 to address the anomalous analytical results from 2018. Field activities conducted in September included gauging depth to groundwater and sampling groundwater at the nine existing monitoring wells, installing and sampling a temporary well point, MW-5R, beneath the Cold Storage Building near the location of former monitoring well MW-5 which was destroyed by ice after the 2017 sampling event, and sampling two surface water seeps.

SLR measured depth to groundwater to the nearest 0.01 feet (ft) at all nine permanent monitoring wells. The depth to groundwater measured in 2019 were between approximately 0.1 and 1.5 ft lower than those measured during the same period in 2018.

Gasoline range organics (GRO) was detected in three of 11 primary groundwater samples. All detectable GRO concentrations were below the ADEC groundwater cleanup level of 2,200 µg/L

Diesel range organics (DRO) was detected in seven of eleven groundwater samples, MW-1 at 14,100 microgram per liter (µg/L), MW-2 at 5,340 µg/L, MW-3 at 1,580 µg/L, MW-4 at 2,210 µg/L, MW-5R at 1,590, MW-8 at 3,640 µg/L, and MW-9 (May sampling event) at 805 µg/L. Of these, six exceeded the ADEC groundwater cleanup level of 1,500 µg/L. The DRO concentrations reported at monitoring wells MW-1, MW-2, MW-4 and MW-5R were greater than historically reported. DRO concentrations reported from MW-3, MW-7, MW-8, and MW-9 were lower than the levels reported in 2018.

One or more benzene, toluene, ethylbenzene, or xylenes (BTEX) compounds were detected in groundwater from monitoring wells MW-1, MW-2, MW-3, MW-7, MW-8, and MW-9; however, only benzene, which was detected in groundwater from monitoring wells MW-1 (5.08µg/L), MW-2 (4.98 µg/L), and MW-7 (10.1 µg/L) exceeded the ADEC groundwater cleanup level of 4.6 µg/L. All other BTEX compound concentrations detected were below their respective ADEC groundwater cleanup levels

Two surface water seep samples were collected, one each from Seep 1 and Seep 2. No individual BTEX constituent was detected above Alaska Water Quality Standard (AWQS) in either sample; however, the total aromatic hydrocarbon (TAH) (sum of BTEX constituent concentrations) value from Seep 1 at 64.91 µg/L exceeded the AWQS of 10 µg/L. The TAH value from Seep 2 was 2.70 µg/L.

No polycyclic aromatic hydrocarbons (PAH) constituents were detected above AWQS in either sample; however, the total aqueous hydrocarbon (TAqH) value (sum of BTEX and PAH constituents) from Seep 1 at 76.74 µg/L was above the AWQS of 15 µg/L. The TAqH value from Seep 2 was 2.38 µg/L The results from the 2019 sampling event were consistent with the results reported for 2018.

SLR considers the current well network adequate for ongoing monitoring of the groundwater plume. Additional monitoring is recommended to confirm the 2019 results and to continue monitoring the stability and extent of the plume.

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# ACRONYMS

| | |
|---|---|
| ± | plus or minus |
| °C | degrees Celsius |
| AAC | Alaska Administrative Code |
| ADEC | Alaska Department of Environmental Conservation |
| AWQS | Alaska Water Quality Standards |
| bgs | below ground surface |
| BTEX | benzene, toluene, ethylbenzene, and total xylenes |
| COC | chain of custody |
| CY | cubic yards |
| DRO | diesel-range organics |
| EPA | United States Environmental Protection Agency |
| ft | feet |
| GRO | gasoline-range organics |
| LOD | limit of detection |
| LOQ | limit of quantitation |
| µg/l | micrograms per liter |
| mg/kg | milligrams per kilogram |
| ml | milliliters |
| ND | not detected |
| NPSI | North Pacific Seafoods Incorporated |
| PAH | polycyclic aromatic hydrocarbons |
| PID | photoionization detector |
| RRO | residual-range organics |
| SGS | SGS North America, Inc. |
| SIM | Selective Ion Monitoring |
| Site | Red Salmon Facility |
| SLR | SLR International Corporation |
| TAH | total aromatic hydrocarbons |
| TAqH | total aqueous hydrocarbons |
| VOC | volatile organic compound |

# 1. INTRODUCTION

SLR International Corporation (SLR) was contracted by North Pacific Seafoods Incorporated (NPSI) to monitor groundwater impacts at the Red Salmon Facility (Site), Alaska Department Environmental Conservation (ADEC) Hazard Identification Number 26421, in Naknek, Alaska (Figure 1). This report provides a description of the 2019 field activities, water analytical results, the conceptual site model, and recommendations for future management of the Site.

## 1.1 PHYSICAL SETTING

The Site is located at Mile Marker 1.5 of the Alaska Peninsula Highway between the highway and the north shore of the tidally influenced Naknek River (Figure 1). The Site consists of multiple buildings used for fish processing, equipment storage, offices, and worker billeting. The Site was constructed on a south facing slope leading to the Naknek River. The measured depth to groundwater varies from approximately 1 to 2 feet (ft) below ground surface (bgs) in monitoring wells located nearest the river, to approximately 10 ft bgs in the upslope monitoring wells. The Site receives approximately 20 inches of annual precipitation.

## 1.2 PROJECT BACKGROUND

Petroleum hydrocarbon-impacted soil were first observed in spring 2014 near a former valve box adjacent to the Fisherman Gear Storage Building. The valve box was connected by above-ground piping to above-ground Bunker C storage tanks (Figure 1). The source for the impacted soil is believed to be releases of petroleum products from the inactive valve box. The valve box was dismantled and removed. The Bunker C fueling tanks were taken out of service many years ago and are mostly empty except for a small, volume of residual product. When the spill was first observed in spring 2014, onsite NPSI personnel excavated visibly impacted soil from around the valve box and placed the excavated soil in fish totes for disposal. The impacted soil was shipped to the Lower 48 for disposal.

Since 2014, four additional releases have been identified in the vicinity of the to the Generator Building (Figure 1). Soil and groundwater investigations, and soil removal activities, have been completed at the Site to address environmental impacts of these releases. Investigation and remediation activities are summarized in the following sections.

### 1.2.1 2014 INVESTIGATION ACTIVITIES

SLR conducted subsurface investigation activities in the vicinity of the former valve box release adjacent to the Fisherman Gear Storage Building (Figure 1) in September 2014 (SLR, 2014). The investigation activities included:

- Excavation of one test pit in the source area;
- Advancement of 17 hand auger soil borings to delineate the lateral extent of contaminated soil;

- Collection of soil samples for field and/or laboratory analysis from each test pit and soil boring; and
- Collection of soil samples for disposal profiling.

The analytical results indicated that soil from the test pit and borings contained diesel range organics (DRO) concentrations that exceeded the ADEC Method Two soil cleanup level of 250 milligrams per kilogram (mg/kg) (SLR, 2014). None of the soil samples collected contained residual range organics (RRO) or polycyclic aromatic hydrocarbons (PAHs) concentrations greater than their respective ADEC Method Two soil cleanup levels.

### 1.2.2 2015 INVESTIGATION AND REMEDIATION ACTIVITIES

Based on the 2014 results, additional investigation and remediation activities were planned and completed in 2015 and included:

- Inspection of areas downslope of the Fisherman Gear Storage Building (Figure 1) to identify seeps and potential discharges to the Naknek River;
- Excavation and removal of approximately 50 cubic yard (CY) of hydrocarbon impacted soil on the west side of the Fisherman 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;
- Installation of four groundwater monitoring wells (MW1 through MW4) upslope and downslope of the excavation area; and
- Groundwater and seep water sampling and analysis.

Results of soil confirmation samples reported DRO concentration above the most stringent ADEC Method Two soil cleanup level (i.e., migration to groundwater) after the excavation work was completed (SLR, 2015a). Expansion of the excavation was halted once 50 CY of impacted soil had been removed due to limitations with storage and transportation, and consistent with the Work Plan (SLR, 2105b) Excavated soil was transported to Seattle, Washington via Alaska Marine Lines and then transported to CEMEX (now CADMAN) in Everett, Washington for final disposal.

Analytical results from the two test pits showed no hydrocarbon impacts approximately 50 and 160 ft 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- to 25-ft southeast of the Fisherman Gear Storage Building (SLR, 2014).

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 oxygenated 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 ADEC groundwater cleanup levels (SLR, 2015a). The occurrence of dissolved phase benzene and RRO in the seep water was inconsistent with impacts reported in groundwater where benzene and RRO concentrations were below ADEC groundwater cleanup levels (SLR, 2015b).

### 1.2.3 2016 INVESTIGATION AND REMEDIATION ACTIVITIES

Based on the 2015 results, additional monitoring and remediation was implemented in 2016 as follows:

- Collection of seep water samples and analysis at Seep 1 and Seep 2 (Figure 2);
- Installation of a monitoring well (MW5) on the bank of the Naknek River beneath the Cold Storage Building;
- Groundwater sampling and analysis at five monitoring wells; and
- Removal of approximately five cubic yards of impacted soil from the Laundry Facility area.

Analytical results from the 2016 seep water samples were consistent with the 2015 results (SLR, 2016). Benzene exceeded ADEC groundwater cleanup levels and total aromatic hydrocarbon (TAH) and total aqueous hydrocarbon (TAqH) values exceeded Alaska Water Quality Standards (AWQS). The occurrence of dissolved phase benzene in the seep water was again inconsistent with the impacts reported for groundwater. The concentration of benzene in Seep 1 relative to the monitoring wells sampled suggested a potentially unique and localized source area for the impacts reported at Seep 1.

Similar to the 2015 results, DRO concentrations in groundwater from MW1 and MW2 (Figure 2) exceeded ADEC groundwater cleanup levels but were not detected (ND) in MW4. Benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations in MW1 and MW2 were only detected at low concentrations below the ADEC groundwater cleanup levels, and were ND at MW4. At MW5, low concentrations of DRO were detected, below the ADEC groundwater cleanup level, and all BTEX compound concentrations were ND.

Five cubic yards of soil excavated from the area near the Laundry Facility was transported to Seattle, Washington via Alaska Marine Lines and then transported to CEMEX (now CADMAN) in Everett, Washington for final disposal. Hydrocarbon impacted soil exceeding the ADEC Method Two soil cleanup levels and located beneath an active above ground fuel tank was left in place. Removing the soil below the tank safely without damaging existing infrastructure was not possible.

### 1.2.4 2017 INVESTIGATION AND REMEDIATION ACTIVITIES

SLR mobilized to the Site twice in 2017. The first mobilization occurred in May to investigate the extent of petroleum hydrocarbon-impacted soil associated with reported releases in April and May 2017, and to assess potential source areas associated with the existing fuel pipeline system (SLR, 2017a). The following activities were conducted between May 26 and May 29:

- Established a 40-ft by 100-ft square grid, with nodes on 10-ft centers, topographically downslope of the Generator Building as a guide for soil screening and sampling (Figure 2);
- Screened soil in-situ for the presence/absence of hydrocarbons at each grid node (49 points) using visual and olfactory observations and a photoionization detector (PID);
- Conducted additional headspace screening at grid node locations where in-situ PID readings were above background (1 part per million).
- Collected nine soil samples for laboratory analysis based on in-situ and headspace screening. Samples were selected from a range of PID results to assess a concentration range for hydrocarbon related compounds and delineate an area of impact;
- Created a preliminary map of fuel pipeline system identifying tanks, valves, couplings, and elbows; and
- Conducted in-situ and headspace screening at each valve, coupling, and elbow location using a PID to identify potential point sources.

In September 2017, SLR staff returned to the Site to evaluate the nature and extent of hydrocarbon impacts to soil and groundwater in vicinity of the Fisherman Gear Storage Building, the Former Tank Farm, and the Generator Building (Figure 2), as well as to characterize impacts from the May 29, 2017 heating oil release (SLR, 2017b). In September 2017, the following activities were conducted at the Site:

- Completed 13 soil test pit/borings in the vicinity of the Fisherman Gear Storage Building, the Former Tank Farm, and the Generator Building;
- Field screened all soil samples for hydrocarbon impacts and submitted one sample from each of12 soil test pit/borings for analytical testing;
- Completed four of the test pits downgradient of the Generator Building and Fisherman Gear storage Building as monitoring wells (MW6 to MW9);
- Collected groundwater samples from four new and five existing monitoring wells;
- Collected surface water from the two seeps;
- Analyzed all groundwater samples and surface water samples for hydrocarbon constituents; and
- Re-established and extended the 40 ft by 100 ft square grid with nodes on 10 ft centers created in May 2017 to 70 ft by 110 ft, conducted in-situ PID screening at all 76 nodes,

collected 37 soil samples for PID heated headspace screening, and collected 10 soil samples for laboratory analysis of hydrocarbon-related compounds.

### 1.2.5 2018 ASSESSMENT ACTIVITIES

In 2018, one new monitoring well, MW-10, and three temporary wells, TW-1, TW-2, and TW3, were installed (Figure 2) to evaluate the upgradient and eastern limits of the dissolved phase contaminant plume. Concentrations of DRO, BTEX, and PAHs in groundwater samples collected at MW-10 were all below laboratory reporting limits and were designated non-detect (ND) (SLR, 2018). Similarly, the results from groundwater samples collected from temporary well points TW-1 and TW-2 during the 2018 event were ND. Temporary well, TW-3, did not produce water and could not be sampled.

In 2018, the DRO concentrations reported at MW-4 and MW-9 represented historical highs and first-time exceedances of ADEC's groundwater cleanup levels (SLR, 2018). The DRO concentration reported for MW-9 in 2018 was inconsistent with historical results, groundwater flow patterns (i.e., MW-9 is located upgradient of known release areas), and nearby analytical results. As a result, ADEC requested that MW-9 be sampled twice in 2019, once following breakup in May and again as part of the annual sitewide monitoring event in September.

## 1.3 OBJECTIVES AND SCOPE OF WORK

The objectives for 2019 were to continue monitoring the extent of hydrocarbon impacts in groundwater at the facility and to collect confirmation groundwater samples at MW-9. To satisfy the project objectives the following scope of work was completed:

- Gauge all existing groundwater wells prior to sampling;
- Collect two rounds of groundwater samples at MW-9 during spring and fall of 2019;
- Collect groundwater samples from all exiting monitoring wells during fall 2019;
- Collect two surface water samples from known seeps during fall 2019; and
- Analyze all surface water and groundwater samples for hydrocarbon constituents.

# 2. REGULATORY CRITERIA

ADEC Method Two 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 September 29, 2018 (ADEC, 2018a).

The applicable groundwater cleanup levels for the Site are provided in Table C of 18 AAC 75.345 and are as follows:

- Benzene: 4.6 micrograms per liter (µg/l)
- Toluene: 1100 µg/l
- Ethylbenzene: 15 µg/l
- Total xylenes: 190 µg/l
- GRO: 2,200 µg/l
- DRO: 1,500 µg/l
- RRO: 11,00 µg/l
- PAHs (individual compound cleanup levels as specified in Table C)

For surface water collected from seeps, the AWQS for Designated Uses [18 AAC 70.020(b)] (ADEC, 2018b) are applicable to the Site. The water quality standards for the applicable compounds analyzed are as follows:

- TAH: 10 µg/l
- TAqH: 15 µg/l

# 3. FIELD ACTIVITIES

Field work was completed by SLR in two separate mobilizations; the first on May 1, 2019 and the second between September 5 and 7, 2019. SLR field personnel met the requirements of "qualified environmental professionals" under 18 AAC 75.333. All field activities were completed consistent with the *2019 Groundwater Monitoring Work Plan* (Work Plan; SLR, 2019) and the ADEC *Field Sampling Guidance* (ADEC, 2017a).

Field activities conducted in May included collecting one confirmation sample from MW-9 to address the anomalous analytical results from 2018.

Field activities conducted in September included gauging depth to groundwater and sampling groundwater at the nine existing monitoring wells, installing and sampling a temporary well point, and sampling two surface water seeps. Field photos documenting field activities are provided in Appendix A.

## 3.1 TEMPORARY WELL POINT INSTALLATION

One temporary well point, MW-5R, was installed on the beach beneath the Cold Storage Building, near the location of the former monitoring well MW-5 (Figure 2). The well point was installed using a shovel to dig a hole to the depth of 1.5 feet bgs and backfilling with native material around the temporary well point. No sand pack or seal was used. Temporary well point photographs are provided in Appendix A Photos 5 and 6, and construction details were recorded in the field notebook provided in Appendix B.

The well point was developed after installation by purging using a peristaltic pump until the purge water was clear. Following sample collection (using methods described below), the well point was removed from the site by pulling it out of the ground by hand.

## 3.2 GROUNDWATER GAUGING AND SAMPLING

Groundwater gauging and sampling was completed at nine permanent well locations and one temporary well point (Figure 2). Depth to groundwater was gauged using an electronic oil/water interface probe prior to sampling. All measurements were made to the nearest 0.01 ft and recorded on Groundwater Sampling Forms provided in Appendix B.

Groundwater sampling at eight of the ten monitoring well locations, MW-1, MW-2, MW-4, MW-5R, MW-6, MW-7, MW-8, and MW-10, was completed using a low-stress, low-flow sampling method which required purging at a low rate to maintain minimal drawdown (ADEC, 2017a). Sampling at two monitoring wells, MW-3 and MW-9, was completed using a sampling method for low-yield wells as described in Section 3.2.1 below.

A downhole bladder pump with a flow controller was used at monitoring wells MW-1, MW-2, MW-4, MW-7, and MW-8; however, for reasons outlined in Section 3.10, an above-ground peristaltic pump was used to collect samples at monitoring wells MW-3, MW-5R, MW-6, MW-9, and MW-10. Teflon-lined tubing was used for all groundwater sampling. The sampling

equipment used at each well was documented on Groundwater Sampling Forms provided in Appendix B.

Water quality parameters were measured at regular intervals, approximately every 4- to 5-minutes during purging and were recorded on the Groundwater Sampling Forms. Purging was considered complete once water quality parameters and drawdown had stabilized after three successive discrete measurements. Parameters included the following:

- Temperature (°C), plus minus (±) 3 percent (minimum of ± 0.2 °C);
- pH, ± 0.1 standard units;
- Specific conductance, ± 3 percent;
- Oxidation-reduction potential, ± 10 millivolts;
- Dissolved oxygen, ± 10 percent; and
- Turbidity, qualitative observations of visual clarity.

Water quality parameters and drawdown were recorded on Groundwater Sampling Forms provided in Appendix B.

### 3.2.1 LOW YIELD WELL SAMPLING METHODOLOGY

At monitoring wells MW-3 and MW-9, the water yield was insufficient to maintain continuous pumping without purging the well dry. In these cases, a sample was collected from the well after it was purged dry and had recharged to at least 80 percent of its pre-purge volume. After sufficient recharge had occurred (approximately 24 hours or less after purging dry), water was pumped directly into the sample containers without any additional purging. Water quality parameters were unable to be measured at these locations.

## 3.3 SURFACE WATER SEEP SAMPLING

Two surface water samples were collected, one each from Seep 1 and Seep 2 (Figure 2). Samples were collected by filling a laboratory cleaned, non-preserved, amber bottle at the discharge point of each seep. Care was taken to minimize contact with vegetation and sediment. Water from the non-preserved bottle was transferred into preserved volatile organic analysis vials, and the non-preserved bottle was then topped off and capped. Seep conditions were noted in the field notebook and Seep Sampling Forms, provided in Appendix B.

## 3.4 SAMPLE MANAGEMENT

Upon collection, all soil and water samples were labeled and placed into a chilled cooler under Chain of custody (COC) procedures before being transported to SGS in Anchorage. Sample and cooler temperatures were maintained at approximately 6 °C throughout transport to the laboratory. Samples were handled and transported in a manner that maintained sample integrity and did exceed specified holding times. Each sample and any accompanying trip blank(s) were documented on a COC form.

Information on the sample container labels was reviewed to verify that the information was consistent with information on the COC form and in the field notebook or field forms. The COC form was sealed in the sample cooler during transport to the laboratory. Each cooler was sealed with a signed custody seal for shipment. COC forms are provided as part of the laboratory deliverable provided in Appendix C.

## 3.5 ANALYTICAL SAMPLING PROGRAM

Groundwater and seep water collected at the Site was analyzed for constituent associated with petroleum hydrocarbons. The constituents and analytical methods for each round of sampling are provide in the following sections.

### 3.5.1 MAY 2019

On May 1, 2019, a sample from MW-9 was analyzed for the following:

- GRO by Alaska Method AK101;
- DRO by Alaska Method AK102;
- RRO by Alaska Method AK 103;
- Full list of volatile organic compounds (VOCs) by EPA Method 8260; and
- PAHs by EPA Method 8270- Selective Ion Monitoring (SIM).

### 3.5.2 SEPTEMBER 2019

Samples from each of the 10 groundwater wells were analyzed for the following:

- GRO by Alaska Method AK101;
- DRO by Alaska Method AK102;
- RRO by Alaska Method AK103; and
- BTEX by EPA Method 8260; except
- One well, MW-4, was sampled for the full list of VOCs by EPA Method 8260 instead of just BTEX.
- One well, MW-4, was also sampled for PAHs by EPA Method 8270-SIM.

Seep samples were analyzed for the following:

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

- PAHs by EPA Method 8270-SIM.

The results of surface water analyses were used to calculate TAH and TAqH values using the methodology described below.

- The TAH value for each surface water sample was calculated by summing detected concentrations of BTEX. For compounds that were ND, the limit of detection (LOD) was used in place of the ND value in the summation.

- The TAqH value for each surface water sample was calculated by summing the calculated TAH value (or the LOD of the TAH value if it was ND) and the detected concentrations of PAHs. For compounds that were ND, the LOD was used in place of the ND value in the summation.

Total xylenes were calculated using the sum of p- and m-xylenes and o-xylene, or by the summation of LOD values for p and m-xylenes and o-xylene in place of any ND values.

## 3.6 FIELD NOTEBOOK

A field notebook was maintained on a daily basis to document field activities, including the collection of all samples. The field notebook contains the following information:

- Date and time that work commenced;
- Name and location of site;
- Dates and times of screening, sample collection, or event;
- Name(s) of SLR field personnel;
- Field observations such as weather conditions or issues that may have affected sample results;
- Number and type of screening samples collected and sample identification numbers;
- Screening sample locations;
- Monitoring well locations and construction details;
- Explanations of any deviations from the Work Plan, with rationale for deviation; and
- Problems encountered and their resolution.

In addition to field notes, photographs were used to document site conditions and are contained in Appendix A.

## 3.7 QUALITY ASSURANCE AND QUALITY CONTROL

Field quality assurance and quality control was maintained by adhering to the procedures described in this Work Plan. The SLR field person printed their full name on any field sampling

forms used during site work. Each sample was documented on a COC form and submitted to SGS.

Duplicate samples were collected at a frequency of ten percent, with a minimum of one duplicate per laboratory analysis per media.

SLR completed an ADEC Laboratory Data Review Checklist and a Quality Assurance Review in accordance with the ADEC Environmental Laboratory Data and Quality Assurance Requirements Technical Memorandum (ADEC, 2017b). The data was considered to be of good quality for the intended purpose. No data was rejected and all data was considered usable as qualified. The Quality Assurance Review, ADEC Laboratory Data Review Checklist, and the SGS Analytical Data Reports are provided in Appendix C.

## 3.8 CALIBRATION PROCEDURES

Field instruments were calibrated according to manufacturer specifications daily and periodically during sampling if instrument drift was suspected. Calibration was documented on a Calibration Log, provided in Appendix B.

## 3.9 DECONTAMINATION AND WASTE MANAGEMENT

Whenever possible, clean, single-use, disposable equipment was used to eliminate the need for decontamination. Reusable field equipment for soil sampling was decontaminated prior to use by thoroughly brushing to remove solids, washing with an Alconox® solution, rinsing with potable water, and rinsing with deionized water. The oil/water interface probe was washed between use at each well.

Disposable sampling material such as tubing, gloves, paper towel, etc. were disposed of using a garbage bag and placed in an appropriate receptacle at the Site. No hazardous waste was generated during this field effort.

## 3.10 WORK PLAN DEVIATIONS

Deviations from the Work Plan (SLR, 2019) are noted here:

- Monitoring well MW-5 (found missing in 2018 and presumed washed away by winter ice and the Naknek River) was replaced with a temporary monitoring well designated MW-5R in approximately the same location on the beach underneath the Cold Storage Building. Temporary well MW-5R was sampled and immediately removed.

- Two monitoring wells, MW-3 and MW-9, recharged too slowly to purge using low-flow methodology. These wells were purged dry and a sample was collected from each after sufficient recharge had occurred, consistent with the sampling method outlined in Section 3.2.1.

- Five monitoring wells were incompatible with purging and sampling by bladder pump and were sampled by peristaltic pump, for the following reasons:

- Monitoring wells MW-3 and MW-9 required sampling by the low yield well sampling method;
- Temporary well point MW-5R casing size was too narrow to fit the bladder pump;
- The water level in the monitoring well MW-6 was drawn down below the level of the bladder pump water intake port; and
- At MW-10, the bladder pump malfunctioned in a way that could not immediately be diagnosed and remedied.

- Turbidity measurements were not collected during the September 2019 sampling event. The turbidimeter mobilized for the project failed to operate properly in the field; as a result, only visual, qualitative turbidity observations were made and noted on field forms.

# 4. INVESTIGATION RESULTS

The results from groundwater and surface water monitoring are described in the following sections.

Groundwater and surface water analytical results are provided in Tables 2 and 4, respectively. Fluid level gauging measurements are present in Table 1. All groundwater sample locations and DRO exceedances are shown on Figure 2. Relative groundwater elevations and contours are shown on Figure 3.

## 4.1 GROUNDWATER GAUGING AND SAMPLING

Groundwater gauging and analytical results are discussed in the following sections.

### 4.1.1 GROUNDWATER GAUGING

SLR measured depth to groundwater to the nearest 0.01 ft at all nine permanent monitoring wells. Relative groundwater elevations were calculated based on top of casing elevations determined by the level loop survey conducted in 2018 (SLR, 2018). Depth to groundwater and relative elevations are provided in Table 1. Relative groundwater elevations were used to generate a potentiometric map (Figure 3). Based on the 2019 gauging event, groundwater flow is to the southeast toward the Naknek River. The groundwater flow gradient in the upper area of the Site, between the Office Building (MW-10) and the Generator Building (MW-3), is approximately 0.06 ft/ft. The gradient in the lower area of the Site between the Generator Building (MW-3) and Cold Storage Building (MW-2) steepens to approximately 0.09 ft/ft.

The depth to groundwater measured in 2019 were between approximately 0.1 and 1.5 ft lower than those measured during the same period in 2018. Depth to water measurements for 2018 and 2019 are provided in Table 1.

### 4.1.2 GROUNDWATER SAMPLING

In 2019, a total of 11 primary groundwater samples and two duplicates samples were collected during two rounds of sampling at the Site. One primary sample and one duplicate sample were collected at monitoring well MW-9 in May, and 10 primary samples and one duplicate sample were collected at the nine permanent wells and one temporary well (MW-5R) in September (Table 2).

GRO was detected in three of 11 primary groundwater samples: MW-1 at 222 µg/L, MW-2 at 108 µg/L, and MW-8 at 120 µg/L. All detectable GRO concentrations were below the ADEC groundwater cleanup level of 2,200 µg/L (Table 2). GRO which was detect in groundwater from MW-9 in 2018, was not detected in either sample collected from MW-9 in 2019.

DRO was detected in seven of eleven groundwater samples, MW-1 at 14,100 µg/L, MW-2 at 5,340 µg/L, MW-3 at 1,580 µg/L, MW-4 at 2,210 µg/L, MW-5R at 1,590, MW-8 at 3,640 µg/L, and MW-9 (May sampling event) at 805 µg/L (Table 2 and Figure 3). Of these, six exceeded the

ADEC groundwater cleanup level of 1,500 µg/L. Samples collected at MW-6. MW-7, MW-9 (September sampling event), and MW-10 had estimated DRO concentrations (results between the LOD and limit of quantitation [LOQ]) ranging from 184 µg/L to 608 µg/L). All estimated results are designated by J flags in Table 2.

The DRO concentrations reported at monitoring wells MW-1, MW-2, MW-4 and MW-5R were greater than historically reported. DRO concentrations reported from MW-3, MW-7, MW-8, and MW-9 were lower than the levels reported in 2018. Historical DRO results are provided in Table 3.

One or more BTEX compounds were detected in groundwater from monitoring wells MW-1, MW-2, MW-3, MW-7, MW-8, and MW-9; however, only benzene, which was detected in groundwater from monitoring wells MW-1 (5.08µg/L), MW-2 (4.98 µg/L), and MW-7 (10.1 µg/L) exceeded the ADEC groundwater cleanup level of 4.6 µg/L. All other BTEX compound concentrations detected were below their respective ADEC groundwater cleanup levels (Table 2). Historical BTEX results are provided in Table 3.

Groundwater samples collected from MW-4 and MW-9 (May sample only) were also analyzed for PAHs. Except for fluorene reported at MW-4, all other PAHs analyled were below the LOD. The concentrations reported for fluorene of 0.248 µg/L was more than three orders of magnitude below the ADEC groundwater cleanup level of 290 µg/L (Table 2).

## 4.2 SURFACE WATER SEEP SAMPLING

Two surface water seep samples were collected, one each from Seep 1 and Seep 2 and analyzed for fuels, BTEX, and PAHs (Figures 2 and 3). TAH and TAqH values were calculated from the analytical results. TAH, TAqH, BTEX, and PAHs results were compared with the ADEC AWQS for freshwater (Table 4).

No individual BTEX constituent was detected above AWQS in either sample (Table 4); however, the TAH (sum of BTEX constituent concentrations) value from seep sample SW-1 at 64.91 µg/L exceeded the AWQS of 10 µg/L. The TAH value from seep SW-2 was 2.70 µg/L.

No PAH constituents were detected above AWQS in either sample (Table 4); however, the TAqH value (sum of BTEX and PAH constituents) from seep SW-1 at 76.74 µg/L was above the AWQS of 15 µg/L (Table 4). The TAqH value from seep SW-2 was 2.38 µg/L The results from the 2019 sampling event were consistent with the results reported for 2018.

# 5. SUMMARY AND RECOMMENDATIONS

SLR completed two rounds for groundwater sampling at the Red Salmon facility in 2019. Groundwater samples were collected at MW-9 in May, as requested by ADEC, and again in September during the annual sitewide monitoring event. Groundwater samples were collected all nine permeant monitoring wells and at one temporary well point under the Cold Storage Building where monitoring well MW-5 had once been located. Groundwater monitoring locations are shown on Figures 2 and 3. The purpose for groundwater monitoring was to assess current conditions at the facility.

## 5.1 GROUNDWATER

Groundwater elevations measured in 2019 confirmed that groundwater flow is to the southeast toward the Naknek River (Figure 3) as has been previously reported (SLR, 2018). However, the depth to groundwater was 0.1 ft and 1.5 ft lower than during the same period in 2018 (Table 2).

DRO concentrations at the four monitoring wells nearest the Generator Building, MW-3, MW-7, MW-8, and MW-9, decreased between the 2018 and 2019 monitoring events (Figure 3 and Table 3). At monitoring well MW-9, the DRO concentration decreased from a historical high of 7,480 µg/L to 544 µg/L, which was consistent with concentrations reported prior to the 2018 sampling event, and below the ADEC groundwater cleanup level 1,500 µg/L. The DRO concentration also decreased to below the ADEC groundwater cleanup level at monitoring well MW-7, where concentrations went from 2,210 µg/L in 2018 to 608 µg/L in 2019.

In 2019, DRO concentrations in the vicinity of the Fisherman Gear Storage Building and former tank farm, MW-1, MW-2, and MW-4, increased relative to the 2018 sampling event (Table 3). The DRO concentrations exceeded the ADEC groundwater cleanup levels at all three locations (Table 2 and Figure 3). DRO concentrations also in increased beneath the Cold Storage Building based on the result from temporary well point MW-5R with a concentration of 1,590 µg/L compared with the 2017 result from monitoring well MW-5 of 907 µg/L. Monitoring well MW-5 was destroyed after the 2017 sampling event and as a result, no data were collected in 2018.

Benzene concentrations increased in 2019 relative to the 2018 levels and exceeded the ADEC groundwater cleanup level of 4.6 µg/L at monitoring wells MW-1, MW-2, and MW-7 (Table 3); however, at monitoring well MW-3 and MW-8, benzene concentrations decreased to below cleanup levels. All other BTEX constituents were ND or reported at concentration below applicable ADEC cleanup levels.

The higher concentration of dissolved phase contaminates reported in 2019 were from the topographically lower area of the Site in the vicinity of the Fisherman Gear Storage Building. The higher concentrations reported do not appear to be related to any new releases, as no new releases have been observed at the Site. These higher concentrations, as well as the lower concentrations observed higher on the hillslope near the Generator Building may be the result of changes in the groundwater flow regime related to the lower groundwater levels measured across the Site.

## 5.2 SURFACE WATER

Surface water results were consistent with previous sampling events. Water collected at Seep 1 exceeded AWQS for TAH and TAqH. TAH and TAqH results reported for water samples collected from Seep 2, located less than 20 ft to the east, remained below AWQS.

## 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, 2017c) 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 D.

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 occasionally used. The facility property is fully developed with gravel roads, gravel and concrete pads, and buildings. It is heavily used several months of the year. As a result, the facility provides little to no ecological habitat. The lack of habitat and presence of access restrictions eliminates any potential for subsistence activities. The only potential receptors at the facility are indoor and outdoor commercial workers, construction workers, site visitors, and trespassers.

Potential exposure media include groundwater, surface water, soil, and outdoor air. Potentially complete pathways include exposure to groundwater, surface water, soil, and indoor and outdoor air to site commercial workers, construction workers, and site visitors or trespassers.

## 5.4 RECOMMENDATIONS

SLR considers the current well network adequate for ongoing monitoring of the groundwater plume. Additional monitoring is recommended to confirm the 2019 results and to continue monitoring the stability and extent of the plume.

# 6. REFERENCES


Alaska Department of Environmental Conservation (ADEC), 2018a. Alaska Administrative Code (18 AAC 75), Oil and Other Hazardous Substances Pollution Control, as amended through September 29.

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ADEC, 2017c. Guidance on Developing Conceptual Site Models. January.

SLR International Corporation (SLR), 2019. Groundwater Monitoring Work Plan, Red Salmon Facility, Naknek, Alaska. January 31.

SLR, 2018. Soil and Groundwater Assessment Report, Red Salmon Facility, Naknek, Alaska. November.

SLR, 2017a. Preliminary Assessment Report, Red Salmon Facility, Naknek, Alaska. August.

SLR, 2017b. Soil and Groundwater Assessment Report, Red Salmon Facility, Naknek, Alaska, November.

SLR, 2016. Soil and Groundwater Assessment and Remediation Report, Red Salmon Facility, Naknek, Alaska, November.

SLR, 2015a. Soil and Groundwater Assessment and Remediation Report, Red Salmon Facility, Naknek, Alaska, November.

SLR, 2015b. Soil and Groundwater Assessment and Remediation Work Plan, Red Salmon Facility, Naknek, Alaska, February.

SLR, 2014. Subsurface Investigation Report, Red Salmon Facility, Naknek, Alaska, November.

# 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 paragraphs discuss 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


THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

SCALE: 1" = 140'
WHEN PLOTTED AT 11 x 17 PAGE SIZE
0 140' 280' 420'

N

## NOTES

BASE AERIAL PHOTOGRAPH REFERENCED FROM AERO-METRIC, INC. TAKEN MAY 3, 2006.

## FACILITY IDENTIFICATION

- 2 — SPILL LOCATION
- ABOVE GROUND STORAGE TANK
- WATER WELL
- MONITORING WELL LOCATION
- T — TRANSFORMER
- 1 — BUNK HOUSE
- 2 — MESS HALL
- 3 — OFFICE
- 4 — STORAGE
- 5 — WASTE OIL FACILITY
- 6 — CANNERY
- 7 — GENERATOR BUILDING
- 8 — DAY TANK FOR GENERATOR
- 9 — GAS PUMP
- 10 — NIGHT WATCHMAN'S HOUSE
- 11 — SUPERINTENDENT'S HOUSE
- 12 — FISH PROCESSING
- 13 — ICE HOUSE / FACILITIES
- 14 — BOILERS
- 15 — BOAT STORAGE
- 16 — DUMP / SALVAGE
- 17 — WATER TOWER
- 18 — WATER TREATMENT
- 19 — SHOWERS
- 20 — TANK FARM
- 21 — FORMER TANK FARM

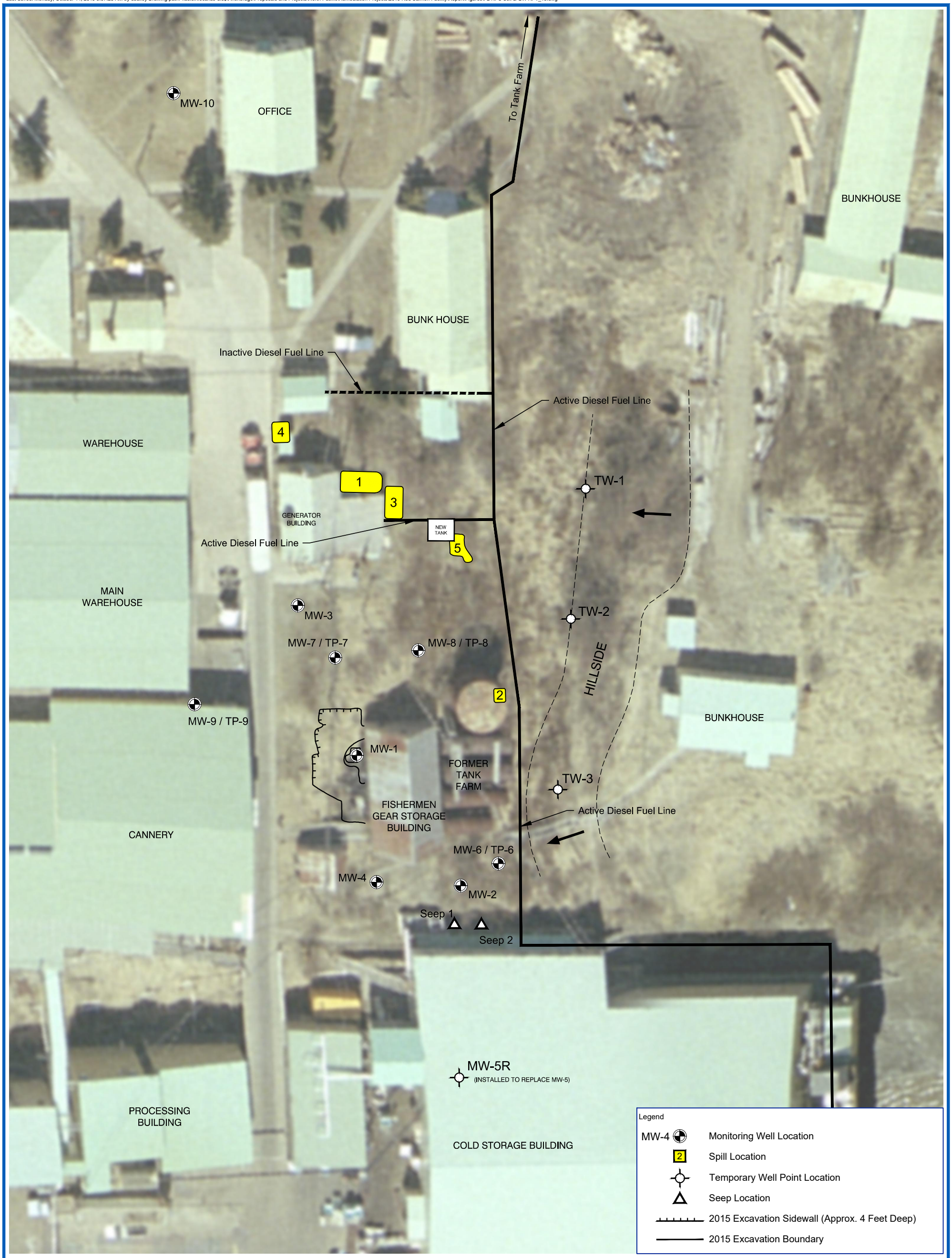
Site
NORTH PACIFIC SEAFOODS, INC.
RED SALMON FACILITY
NAKNEK, ALASKA

Report
2019 GROUNDWATER MONITORING REPORT

Drawing
SITE LOCATION MAP

| | | |
|---|---|---|
| Date October 2019 | Scale 1" = 140 Feet | Fig. No. 1 |
| File Name F1 NPS Soil & GW RPT_18 | Project No. 105.00151.18001 | |

SLR




Legend

- MW-4 — Monitoring Well Location
- 2 — Spill Location
- Temporary Well Point Location
- Seep Location
- 2015 Excavation Sidewall (Approx. 4 Feet Deep)
- 2015 Excavation Boundary

SCALE: 1" = 40'
WHEN PLOTTED AT 11 x 17 PAGE SIZE
0 40' 80' 120'

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

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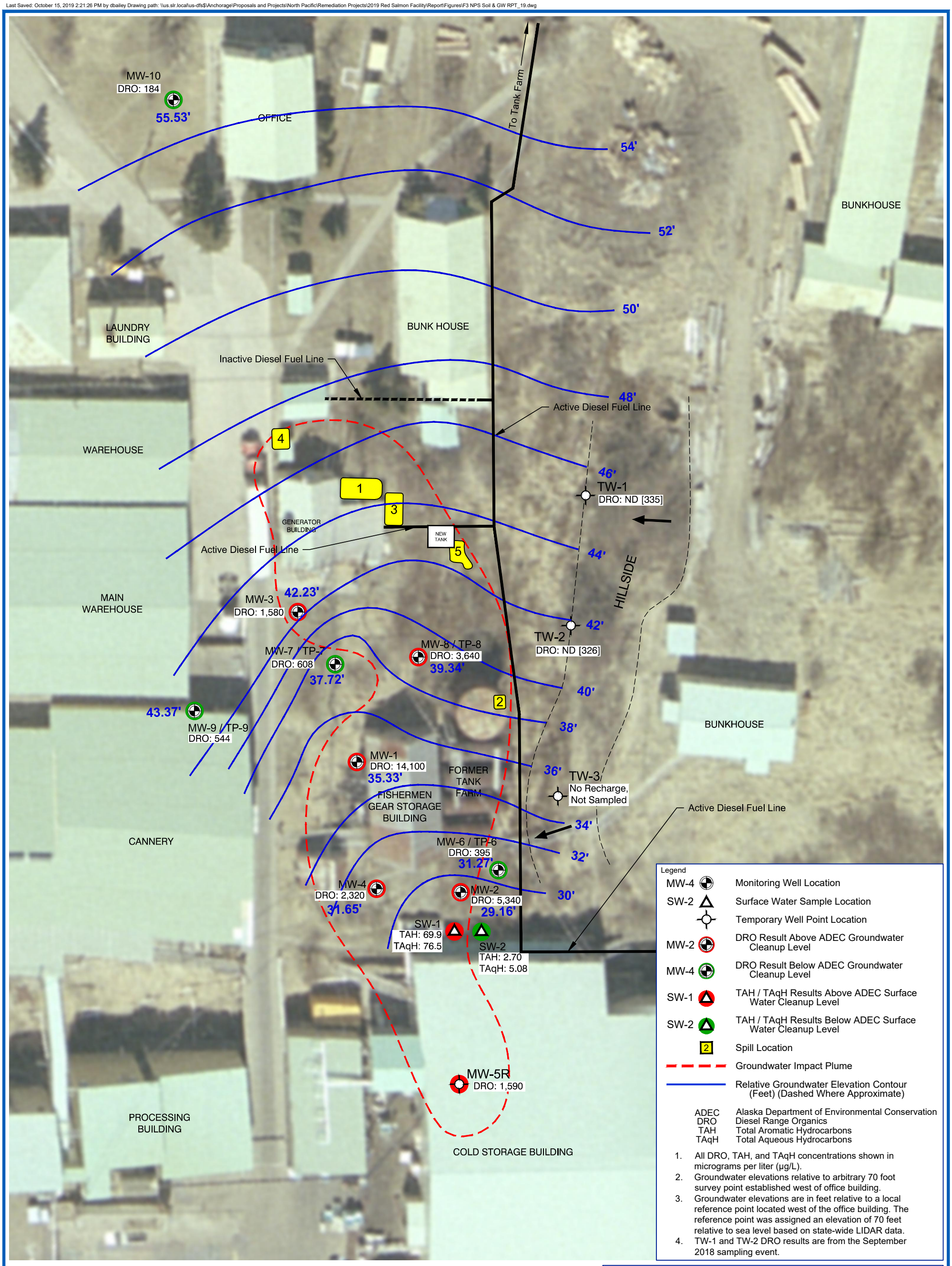
Site
NORTH PACIFIC SEAFOODS, INC.
RED SALMON FACILITY
NAKNEK, ALASKA

Report
2019 GROUNDWATER MONITORING REPORT

Drawing
WELL LOCATIONS

| Date | October 2019 | Scale | 1" = 40 Feet | Fig. No. |
|---|---|---|---|---|
| File Name | F2 NPS Soil & GW RPT_19 | Project No. | 105.00151.18001 | 2 |




Legend

| | |
|---|---|
| MW-4 | Monitoring Well Location |
| SW-2 | Surface Water Sample Location |
| | Temporary Well Point Location |
| MW-2 | DRO Result Above ADEC Groundwater Cleanup Level |
| MW-4 | DRO Result Below ADEC Groundwater Cleanup Level |
| SW-1 | TAH / TAqH Results Above ADEC Surface Water Cleanup Level |
| SW-2 | TAH / TAqH Results Below ADEC Surface Water Cleanup Level |
| 2 | Spill Location |
| | Groundwater Impact Plume |
| | Relative Groundwater Elevation Contour (Feet) (Dashed Where Approximate) |

| | |
|---|---|
| ADEC | Alaska Department of Environmental Conservation |
| DRO | Diesel Range Organics |
| TAH | Total Aromatic Hydrocarbons |
| TAqH | Total Aqueous Hydrocarbons |

1. All DRO, TAH, and TAqH concentrations shown in micrograms per liter (µg/L).
2. Groundwater elevations relative to arbitrary 70 foot survey point established west of office building.
3. Groundwater elevations are in feet relative to a local reference point located west of the office building. The reference point was assigned an elevation of 70 feet relative to sea level based on state-wide LIDAR data.
4. TW-1 and TW-2 DRO results are from the September 2018 sampling event.

SCALE: 1" = 40'
WHEN PLOTTED AT 11 x 17 PAGE SIZE
0 40' 80' 120'

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

SLR

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

Report
2019 GROUNDWATER MONITORING REPORT

Drawing
2019 GROUNDWATER AND SURFACE WATER RESULTS

| | | | |
|---|---|---|---|
| Date | October 2019 | Scale | 1" = 40 Feet |
| File Name | F3 NPS Soil & GW RPT_19 | Project No. | 105.00151.19001 |

Fig. No. 3

# TABLES

## Table 1 - 2019 Red Salmon Facility
## Groundwater Elevations

| Well | Top of Casing Elevation[1] | DTW measurement Sept 2018 | Groundwater Elevation Sept 2018 | DTW measurement Sept 2019 | Groundwater Elevation Sept 2019 | Analytical Sample ID |
|---|---|---|---|---|---|---|
| MW-1 | 40.16 | 3.71 | 36.45 | 4.83 | 35.33 | RS-MW1-090619 |
| MW-2 | 35.71 | 6.36 | 29.35 | 6.55 | 29.16 | RS-MW2-090519 |
| MW-3 | 51.85 | 8.53 | 43.32 | 9.62 | 42.23 | RS-MW3-090619 |
| MW-4 | 35.82 | 3.38 | 32.44 | 4.17 | 31.65 | RS-MW4-090519 |
| MW-5R | NM | NM[2] | NM[2] | 1.36 | NM | RS-MW5R-090719 |
| MW-6 | 36.98 | 5.58 | 31.40 | 5.71 | 31.27 | RS-MW6-090519 |
| MW-7 | 47.17 | 7.98 | 39.19 | 9.45 | 37.72 | RS-MW7-090619 |
| MW-8 | 44.21 | 4.78 | 39.43 | 4.87 | 39.34 | RS-MW8-090619 |
| MW-9 | 49.12 | 4.42 | 44.70 | 5.75 | 43.37 | RS-MW9-090719 |
| MW-10 | 66.35 | 9.32 | 57.03 | 10.82 | 55.53 | RS-MW10-090619 |

**Notes**

1 - Well casings were surveyed using the level loop method with relative accuracy of 0.02 feet. The survey was not tied in to a known benchmark, however a temporary benchmark (Point 100) was established with an estimated elevation of 70 feet above mean sea level, based on lidar data.

2 - The original MW-5 was destroyed during the winter of 2017-2018 and MW-5R was established in the former location of MW-5 in 2019.

**Abbreviations**

| | |
|---|---|
| DTW | depth to water |
| NM | Not measured |

# Table 2 - 2019 Red Salmon Facility
# Groundwater Analytical Results

| Compound in micrograms per liter (µg/L) | Screening Criteria | Sample Identification[2] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 18 AAC 75, Table C, Groundwater Cleanup Levels1 | RS-MW1-090619 06-Sep-19 1195252005 | | RS-MW2-090519 05-Sep-19 1195252002 | | RS-MW3-090619 06-Sep-19 1195252009 | | Primary: RS-MW4-090519 05-Sep-19 1195252003 | | Duplicate: RS-MW19-090519 05-Sep-19 1195252004 | | RS-MW5R-090719 07-Sep-19 1195252014 | | RS-MW6-090519 05-Sep-19 1195252001 | | RS-MW7-090619 06-Sep-19 1195252006 | | RS-MW8-090619 06-Sep-19 1195252007 | | Primary: RS-MW9-050119 01-May-19 1192038001 | | Duplicate: RS-MW99-050119 01-May-19 1192038002 | | RS-MW9-090719 07-Sep-19 1195252013 | | RS-MW10-090619 06-Sep-19 1195252008 | | Trip Blank: Trip Blank 01-May-19 1192038003 | | Trip Blank: Trip Blank 05-Sep-19 1195252015 | |
| | | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag |
| **Fuels (AK101, 102, and 103)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gasoline Range Organics | 2200 | 222 | = | 108 | = | 40 | J | [50] | U | [50] | U | [50] | U | [50] | U | [50] | U | 120 | = | [50] | U | [50] | U | [50] | U | 34.2 | J | [50] | U | [50] | U | | |
| Diesel Range Organics | 1500 | 14100 | = | 5340 | = | 1580 | = | 2210 | = | 2320 | = | 1590 | = | 395 | J | 608 | J | 3640 | = | 689 | = | 805 | = | 544 | J | 184 | J | -- | -- | -- | -- | | |
| Residual Range Organics | 1100 | 1760 | = | 1900 | = | 884 | = | 724 | = | 746 | = | 937 | = | 447 | J | 543 | = | 1080 | = | 372 | J, B | 446 | J, B | 517 | = | 276 | J | -- | -- | -- | -- | | |
| **BTEX (SW8260C)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | 4.6 | 5.08 | = | 4.98 | = | 1.27 | = | [0.2] | U | [0.2] | U | 0.2 | J,B | [0.2] | U | 10.1 | = | [0.2] | U | [0.2] | U | [0.2] | U | [0.2] | U | 3.63 | = | [0.2] | U | [0.2] | U | | |
| Toluene | 1100 | 0.44 | J | 0.34 | J | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | | |
| Ethylbenzene | 15 | 5.33 | = | 4.9 | = | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | 3.61 | = | [0.5] | U | [0.5] | U | | |
| o-Xylene | -- | 7.81 | = | 7.67 | = | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | 12.2 | = | [0.5] | U | [0.5] | U | | |
| P & M -Xylene | -- | 11.3 | = | 11.4 | = | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | 20.1 | = | [1] | U | [1] | U | | |
| Xylenes (total)[4] | 190 | 19.1 | = | 19.1 | = | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | 32.3 | = | [1] | U | [1] | U | | |
| **VOCs (SW8260C)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 5.7 | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| 1,1,1-Trichloroethane | 8000 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,1,2,2-Tetrachloroethane | 0.76 | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| 1,1,2-Trichloroethane | 0.41 | -- | -- | -- | -- | -- | -- | [0.2] | U | [0.2] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.2] | U | [0.2] | U | -- | -- | -- | -- | [0.2] | U | [0.2] | U | | |
| 1,1-Dichloroethane | 28 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,1-Dichloroethene | 280 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,1-Dichloropropene | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,2,3-Trichlorobenzene | 7 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,2,3-Trichloropropane | 0.0075 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,2,4-Trichlorobenzene | 4 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,2,4-Trimethylbenzene | 56 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,2-Dibromo-3-chloropropane | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | [5] | U | [5] | U | | |
| 1,2-Dibromoethane | 0.075 | -- | -- | -- | -- | -- | -- | [0.0375] | U | [0.0375] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0375] | U | [0.0375] | U | -- | -- | -- | -- | [0.0375] | U | [0.0375] | U | | |
| 1,2-Dichlorobenzene | 300 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,2-Dichloroethane | 1.7 | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| 1,2-Dichloropropane | 8.2 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,3,5-Trimethylbenzene | 60 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | 0.85 | J | 0.878 | J | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,3-Dichlorobenzene | 300 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 1,3-Dichloropropane | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| 1,4-Dichlorobenzene | 4.8 | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| 2,2-Dichloropropane | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 2-Butanone (MEK) | 5600 | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | [5] | U | [5] | U | | |
| 2-Chlorotoluene | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 2-Hexanone | 38 | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | [5] | U | [5] | U | | |
| 4-Chlorotoluene | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 4-Isopropyltoluene | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| 4-Methyl-2-pentanone (MIBK) | 6300 | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | [5] | U | [5] | U | | |
| Benzene | 4.6 | 5.08 | = | 4.98 | = | 1.27 | = | [0.2] | U | [0.2] | U | 0.2 | J,B | [0.2] | U | 10.1 | = | [0.2] | U | [0.2] | U | [0.2] | U | [0.2] | U | 3.63 | = | [0.2] | U | [0.2] | U | | |
| Bromobenzene | 62 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Bromochloromethane | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Bromodichloromethane | 1.3 | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| Bromoform | 33 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Bromomethane | 7.5 | -- | -- | -- | -- | -- | -- | [2.5] | U | [2.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [2.5] | U | [2.5] | U | -- | -- | -- | -- | [2.5] | U | [2.5] | U | | |
| Carbon disulfide | 810 | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | [5] | U | [5] | U | | |
| Carbon tetrachloride | 4.6 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Chlorobenzene | 78 | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| Chloroethane | 21000 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Chloroform | 2.2 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | 1.3 | = | 1.28 | = | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Chloromethane | 190 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| cis-1,2-Dichloroethene | 36 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| cis-1,3-Dichloropropene | 4.7 | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| Dibromochloromethane | 8.7 | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.25] | U | [0.25] | U | -- | -- | -- | -- | [0.25] | U | [0.25] | U | | |
| Dibromomethane | 8.3 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Dichlorodifluoromethane | 200 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Ethylbenzene | 15 | 5.33 | = | 4.9 | = | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | 3.61 | = | [0.5] | U | [0.5] | U | | |
| Freon-113 | 10000 | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | [5] | U | [5] | U | | |
| Hexachlorobutadiene | 1.4 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Isopropylbenzene (Cumene) | 450 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Methylene chloride | 110 | -- | -- | -- | -- | -- | -- | [2.5] | U | [2.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [2.5] | U | [2.5] | U | -- | -- | -- | -- | [2.5] | U | [2.5] | U | | |
| Methyl-t-butyl ether | 140 | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | [5] | U | [5] | U | | |
| Naphthalene | 1.7 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| n-Butylbenzene | 1000 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| n-Propylbenzene | 660 | | | | | | | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| sec-Butylbenzene | 2000 | -- | -- | -- | -- | -- | -- | 1.15 | = | 1.16 | = | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Styrene | 1200 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| tert-Butylbenzene | 690 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Tetrachloroethene | 41 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Toluene | 1100 | 0.44 | J | 0.34 | J | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | | |
| trans-1,2-Dichloroethene | 360 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| trans-1,3-Dichloropropene | 4.7 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Trichloroethene | 2.8 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Trichlorofluoromethane | 5200 | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.5] | U | [0.5] | U | -- | -- | -- | -- | [0.5] | U | [0.5] | U | | |
| Vinyl acetate | 410 | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | -- | -- | -- | -- | [5] | U | [5] | U | -- | -- | -- | -- | [5] | U | [5] | U | | |
| Vinyl chloride | 0.19 | -- | -- | -- | -- | -- | -- | [0.075] | U | [0.075] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.075] | U | [0.075] | U | -- | -- | -- | -- | [0.075] | U | [0.075] | U | | |
| o-Xylene | -- | 7.81 | = | 7.67 | = | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | [0.5] | U | 12.2 | = | [0.5] | U | [0.5] | U | | |
| P & M -Xylene | -- | 11.3 | = | 11.4 | = | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | 20.1 | = | [1] | U | [1] | U | | |
| Xylenes (total)[4] | 190 | 19.1 | = | 19.1 | = | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | [1] | U | 32.3 | = | [1] | U | [1] | U | | |
| **PAH SIM (SW8270D LV)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 11 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| 2-Methylnaphthalene | 36 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Acenaphthene | 530 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Acenaphthylene | 260 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Anthracene | 43 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Benzo(a)Anthracene | 0.3 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Benzo[a]pyrene | 0.25 | -- | -- | -- | -- | -- | -- | [0.0098] | U | [0.01] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0104] | U | [0.0101] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Benzo[b]Fluoranthene | 2.5 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Benzo[g,h,i]perylene | 0.26 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Benzo[k]fluoranthene | 0.8 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Chrysene | 2 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Dibenzo[a,h]anthracene | 0.25 | -- | -- | -- | -- | -- | -- | [0.0098] | U | [0.01] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0104] | U | [0.0101] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Fluoranthene | 260 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Fluorene | 290 | -- | -- | -- | -- | -- | -- | 0.248 | = | 0.216 | = | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Indeno[1,2,3-c,d] pyrene | 0.19 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Naphthalene | 1.7 | -- | -- | -- | -- | -- | -- | [0.049] | U | [0.05] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.052] | U | [0.051] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Phenanthrene | 170 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Pyrene | 120 | -- | -- | -- | -- | -- | -- | [0.0245] | U | [0.025] | U | -- | -- | -- | -- | -- | -- | -- | -- | [0.0261] | U | [0.0254] | U | -- | -- | -- | -- | -- | -- | -- | -- | | |

**Notes:**

1 -This screening level corresponds to ADEC 18 AAC 75.345 Table C, October 27, 2018.

2 - The field sample identification number, date collected, and laboratory sample identification number are provided.

3 - For detected results, the sample result is listed in this column. For results of non-detect, the LOD is listed in [ ].

4 - Total values were the summation of detected compounds only. If compounds were not detected, then the highest LOD was listed.

Sample results above the screening level are shown shaded yellow to indicate exceexance of screening criteria.

Shaded green indicates that the LOD did not meet project cleanup levels.

**Abbreviations:**

| | |
|---|---|
| -- | Not applicable or screening criteria does not exist for this compound |
| AAC | Alaska Administrative Code |
| ADEC | Alaska Department of Environmental Conservation |
| BTEX | benzene, toluene, ethylbenzene, and xylenes |
| DL | Detection Limit |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| µg/L | micrograms per liter |
| LV | Low volume |
| PAH | Polynuclear aromatic hydrocarbons |
| SIM | Selective Ion Monitoring |
| VOCs | volatile organic compounds |

**Data Flags:**

| | |
|---|---|
| = | Analyte detected at concentration listed in column to the left. |
| B | Associated blank detection, value is biased high. |
| J | Result is considered an estimated value because the level is below the laboratory LOQ, but above the DL. |
| U | Nondetect, LOD is in brackets in the concentration column. |

# Table 3 - 2019 Red Salmon Facility
# Historical DRO and BTEX Results

| Analyte | | DRO | Benzene | Toluene | Ethylbenzene | Xylenes |
|---|---|---|---|---|---|---|
| Groundwater Cleanup Level[1] (µg/L) | | 1500 | 4.6 | 1100 | 15 | 190 |
| Well ID | Sample Date | Result[2] (µg/L) | | | | |
| MW-01 | 8/3/2015 | 5490 | 4.39 | 6.33 | 7.16 | 60.1 |
| MW-01 | 7/27/2016 | 11100 | 1.2 | 4.33 | 7.65 | 42.8 |
| MW-01 | 9/5/2017 | 10400 | 5.42 | 9.58 | 4.35 | 34.8 |
| MW-01 | 9/11/2018 | 3420 | 1.94 | 3.33 | 7.1 | 51.2 |
| MW-01 | 9/6/2019 | 14100 | 5.08 | 0.44 J | 5.33 | 19.1 |
| MW-02 | 8/3/2015 | 4020 | 1.56 | ND | ND | 1.25 J |
| MW-02 | 7/27/2016 | 2710 | 0.9 | 2.96 | 3.08 | 5.42 |
| MW-02 | 9/4/2017 | 2490 | 0.17 J | 0.51 | 2.03 | 4.05 |
| MW-02 | 9/12/2018 | 1570 | 0.19 J | ND | 2.01 | 5.84 |
| MW-02 | 9/5/2019 | 5340 | 4.98 | 0.34 J | 4.9 | 19.1 |
| MW-03 | 8/3/2015 | 3250 | 1.42 | ND | ND | ND |
| MW-03 | 9/5/2017 | 2890 | 0.2 J | ND | ND | ND |
| MW-03 | 9/10/2018 | 2880 | 6.37 | ND | 0.89 J | 1.26 J |
| MW-03 | 9/6/2019 | 1580 | 1.27 | ND | ND | ND |
| MW-04 | 8/3/2015 | 422 J | ND | 0.41 J | 3.69 | 8.54 |
| MW-04 | 7/27/2016 | ND | ND | ND | ND | ND |
| MW-04 | 9/4/2017 | 841 | 1.43 | ND | ND | ND |
| MW-04 | 9/11/2018 | 1620 | ND | ND | ND | ND |
| MW-04 | 9/5/2019 | 2320 | ND | ND | ND | ND |
| MW-05 | 7/27/2016 | 422 J | ND | ND | ND | ND |
| MW-05 | 9/5/2017 | 970 | ND | ND | ND | ND |
| MW-05 | Destroyed 2018 | | | | | |
| MW-5R[3] | 9/7/2019 | 1590 | 0.2 J,B | ND | ND | ND |
| MW-06 | 9/7/2017 | 823 | ND | ND | ND | ND |
| MW-06 | 9/12/2018 | 472 J | ND | ND | ND | ND |
| MW-06 | 9/5/2019 | 395 J | ND | ND | ND | ND |
| MW-07 | 9/6/2017 | 1540 | 0.17 J | ND | ND | ND |
| MW-07 | 9/10/2018 | 2210 | 5.26 | ND | ND | ND |
| MW-07 | 9/6/2019 | 608 J | 10.1 | ND | ND | ND |
| MW-08 | 9/6/2017 | 1870 | 8.71 | 19.6 | 13.1 | 60.6 |
| MW-08 | 9/14/2018 | 4120 | 28.2 | 0.38 J | 7.9 | 61 |
| MW-08 | 9/6/2019 | 3640 | ND | ND | ND | ND |
| MW-09 | 9/7/2017 | 912 | ND | ND | ND | ND |
| MW-09 | 9/14/2018 | 7480 | 0.52 | 0.42 J | 1.01 | 146 |
| MW-09 | 5/1/2019 | 805 | ND | ND | ND | ND |
| MW-09 | 9/7/2019 | 544 J | ND | ND | ND | ND |
| MW-10 | 9/14/2018 | ND | ND | ND | ND | ND |
| MW-10 | 9/6/2019 | 184 J | 3.63 | ND | 3.61 | 32.3 |

**Notes:**

1 - ADEC Method Two Groundwater Cleanup Levels, 18 AAC 75.345, Table C (October 27, 2018).

2 - If a duplicate sample was collected, the higher of the two values is listed.

3 - The original MW-5 was destroyed during the winter of 2017-2018 and MW-5R was established in the former location of MW-5 in 2019.

**Abbreviations:**

| | | | |
|---|---|---|---|
| | Exceeds cleanup criteria | DRO | Diesel range organics |
| BTEX | benzene, toluene, ethylbenzene, and xylenes | LOQ | Limit of Quantitation |
| DL | Detection Limit | µg/L | micrograms per liter |

**Data Flags:**

| | |
|---|---|
| B | Associated blank detection, value is biased high. |
| J | Result is considered an estimated value because the level is below the laboratory LOQ, but above the DL. |
| ND | Analyte not detected |

# Table 4 - 2019 Red Salmon Facility
# Surface Water Results

| Compound in micrograms per liter (µg/L) | Screening Criteria | Sample Locations[2] | | | | | | Trip Blank | |
|---|---|---|---|---|---|---|---|---|---|
| | 18 AAC 70 Alaska Water Quality Standard Freshwater[1] | Primary: RS-SW1-090619 06-Sep-19 1195252010 | | Duplicate: RS-SW9-090619 06-Sep-19 1195252011 | | RS-SW2-090619 06-Sep-19 1195252012 | | Trip Blank 1 05-Sep-19 1195252015 | |
| | | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag | Conc.[3] | Flag |
| **Fuels (AK101, 102, and 103)** | | | | | | | | | |
| Gasoline Range Organics | -- | 158 | = | 151 | = | 33.7 | J | [50] | U |
| Diesel Range Organics | -- | 6160 | = | 5820 | = | 1780 | = | -- | -- |
| Residual Range Organics | -- | 4420 | = | 3550 | = | 2450 | = | -- | -- |
| **BTEX (SW8260C)** | | | | | | | | | |
| Benzene | 5 | 1.24 | Q | 4.98 | Q | [0.2] | UJ | [0.2] | U |
| Toluene | 1000 | 1.1 | Q | [0.5] | UJ | [0.5] | UJ | [0.5] | U |
| Ethylbenzene | 700 | 8.57 | Q | 1.6 | Q | [0.5] | UJ | [0.5] | U |
| o-Xylene | -- | 27.1 | Q | 1.98 | Q | [0.5] | UJ | [0.5] | U |
| P & M -Xylene | -- | 26.9 | Q | 4.06 | Q | [1] | UJ | [1] | U |
| Total Xylenes[4] | 10000 | 54 | Q | 6.04 | Q | [1.5] | UJ | [1.5] | U |
| Total BTEX (TAH)[4] | 10 | 64.91 | Q | 13.12 | Q | [2.7] | UJ | [2.7] | U |
| **PAH SIM (SW8270D LV)** | | | | | | | | | |
| 1-Methylnaphthalene | -- | 10.4 | Q | 7.48 | Q | 0.875 | Q | -- | -- |
| 2-Methylnaphthalene | -- | 3.8 | Q | 2.47 | Q | [0.0255] | UJ | -- | -- |
| Acenaphthene | 1200 | [0.0245] | U | [0.0254] | U | 0.287 | = | -- | -- |
| Acenaphthylene | -- | [0.0245] | U | [0.0254] | U | [0.0255] | U | -- | -- |
| Anthracene | 9600 | [0.0245] | U | [0.0254] | U | [0.0255] | U | -- | -- |
| Benzo(a)Anthracene | -- | [0.0245] | U | [0.0254] | U | [0.0255] | U | -- | -- |
| Benzo[a]pyrene | 0.2 | [0.0098] | U | [0.0101] | U | [0.0102] | U | -- | -- |
| Benzo[b]Fluoranthene | -- | [0.0245] | U | [0.0254] | U | [0.0255] | U | -- | -- |
| Benzo[g,h,i]perylene | -- | 0.0812 | Q | [0.0254] | UJ | [0.0255] | UJ | -- | -- |
| Benzo[k]fluoranthene | -- | [0.0245] | U | [0.0254] | U | [0.0255] | U | -- | -- |
| Chrysene | -- | 0.3 | Q | [0.0254] | UJ | [0.0255] | UJ | -- | -- |
| Dibenzo[a,h]anthracene | -- | [0.0098] | U | [0.0101] | U | [0.0102] | U | -- | -- |
| Fluoranthene | 300 | [0.0245] | U | [0.0254] | U | [0.0255] | U | -- | -- |
| Fluorene | 1300 | 2.03 | Q | 1.49 | Q | 1.66 | Q | -- | -- |
| Indeno[1,2,3-c,d] pyrene | -- | [0.0245] | U | [0.0254] | U | [0.0255] | U | -- | -- |
| Naphthalene | -- | 4.5 | Q | 2.28 | Q | [0.051] | UJ | -- | -- |
| Phenanthrene | -- | 4.06 | Q | 2.8 | Q | 0.104 | Q | -- | -- |
| Pyrene | 960 | 0.648 | = | 0.491 | = | [0.0255] | U | -- | -- |
| Total PAH[4] | 15 | 11.8348 | Q | 7.3352 | Q | 2.3774 | Q | -- | -- |
| TAqH = TAH +PAH[4] | 15 | 76.7448 | Q | 20.4552 | Q | 5.0774 | Q | -- | -- |

**Notes:**

1 - The screening level corresponds to ADEC 18 AAC 70.020b (April 6, 2018), adapted by reference from Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances (December 12, 2008).

2 - The field sample identification number, date collected, and laboratory sample identification number are provided.

3 - For detected results, the sample result is listed in this column. For results of non-detect, the LOD is listed in [ ].

4 - Total values were the summation of reported values and LODs for non detects. For PAH, compounds included in the summation, per 18 AAC 70, were acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-c,d] pyrene, naphthalene, phenanthrene, and pyrene.

**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. |
| Q | The result is an estimated quantity. A "+" or "-" was appended to indicate a high or low bias, respectively. |
| U | Nondetect, LOD is in brackets in the concentration column. |
| UJ | Nondetect with an estimated LOD in brackets. |

**Abbreviations:**

| | | | |
|---|---|---|---|
| -- | Not applicable or screening criteria does not exist for this compound | LOQ | Limit of Quantitation |
| µg/L | micrograms per liter | LV | Low volume |
| AAC | Alaska Administrative Code | PAH | Polynuclear Aromatic Hydrocarbons |
| ADEC | Alaska Department of Environmental Conservation | SIM | Selective Ion Monitoring |
| AK | Alaska | TAH | Total Aromatic Hydrocarbons |
| BTEX | benzene, toluene, ethylbenzene, and total xylenes | TAqH | Total Aqueous Hydrocarbons |
| DL | Detection Limit | | |
| LOD | Limit of Detection | | |

Sample results in yellow indicate an exceedance of screening criteria.

# APPENDIX A
# PHOTOGRAPH LOG

## 2019 Groundwater Monitoring Report
## Red Salmon Facility
## Naknek, Alaska

October 2019

**Photo 1:** Monitoring Well MW-9. May 1, 2019.

**Photo 2:** Sampling Monitoring Well MW-9. May 1, 2019.


**Photo 3:** SW Side Fisherman Gear Building, Monitoring Well MW-1. September 6, 2019.


**Photo 4:** SE Side of Fisherman Gear Building, MW-2, and MW-6. September 6, 2019.

**Photo 5:** Temporary Well Point MW-5R Beneath Cold Storage Building. September 7, 2019.

**Photo 6:** Sampling at Temporary Well Point MW-5R. September 7, 2019.

**Photo 7:** Monitoring Well MW-3. September 6, 2019.

**Photo 8:** Monitoring Well MW-7. September 9, 2019.

**Photo 9:** Monitoring Well MW-8. September 6, 2019.


**Photo 10:** Monitoring Well MW-10. September 6, 2019.

**Photo 11:** Seep 1. September 6, 2019.

**Photo 12:** Seep 2. September 6, 2019.

# APPENDIX B
# FIELD NOTES AND FIELD FORMS

## 2019 Groundwater Monitoring Report
## Red Salmon Facility
## Naknek, Alaska

October 2019

Location Red Salmon Cannery Date 5/1/19

Project / Client NPSI

Ben Siwiec and Brett Woelber

0730 Leave ANC, plane turns around for mechanical problem.

0930 Leave ANC again, plane arrives King Salmon at 1030. PenAir did not bring our personal luggage but we can do the job without it. Project air cargo did arrive at Everts

1200 Arrive at Red Salmon Cannery. Calibrating YSI, checking MW-9 well: water at 3.09 ft BTOC.

1227 YSI calibrated. Setting up well.

1235 begin purging MW-9.

1329 finish purge

1330 Sample collection time RS-MW9-050119 and duplicate RS-MW99-050119. Analyzing for DRO/RRO, GRO, BTEX 8260 (full list), PAHs.

1400 Finishing filling jars, pump off.

BS 5/1/19



Location Red Salmon Cannery Date 5/1/19

Project / Client NPSI

Ben Siwiec and Brett Woelber

1416 Checking WL depths

| | |
|---|---|
| MW-1 | 3.70 |
| MW-4 | 3.19 |
| MW-2 | 6.24 |
| MW-6 | 5.35 |
| MW-7 | 8.22 |

Note MW-7 is frost jacked - should be cut.

| | |
|---|---|
| MW-3 | 8.42 |
| MW-8 | 4.40 |
| MW-10 | 10.34 |

1500 Lunch at Cannery cafeteria after talking with Kerry.

1660 Off site

1615 Shipping samples at airport.

1900 Flying back to Anchorage

2000 Back in Anchorage

BS 5/1/19

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name:** Red Salmon / NPS | **Well ID:** MW-9 |
| Project #: 105.0015.19001 | Sample ID: RS-MW9-050119 |
| Sampled By: Ben Siwiec / Brett Woelber | Sample Time: 1330 Sample Date: 5/1/19 |
| Weather Conditions: cloudy, 9°C | Duplicate ID: RS-MW99-050119 |
| Sampling Method: ☑ Low Flow ☑ Other three casing volume | MS/MSD ☐ Yes ☑ No Trip Blank Required: ☑ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☑ Permanent ☐ Temporary | Well Diameter 2 in. | Screen Interval: 0.5 ft BGS to 5 ft BGS |
| Well Condition: ☑ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, 1.5 ft above ground |

**Gauging/Purging Information**

| | |
|---|---|
| Depth to Water (ft BTOC): 3.09 | Tubing/Pump Depth (ft. BTOC): one foot off bottom 5.8 |
| Total Depth (ft BTOC ): 6.74 | Purge Start Time (24-hr) 1235 |
| Depth to Product (ft. BTOC ) — | Purge End Time (24-hr) 1329 |
| Product Thickness (ft) — | Total Purge Time (min) 54 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (~~ml~~ liter/minute) | Purge Volume ~~(gal)~~ L | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1249 | 0.175 | 1 | 3.29 | 89 | 7.30 | 4.86 | 316.6 | L | 3.50 | 0.41 |
| 1254 | 0.175 | 1.75 | 3.34 | 90 | 6.06 | 4.94 | 320.6 | L | 3.54 | 0.45 |
| 1259 | 0.15 | 2.5 | 3.19 | 91 | 5.44 | 5.43 | 304.3 | L | 3.56 | 0.47 |
| 1304 | 0.15 | 3.25 | 3.21 | 89 | 5.36 | 5.53 | 297.2 | L | 3.55 | 0.46 |
| 1309 | 0.15 | 4 | 3.13 | 89 | 5.01 | 5.63 | 302.0 | L | 3.55 | 0.46 |
| 1314 | 0.15 | 4.75 | 3.22 | 89 | 4.79 | 5.72 | 300.9 | L | 3.55 | 0.46 |
| 1319 | 0.15 | 5.50 | 3.22 | 89 | 4.660 | 5.78 | 299.7 | L | 3.59 | 0.50 |
| 1324 | 0.15 | 6.25 | 3.22 | 89 | 4.53 | 5.84 | 301.9 | L | 3.60 | 0.51 |
| 1329 | 0.15 | 7.00 | 3.15 | 89 | 4.26 | 5.86 | 300.6 | L | 3.60 | 0.51 |
| | | | | | | | | Note: water appeared clear at sample time. | | |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | |

**Sample Color:** Clear **Sample Odor:** None **Sheen:** None

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| GRO AK101 | ✓ | |
| BTEX 8260 | ✓ | |
| DRO/RRO AK102/103 | ✓ | |
| PAHs 8270 SIM | ✓ | |

**Notes:** turn pump off at 1400 after filling all bottles. Tubing for bladder pump left in well, with section of silicone for peristaltic.

**Equipment:** Pump Type Pegasus Alexis Tubing (Type/Length) poly (LDPE) Bailer Type —

Water Level Meter YSI 556 MPS Multi-Parameter Meter (Make/SN#) Slope Indicator #4

Turbidity Meter (Make/SN#) — Not Used Filter Lot # —

**Purge Water Handling:** ☐ Discharged to surface ☑ Containerized ☐ Treated (how?)_____

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Water Parameter Meter Calibration Log

SLR

Date: 5/1/2019 Time: 1205 Calibration By: B. Woelber

Meter Manufacturer and Identification #: YSI 556 MPS

| Parameter | Standard | True Value | Lot # | Date Opened | Expiration Date | PreCalibration Reading | Reading After Calibration | Calibration Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|
| pH | 7.00 | 7.05 | VT2 | 07/2018 | 07/2019 | 7.12 | 7.05 | ± 0.10 |
| | 4.00 | 4.00 | WX1 | 9/14/2018 | 03/2020 | 3.95 | 4.00 | ± 0.10 |
| | 10.00 | 10.18 | CC562031 | 07/2018 | 05/2020 | 10.18 | 10.18 | ± 0.10 |
| Sp Cond (mS/cm) | 1.413 | 1.413 | CC172500 | 08/2018 | 05/2019 | 1.323 | 1.413 | ± 10% |
| ORP (mV) | 240 | 240 | 1600 | 09/2017 | 05/2022 | 228.4 | 240.0 | ---------- |
| DO* | | | 30.13 in Hg | | | 86.4% | 100.7% | ± 2% |

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Date: _____ Time: _____ Calibration By: _____

Meter Manufacturer and Identification #: _____

| Parameter | Standard | True Value | Lot # | Date Opened | Expiration Date | PreCalibration Reading | Reading After Calibration | Calibration Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|
| pH | 7.00 | | | | | | | ± 0.10 |
| | 4.00 | | | | | | | ± 0.10 |
| | 10.00 | | | | | | | ± 0.10 |
| Sp Cond (mS/cm) | 1.413 | | | | | | | ± 10% |
| ORP (mV) | 240 | | | | | | | ---------- |
| DO* | | | | | | | | ± 2% |

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Date: _____ Time: _____ Calibration By: _____

Meter Manufacturer and Identification #: _____

| Parameter | Standard | True Value | Lot # | Date Opened | Expiration Date | PreCalibration Reading | Reading After Calibration | Calibration Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|
| pH | 7.00 | | | | | | | ± 0.10 |
| | 4.00 | | | | | | | ± 0.10 |
| | 10.00 | | | | | | | ± 0.10 |
| Sp Cond (mS/cm) | 1.413 | | | | | | | ± 10% |
| ORP (mV) | 240 | | | | | | | ---------- |
| DO* | | | | | | | | ± 2% |

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Location Red Salmon Cannery Date 9/5/19

Project / Client NPSI

Ben Siwiec - SLR

0715 Leave ANC on Pen Air.
0820 Arrive in King Salmon
0900 Pick up cargo at King Salmon Ground Services.
0930 At Red Salmon, staging gear and unpacking.
Weather - Clear, Calm, 50's.
1015 Begin YSI calibration
1036 finish cal, set up 1st bladder.
1100 Try to calibrate turbidimeter; cannot. there is a problem with either the meter or the cal. solutions. will not use.
Starting with MW-6
1137 Begin purge at MW-6. Water quickly draws down.
1155 Stopped pump because water had drawn down to pump inlet depth - allowing recharge.
Pump ~~body~~ bladder's WL probe at ~~11.20~~ 7.20
1157 Water back up to ~~11.20~~ 7.20
1267 Water depth 6.50



Location Red Salmon Cannery Date 9/5/19

Project / Client NPSI

Ben Siwiec - SLR

MW6 is producing 46 mL/min.
1211 Restart pump WL 6.35
Pump rate reduced to 100 mL/min.
1230 Pump stopped. WL 7.20ft, at top of pump body.
This well cannot be purged at a slow enough rate using bladder pump. will try peri pump after lunch.
1253 WL 6.17
1305 Start peripump. WL 6.33
1310 Pump rate is 0.075 mL/min and water level is still drawing down.
1314 WL 6.97
Attempting to purge at low flow rate
1402 At lowest possible flow rate (0.075 L/min) WL still drops.
Changing plan to purge well dry then sample tomorrow.
1410 While purging dry (or trying to) sediment started coming out of well

Location Red Salmon Cannery Date 9/5/19
Project / Client NPSI
Ben Sivley - SLR

Effectively redevelop ing the well. Note it was not possible to purge the well dry.
1434 Plug YSI back in, resume purge for sampling. Purge water is now clear.
1505 Finished purge
1510 Collect sample RS-MW6-090519
1517 finished collecting sample. Next well MW2. Cleaning bladder pump and changing bladder.
1615 Begin purge at MW2
1708 Finish purge at MW2
1712 Collect sample RS-MW2-090519
1725 Finish collecting sample, label jars and pack to move. Moving to MW4.
1812 Begin MW4 purge
1839 finish MW4 purge
1842 Collect sample RS-MW4-090519 and duplicate RS-MW19-090519
1922 Finished collecting sample.
2030 finished labeling jars - done for the day.



Location Red Salmon Cannery Date 9/6/19
Project / Client NPSI
Ben Sivley - SLR

0730 - At cannery - begin setup for the day.
Weather - Rain showers, ~50°F.
0745 Callibrate YSI
0833 Start purge at MW1
0923 Finish MW1 Purge
0925 Collect sample RS-MW1-090619.
0940 Finish collecting sample. Packing up
1020 Measure WL at MW3. It is 1 foot from bottom - cannot use bladder pump, using peristaltic
1044 Begin purge at MW3 with peristaltic.
1104 Well has gone dry while purging at slowest possible speed (less than 100 mL/min). Must return after recharge to collect sample.
Note well seems to produce about 60 mL/min from bottom while running pump at bottom.

Location Red Salmon Cannery Date 9/6/19

Project / Client NPS1

Ben Siwiec - SLR

1115 Changing bladder, moving to MW7.

1150 Start purge at MW7

1225 Finish purge at MW7

1228 Collect sample RS-MW7-090619

1238 finished collecting sample. Packing to move wells, cleaning bladder pump, eating lunch.

1409 Begin purging at MW8.

1439 Finish purging

1445 Collect sample RS-MW8-090619. Note- up on removing pump from well sediment appeared to be partially obstructing water intake screen. Sediment may have been bentonite. This may be reason for pump malfunction at end of MW8 sample collection.

1520 Moving on - cleaning bladder pump, replacing bladder and moving to MW10.

1640 Begin purge at MW10.

1645 Bladder pump malfunctions, Instead of blowing compressed



Location Red Salmon Cannery Date 9/6/19

Project / Client NPS1

Ben Siwiec - SLR

air down to the pump it is venting the air from the MPSO compressor unit. It seems like there must be a blockage but the pump was just cleaned and was pumping clear water for 5 minutes. There is no time to troubleshoot this problem. Switching to peristaltic.

1701 Restart purging with peristaltic.

1727 Finished purging MW10

1730 Collect Sample RS-MW10-090619

1740 Finished collecting sample. Packing to move wells. Moving to MW-9.

1820 Start purging with peristaltic at MW-9. WL is 5.75 and reported TD is 6.35, therefore bladder pump can't be used here.

1833 Stop purge - well is dry. Cannot purge slow

Location Red Salmon Cannery Date 9/6/19

Project / Client NPSI

Ben Siwiec - SLR

enough to not purge well dry. In addition water volume in well may not be great enough to fill jars once recharged.

Moving to fill jars at MW-3

1850 Setting up peri pump at MW-3 there is barely enough water available to fill the sample jars so no parameters will be collected.

1853 Collect sample RS-MW3-090619.

Move equipment back into garage and look for shovel to dig new MW5 — MW5R.

1905 Head under Cold Storage Building and dig MW5R, in same location as MW5.

1935 finish up and label jars

1955 Heading to dinner.

2030 Labeling / setting up to collect Surface water seep samples.

2050 Collect sample RS-SW1-090619 and duplicate RS-SW9-090619



Location Red Salmon Cannery Date 9/6/19

Project / Client NPSI

Ben Siwiec - SLR

2055 Collect sample RS-SW2-090619.

2145 Finished labeling surface water samples, done for the day.

BS

9/6/19

Location Red Salmon Cannery Date 9/7/19

Project / Client NPSI

Ben Siwiec - SLR

0725 Begin work, start YSI calibration.

0750 Finished calibration. Going to MW9 to collect samples without purge.

0810 Collect Sample RS-MW9-090719

Labeling jars and setting up to move to MW-5R.

0841 Begin purging at MW-5R, underneath cold storage building, on the beach. Sure tide is coming in, and this will have to be quick to get out ahead of the tide.

0907 finished purging - Parameters mostly stable but not D.O. Could not measure water level while purging because narrow well (0.75") is too narrow for tubing and water level meter probe at the same time.

0908 Collect Sample RS-MW5R-090719.

0918 finished collecting sample.



Location Red Salmon Cannery Date 9/7/19

Project / Client NPSI

Ben Siwiec - SLR

Packing gear and samples to leave Red Salmon.

1000 Leave Red Salmon.

1030 At King Salmon Ground Services, Shipping gear and samples

1230 Leaving King Salmon on Pen Air.

1400 Arrive back in Anchorage.

BS
9/7/19

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-1** |
| Project #: 105.00151.19001 | Sample ID: RS-MW1-090619 |
| Sampled By: Ben Siwiec | Sample Time: 0925 Sample Date: 9/6/19 |
| Weather Conditions: Cloudy, Gusty wind | Duplicate ID: — |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter 2 in. | Screen Interval: 0.6 ft BGS to 5.6 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, 2.9 ft above ground |

**Gauging/Purging Information**

| | | | |
|---|---|---|---|
| Depth to Water (ft BTOC): | 4.83 | 3.71 (2018) | Tubing/Pump Depth (ft. BTOC): Pump @ 8.5, Intake @ 7.5 |
| Total Depth (ft BTOC): | 5.56 | 9.57 (2016) | Purge Start Time (24-hr) 0833 |
| Depth to Product (ft. BTOC) | NA | | Purge End Time (24-hr) 0923 |
| Product Thickness (ft) | NA | | Total Purge Time (min) 50 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm$^c$) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0853 | 150 | 3 | 12.16 | 0.778 | 6.25 | 6.21 | 25.8 | murky | 5.80 | 0.97 |
| 0857 | 150 | 3.5 | 12.18 | 0.788 | 6.26 | 6.22 | 21.6 | murky | 6.00 | 1.17 |
| 0901 | 125 | 4 | 12.18 | 0.783 | 6.40 | 6.24 | 18.9 | murky | 6.20 | 1.37 |
| 0905 | 125 | 4.5 | 12.17 | 0.778 | 6.14 | 6.25 | 17.9 | murky | 6.20 | 1.37 |
| 0909 | 125 | 5 | 12.15 | 0.772 | 5.90 | 6.25 | 15.1 | clearer | 6.25 | 1.42 |
| 0913 | 125 | 5.5 | 12.13 | 0.767 | 5.70 | 6.26 | 11.8 | clearer | 6.50 | 1.67 |
| 0918 | 100 | 6 | 12.09 | 0.760 | 5.62 | 6.27 | 9.5 | clearer | 6.50 | 1.67 |
| 0923 | 100 | 6.5 | 12.04 | 0.754 | 5.51 | 6.27 | 8.6 | Very low | 6.50 | 1.67 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |

**Sample Color:** Pale yellow/green **Sample Odor:** Hydrocarbon **Sheen:** Yes

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.125 l/min in 2018, drawdown 0.15 ft. Peristaltic used in 2018. Parameters stabilized in 74 minutes in 2018.

**Equipment:** Pump Brand/Type QED Bladder Pump Settings 10PSI, 13/2 Tubing Material/Lining FEP
TUBING LEFT IN WELL? Bladder Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Int. Probe
Multi-Parameter Meter (Brand/SN#) YSI 556 07L100513 Turbidity Meter (Make/SN#) Not Used
In-line Filter Used? _No_____Lot #__----_____
**Purge Water Handling:** ☐ Discharged to surface ☐Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 6.5

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-2** |
| Project #: 105.00151.19001 | Sample ID: RS-MW2-090519 |
| Sampled By: Ben Siwiec | Sample Time: 1712 Sample Date: 9/5/19 |
| Weather Conditions: Mostly clear, windy | Duplicate ID: — |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter 2 in. | Screen Interval: 0.24 ft BGS to 5.29 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, 2.5 ft above ground |

**Gauging/Purging Information**

| | | | |
|---|---|---|---|
| Depth to Water (ft BTOC): | 6.55 | 6.36 (2018) | Tubing/Pump Depth (ft. BTOC): Pump on bottom. Intake @ 7.2 |
| Total Depth (ft BTOC): | 8.21 | 8.20 (2016) | Purge Start Time (24-hr) 1615 |
| Depth to Product (ft. BTOC) | NA | | Purge End Time (24-hr) 1708 |
| Product Thickness (ft) | NA | | Total Purge Time (min) 53 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1643 | 100 | 2 | 12.68 | 0.339 | 4.15 | 6.13 | 51.4 | murky | 6.75 | 0.2 |
| 1648 | 100 | 2.5 | 12.54 | 0.343 | 3.68 | 6.14 | 48.6 | clearer | 6.75 | 0.2 |
| 1652 | 120 | 3 | 12.28 | 0.355 | 3.60 | 6.16 | 47.2 | clear | 6.78 | 0.23 |
| 1656 | 125 | 3.5 | 12.00 | 0.361 | 3.94 | 6.16 | 48.3 | clear | 6.78 | 0.23 |
| 1700 | 125 | 4 | 11.82 | 0.367 | 3.64 | 6.16 | 46.0 | clear | 6.80 | 0.25 |
| 1704 | 125 | 4.5 | 11.76 | 0.373 | 3.23 | 6.16 | 43.3 | clear | 6.80 | 0.25 |
| 1708 | 125 | 5 | 11.76 | 0.378 | 3.05 | 6.16 | 40.2 | clear | 6.80 | 0.25 |
| ~~1712 BS~~ | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |

**Sample Color:** clear **Sample Odor:** No **Sheen:** No

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.09 l/min in 2018, drawdown lower than top of pump body (6.40). Bladder pump used in 2018. Parameters stabilized in 35 minutes in 2018.

**Equipment:** Pump Brand/Type QED Bladder Pump Settings 10 PSI, 11/4 Tubing Material/Lining Fep
TUBING LEFT IN WELL? Bladder Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Int. Probe
Multi-Parameter Meter (Brand/SN#) YSI 556 07L100513 Turbidity Meter (Make/SN#) Not Used
In-line Filter Used? No Lot #_____
**Purge Water Handling:** ☐ Discharged to surface ☐ Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 5.5

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-3** |
| Project #: 105.00151.19001 | Sample ID: RS-MW3-090619 |
| Sampled By: Ben Siwiec | Sample Time: 1853 Sample Date: 9/6/19 |
| Weather Conditions: LT Rain showers, gusty wind | Duplicate ID: — |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter 2 in. | Screen Interval: 4.79 ft BGS to 9.84 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, 1.8 ft above ground |

**Gauging/Purging Information**

| | | | |
|---|---|---|---|
| Depth to Water (ft BTOC): | 9.62 | 8.53 (2018) | Tubing/Pump Depth (ft. BTOC): bottom |
| Total Depth (ft BTOC): | Not measured | 10.46 (2018) | Purge Start Time (24-hr) 1044 |
| Depth to Product (ft. BTOC) | NA | | Purge End Time (24-hr) 1104 |
| Product Thickness (ft) | NA | | Total Purge Time (min) 20 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max___ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameters not collected. Well recharge was too slow for purging. Well was purged dry and after returning later on, after recharge, sample was collected. Only enough water to fill sample jars was available (none for parameters). | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | | | | | | | | |

**Sample Color:** Mostly clear **Sample Odor:** None observed **Sheen:** Not seen

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.400 l/min in 2018, drawdown lower than top of pump body (8.75). Bladder pump used in 2018. Parameters stabilized in 22 minutes in 2018.

**Equipment:** Pump Brand/Type Peristaltic Pump Settings — Tubing Material/Lining FEP
TUBING LEFT IN WELL? Bladder Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Int. Probe
Multi-Parameter Meter (Brand/SN#) Not used Turbidity Meter (Make/SN#) Not used
In-line Filter Used? _No_____Lot #__---_____

**Purge Water Handling:** ☐ Discharged to surface ☐ Containerized ☒ Treated (how?) GAC **Total Volume Purged:** ~21 BS 9/6/19

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-4** |
| Project #: 105.00151.19001 | Sample ID: RS-MW4-090519 |
| Sampled By: Ben Siwiec | Sample Time: 1842 Sample Date: 9/5/19 |
| Weather Conditions: High Clouds, Gusty wind, 50's | Duplicate ID: RS-MW19-090519 |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter 2 in. | Screen Interval: 2.39 ft BGS to 7.44 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, 2.1 ft above ground |

**Gauging/Purging Information**

| | | | |
|---|---|---|---|
| Depth to Water (ft BTOC): | 4.17 | 3.38 (2018) | Tubing/Pump Depth (ft. BTOC): Pump at 9.5, Intake at 8.5 |
| Total Depth (ft BTOC): | 10.50 | 10.49 (2016) | Purge Start Time (24-hr) 1812 |
| Depth to Product (ft. BTOC) | NA | | Purge End Time (24-hr) 1839 |
| Product Thickness (ft) | NA | | Total Purge Time (min) 27 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm$^c$) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1823 | 150 | 1 | 12.43 | 0.212 | 6.94 | 6.45 | 76.5 | Murky | 4.75 | 0.58 |
| 1827 | 150 | 1.5 | 12.24 | 0.210 | 7.03 | 6.46 | 69.2 | Murky | 4.85 | 0.68 |
| 1831 | 150 | 2 | 12.15 | 0.210 | 7.57 | 6.47 | 65.4 | clearer | 5.10 | 0.93 |
| 1835 | 150 | 2.5 | 12.08 | 0.210 | 7.85 | 6.48 | 62.4 | clear | 4.95 | 0.78 |
| 1839 | 150 | 3 | 12.01 | 0.211 | 7.85 | 6.49 | 59.9 | clear | 5.10 | 0.93 |
| | | | | | | | | | | |
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| | | | | | | | | | | |
| | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | |

**Sample Color:** Clear **Sample Odor:** Yes, hydrocarbon **Sheen:** Yes

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | ✓ | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.125 l/min in 2018, drawdown 0.20 ft. Bladder pump used in 2018. Parameters stabilized in 28 minutes in 2018.

**Equipment:** Pump Brand/Type QED Bladder Pump Settings 10 PSI 10 PSI Tubing Material/Lining FEP
TUBING LEFT IN WELL? Bladder Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Int. Probe
Multi-Parameter Meter (Brand/SN#) YSI 556 07L100513 Turbidity Meter (Make/SN#) Not Used
In-line Filter Used? _No_____Lot #__----_____
**Purge Water Handling:** ☐ Discharged to surface ☐Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 6 L

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-5R** |
| Project #: 105.00151.19001 | Sample ID: RS-MW5R-090719 |
| Sampled By: Ben Siwiec | Sample Time: 0908 Sample Date: 9/7/19 |
| Weather Conditions: Light Mist | Duplicate ID: — |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☐ Permanent ☒ Temporary | Well Diameter 0.75 in. | Screen Interval: 0.6 ft BGS to 1.4 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup: ☒ Yes ☐ No; If yes, 1.13 ft above ground |

**Gauging/Purging Information**

| | |
|---|---|
| Depth to Water (ft BTOC): 1.36 | Tubing/Pump Depth (ft. BTOC): 2.0-5+ |
| Total Depth (ft BTOC): 2.65 | Purge Start Time (24-hr) 0847 |
| Depth to Product (ft. BTOC) NA | Purge End Time (24-hr) 0907 |
| Product Thickness (ft) NA | Total Purge Time (min) 26 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0852 | 200 | 1.5 | 11.20 | 0.551 | 2.48 | 6.59 | 89.0 | — | — | — |
| 0855 | 200 | 2 | 11.19 | 0.549 | 0.71 | 6.62 | 68.3 | — | — | — |
| 0858 | 200 | 2.5 | 11.18 | 0.544 | 0.38 | 6.50 | 52.6 | — | — | — |
| 0901 | 200 | 3 | 11.18 | 0.539 | 0.30 | 6.46 | 42.0 | — | — | — |
| 0904 | 200 | 3.5 | 11.18 | 0.536 | 0.24 | 6.45 | 36.9 | clear | — | — |
| 0907 | 200 | 4 | 11.18 | 0.533 | 0.19 | 6.45 | 35.4 | clear | — | — |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | |

| | | |
|---|---|---|
| **Sample Color:** Clear | **Sample Odor:** No | **Sheen:** No |

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Cannot check water level while purging because of narrow 0.75" well size. Purging abbreviated due to incoming tide. Temporary drive point well removed after sampling.

**Equipment:** Pump Brand/Type Peristaltic Pump Settings — Tubing Material/Lining FEP
TUBING LEFT IN WELL? No Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Ltr. Probe
Multi-Parameter Meter (Brand/SN#) YSI 556 07L100513 Turbidity Meter (Make/SN#) Not used
In-line Filter Used? _No_____Lot #__----_____
**Purge Water Handling:** ☐ Discharged to surface ☐ Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 4

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-6** |
| Project #: 105.00151.19001 | Sample ID: RS-MW6-090519 |
| Sampled By: Ben Siwiec | Sample Time: 1510 Sample Date: 9/5/19 |
| Weather Conditions: High clouds, light wind | Duplicate ID: — |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter 2 in. | Screen Interval: 1.9 ft BGS to 6.9 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, 3.25 ft above ground |

**Gauging/Purging Information** (BS redevelopment - before / after)

| | |
|---|---|
| Depth to Water (ft BTOC): 5.71 / 10.10 (AD) 5.58 (2018) | Tubing/Pump Depth (ft. BTOC): 9.10 |
| Total Depth (ft BTOC): 8.47 (silted in) 10.04 (2017) | Purge Start Time (24-hr) 1137 (1st), 1211 (2nd) 1305 (3rd) |
| Depth to Product (ft. BTOC) NA | Purge End Time (24-hr) 1155 (1st) 1230 (2nd) 1505 (3rd) |
| Product Thickness (ft) — | Total Purge Time (min) 24 (after redevelopment) |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1341 | 75 | 5.5 | 12.54 | 0.153 | 3.43 | 6.22 | 62.2 | high | 7.34 | 1.63 |
| 1348 | 75 | 6 | 12.29 | 0.150 | 2.06 | 6.03 | 65.3 | high | 7.39 | 1.68 |
| 1355 | 75 | 6.5 | 12.14 | 0.149 | 1.96 | 6.11 | 61.0 | high | 7.48 | 1.77 |
| 1402 | 75 | 7 | 12.08 | 0.148 | 2.28 | 6.10 | 62.3 | high | 7.58 | 1.87 |
| Stop purge, redevelop well - New TD is 10.10 ft after redevel. | | | | | | | | | | |
| 1441 | 150 | 14 | 10.98 | 0.138 | 5.50 | 6.17 | 92.5 | Clear | 8.66 | 2.89 |
| 1445 | 150 | 14.5 | 10.88 | 0.136 | 2.21 | 5.80 | 106.6 | clear | 8.46 | 2.75 |
| 1449 | 125 | 15 | 10.82 | 0.135 | 1.97 | 5.99 | 98.5 | clear | 8.27 | 2.56 |
| 1453 | 125 | 15.5 | 10.81 | 0.134 | 1.60 | 6.09 | 96.3 | clear | 8.13 | 2.42 |
| 1457 | 125 | 16 | 10.82 | 0.134 | 1.08 | 6.14 | 94.2 | clear | 8.02 | 2.31 |
| 1501 | 125 | 16.5 | 10.87 | 0.135 | 0.94 | 6.17 | 89.0 | clear | 7.95 | 2.24 |
| 1505 | 125 | 17 | 10.90 | 0.135 | 0.94 | 6.19 | 85.4 | clear | 7.90 | 2.19 |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |

**Sample Color:** Clear **Sample Odor:** No **Sheen:** Slight

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.100 l/min in 2018, drawdown lower than top of pump body (6.46). Bladder pump used in 2018. 2017 notes indicate well may be silted in to 8.22. Parameters stabilized in 35 minutes in 2018. well required redevelopment with peri pump. TD before: 8.47. After: 10.10 ft.

**Equipment:** Pump Brand/Type Peristaltic Pump Settings — Tubing Material/Lining FEP
TUBING LEFT IN WELL? Bladder Bailer Used? No WL Meter/Interface Probe Brand/Type In Probe Solinst 122
Multi-Parameter Meter (Brand/SN#) KSI 556 07100513 Turbidity Meter (Make/SN#) Not used.
In-line Filter Used? No Lot #— ---
**Purge Water Handling:** ☐ Discharged to surface ☐ Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 17L

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-7** |
| Project #: 105.00151.19001 | Sample ID: RS-MW7-090619 |
| Sampled By: Ben Siwiec | Sample Time: 1228 Sample Date: 9/6/19 |
| Weather Conditions: Cloudy, gusty wind | Duplicate ID: — |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter _____2 in. | Screen Interval: 6.15 ft BGS to 11.15 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, 21.5 ft above ground 1.8 ft |

**Gauging/Purging Information**

| | | | |
|---|---|---|---|
| Depth to Water (ft BTOC): | 9.45 | 7.92 (2018) | Tubing/Pump Depth (ft. BTOC): Pump @ 12, 9/6/19 Intake @ 11 ft. |
| Total Depth (ft BTOC): | 12.30 | 12.99 (2017) | Purge Start Time (24-hr) 1150 |
| Depth to Product (ft. BTOC) | N/A | | Purge End Time (24-hr) 1225 |
| Product Thickness (ft) | N.A | | Total Purge Time (min) 35 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1213 | 160 | 3 | 9.80 | 0.169 | 6.39 | 6.43 | 89.0 | med-high | 9.60 | 0.15 |
| 1217 | 160 | 3.5 | 9.85 | 0.167 | 6.19 | 6.41 | 88.8 | med | 9.60 | 0.15 |
| 1221 | 160 | 4 | 9.89 | 0.166 | 6.43 | 6.41 | 90.6 | med-low | 9.60 | 0.15 |
| 1225 | 160 | 4.5 | 9.91 | 0.165 | 6.50 | 6.41 | 91.8 | very low | 9.60 | 0.15 |
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| | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |

| | | |
|---|---|---|
| **Sample Color:** Clear-slight yellow | **Sample Odor:** No | **Sheen:** No |

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.350 l/min in 2018, drawdown 0.28 ft. Bladder pump used in 2018. Parameters stabilized in 31 minutes in 2018.
PVC pipe inside monument needs to be cut to fit within monument.

**Equipment:** Pump Brand/Type QED Bladder Pump Settings 20 PSI 8/7 Tubing Material/Lining FEP
TUBING LEFT IN WELL? Bladder Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Int. Probe
Multi-Parameter Meter (Brand/SN#) YSI 556 07L100513 Turbidity Meter (Make/SN#) Not Used
In-line Filter Used? No Lot #_____
**Purge Water Handling:** ☐ Discharged to surface ☐ Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 5

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-8** |
| Project #: 105.00151.19001 | Sample ID: RS-MW8-090619 |
| Sampled By: Ben Siwiec | Sample Time: 1445 Sample Date: 9/6/19 |
| Weather Conditions: Cloudy, gusty winds | Duplicate ID: — |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter 2 in. | Screen Interval: 1.4 ft BGS to 6.4 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, 3.2 ft above ground |

**Gauging/Purging Information**

| | | | |
|---|---|---|---|
| Depth to Water (ft BTOC): | 4.87 / 4.78 (2018) | Tubing/Pump Depth (ft. BTOC): | Pump at 7.7, intake @ 6.7 |
| Total Depth (ft BTOC): | 8.72 / 9.80 (2017) | Purge Start Time (24-hr) | 1409 |
| Depth to Product (ft. BTOC) | NA | Purge End Time (24-hr) | 1439 |
| Product Thickness (ft) | NA | Total Purge Time (min) | 30 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1427 | 200 | 2 | 10.93 | 0.272 | 4.64 | 6.16 | 51.2 | med-high | 5.20 | 0.33 |
| 1430 | 200 | 3 | 10.86 | 0.272 | 4.15 | 6.14 | 45.2 | low | 5.25 | 0.38 |
| 1433 | 200 | 3.5 | 10.83 | 0.273 | 4.17 | 6.14 | 42.0 | low | 5.25 | 0.38 |
| 1436 | 200 | 4 | 10.82 | 0.273 | 4.16 | 6.14 | 39.1 | low | 5.25 | 0.38 |
| 1439 | 200 | 4.5 | 10.83 | 0.274 | 4.15 | 6.14 | 37.3 | low | 5.25 | 0.38 |
| | | | | | | | | | | |
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| | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |

**Sample Color:** light yellow **Sample Odor:** Hydrocarbon **Sheen:** Yes

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.300 l/min in 2018, drawdown 0.52 ft. Bladder pump used in 2018. Parameters stabilized in 36 minutes in 2018. Some sediment in water at sample time - quantity did not change during purging. Upon removing pump from well, sediment (poss. bentonite) was stuck to water intake port screen.

**Equipment:** Pump Brand/Type QED Bladder Pump Settings 20PSI 13/2 Tubing Material/Lining FLP
TUBING LEFT IN WELL? Bladder Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Int Probe
Multi-Parameter Meter (Brand/SN#) YSI 556 07L160513 Turbidity Meter (Make/SN#) Not Used
In-line Filter Used? _No_____Lot #__----_____
**Purge Water Handling:** ☐ Discharged to surface ☐ Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 6.5

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-9** |
| Project #: 105.00151.19001 | Sample ID: RS-MW9-090719 |
| Sampled By: Ben Siwiec | Sample Time: 0810 Sample Date: 9/7/10 |
| Weather Conditions: Rain/mist | Duplicate ID: — |
| Sampling Method: ☐ Low Flow ☑ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter 2 in. | Screen Interval: 0.5 ft BGS to 5 ft BGS |
| Well Condition: ☐ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☒ Yes ☐ No; If yes, _____ft above ground |

**Gauging/Purging Information**

| | | | |
|---|---|---|---|
| Depth to Water (ft BTOC): | 5.75 / 4.42 (2018) | Tubing/Pump Depth (ft. BTOC): | bottom |
| Total Depth (ft BTOC): | 6.72 / 6.35 (2017) | Purge Start Time (24-hr) | 1820 |
| Depth to Product (ft. BTOC) | NA | Purge End Time (24-hr) | 1833 |
| Product Thickness (ft) | NA | Total Purge Time (min) | 13 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.;

**Min. purge volume if required**: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal Circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max____ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| Well recharged too slowly to be purged. Well was purged dry on 9/6 and sample collected from recharge on 9/7. Note one of the DRO jars collected a lot of sediment from bottom of well. VOC and other DRO jars are relatively sediment-free. | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | | | | | | | | |

**Sample Color:** Clear/gray **Sample Odor:** No **Sheen:** No

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.150 l/min in 2018, drawdown lower than top of pump body (4.70). Bladder pump used in 2018. Parameters stabilized in 38 minutes in 2018.

**Equipment:** Pump Brand/Type Peristaltic Pump Settings — Tubing Material/Lining FEP
TUBING LEFT IN WELL? bladder Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Int. Probe
Multi-Parameter Meter (Brand/SN#) Not used Turbidity Meter (Make/SN#) Not used
In-line Filter Used? No Lot #_----_
**Purge Water Handling:** ☐ Discharged to surface ☐ Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 2L

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Groundwater Sampling Form

| | |
|---|---|
| **Site/Client Name: Red Salmon / NPSI** | **Well ID: MW-10** |
| Project #: 105.00151.19001 | Sample ID: RS-MW10-090619 |
| Sampled By: Ben Siwiec | Sample Time: 1730 Sample Date: 9/6/19 |
| Weather Conditions: Light rain, gusty wind | Duplicate ID: — |
| Sampling Method: ☒ Low Flow ☐ Other_____ | MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No |

**Well Information**

| | | |
|---|---|---|
| Well Type: ☒ Permanent ☐ Temporary | Well Diameter _____2 in. | Screen Interval: 7 ft BGS to 17 ft BGS |
| Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes) | | Stickup ☐ Yes ☒ No; If yes, _____ft above ground |

**Gauging/Purging Information**

| | | | |
|---|---|---|---|
| Depth to Water (ft BTOC): | 10.82 | 9.32 (2018) | Tubing/Pump Depth (ft. BTOC): BS 9/6/19 ~~13.20~~ 12.26 |
| Total Depth (ft BTOC): | 15.20 | 16.85 (2018) | Purge Start Time (24-hr) 1640 / 1701 |
| Depth to Product (ft. BTOC) | NA | | Purge End Time (24-hr) 1645 / 1727 |
| Product Thickness (ft) | NA | | Total Purge Time (min) 31 |

**LOW FLOW:** **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ 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.

**Min. purge volume if required:** purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

| Well Diameter – gal/ft | 1" – 0.041 gal/ft | 2" – 0.163 gal/ft | 4" – 0.653 gal/ft | 6" – 1.469 gal/ft |
|---|---|---|---|---|

**Water Quality Parameters**

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

| Time (24-hr) | Flow Rate (mL/minute) | Purge Volume (L or gal circle one) | Temp (°C) (± 3 %) | Specific Conductance (µS/cm°) (± 3%) | DO (mg/L) (± 10%) | pH (± 0.1) | ORP (mV) (± 10mV) | Turbidity (NTU) (± 10%, or <5 NTU) | DTW (ft BTOC) | Drawdown (ft) (Max___ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1715 | 160 | 2 | 6.50 | 0.120 | 10.67 | 6.39 | 138.8 | Clear | 10.86 | 0.04 |
| 1719 | 160 | 2.5 | 6.35 | 0.121 | 10.17 | 6.24 | 136.9 | clear | 10.87 | 0.02 |
| 1723 | 160 | 3 | 6.29 | 0.121 | 9.84 | 6.18 | 134.8 | clear | 10.87 | 0.05 |
| 1727 | 160 | 3.5 | 6.24 | 0.121 | 10.14 | 6.14 | 133.3 | Clear | 10.87 | 0.05 |
| | | | | | | | | | | |
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| | | | | | | | | | | |
| Parameter Stable (Check applicable) | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |

| | | |
|---|---|---|
| **Sample Color:** Clear | **Sample Odor:** No | **Sheen:** No |

**Analytical Sampling**

| Analyses | Check Applicable | Comments |
|---|---|---|
| DRO/RRO AK Method 102/103 | ✓ | 2x 250 ml amber, HCl preservative |
| GRO AK Method 101 | ✓ | 3x 40 ml VOA, HCl preservative |
| BTEX EPA Method 8260 | ✓ | 3x 40 ml VOA, HCl preservative |
| VOCs full list EPA Method 8260 / PAHs EPA Method 8270-SIM | | 3x 40 ml VOA, HCl preservative / 2x 250 ml amber, No preservative |

**Notes:** Pump rate 0.400 l/min in 2018, drawdown 0.07 ft. Bladder pump used in 2018. Parameters stabilized in 26 minutes in 2018.
Bladder pump malfunctioned, therefor peristaltic was used.

**Equipment:** Pump Brand/Type Peristaltic Pump Settings max (series 1) Tubing Material/Lining HDPE
TUBING LEFT IN WELL? Bladder Bailer Used? No WL Meter/Interface Probe Brand/Type Solinst 122 Int. Probe
Multi-Parameter Meter (Brand/SN#) YSI 556 07L100513 Turbidity Meter (Make/SN#) Not used
In-line Filter Used? _No_____Lot #__----_____
**Purge Water Handling:** ☐ Discharged to surface ☐Containerized ☒ Treated (how?) GAC **Total Volume Purged:** 5 L

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

# Seep Water Sampling Form

| | |
|---|---|
| Client/Site Name: NPSI/Red Salmon | **Seep ID:** SW-1 |
| SLR Project #: 105.00151.19001 | **Sample ID:** RS-SW1-090619 Duplicate ID: RS-SW9-090619 |
| **Sampler Name:** Ben Siwiec | **Sample Time:** 2050 **Sample Date:** 9/6/19 |
| **Weather Conditions (check all that apply):** ☐ Sunny ☐ Cloudy ☐ Partly Cloudy ☒ Rainy ☐ Fog/mist ☐ Windy | |
| **Seep Information** | |
| SW-1 Location: 3 feet Northeast of metal tank; 7 feet NW of Cold Storage Building roof edge. | |
| Water Flow: ☐ Strong ☐ Slow ☒ Trickle ☐ None | |
| Odor: ☒ None ☐ Diesel ☐ Other fuel or oil_____ Color: ☐ Clear ☐ Cloudy ☒ Muddy ☐ Other _____ | |
| **Sheen (seen in ponded water at seep or in sample jar after filling)** | |
| ☐ No Sheen ☒ Rainbow sheen with fluid-like movement ☐ Platy sheen breaks into smaller plates when poked | |

**Analytical Sampling**

| Analyses | Number/Type of Bottle/Preservative | Sample Collected |
|---|---|---|
| DRO/RRO AK102/103 | 2x 250 ml amber, HCl preservative | ☑ 2 jars filled |
| GRO AK101 | 3x 40 ml VOA, HCl preservative | ☑ 3 vials filled, zero headspace |
| BTEX EPA 8260 | 3x 40 ml VOA, HCl preservative | ☑ 3 vials filled, zero headspace |
| PAHs EPA 8270-SIM | 2x 250 ml amber, No preservative | ☑ 2 jars filled |

**Collection Method:** ☑ Containers filled from shallow pool below seep.
☐ Containers filled using peristaltic pump.

**Field Parameters Using YSI 556 (taken from grab sample):** Not Collected
Temp:_____ Specific Conductance:_____ Dissolved Oxygen:_____ pH:_____ ORP:_____

**Other notes, comments, and observations:**

# Seep Water Sampling Form

| | |
|---|---|
| Client/Site Name: NPSI/Red Salmon | **Seep ID:** SW-2 |
| SLR Project #: 105.00151.19001 | **Sample ID:** RS-SW2-090619 Duplicate ID: — |
| **Sampler Name:** Ben Siwiec | **Sample Time:** 2055 **Sample Date:** 9/6/19 |
| **Weather Conditions (check all that apply):** ☐ Sunny ☐ Cloudy ☐ Partly Cloudy ☒ Rainy ☐ Fog/mist ☐ Windy | |

**Seep Information**

SW-2 Location: 14.5 feet Northeast of metal tank; 6 feet Northwest of Cold Storage Building roof edge.

Water Flow: ☐ Strong ☐ Slow ☒ Trickle ☐ None

Odor: ☒ None ☐ Diesel ☐ Other fuel or oil_____ Color: ☐ Clear ☐ Cloudy ☒ Muddy ☐ Other _____

**Sheen (seen in ponded water at seep or in sample jar after filling)**

☒ No Sheen ☐ Rainbow sheen with fluid-like movement ☐ Platy sheen breaks into smaller plates when poked

**Analytical Sampling**

| Analyses | Number/Type of Bottle/Preservative | Sample Collected |
|---|---|---|
| DRO/RRO AK102/103 | 2x 250 ml amber, HCl preservative | ☑ 2 jars filled |
| GRO AK101 | 3x 40 ml VOA, HCl preservative | ☑ 3 vials filled, zero headspace |
| BTEX EPA 8260 | 3x 40 ml VOA, HCl preservative | ☑ 3 vials filled, zero headspace |
| PAHs EPA 8270-SIM | 2x 250 ml amber, No preservative | ☑ 2 jars filled |

**Collection Method:** ☑ Containers filled from shallow pool below seep.

☐ Containers filled using peristaltic pump.

**Field Parameters Using YSI 556 (taken from grab sample):** Not collected

Temp:_____ Specific Conductance:_____ Dissolved Oxygen:_____ pH:_____ ORP:_____

**Other notes, comments, and observations:**

# Water Parameter Meter Calibration Log

SLR

Date: 9/5/19 Time: 1015 Calibration By: Ben Siwiec

Meter Manufacturer and Identification #: YSI 556 07L100513

| Parameter | Standard | True Value | Lot # | Date Opened | Expiration Date | PreCalibration Reading | Reading After Calibration | Calibration Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|
| pH | 7.00 | 7.04 | CC625355 | 9/5/19 | 6/7/21 | 6.83 | 7.04 | ± 0.10 |
| | 4.00 | 4.00 | CC599844 | - | 1/14/21 | 3.91 | 4.00 | ± 0.10 |
| | 10.00 | 10.12 | WK2 | 7/30/18 | 02/2020 | 9.96 | 10.10 | ± 0.10 |
| Sp Cond (mS/cm) | 1.413 | 1.413 | CC17956 | 8/13/19 | 12/15/19 | 1.449 | 1.413 | ± 10% |
| ORP (mV) | 240 | 240 | 1600 | 9/12/17 | 05/2022 | 239.1 | 240.0 | -------- |
| DO* | Water | | | | | 765.5 9.23 | 10.11 | ± 2% |

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Date: 9/6/19 Time: 07:45 Calibration By: Ben Siwiec

Meter Manufacturer and Identification #: YSI 556 07L100513

| Parameter | Standard | True Value | Lot # | Date Opened | Expiration Date | PreCalibration Reading | Reading After Calibration | Calibration Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|
| pH | 7.00 | 7.04 | CC625355 | 9/5/19 | 6/7/21 | 7.16 | 7.04 | ± 0.10 |
| | 4.00 | 4.00 | CC599844 | - | 1/14/21 | 3.93 | 4.00 | ± 0.10 |
| | 10.00 | 10.16 | WK2 | 7/30/18 | 02/2020 | 10.06 | 10.14 | ± 0.10 |
| Sp Cond (mS/cm) | 1.413 | 1.413 | CC17956 | 8/13/19 | 12/15/19 | 1.376 | 1.413 | ± 10% |
| ORP (mV) | 240 | 240 | 1600 | 9/12/17 | 05/2022 | 240.9 | 240.0 | -------- |
| DO* | Water | | 762.0 | | | 11.52 | 10.57 | ± 2% |

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Date: 9/7/19 Time: 0725 Calibration By: Ben Siwiec

Meter Manufacturer and Identification #: YSI 556 07L100513

| Parameter | Standard | True Value | Lot # | Date Opened | Expiration Date | PreCalibration Reading | Reading After Calibration | Calibration Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|
| pH | 7.00 | 7.04 | CC625355 | 9/5/19 | 6/7/21 | 7.10 | 7.04 | ± 0.10 |
| | 4.00 | 4.00 | CC599844 | - | 1/14/21 | 4.01 | 4.00 | ± 0.10 |
| | 10.00 | 10.16 | WK2 | 7/30/18 | 02/2020 | 10.04 | 10.14 | ± 0.10 |
| Sp Cond (mS/cm) | 1.413 | 1.413 | CC17956 | 8/13/19 | 12/15/19 | 1.405 | 1.413 | ± 10% |
| ORP (mV) | 240 | 240 | 1600 | 9/12/17 | 05/2022 | 242.1 | 240.0 | -------- |
| DO* | Water | | ~~762.0~~ 754.2 | 9/7/19 | | 10.27 | 10.47 | ± 2% |

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

# APPENDIX C
# QUALITY ASSURANCE REPORT, ADEC CHECKLISTS, AND LABORATORY DATA

## 2019 Groundwater Monitoring Report
## Red Salmon Facility
## Naknek, Alaska

October 2019

# LABORATORY DATA
# QUALITY ASSURANCE REVIEW
# NORTH PACIFIC SEAFOODS

# 2019 GROUNDWATER MONITORING
# RED SALMON FACILITY
# (NAKNEK, AK)

## October 2019

Prepared by: Nicholas Wells & Francesca Risse
Reviewed by: Jennifer McLean

SLR Project Number: 105.00151.19001
ADEC Number: 2616.38.005

SLR International Corporation
2700 Gambell Street, Suite 200
Anchorage, AK 9950

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AAC | Alaska Administrative Code |
| AK | Alaska |
| ADEC | Alaska Department of Environmental Conservation |
| BTEX | benzene, toluene, ethylbenzene, and xylenes |
| °C | degrees Celsius |
| CCV | continuing calibration verification |
| COC | chain of custody |
| DL | detection limit |
| DRO | diesel range organics |
| EDD | electronic data deliverable |
| GRO | gasoline range organics |
| LCL | lower control limit |
| LCS | laboratory control sample |
| LCSD | laboratory control sample duplicate |
| LOD | limit of detection |
| LOQ | limit of quantitation |
| LV | low volume |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| NA | not applicable |
| NFG | National Functional Guidelines |
| PAH | polynuclear aromatic hydrocarbons |
| PARCCS | precision, accuracy, representativeness, comparability, completeness, and sensitivity |
| QA | quality assurance |
| QAR | quality assurance review |
| QC | quality control |
| RPD | relative percent difference |
| RRO | residual range organics |
| SDG | sample delivery group |
| SIM | selective ion monitoring |
| SLR | SLR International Corporation |
| SGS | SGS North America, Inc. |
| SW | surface water |
| TAH | total aromatic hydrocarbons |
| TAqH | total aqueous hydrocarbons |
| UCL | upper control limit |
| µg/L | micrograms per liter |
| USEPA | United States Environmental Protection Agency |
| VOCs | volatile organic compounds |

# Introduction

This report summarizes a review of analytical data for samples collected on May 1, 2019, and September 5, 2019 through September 7, 2019 in support of the Red Salmon Facility groundwater monitoring. Samples were collected by SLR International Corporation (SLR). SGS North America, Inc (SGS) provided analytical support to the project. SGS maintains a current Alaska Department of Environmental Conservation (ADEC) Contaminated Sites approval number (17-021) for analytical methods of interest, as applicable. Table 1 provides a summary of the work order, sample receipt, analytical methods, and analytes.

**Table 1 Sample Summary**

| SDG | Date Collected | Date Received by Laboratory | Temp. Blank | Matrix | Analytical Method | Analyte | Trip Blank[1] |
|---|---|---|---|---|---|---|---|
| 1192038 | 5/1/19 | 5/2/19 | 0.0°C | GW | AK101<br>AK102/103<br>SW8260C<br>SW8270D LV | GRO<br>DRO/RRO<br>VOCs<br>PAH SIM | Required<br>NA<br>Required<br>NA |
| 1195252 | 9/5/19<br>-<br>9/7/19 | 9/9/19 | Cooler 1: 1.7°C<br>Cooler 2: 2.0°C<br>Cooler 3: 0.8°C | GW | AK101<br>AK102/103<br>SW8260C<br>SW8260C<br>SW8270D LV | GRO<br>DRO/RRO<br>VOCs<br>BTEX<br>PAH SIM | Required<br>NA<br>Required<br>Required<br>NA |
| | | | | SW | AK101<br>AK102/103<br>SW8260C<br>SW8270D LV | GRO<br>DRO/RRO<br>BTEX<br>PAH SIM | Required<br>NA<br>Required<br>NA |

**Notes:**
1 – This type of sample requires a trip blank to be included in the cooler, with the trip blank noted on the chain of custody.

**Acronyms:**

AK – Alaska
°C – degrees Celsius
GRO – gasoline range organics
LV – low volume
PAH – polynuclear aromatic hydrocarbons
SDG – sample delivery group
SW – surface water
BTEX – benzene, toluene, ethylbenzene, and xylenes
DRO – diesel range organics
GW – groundwater
NA – not applicable
RRO – residual range organics
SIM – selective ion monitoring
VOCs – volatile organic compounds

The laboratory final reports were presented as Level II deliverables and included documentation of the delivery group chain-of-custodies (COC) and sample receipt condition. Microsoft Access compatible electronic data deliverables (EDDs) was also provided. The PDF laboratory reports are provided electronically as Attachment 2.

## Quality Assurance Program

A quality assurance (QA) program was followed for this project that addressed project administration, sampling, quality control (QC), and data review. SLR adhered to required and established sampling and COC protocols. The selected laboratory maintains an internal quality assurance program and standard operating procedures.

The analytical data was reviewed for consistency with any project-specific requirements in the Work Plan Addendum (SLR, 2019), ADEC Technical Memorandum *Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling* (ADEC 2017), National Functional Guidelines (NFG, United States Environmental Protection Agency [USEPA], 2017), analytical method criteria, and laboratory criteria. An ADEC Laboratory Data Review Checklist was completed for each SDG and are included as Attachment 1. A review for any anomalies to the project requirements for precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS) are noted in this QAR, and any data qualifications discussed.

The data review included the following, as applicable:

- Reviewing COC records for completeness, signatures, and dates;
- Identifying any sample receipt or preservation anomalies that could impact data quality;
- Verifying that QC blanks (e.g., field blanks, equipment blanks, trip blanks, etc.) were properly prepared, identified, and analyzed;
- Evaluating whether laboratory reporting limits met project goals, reviewing calibration verification recoveries, to include confirming that the laboratory did not identify that any Continuing Calibration Verification (CCV) recoveries or other calibration related criteria were outside applicable acceptance limits;
- Verifying that surrogate analyses were within recovery acceptance limits;
- Verifying that Laboratory Control Samples (LCS), Laboratory Control Sample Duplicates (LCSD), Matrix Spikes (MS), and Matrix Spike Duplicates (MSD), were within recovery acceptance limits;
- Evaluating the result relative percent difference (RPD) between primary and duplicate field samples, LCS/LCSDs, and MS/MSDs; and
- Providing an overall assessment of laboratory data quality and qualifying sample results if necessary.

## Data Qualifications

As part of this QAR, qualifiers were applied to datum as determined necessary based on specified criteria or professional judgement. In all cases, the basis for qualification and the applied data flag are discussed in this QAR. Table 2 provides a list of potential qualifiers (i.e., flags). These data flags were appended to the data as appropriate.

**Table 2 Data Qualifiers**

| Lab Qualifier (Flag) | NFG Qualifier (Flag) | Equivalent Project Qualifier (Flag)[1,2] | Definition |
|---|---|---|---|
| U | U | **U** | The analyte was analyzed for, but was not detected above the Detection Limit (DL). This qualifier is appended by the laboratory. |
| J | NJ | **J** | The analyte has been "tentatively" or "presumptively" identified as present and the associated numerical value is the estimated concentration in the sample between the limit of quantitation (LOQ) and the DL. This qualifier is appended by the laboratory. |
| -- | J | **Q** | The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample, due to one or more laboratory quality control criteria failures (e.g., LCS recovery, surrogate spike recovery) or a matrix effect.<br>Where applicable, a "+" or "-" was appended to indicate a high or low bias, respectively. |
| -- | UJ | **UJ** | The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| -- | R | R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample. |
| -- | -- | **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).<br>Where applicable, "U" was appended prior to the "B" to indicate the blank detection was greater than the sample detection or both the blank detection and sample detection were below the limit of detection (LOD), and the result is likely a false positive. The greater of the sample detection or LOD was reported as non-detect in brackets. |

**Notes:**
1 - Flags were appended to the data where applicable. The table presents laboratory, NFG and project equivalent qualifiers.
2 - Only flags in **bold** were applicable and appended to data for this project.

A discussion of the project data quality relative to PARCCS goals and summary of any anomalies or failures requiring data qualifiers follows.

## Data Validation

### Data Packages
The data packages were checked for transcription errors, omissions, or other anomalies. No issues were noted with regards to the data packages.

### Sample Receipt
The sample receipt documentation was checked for anomalies. No issues were noted with regards to the receipt of samples, except as noted below.

For work order 1192038

- The Sample Receipt Form noted that only five VOA vials were provided for sample RS-MW99-050119, less than the usual six preferred for both analyses. The sample was marked as limited volume and analyzed for all intended analyses. Data were not impacted.

For work order 1195252

- Samples RS-SW1-090619 and RS-MW5R-090719 each had one of six VOA vials with head space greater than 6 millimeters. Presumably, the laboratory used VOA vials without headspace for analysis. Data was not impacted.

### Holding Times and Preservation
Samples were appropriately preserved and were submitted to SGS. Sample analyses were conducted within holding time criteria. No issues were noted with regards to sample preservation.

### Laboratory Method Blanks
Laboratory method blanks were analyzed at the appropriate frequencies. Analytes were not detected at or above the LOD or DL in any method blanks, except as noted below.

For work order 1192038

- For RRO by Method AK 103, the method blank for batch XXX 41396 had a detection of 0.203 J micrograms per liter (µg/L), below the LOD of 0.250 µg/L. Both project samples had detected results within five times that of the blank and were considered affected. RRO results for samples RS-MW9-050119 and RS-MW99-050119 were flagged “B” to indicate a potential high bias due to blank contamination. Since a high bias was indicated and both affected results were below project screening criteria, data usability was not affected. All data were usable as qualified.

For SDG 1195252

- For benzene by Method SW8260C, the method blank for batch VXX 34879 had detection of 0.12 J µg/L, below the LOD of 0.2 µg/L. Only sample RS-MW5R-090719 had a result within five times that of the blank detection and was considered affected. The benzene data for sample RS-MW5R-090719 was flagged “B” to indicate a potential high bias due to blank contamination. Since a high bias was indicated and the affected result was below project screening criteria, data usability was not affected. The data was usable as qualified.

**Trip Blanks**
Trip blanks were analyzed at the appropriate frequency for VOCs and BTEX by Method SW8260C and GRO by Method AK101. Analytes were not detected at or above the LOD or DL in any trip blanks.

**Reporting Limits**
For non-detectable results, LODs were compared to applicable regulatory criteria for the site. LODs for groundwater samples were compared to 18 Alaska Administrative Code (AAC) 75.345 Table C, *Groundwater Cleanup Levels* (ADEC, 2018b). LODs for surface water samples were compared to 18 AAC 70 (ADEC, 2018a), which references the *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* (ADEC, 2008). All analytes with results of non-detect had LODs at or below applicable regulatory criteria, except as discussed below.

1,2,3-Trichloropropane by Method SW8260C had LODs above ADEC cleanup levels for all samples. This was due to typical laboratory methodology limitations. For this compound it is not possible to state with certainty the absence of target analyte below the laboratory LOD, but above the ADEC cleanup level. 1,2,3-Trichloropropane data is limited in usability for that purpose. Data usability was considered minimally impacted, and all data was usable without qualification.

**Continuing Calibration Verifications**
CCVs were analyzed at the appropriate frequencies. CCV data was included only in the EDDs, not in the case narratives. All CCV recoveries were within acceptable limits as reviewed in the EDDs, except as noted below.

<u>For work order 1195252</u>

- The CCV for Batch VMS19452 recovered greater than the upper acceptable limit of 120% for several VOC analytes. Since a high bias was indicated and all associated results were non-detect, no data were impacted.

**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 deliverables. Internal standards criteria were considered met.

**Surrogate Recovery Results**
Surrogate analysis was performed at the required frequencies. All surrogate recoveries were within analytical method and SGS percent recovery acceptance limits, except as noted below.

<u>For SDG 1195252</u>

- For Method AK 103, n-Triacontane-d62 surrogate recovered above the upper acceptable control limit in the method blank for batch XXX42280. The target analyte, RRO, was non-detect in the method blank, and all associated samples had surrogate recoveries within criteria; therefore, no data were impacted.

**Laboratory Control Samples and Laboratory Control Sample Duplicates**
LCS and LCSDs were analyzed at the appropriate frequencies. All LCS and LCSD recoveries and RPDs were within acceptable limits, except as noted below.

For SDG 1195252

- For Method SW8260C, the LCSD for batch VXX34896 recovered above the acceptable upper control limit for VOC analytes 1,1-dichloroethene, carbon disulfide, and freon-113. Since a high bias was indicated and all associated samples had results were non-detect for all impacted analytes, data were not impacted. All data were usable without qualification

**Matrix Spike and Matrix Spike Duplicate Samples**
MS and MSDs were analyzed at the appropriate frequencies. All MS/MSD recoveries and RPDs were within acceptable limits.

**Field Duplicates**
The field duplicate sample frequency is presented in Table 3. Parent sample and field duplicates are presented in Table 4. Field duplicate RPD exceedances are presented in Table 5. For all methods and analytes, the duplicate frequency satisfied the requirement of one per 10 samples or less per matrix and analyte. Field duplicates were submitted blind to the laboratory.

For surface water parent sample/duplicate pair RS-SW1-090619/RS-SW9-090619, data were qualified as shown in the table. To err on the conservative, chronologically associated sample, RS-SW2-090619, was also qualified based on the field duplicate RPD exceedances. Detected results were qualified "Q" to indicate estimated detections with unknown bias, and "UJ" for non-detect results, to indicate undetectable with estimated reporting limits. Since laboratory precision was established via LCS/LCSDs and/or MS/MSDs with acceptable RPDs, data were considered minimally impacted. In all instances either both the parent and duplicate were above, or both were below applicable ADEC cleanup levels. All data were usable as qualified.

Parent sample/field duplicate pairs with both results below the LOQ were considered acceptable without qualification.

**Table 3 Field Duplicate Count**

| SDG | Matrix | Number of Primary Samples | Number of Field Duplicates | Method | Analytes |
|---|---|---|---|---|---|
| 1192038 | GW | 1 | 1 | AK101 | GRO |
| | | 1 | 1 | AK 102/103 | DRO/RRO |
| | | 1 | 1 | SW8260C | VOCs |
| | | 1 | 1 | SW8270D LV | PAH SIM |
| 1195252 | GW | 10 | 1 | AK101 | GRO |
| | | 10 | 1 | AK 102/103 | DRO/RRO |
| | | 1 | 1 | SW8260C | VOCs |
| | | 10 | 1 | SW8260C | BTEX |
| | | 1 | 1 | SW8270D LV | PAH SIM |
| | SW | 2 | 1 | AK101 | GRO |
| | | 2 | 1 | AK 102/103 | DRO/RRO |
| | | 2 | 1 | SW8260C | BTEX |
| | | 2 | 1 | SW8270D LV | PAH SIM |

**Table 4 Parent Samples and Field Duplicates**

| SDG | Matrix | Parent Sample | Field Duplicate | All RPDs acceptable (Y/N) |
|---|---|---|---|---|
| 1192038 | GW | RS-MW9-050119 | RS-MW99-050119 | Y |
| 1195252 | GW | RS-MW4-090519 | RS-MW19-090519 | Y |
| | SW | RS-SW1-090619 | RS-SW9-090619 | N |

**Table 5 Field Duplicate RPD Exceedances**

| SDG (Matrix) | Method Analytes | Parent Sample: RS-SW1-090619[1] Result (µg/L) | Duplicate: RS-SW9-090619[1] Result (µg/L) | RPD (%) | Flag (Parent/ Duplicate) | Cleanup Level (µg/L) |
|---|---|---|---|---|---|---|
| 1195252 (SW) | **Method SW8260C** | | | | | |
| | Benzene [3] | 1.24 | 4.98 | 120% | Q/Q | 5 |
| | Toluene | 1.1 | [0.5] U | 75% | Q/UJ | 1000 |
| | Ethylbenzene | 8.57 | 1.6 | 137% | Q/Q | 700 |
| | o-Xylene | 27.1 | 1.98 | 173% | Q/Q | -- |
| | P & M -Xylene | 26.9 | 4.06 | 148% | Q/Q | -- |
| | Total Xylenes[2] | 54 | 6.04 | 160% | Q/Q | 10000 |
| | Total BTEX (TAH)[2] | **64.91** | **13.12** | 133% | Q/Q | 10 |
| | **Method SW8270D LV** | | | | | |
| | 1-Methylnaphthalene | 10.4 | 7.48 | 33% | Q/Q | -- |
| | 2-Methylnaphthalene | 3.8 | 2.47 | 42% | Q/Q | -- |
| | Benzo[g,h,i]perylene [3] | 0.0812 | [0.0254] U | 105% | Q/Q | -- |
| | Chrysene [3] | 0.3 | [0.0254] U | 169% | Q/Q | -- |
| | Fluorene | 2.03 | 1.49 | 31% | Q/Q | 1300 |
| | Naphthalene | 4.5 | 2.28 | 65% | Q/Q | -- |
| | Phenanthrene | 4.06 | 2.8 | 37% | Q/Q | -- |
| | Total PAH[2] | 11.8348 | 7.3352 | 47% | Q/Q | 15 |
| | TAqH = TAH +PAH[2] | **76.7448** | **20.4552** | 116% | Q/Q | 15 |

**Bold** values indicate an exceedance of cleanup levels.
1 – The sample chronologically associated with this parent sample/duplicate pair for all analytes listed was RS-SW2-090619.
2 – Totals were a summation of reported values and LODs for results of non-detect.
3 – For results of non-detect, the LOD (shown in brackets) was used to calculate the RPD.

## Laboratory Duplicate Samples

No laboratory duplicates were analyzed in association with these samples.

## Overall Assessment

### Precision, Accuracy, Representativeness, Comparability, Completeness, and Sensitivity Summary

- Precision: Precision goals were met, except as noted in the Field Duplicates section.
- Accuracy: Accuracy goals were met, except as noted in the CCV, Surrogate Recovery Results, and LCS and LCSD sections.
- Representativeness: Representativeness goals were met. The samples were collected from usual locations.
- Comparability: Comparability goals were met. The same laboratory and methods were used.
- Completeness: Completeness goals were met. The data were 100% complete with respect to analysis.
- Sensitivity: Sensitivity goals were met, except as noted in the Laboratory Method Blanks and Reporting Limits sections.

LODs for 1,2,3-trichloropropane by Method SW8260C did not meet ADEC cleanup levels for all samples due to typical laboratory methodology limitations. For this compound it is not possible to state with certainty the absence of target analyte below the laboratory LOD, but above the ADEC cleanup level. Data usability was considered minimally impacted, and all data was usable without qualification.

This data were considered of good quality and acceptable for use with the noted qualifications. No data were rejected.

## References


Alaska Department of Environmental Conservation (ADEC), 2008. *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances*. December 12.

ADEC, 2017. ADEC Technical Memorandum *Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling.* March.

ADEC, 2018a. Alaska Administrative Code (18 AAC 70), *Water Quality Standards*. April 6.

ADEC, 2018b. 18 AAC 75, *Oil and Other Hazardous Substances Pollution Control.* October 27.

SLR International Corporation (SLR), 2019. *Groundwater Monitoring Work Plan, Red Salmon Facility, Naknek, Alaska.* January.

U.S. Environmental Protection Agency (USEPA), 2017. *National Functional Guidelines for Superfund Organic Methods Data Review.* January.

# Attachments

## Attachment 1 – ADEC Laboratory Data Review Checklists

## Attachment 2 – Laboratory Deliverables

# Attachment 1

## ADEC Laboratory Data Review Checklists

# Laboratory Data Review Checklist

Completed by:

Nicholas Wells

Title:

Staff Engineer

Date:

07/31/2019

CS Report Name:

2019 Groundwater Monitoring, Red Salmon Facility, Naknek, Alaska

Report Date:

05/20/2019

Consultant Firm:

SLR International Corporation

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1192038

ADEC File Number:

2616.38.005

Hazard Identification Number:

1. Laboratory

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

   (•) Yes ( ) No Comments:

   SGS North America, Inc. (SGS) performed all of the analyses for the project. SGS maintains a current ADEC Contaminated Sites approval number (17-021) for all analytical methods of interest, as applicable.

   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 Comments:

   No other laboratory was used.

2. Chain of Custody (COC)

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

   (•) Yes ( ) No Comments:

   b. Correct analyses requested?

   (•) Yes ( ) No Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

Sample RS-MW99-050119 only had five VOA vials, less than the regular six VOA vials needed for both analyses. The sample was marked as limited volume and analyzed for all intended analysis. Data was not impacted.

e. Data quality or usability affected?

Comments:

No impact.

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No Comments:

b. Discrepancies, errors or QC failures identified by the lab?

(•) Yes ( ) No Comments:

c. Were all corrective actions documented?

(•) Yes ( ) No Comments:

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

Comments:

No impact.

5. Samples Results

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

(•) Yes ( ) No Comments:

b. All applicable holding times met?

(•) Yes ( ) No Comments:

c. All soils reported on a dry weight basis?

(•) Yes ( ) No Comments:

No soils were analyzed.

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

( ) Yes (•) No Comments:

The LODs for 1,2,3-Trichloropropane by Method SW8260C, for all samples, did not meet ADEC cleanup levels. This was due to typical laboratory methodology limitations.

e. Data quality or usability affected?

Comments:

For this compound it is not possible to state with certainty the absence of target analyte below the laboratory LOD, but above the ADEC cleanup level. 1,2,3-Trichloropropane data is limited in usability for that purpose. Data usability was considered minimally impacted, and all data was usable without qualification.

6. QC Samples

a. Method Blank

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

(•) Yes ( ) No Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

(•) Yes ( ) No Comments:

The method blank for RRO, Batch XXX41396 for method AK 103, was detected at 0.203J mg/L, below the LOD of 0.250 mg/L.

iii. If above LOQ, what samples are affected?

Comments:

Both project samples were detected within five times that of the blank result and were considered affected.

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

(•) Yes ( ) No Comments:

Affected samples were appropriately flagged “B” to indicate a potential high bias due to blank contamination.

v. Data quality or usability affected?

Since a high bias was indicated and all affected data were well below project screening criteria, data usability was not affected. All data is usable as qualified.

Comments:

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

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

   iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

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

   Comments:

   Not applicable.

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

   (•) Yes ( ) No Comments:

   vii. Data quality or usability affected?

   Comments:

   No impact.

c. Surrogates – Organics Only
   i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

   (•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

iv. Data quality or usability affected?

Comments:

No impact.

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

i. One trip blank reported per matrix, analysis and cooler?

(•) Yes ( ) No Comments:

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

( ) Yes ( ) No Comments:

iii. All results less than LOQ?

(•) Yes ( ) No Comments:

iv. If above LOQ, what samples are affected?

Comments:

Not applicable.

v. Data quality or usability affected?

Comments:

No impact.

e. Field Duplicate

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

(•) Yes ( ) No Comments:

ii. Submitted blind to lab?

(•) Yes ( ) No Comments:

Duplicate sample RS-MW99-050119 corresponds to parent sample RS-MW9-050119.

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

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

Where $R_1$ = Sample Concentration
$R_2$ = Field Duplicate Concentration

(•) Yes ( ) No Comments:

iv. Data quality or usability affected?

Comments:

No impact.

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below.)

( ) Yes ( ) No (•) Not Applicable

i. All results less than LOQ?

(•) Yes ( ) No Comments:

ii. If above LOQ, what samples are affected?

Comments:

Not applicable.

iii. Data quality or usability affected?

No impact.

Comments:

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

   a. Defined and appropriate?

      (•) Yes ( ) No Comments:

# Laboratory Data Review Checklist

Completed By:

Francesca Risse

Title:

Staff Engineer

Date:

October 3, 2019

CS Report Name:

2019 Groundwater Monitoring, Red Salmon Facility, Naknek, Alaska

Report Date:

October 2, 2019

Consultant Firm:

SLR International Corporation

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1195252

ADEC File Number:

2616.38.005

Hazard Identification Number:

N/A

1195252

1. Laboratory

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

   (•) Yes ( ) No Comments:

Samples were received and analyzed at SGS' Anchorage Laboratory. SGS maintains a current ADEC Contaminated Sites approval number (17-021) for analytical methods of interest.

   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 Comments:

All analyses were conducted at SGS, Anchorage.

2. Chain of Custody (CoC)

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

   (•) Yes ( ) No Comments:

   b. Correct Analyses requested?

   (•) Yes ( ) No Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

Samples RS-SW1-090619 and RS-MW5R-090719 each had one of six VOA vials with notable head space. Presumably, the laboratory did not use these vials for analysis.

e. Data quality or usability affected?

Comments:

For the VOA vials with bubbles, no data were impacted.

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

(•) Yes ( ) No Comments:

c. Were all corrective actions documented?

( ) Yes (•) No Comments:

Not applicable, no corrective actions were performed.

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

Comments:

No impact.

5. Samples Results

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

(•) Yes ( ) No Comments:

b. All applicable holding times met?

(•) Yes ( ) No Comments:

c. All soils reported on a dry weight basis?

○ Yes ◉ No Comments:

Not applicable. Only water samples were analyzed for this work order.

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

○ Yes ◉ No Comments:

The LODs for 1,2,3-Trichloropropane by Method SW8260C, for all samples, did not meet ADEC cleanup levels. This was due to typical laboratory methodology limitations.

e. Data quality or usability affected?

◉ Yes ○ No Comments:

For this compound it is not possible to state with certainty the absence of target analyte below the laboratory LOD, but above the ADEC cleanup level. 1,2,3-Trichloropropane data is limited in usability for that purpose. Data usability was considered minimally impacted, and all data was usable without qualification.

6. QC Samples

a. Method Blank

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

◉ Yes ○ No Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

◉ Yes ○ No Comments:

The method blank for Batch VXX 34879 had a detected result of 0.12 J µg/L for benzene, below the LOD 0.2 µg/L.

iii. If above LOQ, what samples are affected?

Comments:

No analytes were detected above the LOQ.
Only sample RS-MW5R-090719 was affected by the blank detection below the LOD.

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

◉ Yes ○ No Comments:

The affected result was appropriately flagged “B” to indicate a potential high bias due to blank contamination.

v. Data quality or usability affected?

Comments:

Since a high bias was indicated and the affected data was below project screening criteria, data usability was not affected. The data was usable as qualified.

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 Comments:

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

( ) Yes (•) No Comments:

No metals or inorganics were analyzed for this workorder.

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 Comments:

The LCSD for Batch VXX 34896 recovered above the acceptable upper control limit for VOC analytes 1,1-dichloroethene, carbon disulfide, and freon-113.

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 Comments:

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

Comments:

Regarding the %R, all associated samples had results of non-detect for affected analytes, therefore, no were affected.

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

( ) Yes (•) No Comments:

Not applicable. No affected data.

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

Comments:

Since a high bias was indicated and all associated samples had results of non-detect, no data were affected.

c. Surrogates – Organics Only

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

(•) Yes ( ) No Comments:

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

( ) Yes (•) No Comments:

The surrogate n-Triacontane-d62 for Method AK103 recovered above the acceptable upper control limit for the method blank in Batch XXX 42280.

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

( ) Yes (•) No Comments:

Not applicable, only the method blank had failing surrogate. All project samples had acceptable surrogate recoveries.

iv. Data quality or usability affected?

Comments:

All results for the method blank were non-detect and all associated samples' surrogates recovered within criteria; therefore, no data were impacted.

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 Comments:

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

(•) Yes ( ) No Comments:

iii. All results less than LOQ?

◉ Yes ○ No Comments:

iv. If above LOQ, what samples are affected?

Comments:

Not applicable.

v. Data quality or usability affected?

Comments:

No impact.

e. Field Duplicate

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

◉ Yes ○ No Comments:

ii. Submitted blind to lab?

◉ Yes ○ No Comments:

The duplicate for RS-MW9-050119 was RS-MW99-050119.
The duplicate for RS-MW4-090519 was RS-MW19-090519.
The duplicate for RS-SW1-090619 was RS-SW9-090619.

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

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

Where $R_1$ = Sample Concentration
$R_2$ = Field Duplicate Concentration

○ Yes ◉ No Comments:

RPDs for parent sample/field duplicate pair RS-SW1-090619/RS-SW9-090619 for several VOC and PAH analytes exceeded the 30% criteria for waters.

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

Comments:

For parent sample/duplicate pair RS-SW1-090619/RS-SW9-090619 and chronologically associated sample RS-SW2-090619, impacted analytes were qualified "Q" to indicate estimated detections with unknown bias, and "UJ" for non-detect results, to indicate undetectable with estimated reporting limits. Since laboratory precision was established via LCS/LCSDs and/or MS/MSDs with acceptable RPDs, data were considered minimally impacted. In all instances either both the parent and duplicate were above, or both were below applicable ADEC cleanup levels. All data were usable as qualified.

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below).

○ Yes ○ No ◉ Not Applicable

Dedicated or disposable equipment was used for the collection of all samples.

i. All results less than LOQ?

○ Yes ◉ No Comments:

Not applicable.

ii. If above LOQ, what samples are affected?

Comments:

Not applicable.

iii. Data quality or usability affected?

Comments:

Not applicable.

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

a. Defined and appropriate?

◉ Yes ○ No Comments:

# Attachment 2

## Laboratory Deliverable

**(Data package)**

**Laboratory Report of Analysis**

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

Report Number: **1192038**

Client Project: **105.0015119001 NPSI Red Sal GW**

Dear Stan Flagel,

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.

SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Justin Nelson
2019.05.20
16:02:58 -08'00'

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



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

## Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1192038**
Project Name/Site: **105.0015119001 NPSI Red Sal GW**
Project Contact: **Stan Flagel**

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.



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## Report of Manual Integrations

| Laboratory ID | Client Sample ID | Analytical Batch | Analyte | Reason |
|---|---|---|---|---|
| **SW8260C** | | | | |
| 1507228 | LABREFQC | VMS18909 | 4-Isopropyltoluene | SP |

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 05/20/2019 10:35:07AM

## Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

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

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

| Client Sample ID | Lab Sample ID | Collected | Received | Matrix |
|---|---|---|---|---|
| RS-MW9-050119 | 1192038001 | 05/01/2019 | 05/02/2019 | Water (Surface, Eff., Ground) |
| RS-MW99-050119 | 1192038002 | 05/01/2019 | 05/02/2019 | Water (Surface, Eff., Ground) |
| TB-050119 | 1192038003 | 05/01/2019 | 05/02/2019 | Water (Surface, Eff., Ground) |

| Method | Method Description |
|---|---|
| 8270D SIM LV (PAH) | 8270 PAH SIM GC/MS Liq/Liq ext. LV |
| AK102 | DRO/RRO Low Volume Water |
| AK103 | DRO/RRO Low Volume Water |
| AK101 | Gasoline Range Organics (W) |
| SW8260C | Volatile Organic Compounds (W) FULL |



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## Detectable Results Summary

Client Sample ID: **RS-MW9-050119**
Lab Sample ID: 1192038001

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.689 | mg/L |
| | Residual Range Organics | 0.372J | mg/L |
| **Volatile GC/MS** | 1,3,5-Trimethylbenzene | 0.850J | ug/L |
| | Chloroform | 1.30 | ug/L |

Client Sample ID: **RS-MW99-050119**
Lab Sample ID: 1192038002

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.805 | mg/L |
| | Residual Range Organics | 0.446J | mg/L |
| **Volatile GC/MS** | 1,3,5-Trimethylbenzene | 0.878J | ug/L |
| | Chloroform | 1.28 | ug/L |



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Results of **RS-MW9-050119**

Client Sample ID: **RS-MW9-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038001
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| 2-Methylnaphthalene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Acenaphthene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Acenaphthylene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Anthracene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Benzo(a)Anthracene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Benzo[a]pyrene | 0.0104 | U | 0.0208 | 0.00646 | ug/L | 1 | | 05/06/19 22:00 |
| Benzo[b]Fluoranthene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Benzo[g,h,i]perylene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Benzo[k]fluoranthene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Chrysene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Dibenzo[a,h]anthracene | 0.0104 | U | 0.0208 | 0.00646 | ug/L | 1 | | 05/06/19 22:00 |
| Fluoranthene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Fluorene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Indeno[1,2,3-c,d] pyrene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Naphthalene | 0.0520 | U | 0.104 | 0.0323 | ug/L | 1 | | 05/06/19 22:00 |
| Phenanthrene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| Pyrene | 0.0261 | U | 0.0521 | 0.0156 | ug/L | 1 | | 05/06/19 22:00 |
| **Surrogates** | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 72.7 | | 47-106 | | % | 1 | | 05/06/19 22:00 |
| Fluoranthene-d10 (surr) | 67.5 | | 24-116 | | % | 1 | | 05/06/19 22:00 |

**Batch Information**

Analytical Batch: XMS11390
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 05/06/19 22:00
Container ID: 1192038001-I

Prep Batch: XXX41372
Prep Method: SW3520C
Prep Date/Time: 05/03/19 10:08
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

## Results of **RS-MW9-050119**

Client Sample ID: **RS-MW9-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038001
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.689 | | 0.615 | 0.184 | mg/L | 1 | | 05/14/19 01:00 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 74.3 | | 50-150 | | % | 1 | | 05/14/19 01:00 |

### Batch Information

Analytical Batch: XFC14992
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 05/14/19 01:00
Container ID: 1192038001-G

Prep Batch: XXX41396
Prep Method: SW3520C
Prep Date/Time: 05/09/19 11:04
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.372 | J | 0.512 | 0.154 | mg/L | 1 | | 05/14/19 01:00 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 90.2 | | 50-150 | | % | 1 | | 05/14/19 01:00 |

### Batch Information

Analytical Batch: XFC14992
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 05/14/19 01:00
Container ID: 1192038001-G

Prep Batch: XXX41396
Prep Method: SW3520C
Prep Date/Time: 05/09/19 11:04
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW9-050119**

Client Sample ID: **RS-MW9-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038001
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 05/06/19 02:56 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 90.9 | | 50-150 | | % | 1 | | 05/06/19 02:56 |

## Batch Information

Analytical Batch: VFC14715
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/06/19 02:56
Container ID: 1192038001-D

Prep Batch: VXX34012
Prep Method: SW5030B
Prep Date/Time: 05/05/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW9-050119**

Client Sample ID: **RS-MW9-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038001
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 05/09/19 17:14 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2-Dibromoethane | 0.0375 | U | 0.0750 | 0.0180 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,3,5-Trimethylbenzene | 0.850 | J | 1.00 | 0.310 | ug/L | 1 | | 05/10/19 14:11 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:14 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:14 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:14 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 05/09/19 17:14 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 05/09/19 17:14 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:14 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **RS-MW9-050119**

Client Sample ID: **RS-MW9-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038001
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 1.30 | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| cis-1,2-Dichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:14 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:14 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 05/09/19 17:14 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:14 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/10/19 14:11 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 05/09/19 17:14 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Tetrachloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| trans-1,2-Dichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Trichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:14 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:14 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 05/09/19 17:14 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 05/09/19 17:14 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 102 | | 81-118 | | % | 1 | | 05/09/19 17:14 |
| 4-Bromofluorobenzene (surr) | 100 | | 85-114 | | % | 1 | | 05/09/19 17:14 |
| Toluene-d8 (surr) | 98.3 | | 89-112 | | % | 1 | | 05/09/19 17:14 |

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **RS-MW9-050119**

Client Sample ID: **RS-MW9-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038001
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS18910
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 05/10/19 14:11
Container ID: 1192038001-A

Prep Batch: VXX34056
Prep Method: SW5030B
Prep Date/Time: 05/10/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS18909
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 05/09/19 17:14
Container ID: 1192038001-A

Prep Batch: VXX34054
Prep Method: SW5030B
Prep Date/Time: 05/09/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW99-050119**

Client Sample ID: **RS-MW99-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038002
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| 2-Methylnaphthalene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Acenaphthene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Acenaphthylene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Anthracene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Benzo(a)Anthracene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Benzo[a]pyrene | 0.0101 | U | 0.0203 | 0.00630 | ug/L | 1 | | 05/06/19 22:20 |
| Benzo[b]Fluoranthene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Benzo[g,h,i]perylene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Benzo[k]fluoranthene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Chrysene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Dibenzo[a,h]anthracene | 0.0101 | U | 0.0203 | 0.00630 | ug/L | 1 | | 05/06/19 22:20 |
| Fluoranthene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Fluorene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Indeno[1,2,3-c,d] pyrene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Naphthalene | 0.0510 | U | 0.102 | 0.0315 | ug/L | 1 | | 05/06/19 22:20 |
| Phenanthrene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| Pyrene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 05/06/19 22:20 |
| **Surrogates** | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 55.7 | | 47-106 | | % | 1 | | 05/06/19 22:20 |
| Fluoranthene-d10 (surr) | 52.7 | | 24-116 | | % | 1 | | 05/06/19 22:20 |

**Batch Information**

Analytical Batch: XMS11390
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 05/06/19 22:20
Container ID: 1192038002-I

Prep Batch: XXX41372
Prep Method: SW3520C
Prep Date/Time: 05/03/19 10:08
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **RS-MW99-050119**

Client Sample ID: **RS-MW99-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038002
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.805 | | 0.641 | 0.192 | mg/L | 1 | | 05/14/19 01:11 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 83.5 | | 50-150 | | % | 1 | | 05/14/19 01:11 |

**Batch Information**

Analytical Batch: XFC14992
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 05/14/19 01:11
Container ID: 1192038002-G

Prep Batch: XXX41396
Prep Method: SW3520C
Prep Date/Time: 05/09/19 11:04
Prep Initial Wt./Vol.: 234 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.446 | J | 0.534 | 0.160 | mg/L | 1 | | 05/14/19 01:11 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 95.2 | | 50-150 | | % | 1 | | 05/14/19 01:11 |

**Batch Information**

Analytical Batch: XFC14992
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 05/14/19 01:11
Container ID: 1192038002-G

Prep Batch: XXX41396
Prep Method: SW3520C
Prep Date/Time: 05/09/19 11:04
Prep Initial Wt./Vol.: 234 mL
Prep Extract Vol: 1 mL

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **RS-MW99-050119**

Client Sample ID: **RS-MW99-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038002
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 05/06/19 02:38 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 94.3 | | 50-150 | | % | 1 | | 05/06/19 02:38 |

**Batch Information**

Analytical Batch: VFC14715
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/06/19 02:38
Container ID: 1192038002-D

Prep Batch: VXX34012
Prep Method: SW5030B
Prep Date/Time: 05/05/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **RS-MW99-050119**

Client Sample ID: **RS-MW99-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038002
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 05/09/19 17:30 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2-Dibromoethane | 0.0375 | U | 0.0750 | 0.0180 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,3,5-Trimethylbenzene | 0.878 | J | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:30 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:30 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:30 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 05/09/19 17:30 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 05/09/19 17:30 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:30 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **RS-MW99-050119**

Client Sample ID: **RS-MW99-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038002
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 1.28 | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| cis-1,2-Dichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 17:30 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:30 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 05/09/19 17:30 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:30 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 05/09/19 17:30 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Tetrachloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| trans-1,2-Dichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Trichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 17:30 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 17:30 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 05/09/19 17:30 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 05/09/19 17:30 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 102 | | 81-118 | | % | 1 | | 05/09/19 17:30 |
| 4-Bromofluorobenzene (surr) | 98.2 | | 85-114 | | % | 1 | | 05/09/19 17:30 |
| Toluene-d8 (surr) | 99.2 | | 89-112 | | % | 1 | | 05/09/19 17:30 |

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **RS-MW99-050119**

Client Sample ID: **RS-MW99-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038002
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS18909
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 05/09/19 17:30
Container ID: 1192038002-A

Prep Batch: VXX34054
Prep Method: SW5030B
Prep Date/Time: 05/09/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **TB-050119**

Client Sample ID: **TB-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038003
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 05/06/19 00:33 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 93.2 | | 50-150 | | % | 1 | | 05/06/19 00:33 |

## Batch Information

Analytical Batch: VFC14715
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 05/06/19 00:33
Container ID: 1192038003-D

Prep Batch: VXX34012
Prep Method: SW5030B
Prep Date/Time: 05/05/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **TB-050119**

Client Sample ID: **TB-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038003
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 05/09/19 13:27 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2-Dibromoethane | 0.0375 | U | 0.0750 | 0.0180 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 13:27 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 13:27 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 13:27 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 05/09/19 13:27 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 05/09/19 13:27 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 13:27 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **TB-050119**

Client Sample ID: **TB-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038003
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 05/09/19 13:27 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 13:27 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 05/09/19 13:27 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 13:27 |
| Naphthalene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 05/09/19 13:27 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Trichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 05/09/19 13:27 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 05/09/19 13:27 |
| Vinyl chloride | 0.0750 | U | 0.150 | 0.0500 | ug/L | 1 | | 05/09/19 13:27 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 05/09/19 13:27 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 101 | | 81-118 | | % | 1 | | 05/09/19 13:27 |
| 4-Bromofluorobenzene (surr) | 100 | | 85-114 | | % | 1 | | 05/09/19 13:27 |
| Toluene-d8 (surr) | 98.7 | | 89-112 | | % | 1 | | 05/09/19 13:27 |

Print Date: 05/20/2019 10:35:11AM

J flagging is activated

Results of **TB-050119**

Client Sample ID: **TB-050119**
Client Project ID: **105.0015119001 NPSI Red Sal GW**
Lab Sample ID: 1192038003
Lab Project ID: 1192038

Collection Date: 05/01/19 13:30
Received Date: 05/02/19 11:03
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS18909
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 05/09/19 13:27
Container ID: 1192038003-A

Prep Batch: VXX34054
Prep Method: SW5030B
Prep Date/Time: 05/09/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Method Blank

Blank ID: MB for HBN 1793334 [VXX/34012]
Blank Lab ID: 1506086

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192038001, 1192038002, 1192038003

## Results by **AK101**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Gasoline Range Organics | 0.0500U | 0.100 | 0.0310 | mg/L |
| **Surrogates** | | | | |
| 4-Bromofluorobenzene (surr) | 91.1 | 50-150 | | % |

## Batch Information

Analytical Batch: VFC14715
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 5/6/2019 1:27:00AM

Prep Batch: VXX34012
Prep Method: SW5030B
Prep Date/Time: 5/5/2019 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1192038 [VXX34012]
Blank Spike Lab ID: 1506087
Date Analyzed: 05/06/2019 04:43

Spike Duplicate ID: LCSD for HBN 1192038 [VXX34012]
Spike Duplicate Lab ID: 1506088
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002, 1192038003

## Results by **AK101**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Gasoline Range Organics | 1.00 | 0.967 | 97 | 1.00 | 0.953 | 95 | ( 60-120 ) | 1.50 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 0.0500 | 95.1 | 95 | 0.0500 | 93.3 | 93 | ( 50-150 ) | 2.00 | |

## Batch Information

Analytical Batch: **VFC14715**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX34012**
Prep Method: **SW5030B**
Prep Date/Time: **05/05/2019 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



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

## Method Blank

Blank ID: MB for HBN 1793608 [VXX/34054]
Blank Lab ID: 1507229

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192038001, 1192038002, 1192038003

Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,1-Trichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1,2,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,2-Trichloroethane | 0.200U | 0.400 | 0.120 | ug/L |
| 1,1-Dichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dibromo-3-chloropropane | 5.00U | 10.0 | 3.10 | ug/L |
| 1,2-Dibromoethane | 0.0375U | 0.0750 | 0.0180 | ug/L |
| 1,2-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dichloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3,5-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichloropropane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,4-Dichlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| 2,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Butanone (MEK) | 5.00U | 10.0 | 3.10 | ug/L |
| 2-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Hexanone | 5.00U | 10.0 | 3.10 | ug/L |
| 4-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Isopropyltoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Methyl-2-pentanone (MIBK) | 5.00U | 10.0 | 3.10 | ug/L |
| Benzene | 0.200U | 0.400 | 0.120 | ug/L |
| Bromobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Bromochloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Bromodichloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Bromoform | 0.500U | 1.00 | 0.310 | ug/L |
| Bromomethane | 2.50U | 5.00 | 1.50 | ug/L |
| Carbon disulfide | 5.00U | 10.0 | 3.10 | ug/L |
| Carbon tetrachloride | 0.500U | 1.00 | 0.310 | ug/L |
| Chlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| Chloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| Chloroform | 0.500U | 1.00 | 0.310 | ug/L |

## Method Blank

Blank ID: MB for HBN 1793608 [VXX/34054]
Blank Lab ID: 1507229

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192038001, 1192038002, 1192038003

Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Chloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,3-Dichloropropene | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromochloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromomethane | 0.500U | 1.00 | 0.310 | ug/L |
| Dichlorodifluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Ethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Freon-113 | 5.00U | 10.0 | 3.10 | ug/L |
| Hexachlorobutadiene | 0.500U | 1.00 | 0.310 | ug/L |
| Isopropylbenzene (Cumene) | 0.500U | 1.00 | 0.310 | ug/L |
| Methylene chloride | 2.50U | 5.00 | 1.00 | ug/L |
| Methyl-t-butyl ether | 5.00U | 10.0 | 3.10 | ug/L |
| Naphthalene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Propylbenzene | 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 |
| sec-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Styrene | 0.500U | 1.00 | 0.310 | ug/L |
| tert-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Tetrachloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Toluene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,3-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichlorofluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Vinyl acetate | 5.00U | 10.0 | 3.10 | ug/L |
| Vinyl chloride | 0.0750U | 0.150 | 0.0500 | ug/L |
| Xylenes (total) | 1.50U | 3.00 | 1.00 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 101 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 101 | 85-114 | | % |
| Toluene-d8 (surr) | 97.7 | 89-112 | | % |

## Method Blank

Blank ID: MB for HBN 1793608 [VXX/34054]
Blank Lab ID: 1507229

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192038001, 1192038002, 1192038003

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|

### Batch Information

Analytical Batch: VMS18909
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: NRB
Analytical Date/Time: 5/9/2019 11:38:00AM

Prep Batch: VXX34054
Prep Method: SW5030B
Prep Date/Time: 5/9/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1192038 [VXX34054]
Blank Spike Lab ID: 1507230
Date Analyzed: 05/09/2019 11:54

Spike Duplicate ID: LCSD for HBN 1192038 [VXX34054]
Spike Duplicate Lab ID: 1507231
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002, 1192038003

Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,1,1,2-Tetrachloroethane | 30 | 27.0 | 90 | 30 | 28.0 | 93 | ( 78-124 ) | 3.70 | (< 20 ) |
| 1,1,1-Trichloroethane | 30 | 26.8 | 89 | 30 | 27.6 | 92 | ( 74-131 ) | 3.00 | (< 20 ) |
| 1,1,2,2-Tetrachloroethane | 30 | 28.6 | 95 | 30 | 28.6 | 95 | ( 71-121 ) | 0.16 | (< 20 ) |
| 1,1,2-Trichloroethane | 30 | 27.9 | 93 | 30 | 28.5 | 95 | ( 80-119 ) | 1.80 | (< 20 ) |
| 1,1-Dichloroethane | 30 | 27.9 | 93 | 30 | 28.6 | 95 | ( 77-125 ) | 2.40 | (< 20 ) |
| 1,1-Dichloroethene | 30 | 27.0 | 90 | 30 | 27.7 | 92 | ( 71-131 ) | 2.50 | (< 20 ) |
| 1,1-Dichloropropene | 30 | 28.3 | 94 | 30 | 28.6 | 96 | ( 79-125 ) | 1.20 | (< 20 ) |
| 1,2,3-Trichlorobenzene | 30 | 27.3 | 91 | 30 | 28.1 | 94 | ( 69-129 ) | 2.70 | (< 20 ) |
| 1,2,3-Trichloropropane | 30 | 27.3 | 91 | 30 | 26.9 | 90 | ( 73-122 ) | 1.40 | (< 20 ) |
| 1,2,4-Trichlorobenzene | 30 | 27.7 | 92 | 30 | 28.6 | 95 | ( 69-130 ) | 3.10 | (< 20 ) |
| 1,2,4-Trimethylbenzene | 30 | 28.3 | 95 | 30 | 28.3 | 94 | ( 79-124 ) | 0.15 | (< 20 ) |
| 1,2-Dibromo-3-chloropropane | 30 | 28.0 | 93 | 30 | 26.8 | 89 | ( 62-128 ) | 4.40 | (< 20 ) |
| 1,2-Dibromoethane | 30 | 27.1 | 91 | 30 | 27.9 | 93 | ( 77-121 ) | 2.90 | (< 20 ) |
| 1,2-Dichlorobenzene | 30 | 27.4 | 91 | 30 | 27.6 | 92 | ( 80-119 ) | 0.77 | (< 20 ) |
| 1,2-Dichloroethane | 30 | 27.8 | 93 | 30 | 28.1 | 94 | ( 73-128 ) | 1.30 | (< 20 ) |
| 1,2-Dichloropropane | 30 | 28.8 | 96 | 30 | 29.1 | 97 | ( 78-122 ) | 1.20 | (< 20 ) |
| 1,3,5-Trimethylbenzene | 30 | 28.1 | 94 | 30 | 28.2 | 94 | ( 75-124 ) | 0.38 | (< 20 ) |
| 1,3-Dichlorobenzene | 30 | 27.3 | 91 | 30 | 28.1 | 94 | ( 80-119 ) | 2.90 | (< 20 ) |
| 1,3-Dichloropropane | 30 | 28.0 | 93 | 30 | 28.7 | 96 | ( 80-119 ) | 2.50 | (< 20 ) |
| 1,4-Dichlorobenzene | 30 | 27.4 | 91 | 30 | 27.7 | 92 | ( 79-118 ) | 1.10 | (< 20 ) |
| 2,2-Dichloropropane | 30 | 26.3 | 88 | 30 | 27.0 | 90 | ( 60-139 ) | 2.90 | (< 20 ) |
| 2-Butanone (MEK) | 90 | 79.4 | 88 | 90 | 67.9 | 76 | ( 56-143 ) | 15.60 | (< 20 ) |
| 2-Chlorotoluene | 30 | 30.1 | 100 | 30 | 28.5 | 95 | ( 79-122 ) | 5.60 | (< 20 ) |
| 2-Hexanone | 90 | 83.0 | 92 | 90 | 78.5 | 87 | ( 57-139 ) | 5.60 | (< 20 ) |
| 4-Chlorotoluene | 30 | 29.4 | 98 | 30 | 29.2 | 97 | ( 78-122 ) | 0.55 | (< 20 ) |
| 4-Isopropyltoluene | 30 | 28.3 | 95 | 30 | 28.9 | 96 | ( 77-127 ) | 1.80 | (< 20 ) |
| 4-Methyl-2-pentanone (MIBK) | 90 | 83.1 | 92 | 90 | 78.7 | 87 | ( 67-130 ) | 5.50 | (< 20 ) |
| Benzene | 30 | 27.4 | 91 | 30 | 27.7 | 92 | ( 79-120 ) | 1.20 | (< 20 ) |
| Bromobenzene | 30 | 27.9 | 93 | 30 | 28.0 | 94 | ( 80-120 ) | 0.65 | (< 20 ) |
| Bromochloromethane | 30 | 25.3 | 84 | 30 | 26.3 | 88 | ( 78-123 ) | 3.90 | (< 20 ) |
| Bromodichloromethane | 30 | 28.0 | 93 | 30 | 28.5 | 95 | ( 79-125 ) | 1.70 | (< 20 ) |
| Bromoform | 30 | 26.5 | 88 | 30 | 27.3 | 91 | ( 66-130 ) | 3.20 | (< 20 ) |
| Bromomethane | 30 | 31.7 | 106 | 30 | 32.5 | 108 | ( 53-141 ) | 2.60 | (< 20 ) |
| Carbon disulfide | 45 | 41.2 | 92 | 45 | 42.5 | 95 | ( 64-133 ) | 3.20 | (< 20 ) |

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1192038 [VXX34054]
Blank Spike Lab ID: 1507230
Date Analyzed: 05/09/2019 11:54

Spike Duplicate ID: LCSD for HBN 1192038 [VXX34054]
Spike Duplicate Lab ID: 1507231
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002, 1192038003

Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Carbon tetrachloride | 30 | 26.8 | 89 | 30 | 27.8 | 93 | ( 72-136 ) | 3.70 | (< 20 ) |
| Chlorobenzene | 30 | 25.8 | 86 | 30 | 26.1 | 87 | ( 82-118 ) | 0.88 | (< 20 ) |
| Chloroethane | 30 | 24.7 | 82 | 30 | 25.1 | 84 | ( 60-138 ) | 1.50 | (< 20 ) |
| Chloroform | 30 | 27.0 | 90 | 30 | 27.6 | 92 | ( 79-124 ) | 2.00 | (< 20 ) |
| Chloromethane | 30 | 27.8 | 93 | 30 | 29.2 | 98 | ( 50-139 ) | 5.20 | (< 20 ) |
| cis-1,2-Dichloroethene | 30 | 26.9 | 90 | 30 | 27.4 | 91 | ( 78-123 ) | 1.90 | (< 20 ) |
| cis-1,3-Dichloropropene | 30 | 27.8 | 93 | 30 | 28.3 | 95 | ( 75-124 ) | 2.00 | (< 20 ) |
| Dibromochloromethane | 30 | 27.3 | 91 | 30 | 28.4 | 95 | ( 74-126 ) | 4.00 | (< 20 ) |
| Dibromomethane | 30 | 26.7 | 89 | 30 | 27.3 | 91 | ( 79-123 ) | 2.30 | (< 20 ) |
| Dichlorodifluoromethane | 30 | 28.4 | 95 | 30 | 30.3 | 101 | ( 32-152 ) | 6.50 | (< 20 ) |
| Ethylbenzene | 30 | 27.0 | 90 | 30 | 27.6 | 92 | ( 79-121 ) | 2.20 | (< 20 ) |
| Freon-113 | 45 | 40.1 | 89 | 45 | 40.7 | 91 | ( 70-136 ) | 1.50 | (< 20 ) |
| Hexachlorobutadiene | 30 | 27.5 | 92 | 30 | 29.7 | 99 | ( 66-134 ) | 7.60 | (< 20 ) |
| Isopropylbenzene (Cumene) | 30 | 27.6 | 92 | 30 | 28.2 | 94 | ( 72-131 ) | 1.90 | (< 20 ) |
| Methylene chloride | 30 | 27.3 | 91 | 30 | 28.2 | 94 | ( 74-124 ) | 3.30 | (< 20 ) |
| Methyl-t-butyl ether | 45 | 40.9 | 91 | 45 | 40.5 | 90 | ( 71-124 ) | 0.79 | (< 20 ) |
| Naphthalene | 30 | 28.4 | 95 | 30 | 28.5 | 95 | ( 61-128 ) | 0.58 | (< 20 ) |
| n-Butylbenzene | 30 | 30.0 | 100 | 30 | 30.7 | 102 | ( 75-128 ) | 2.40 | (< 20 ) |
| n-Propylbenzene | 30 | 29.5 | 99 | 30 | 29.9 | 100 | ( 76-126 ) | 1.10 | (< 20 ) |
| o-Xylene | 30 | 27.1 | 90 | 30 | 28.1 | 94 | ( 78-122 ) | 3.60 | (< 20 ) |
| P & M -Xylene | 60 | 54.6 | 91 | 60 | 55.1 | 92 | ( 80-121 ) | 0.98 | (< 20 ) |
| sec-Butylbenzene | 30 | 28.8 | 96 | 30 | 29.4 | 98 | ( 77-126 ) | 1.80 | (< 20 ) |
| Styrene | 30 | 27.8 | 93 | 30 | 27.9 | 93 | ( 78-123 ) | 0.60 | (< 20 ) |
| tert-Butylbenzene | 30 | 28.6 | 95 | 30 | 28.5 | 95 | ( 78-124 ) | 0.34 | (< 20 ) |
| Tetrachloroethene | 30 | 26.8 | 89 | 30 | 27.0 | 90 | ( 74-129 ) | 1.00 | (< 20 ) |
| Toluene | 30 | 25.7 | 86 | 30 | 26.3 | 88 | ( 80-121 ) | 2.30 | (< 20 ) |
| trans-1,2-Dichloroethene | 30 | 27.0 | 90 | 30 | 27.6 | 92 | ( 75-124 ) | 2.30 | (< 20 ) |
| trans-1,3-Dichloropropene | 30 | 27.6 | 92 | 30 | 28.5 | 95 | ( 73-127 ) | 3.40 | (< 20 ) |
| Trichloroethene | 30 | 27.3 | 91 | 30 | 27.6 | 92 | ( 79-123 ) | 1.20 | (< 20 ) |
| Trichlorofluoromethane | 30 | 26.3 | 88 | 30 | 27.0 | 90 | ( 65-141 ) | 2.40 | (< 20 ) |
| Vinyl acetate | 30 | 28.1 | 94 | 30 | 28.4 | 95 | ( 54-146 ) | 1.00 | (< 20 ) |
| Vinyl chloride | 30 | 28.7 | 96 | 30 | 30.1 | 100 | ( 58-137 ) | 4.80 | (< 20 ) |
| Xylenes (total) | 90 | 81.7 | 91 | 90 | 83.2 | 93 | ( 79-121 ) | 1.90 | (< 20 ) |



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1192038 [VXX34054]
Blank Spike Lab ID: 1507230
Date Analyzed: 05/09/2019 11:54

Spike Duplicate ID: LCSD for HBN 1192038 [VXX34054]
Spike Duplicate Lab ID: 1507231
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002, 1192038003

## Results by **SW8260C**

| | Blank Spike (%) | | | Spike Duplicate (%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 97.2 | 97 | 30 | 98.2 | 98 | ( 81-118 ) | 1.00 | |
| 4-Bromofluorobenzene (surr) | 30 | 103 | 103 | 30 | 104 | 104 | ( 85-114 ) | 1.00 | |
| Toluene-d8 (surr) | 30 | 98 | 98 | 30 | 100 | 100 | ( 89-112 ) | 2.10 | |

## Batch Information

Analytical Batch: **VMS18909**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **NRB**

Prep Batch: **VXX34054**
Prep Method: **SW5030B**
Prep Date/Time: **05/09/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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## Matrix Spike Summary

Original Sample ID: 1507228
MS Sample ID: 1507232 MS
MSD Sample ID: 1507233 MSD

Analysis Date: 05/09/2019 14:12
Analysis Date: 05/09/2019 19:00
Analysis Date: 05/09/2019 19:16
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002, 1192038003

## Results by **SW8260C**

| | | Matrix Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Sample | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,1,1,2-Tetrachloroethane | 0.250U | 30.0 | 29 | 97 | 30.0 | 28.7 | 96 | 78-124 | 1.10 | (< 20 ) |
| 1,1,1-Trichloroethane | 0.500U | 30.0 | 28.9 | 96 | 30.0 | 28.2 | 94 | 74-131 | 2.20 | (< 20 ) |
| 1,1,2,2-Tetrachloroethane | 0.250U | 30.0 | 31.7 | 106 | 30.0 | 32.1 | 107 | 71-121 | 1.20 | (< 20 ) |
| 1,1,2-Trichloroethane | 0.200U | 30.0 | 30.3 | 101 | 30.0 | 30.3 | 101 | 80-119 | 0.01 | (< 20 ) |
| 1,1-Dichloroethane | 0.500U | 30.0 | 30 | 100 | 30.0 | 29.4 | 98 | 77-125 | 2.00 | (< 20 ) |
| 1,1-Dichloroethene | 0.500U | 30.0 | 29.5 | 98 | 30.0 | 28.9 | 96 | 71-131 | 2.10 | (< 20 ) |
| 1,1-Dichloropropene | 0.500U | 30.0 | 30.7 | 102 | 30.0 | 30.3 | 101 | 79-125 | 1.20 | (< 20 ) |
| 1,2,3-Trichlorobenzene | 0.500U | 30.0 | 29.2 | 97 | 30.0 | 29.3 | 98 | 69-129 | 0.53 | (< 20 ) |
| 1,2,3-Trichloropropane | 0.500U | 30.0 | 30 | 100 | 30.0 | 29.4 | 98 | 73-122 | 2.30 | (< 20 ) |
| 1,2,4-Trichlorobenzene | 0.500U | 30.0 | 28.8 | 96 | 30.0 | 29.5 | 98 | 69-130 | 2.50 | (< 20 ) |
| 1,2,4-Trimethylbenzene | 23.7 | 30.0 | 52.9 | 97 | 30.0 | 53.1 | 98 | 79-124 | 0.31 | (< 20 ) |
| 1,2-Dibromo-3-chloropropane | 5.00U | 30.0 | 31.8 | 106 | 30.0 | 32.2 | 107 | 62-128 | 1.20 | (< 20 ) |
| 1,2-Dibromoethane | 0.0375U | 30.0 | 29.7 | 99 | 30.0 | 29.5 | 98 | 77-121 | 0.82 | (< 20 ) |
| 1,2-Dichlorobenzene | 0.500U | 30.0 | 28.2 | 94 | 30.0 | 28.1 | 94 | 80-119 | 0.32 | (< 20 ) |
| 1,2-Dichloroethane | 0.250U | 30.0 | 29.5 | 98 | 30.0 | 28.9 | 96 | 73-128 | 2.10 | (< 20 ) |
| 1,2-Dichloropropane | 0.500U | 30.0 | 31.4 | 105 | 30.0 | 30.7 | 102 | 78-122 | 2.40 | (< 20 ) |
| 1,3,5-Trimethylbenzene | 16.0 | 30.0 | 43.7 | 92 | 30.0 | 43.7 | 92 | 75-124 | 0.04 | (< 20 ) |
| 1,3-Dichlorobenzene | 0.500U | 30.0 | 28.3 | 94 | 30.0 | 28.5 | 95 | 80-119 | 0.60 | (< 20 ) |
| 1,3-Dichloropropane | 0.250U | 30.0 | 30.6 | 102 | 30.0 | 30.1 | 100 | 80-119 | 1.70 | (< 20 ) |
| 1,4-Dichlorobenzene | 0.250U | 30.0 | 28.6 | 95 | 30.0 | 28.8 | 96 | 79-118 | 0.74 | (< 20 ) |
| 2,2-Dichloropropane | 0.500U | 30.0 | 25.9 | 86 | 30.0 | 25.6 | 85 | 60-139 | 1.20 | (< 20 ) |
| 2-Butanone (MEK) | 5.00U | 90.0 | 111 | 124 | 90.0 | 110 | 122 | 56-143 | 1.40 | (< 20 ) |
| 2-Chlorotoluene | 0.500U | 30.0 | 33.5 | 112 | 30.0 | 33.1 | 110 | 79-122 | 1.20 | (< 20 ) |
| 2-Hexanone | 5.00U | 90.0 | 95.7 | 106 | 90.0 | 95.2 | 106 | 57-139 | 0.52 | (< 20 ) |
| 4-Chlorotoluene | 0.500U | 30.0 | 30 | 100 | 30.0 | 30.2 | 101 | 78-122 | 0.67 | (< 20 ) |
| 4-Isopropyltoluene | 0.582J | 30.0 | 30.6 | 100 | 30.0 | 31.3 | 102 | 77-127 | 2.00 | (< 20 ) |
| 4-Methyl-2-pentanone (MIBK) | 5.00U | 90.0 | 94.7 | 105 | 90.0 | 93.0 | 103 | 67-130 | 1.80 | (< 20 ) |
| Benzene | 1.04 | 30.0 | 30.6 | 99 | 30.0 | 30.0 | 97 | 79-120 | 2.10 | (< 20 ) |
| Bromobenzene | 0.500U | 30.0 | 29.7 | 99 | 30.0 | 29.2 | 98 | 80-120 | 1.40 | (< 20 ) |
| Bromochloromethane | 0.500U | 30.0 | 26.7 | 89 | 30.0 | 26.1 | 87 | 78-123 | 2.20 | (< 20 ) |
| Bromodichloromethane | 0.250U | 30.0 | 30.2 | 101 | 30.0 | 29.6 | 99 | 79-125 | 2.10 | (< 20 ) |
| Bromoform | 0.500U | 30.0 | 27.7 | 92 | 30.0 | 27.8 | 93 | 66-130 | 0.36 | (< 20 ) |
| Bromomethane | 2.50U | 30.0 | 30 | 100 | 30.0 | 30.0 | 100 | 53-141 | 0.00 | (< 20 ) |
| Carbon disulfide | 5.00U | 45.0 | 44.5 | 99 | 45.0 | 43.8 | 97 | 64-133 | 1.40 | (< 20 ) |
| Carbon tetrachloride | 0.500U | 30.0 | 28.6 | 95 | 30.0 | 28.3 | 94 | 72-136 | 1.10 | (< 20 ) |
| Chlorobenzene | 0.250U | 30.0 | 27.6 | 92 | 30.0 | 27.5 | 92 | 82-118 | 0.44 | (< 20 ) |
| Chloroethane | 0.500U | 30.0 | 28 | 93 | 30.0 | 28.1 | 94 | 60-138 | 0.38 | (< 20 ) |

Print Date: 05/20/2019 10:35:17AM

## Matrix Spike Summary

Original Sample ID: 1507228
MS Sample ID: 1507232 MS
MSD Sample ID: 1507233 MSD

Analysis Date: 05/09/2019 14:12
Analysis Date: 05/09/2019 19:00
Analysis Date: 05/09/2019 19:16
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002, 1192038003

Results by **SW8260C**

| | | Matrix Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Sample | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Chloroform | 0.500U | 30.0 | 29 | 97 | 30.0 | 28.5 | 95 | 79-124 | 1.80 | (< 20 ) |
| Chloromethane | 0.371J | 30.0 | 30.3 | 100 | 30.0 | 29.8 | 98 | 50-139 | 1.80 | (< 20 ) |
| cis-1,2-Dichloroethene | 0.500U | 30.0 | 28.9 | 96 | 30.0 | 28.0 | 93 | 78-123 | 3.00 | (< 20 ) |
| cis-1,3-Dichloropropene | 0.250U | 30.0 | 29.4 | 98 | 30.0 | 28.6 | 95 | 75-124 | 2.70 | (< 20 ) |
| Dibromochloromethane | 0.250U | 30.0 | 29.1 | 97 | 30.0 | 28.8 | 96 | 74-126 | 1.10 | (< 20 ) |
| Dibromomethane | 0.500U | 30.0 | 28.7 | 96 | 30.0 | 28.2 | 94 | 79-123 | 1.80 | (< 20 ) |
| Dichlorodifluoromethane | 0.500U | 30.0 | 31.5 | 105 | 30.0 | 31.0 | 103 | 32-152 | 1.50 | (< 20 ) |
| Ethylbenzene | 1.54 | 30.0 | 30.2 | 96 | 30.0 | 30.0 | 95 | 79-121 | 0.72 | (< 20 ) |
| Freon-113 | 5.00U | 45.0 | 44.1 | 98 | 45.0 | 42.9 | 95 | 70-136 | 2.90 | (< 20 ) |
| Hexachlorobutadiene | 0.500U | 30.0 | 28.2 | 94 | 30.0 | 29.3 | 98 | 66-134 | 3.70 | (< 20 ) |
| Isopropylbenzene (Cumene) | 35.8 | 30.0 | 62.5 | 89 | 30.0 | 62.6 | 89 | 72-131 | 0.10 | (< 20 ) |
| Methylene chloride | 2.50U | 30.0 | 29.3 | 98 | 30.0 | 28.6 | 96 | 74-124 | 2.10 | (< 20 ) |
| Methyl-t-butyl ether | 5.00U | 45.0 | 43.7 | 97 | 45.0 | 43.1 | 96 | 71-124 | 1.50 | (< 20 ) |
| Naphthalene | 1.14 | 30.0 | 33.6 | 108 | 30.0 | 32.9 | 106 | 61-128 | 2.00 | (< 20 ) |
| n-Butylbenzene | 0.500U | 30.0 | 30.1 | 100 | 30.0 | 31.2 | 104 | 75-128 | 3.50 | (< 20 ) |
| n-Propylbenzene | 1.63 | 30.0 | 32.1 | 101 | 30.0 | 32.5 | 103 | 76-126 | 1.20 | (< 20 ) |
| o-Xylene | 2.19 | 30.0 | 30.9 | 96 | 30.0 | 30.7 | 95 | 78-122 | 0.60 | (< 20 ) |
| P & M -Xylene | 20.9 | 60.0 | 77.9 | 95 | 60.0 | 77.1 | 94 | 80-121 | 0.99 | (< 20 ) |
| sec-Butylbenzene | 1.48 | 30.0 | 31.1 | 99 | 30.0 | 31.7 | 101 | 77-126 | 2.00 | (< 20 ) |
| Styrene | 0.500U | 30.0 | 28.9 | 96 | 30.0 | 28.4 | 95 | 78-123 | 1.70 | (< 20 ) |
| tert-Butylbenzene | 3.37 | 30.0 | 32.4 | 97 | 30.0 | 32.6 | 97 | 78-124 | 0.63 | (< 20 ) |
| Tetrachloroethene | 0.500U | 30.0 | 29 | 97 | 30.0 | 28.4 | 95 | 74-129 | 2.20 | (< 20 ) |
| Toluene | 0.612J | 30.0 | 28.1 | 92 | 30.0 | 28.1 | 92 | 80-121 | 0.06 | (< 20 ) |
| trans-1,2-Dichloroethene | 0.500U | 30.0 | 28.8 | 96 | 30.0 | 28.2 | 94 | 75-124 | 1.80 | (< 20 ) |
| trans-1,3-Dichloropropene | 0.500U | 30.0 | 28.9 | 96 | 30.0 | 28.9 | 96 | 73-127 | 0.10 | (< 20 ) |
| Trichloroethene | 0.500U | 30.0 | 29.9 | 100 | 30.0 | 29.1 | 97 | 79-123 | 2.50 | (< 20 ) |
| Trichlorofluoromethane | 0.500U | 30.0 | 29.1 | 97 | 30.0 | 28.7 | 96 | 65-141 | 1.40 | (< 20 ) |
| Vinyl acetate | 5.00U | 30.0 | 25.3 | 85 | 30.0 | 25.3 | 84 | 54-146 | 0.36 | (< 20 ) |
| Vinyl chloride | 0.0750U | 30.0 | 31.1 | 104 | 30.0 | 30.6 | 102 | 58-137 | 1.80 | (< 20 ) |
| Xylenes (total) | 23.1 | 90.0 | 109 | 95 | 90.0 | 108 | 94 | 79-121 | 0.88 | (< 20 ) |
| **Surrogates** | | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | | 30.0 | 28.9 | 96 | 30.0 | 28.5 | 95 | 81-118 | 1.20 | |
| 4-Bromofluorobenzene (surr) | | 30.0 | 31.3 | 104 | 30.0 | 32.0 | 107 | 85-114 | 2.10 | |
| Toluene-d8 (surr) | | 30.0 | 29.5 | 99 | 30.0 | 29.9 | 100 | 89-112 | 1.10 | |

Print Date: 05/20/2019 10:35:17AM

## Matrix Spike Summary

Original Sample ID: 1507228
MS Sample ID: 1507232 MS
MSD Sample ID: 1507233 MSD

Analysis Date:
Analysis Date: 05/09/2019 19:00
Analysis Date: 05/09/2019 19:16
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002, 1192038003

## Results by **SW8260C**

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

## Batch Information

Analytical Batch: VMS18909
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: NRB
Analytical Date/Time: 5/9/2019 7:00:00PM

Prep Batch: VXX34054
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 5/9/2019 6:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL



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## Method Blank

Blank ID: MB for HBN 1793616 [VXX/34056]
Blank Lab ID: 1507268

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192038001

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 1,3,5-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Naphthalene | 0.500U | 1.00 | 0.310 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 101 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 99.9 | 85-114 | | % |
| Toluene-d8 (surr) | 97.7 | 89-112 | | % |

## Batch Information

Analytical Batch: VMS18910
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 5/10/2019 11:57:00AM

Prep Batch: VXX34056
Prep Method: SW5030B
Prep Date/Time: 5/10/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1192038 [VXX34056]
Blank Spike Lab ID: 1507269
Date Analyzed: 05/10/2019 12:12

Spike Duplicate ID: LCSD for HBN 1192038 [VXX34056]
Spike Duplicate Lab ID: 1507270
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,3,5-Trimethylbenzene | 30 | 26.0 | 87 | 30 | 27.2 | 91 | ( 75-124 ) | 4.30 | (< 20 ) |
| Naphthalene | 30 | 28.1 | 94 | 30 | 28.0 | 93 | ( 61-128 ) | 0.36 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 97.8 | 98 | 30 | 97.3 | 97 | ( 81-118 ) | 0.55 | |
| 4-Bromofluorobenzene (surr) | 30 | 104 | 104 | 30 | 106 | 106 | ( 85-114 ) | 1.40 | |
| Toluene-d8 (surr) | 30 | 98.7 | 99 | 30 | 98.9 | 99 | ( 89-112 ) | 0.20 | |

## Batch Information

Analytical Batch: **VMS18910**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **FDR**

Prep Batch: **VXX34056**
Prep Method: **SW5030B**
Prep Date/Time: **05/10/2019 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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## Matrix Spike Summary

Original Sample ID: 1507271
MS Sample ID: 1507272 MS
MSD Sample ID: 1507273 MSD

QC for Samples: 1192038001

Analysis Date: 05/10/2019 18:59
Analysis Date: 05/10/2019 19:45
Analysis Date: 05/10/2019 20:00
Matrix: Water (Surface, Eff., Ground)

## Results by **SW8260C**

| | | Matrix Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Sample | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,3,5-Trimethylbenzene | 37.3 | 30.0 | 66.7 | 98 | 30.0 | 69.1 | 106 | 75-124 | 3.50 | (< 20 ) |
| Naphthalene | 25.4 | 30.0 | 60 | 115 | 30.0 | 62.4 | 123 | 61-128 | 3.90 | (< 20 ) |
| **Surrogates** | | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | | 30.0 | 28.7 | 96 | 30.0 | 28.6 | 95 | 81-118 | 0.38 | |
| 4-Bromofluorobenzene (surr) | | 30.0 | 31.3 | 104 | 30.0 | 31.9 | 106 | 85-114 | 1.70 | |
| Toluene-d8 (surr) | | 30.0 | 30 | 100 | 30.0 | 29.4 | 98 | 89-112 | 1.80 | |

## Batch Information

Analytical Batch: VMS18910
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 5/10/2019 7:45:00PM

Prep Batch: VXX34056
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 5/10/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL



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## Method Blank

Blank ID: MB for HBN 1793236 [XXX/41372]
Blank Lab ID: 1505592

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192038001, 1192038002

## Results by **8270D SIM LV (PAH)**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 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 | 0.0100U | 0.0200 | 0.00620 | 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 | 0.0100U | 0.0200 | 0.00620 | 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-Methylnaphthalene-d10 (surr) | 64.3 | 47-106 | | % |
| Fluoranthene-d10 (surr) | 64.4 | 24-116 | | % |

## Batch Information

Analytical Batch: XMS11390
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 5/6/2019 5:11:00PM

Prep Batch: XXX41372
Prep Method: SW3520C
Prep Date/Time: 5/3/2019 10:08:24AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1192038 [XXX41372]
Blank Spike Lab ID: 1505593
Date Analyzed: 05/06/2019 17:32

Spike Duplicate ID: LCSD for HBN 1192038 [XXX41372]
Spike Duplicate Lab ID: 1505594
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002

## Results by **8270D SIM LV (PAH)**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1-Methylnaphthalene | 2 | 1.47 | 74 | 2 | 1.46 | 73 | ( 41-115 ) | 0.91 | (< 20 ) |
| 2-Methylnaphthalene | 2 | 1.52 | 76 | 2 | 1.50 | 75 | ( 39-114 ) | 0.98 | (< 20 ) |
| Acenaphthene | 2 | 1.37 | 69 | 2 | 1.38 | 69 | ( 48-114 ) | 0.66 | (< 20 ) |
| Acenaphthylene | 2 | 1.55 | 77 | 2 | 1.55 | 78 | ( 35-121 ) | 0.02 | (< 20 ) |
| Anthracene | 2 | 1.50 | 75 | 2 | 1.50 | 75 | ( 53-119 ) | 0.22 | (< 20 ) |
| Benzo(a)Anthracene | 2 | 1.53 | 77 | 2 | 1.49 | 75 | ( 59-120 ) | 2.60 | (< 20 ) |
| Benzo[a]pyrene | 2 | 1.46 | 73 | 2 | 1.42 | 71 | ( 53-120 ) | 2.50 | (< 20 ) |
| Benzo[b]Fluoranthene | 2 | 1.58 | 79 | 2 | 1.56 | 78 | ( 53-126 ) | 1.60 | (< 20 ) |
| Benzo[g,h,i]perylene | 2 | 1.40 | 70 | 2 | 1.35 | 68 | ( 44-128 ) | 3.30 | (< 20 ) |
| Benzo[k]fluoranthene | 2 | 1.49 | 75 | 2 | 1.46 | 73 | ( 54-125 ) | 2.10 | (< 20 ) |
| Chrysene | 2 | 1.51 | 75 | 2 | 1.48 | 74 | ( 57-120 ) | 2.10 | (< 20 ) |
| Dibenzo[a,h]anthracene | 2 | 1.33 | 67 | 2 | 1.32 | 66 | ( 44-131 ) | 1.40 | (< 20 ) |
| Fluoranthene | 2 | 1.55 | 78 | 2 | 1.52 | 76 | ( 58-120 ) | 2.40 | (< 20 ) |
| Fluorene | 2 | 1.49 | 75 | 2 | 1.50 | 75 | ( 50-118 ) | 0.11 | (< 20 ) |
| Indeno[1,2,3-c,d] pyrene | 2 | 1.53 | 77 | 2 | 1.49 | 74 | ( 48-130 ) | 2.80 | (< 20 ) |
| Naphthalene | 2 | 1.49 | 74 | 2 | 1.47 | 73 | ( 43-114 ) | 1.30 | (< 20 ) |
| Phenanthrene | 2 | 1.48 | 74 | 2 | 1.49 | 74 | ( 53-115 ) | 0.28 | (< 20 ) |
| Pyrene | 2 | 1.61 | 81 | 2 | 1.59 | 79 | ( 53-121 ) | 1.50 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 2 | 70.7 | 71 | 2 | 70.3 | 70 | ( 47-106 ) | 0.48 | |
| Fluoranthene-d10 (surr) | 2 | 69.3 | 69 | 2 | 70.3 | 70 | ( 24-116 ) | 1.50 | |

## Batch Information

Analytical Batch: **XMS11390**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **DSD**

Prep Batch: **XXX41372**
Prep Method: **SW3520C**
Prep Date/Time: **05/03/2019 10:08**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL



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## Method Blank

Blank ID: MB for HBN 1793453 [XXX/41396]
Blank Lab ID: 1506590

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192038001, 1192038002

## Results by **AK102**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Diesel Range Organics | 0.300U | 0.600 | 0.180 | mg/L |
| **Surrogates** | | | | |
| 5a Androstane (surr) | 89.6 | 60-120 | | % |

## Batch Information

Analytical Batch: XFC14992
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 5/13/2019 8:55:00PM

Prep Batch: XXX41396
Prep Method: SW3520C
Prep Date/Time: 5/9/2019 11:04:24AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1192038 [XXX41396]
Blank Spike Lab ID: 1506591
Date Analyzed: 05/13/2019 21:05

Spike Duplicate ID: LCSD for HBN 1192038 [XXX41396]
Spike Duplicate Lab ID: 1506592
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002

## Results by **AK102**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Diesel Range Organics | 20 | 20.2 | 101 | 20 | 19.1 | 96 | ( 75-125 ) | 5.30 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 5a Androstane (surr) | 0.4 | 107 | 107 | 0.4 | 104 | 104 | ( 60-120 ) | 2.50 | |

## Batch Information

Analytical Batch: **XFC14992**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX41396**
Prep Method: **SW3520C**
Prep Date/Time: **05/09/2019 11:04**
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 1793453 [XXX/41396]
Blank Lab ID: 1506590

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192038001, 1192038002

## Results by **AK103**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Residual Range Organics | 0.203J | 0.500 | 0.150 | mg/L |
| **Surrogates** | | | | |
| n-Triacontane-d62 (surr) | 102 | 60-120 | | % |

## Batch Information

Analytical Batch: XFC14992
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 5/13/2019 8:55:00PM

Prep Batch: XXX41396
Prep Method: SW3520C
Prep Date/Time: 5/9/2019 11:04:24AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1192038 [XXX41396]
Blank Spike Lab ID: 1506591
Date Analyzed: 05/13/2019 21:05

Spike Duplicate ID: LCSD for HBN 1192038 [XXX41396]
Spike Duplicate Lab ID: 1506592
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192038001, 1192038002

## Results by **AK103**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Residual Range Organics | 20 | 19.0 | 95 | 20 | 18.0 | 90 | ( 60-120 ) | 5.30 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| n-Triacontane-d62 (surr) | 0.4 | 98.3 | 98 | 0.4 | 103 | 103 | ( 60-120 ) | 4.90 | |

## Batch Information

Analytical Batch: **XFC14992**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX41396**
Prep Method: **SW3520C**
Prep Date/Time: **05/09/2019 11:04**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL



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SGS **1192038**

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**CHAIN OF CUSTODY RECORD**

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

Page 1 of 1

**Section 1**

| | |
|---|---|
| CLIENT: SLR Alaska | |
| CONTACT: Ben Siwiec Stan Flagel | PHONE #: 907-264-6958 |
| PROJECT NAME: NPSI Red Salmon GW | PROJECT/ PWSID/ PERMIT#: 105.00151.19001 |
| REPORTS TO: Stan Flagel | E-MAIL: sflagel@slrconsulting.com Profile #: 352267 |
| INVOICE TO: SLR Alaska | QUOTE #: P.O. #: |

**Section 3** — Preservative: HCl | HCl | HCl | None

**Section 2**

| RESERVED for lab use | SAMPLE IDENTIFICATION | DATE mm/dd/yy | TIME HH:MM | MATRIX/ MATRIX CODE | # CONTAINERS | Comp Grab MI (Multi-incremental) | Analysis*: VOCs by 8260 Full List | GRO by AK101 | DRO/RRO by AK102/103 | PAHs by 8270-SIM | REMARKS/LOC ID |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 A-J | RS-MW9-050119 | 5/1/19 | 1330 | W | 10 | G | X | X | X | X | |
| 2 A-I | RS-MW99-050119 | 5/1/19 | 1330 | W | 10 | G | X | X | X | X | |
| 3 A-F | TB-050119 | 5/1/19 | 1330 | W | 6 | - | X | X | | | |

NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS

**Section 5**

| | Date | Time | Received By: |
|---|---|---|---|
| Relinquished By: (1) | 5/2/19 | 1104 | |
| Relinquished By: (2) | | | |
| Relinquished By: (3) | | | |
| Relinquished By: (4) | 5.02.19 | 11:03 | Received For Laboratory By: |

**Section 4**

DOD Project? Yes (No)

Data Deliverable Requirements: Level II

Cooler ID:

Requested Turnaround Time and/or Special Instructions: Standard

Temp Blank °C: 0.0+0.5.5 or Ambient [ ]

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

Delivery Method: Hand Delivery[ ] Commerical Delivery [ ]

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

e-Sample Receipt Form

**SGS Workorder #:** **1192038**

1192038

| Review Criteria | Condition (Yes, No, N/A) | Exceptions Noted below |
|---|---|---|
| **Chain of Custody / Temperature Requirements** | | Yes — Exemption permitted if sampler hand carries/delivers. |
| Were Custody Seals intact? Note # & location | N/A | HD |
| COC accompanied samples? | Yes | |
| DOD: Were samples received in COC corresponding coolers? | N/A | |
| ☐ **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required | | |
| Temperature blank compliant* (i.e., 0-6 °C after CF)? | Yes | Cooler ID: 1 @ 0.0 °C Therm. ID: D55 |
| If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available. | | Cooler ID: @ °C Therm. ID: |
| | | Cooler ID: @ °C Therm. ID: |
| | | Cooler ID: @ °C Therm. ID: |
| | | |
| *If >6°C, were samples collected <8 hours ago? | N/A | |
| If <0°C, were sample containers ice free? | Yes | |
| Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed. | | |
| **Holding Time / Documentation / Sample Condition Requirements** | | Note: Refer to form F-083 "Sample Guide" for specific holding times. |
| Were samples received within holding time? | Yes | |
| Do samples **match COC**** (i.e.,sample IDs,dates/times collected)? | Yes | |
| **Note: If times differ <1hr, record details & login per COC. | | |
| ***Note: If sample information on containers differs from COC, SGS will default to COC information | | |
| Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals) | Yes | |
| | | ☐ ***Exemption permitted for metals (e.g,200.8/6020A). |
| Were proper containers (type/mass/volume/preservative***)used? | Yes | |
| **Volatile / LL-Hg Requirements** | | |
| Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? | N/A | |
| Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)? | N/A | |
| Were all soil VOAs field extracted with MeOH+BFB? | N/A | |

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

Additional notes (if applicable):

**Only 5 VOA received for RS MW99-050119.**

## Sample Containers and Preservatives

| Container Id | Preservative | Container Condition | Container Id | Preservative | Container Condition |
|---|---|---|---|---|---|
| 1192038001-A | HCL to pH < 2 | OK | | | |
| 1192038001-B | HCL to pH < 2 | OK | | | |
| 1192038001-C | HCL to pH < 2 | OK | | | |
| 1192038001-D | HCL to pH < 2 | OK | | | |
| 1192038001-E | HCL to pH < 2 | OK | | | |
| 1192038001-F | HCL to pH < 2 | OK | | | |
| 1192038001-G | HCL to pH < 2 | OK | | | |
| 1192038001-H | HCL to pH < 2 | OK | | | |
| 1192038001-I | No Preservative Required | OK | | | |
| 1192038001-J | No Preservative Required | OK | | | |
| 1192038002-A | HCL to pH < 2 | OK | | | |
| 1192038002-B | HCL to pH < 2 | OK | | | |
| 1192038002-C | HCL to pH < 2 | OK | | | |
| 1192038002-D | HCL to pH < 2 | OK | | | |
| 1192038002-E | HCL to pH < 2 | OK | | | |
| 1192038002-F | HCL to pH < 2 | OK | | | |
| 1192038002-G | HCL to pH < 2 | OK | | | |
| 1192038002-H | HCL to pH < 2 | OK | | | |
| 1192038002-I | No Preservative Required | OK | | | |
| 1192038002-J | No Preservative Required | OK | | | |
| 1192038003-A | HCL to pH < 2 | OK | | | |
| 1192038003-B | HCL to pH < 2 | OK | | | |
| 1192038003-C | HCL to pH < 2 | OK | | | |
| 1192038003-D | HCL to pH < 2 | OK | | | |
| 1192038003-E | HCL to pH < 2 | OK | | | |
| 1192038003-F | HCL to pH < 2 | OK | | | |

Container Condition Glossary

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

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

**Laboratory Report of Analysis**

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

Report Number: **1195252**

Client Project: **105.00151.19001 Red Salmon GW**

Dear Ben Siwiec,

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
2019.10.02
16:21:20 -08'00'

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



SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
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## Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1195252**
Project Name/Site: **105.00151.19001 Red Salmon GW**
Project Contact: **Ben Siwiec**

Refer to sample receipt form for information on sample condition.

**LCS for HBN 1799541 [VXX/34896 (1532272) LCS**

8260C - LCS recoveries for several analytes do not meet QC criteria. Samples reporting these analytes are non-detect.

**MB for HBN 1799524 [XXX/42280] (1532207) MB**

AK102/103 - Surrogate recovery for n-triacontane does not meet QC criteria, however all samples are within criteria.

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification, and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

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

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



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## Sample Summary

| Client Sample ID | Lab Sample ID | Collected | Received | Matrix |
|---|---|---|---|---|
| RS-MW6-090519 | 1195252001 | 09/05/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW2-090519 | 1195252002 | 09/05/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW4-090519 | 1195252003 | 09/05/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW19-090519 | 1195252004 | 09/05/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW1-090619 | 1195252005 | 09/06/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW7-090619 | 1195252006 | 09/06/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW8-090619 | 1195252007 | 09/06/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW10-090619 | 1195252008 | 09/06/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW3-090619 | 1195252009 | 09/06/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-SW1-090619 | 1195252010 | 09/06/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-SW9-090619 | 1195252011 | 09/06/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-SW2-090619 | 1195252012 | 09/06/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW9-090719 | 1195252013 | 09/07/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| RS-MW5R-090719 | 1195252014 | 09/07/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |
| Trip Blank 1 | 1195252015 | 09/05/2019 | 09/09/2019 | Water (Surface, Eff., Ground) |

| Method | Method Description |
|---|---|
| 8270D SIM LV (PAH) | 8270 PAH SIM GC/MS Liq/Liq ext. LV |
| AK102 | DRO/RRO Low Volume Water |
| AK103 | DRO/RRO Low Volume Water |
| AK101 | Gasoline Range Organics (W) |
| SW8260C | Volatile Organic Compounds (W) |
| SW8260C | Volatile Organic Compounds (W) FULL |



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## Detectable Results Summary

Client Sample ID: **RS-MW6-090519**
Lab Sample ID: 1195252001

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.395J | mg/L |
| | Residual Range Organics | 0.447J | mg/L |

Client Sample ID: **RS-MW2-090519**
Lab Sample ID: 1195252002

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 5.34 | mg/L |
| | Residual Range Organics | 1.90 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.108 | mg/L |
| **Volatile GC/MS** | Benzene | 4.98 | ug/L |
| | Ethylbenzene | 4.90 | ug/L |
| | o-Xylene | 7.67 | ug/L |
| | P & M -Xylene | 11.4 | ug/L |
| | Toluene | 0.340J | ug/L |
| | Xylenes (total) | 19.1 | ug/L |

Client Sample ID: **RS-MW4-090519**
Lab Sample ID: 1195252003

| | Parameter | Result | Units |
|---|---|---|---|
| **Polynuclear Aromatics GC/MS** | Fluorene | 0.248 | ug/L |
| **Semivolatile Organic Fuels** | Diesel Range Organics | 2.21 | mg/L |
| | Residual Range Organics | 0.724 | mg/L |
| **Volatile GC/MS** | sec-Butylbenzene | 1.15 | ug/L |

Client Sample ID: **RS-MW19-090519**
Lab Sample ID: 1195252004

| | Parameter | Result | Units |
|---|---|---|---|
| **Polynuclear Aromatics GC/MS** | Fluorene | 0.216 | ug/L |
| **Semivolatile Organic Fuels** | Diesel Range Organics | 2.32 | mg/L |
| | Residual Range Organics | 0.746 | mg/L |
| **Volatile GC/MS** | sec-Butylbenzene | 1.16 | ug/L |

Client Sample ID: **RS-MW1-090619**
Lab Sample ID: 1195252005

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 14.1 | mg/L |
| | Residual Range Organics | 1.76 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.222 | mg/L |
| **Volatile GC/MS** | Benzene | 5.08 | ug/L |
| | Ethylbenzene | 5.33 | ug/L |
| | o-Xylene | 7.81 | ug/L |
| | P & M -Xylene | 11.3 | ug/L |
| | Toluene | 0.440J | ug/L |
| | Xylenes (total) | 19.1 | ug/L |

Client Sample ID: **RS-MW7-090619**
Lab Sample ID: 1195252006

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.608J | mg/L |
| | Residual Range Organics | 0.543 | mg/L |
| **Volatile GC/MS** | Benzene | 10.1 | ug/L |



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## Detectable Results Summary

Client Sample ID: **RS-MW8-090619**
Lab Sample ID: 1195252007

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 3.64 | mg/L |
| | Residual Range Organics | 1.08 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.120 | mg/L |

Client Sample ID: **RS-MW10-090619**
Lab Sample ID: 1195252008

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.184J | mg/L |
| | Residual Range Organics | 0.276J | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.0342J | mg/L |
| **Volatile GC/MS** | Benzene | 3.63 | ug/L |
| | Ethylbenzene | 3.61 | ug/L |
| | o-Xylene | 12.2 | ug/L |
| | P & M -Xylene | 20.1 | ug/L |
| | Xylenes (total) | 32.3 | ug/L |

Client Sample ID: **RS-MW3-090619**
Lab Sample ID: 1195252009

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 1.58 | mg/L |
| | Residual Range Organics | 0.884 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.0400J | mg/L |
| **Volatile GC/MS** | Benzene | 1.27 | ug/L |

Client Sample ID: **RS-SW1-090619**
Lab Sample ID: 1195252010

| | Parameter | Result | Units |
|---|---|---|---|
| **Polynuclear Aromatics GC/MS** | 1-Methylnaphthalene | 10.4 | ug/L |
| | 2-Methylnaphthalene | 3.80 | ug/L |
| | Benzo[g,h,i]perylene | 0.0812 | ug/L |
| | Chrysene | 0.300 | ug/L |
| | Fluorene | 2.03 | ug/L |
| | Naphthalene | 4.50 | ug/L |
| | Phenanthrene | 4.06 | ug/L |
| | Pyrene | 0.648 | ug/L |
| **Semivolatile Organic Fuels** | Diesel Range Organics | 6.16 | mg/L |
| | Residual Range Organics | 4.42 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.158 | mg/L |
| **Volatile GC/MS** | Benzene | 1.24 | ug/L |
| | Ethylbenzene | 8.57 | ug/L |
| | o-Xylene | 27.1 | ug/L |
| | P & M -Xylene | 26.9 | ug/L |
| | Toluene | 1.10 | ug/L |
| | Xylenes (total) | 54.0 | ug/L |



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## Detectable Results Summary

Client Sample ID: **RS-SW9-090619**
Lab Sample ID: 1195252011

| | Parameter | Result | Units |
|---|---|---|---|
| **Polynuclear Aromatics GC/MS** | 1-Methylnaphthalene | 7.48 | ug/L |
| | 2-Methylnaphthalene | 2.47 | ug/L |
| | Fluorene | 1.49 | ug/L |
| | Naphthalene | 2.28 | ug/L |
| | Phenanthrene | 2.80 | ug/L |
| | Pyrene | 0.491 | ug/L |
| **Semivolatile Organic Fuels** | Diesel Range Organics | 5.82 | mg/L |
| | Residual Range Organics | 3.55 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.151 | mg/L |
| **Volatile GC/MS** | Benzene | 4.98 | ug/L |
| | Ethylbenzene | 1.60 | ug/L |
| | o-Xylene | 1.98 | ug/L |
| | P & M -Xylene | 4.06 | ug/L |
| | Xylenes (total) | 6.04 | ug/L |

Client Sample ID: **RS-SW2-090619**
Lab Sample ID: 1195252012

| | Parameter | Result | Units |
|---|---|---|---|
| **Polynuclear Aromatics GC/MS** | 1-Methylnaphthalene | 0.875 | ug/L |
| | Acenaphthene | 0.287 | ug/L |
| | Fluorene | 1.66 | ug/L |
| | Phenanthrene | 0.104 | ug/L |
| **Semivolatile Organic Fuels** | Diesel Range Organics | 1.78 | mg/L |
| | Residual Range Organics | 2.45 | mg/L |
| **Volatile Fuels** | Gasoline Range Organics | 0.0337J | mg/L |

Client Sample ID: **RS-MW9-090719**
Lab Sample ID: 1195252013

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 0.544J | mg/L |
| | Residual Range Organics | 0.517 | mg/L |

Client Sample ID: **RS-MW5R-090719**
Lab Sample ID: 1195252014

| | Parameter | Result | Units |
|---|---|---|---|
| **Semivolatile Organic Fuels** | Diesel Range Organics | 1.59 | mg/L |
| | Residual Range Organics | 0.937 | mg/L |
| **Volatile GC/MS** | Benzene | 0.200J | ug/L |



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## Results of **RS-MW6-090519**

Client Sample ID: **RS-MW6-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252001
Lab Project ID: 1195252

Collection Date: 09/05/19 15:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.395 | J | 0.588 | 0.176 | mg/L | 1 | | 09/30/19 18:05 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 79.7 | | 50-150 | | % | 1 | | 09/30/19 18:05 |

### Batch Information

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 18:05
Container ID: 1195252001-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.447 | J | 0.490 | 0.147 | mg/L | 1 | | 09/30/19 18:05 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 95.9 | | 50-150 | | % | 1 | | 09/30/19 18:05 |

### Batch Information

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 18:05
Container ID: 1195252001-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW6-090519**

Client Sample ID: **RS-MW6-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252001
Lab Project ID: 1195252

Collection Date: 09/05/19 15:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 09/17/19 23:18 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 93.2 | | 50-150 | | % | 1 | | 09/17/19 23:18 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/17/19 23:18
Container ID: 1195252001-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW6-090519**

Client Sample ID: **RS-MW6-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252001
Lab Project ID: 1195252

Collection Date: 09/05/19 15:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 0.200 U | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 18:16 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:16 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:16 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 18:16 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:16 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 18:16 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 102 | | 81-118 | | % | 1 | | 09/15/19 18:16 |
| 4-Bromofluorobenzene (surr) | 98.6 | | 85-114 | | % | 1 | | 09/15/19 18:16 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 09/15/19 18:16 |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 18:16
Container ID: 1195252001-F

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW2-090519**

Client Sample ID: **RS-MW2-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252002
Lab Project ID: 1195252

Collection Date: 09/05/19 17:12
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 5.34 | | 0.615 | 0.184 | mg/L | 1 | | 09/30/19 18:15 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 86.2 | | 50-150 | | % | 1 | | 09/30/19 18:15 |

### Batch Information

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 18:15
Container ID: 1195252002-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 1.90 | | 0.512 | 0.154 | mg/L | 1 | | 09/30/19 18:15 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 102 | | 50-150 | | % | 1 | | 09/30/19 18:15 |

### Batch Information

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 18:15
Container ID: 1195252002-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW2-090519**

Client Sample ID: **RS-MW2-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252002
Lab Project ID: 1195252

Collection Date: 09/05/19 17:12
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.108 | | 0.100 | 0.0310 | mg/L | 1 | | 09/17/19 23:35 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 116 | | 50-150 | | % | 1 | | 09/17/19 23:35 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/17/19 23:35
Container ID: 1195252002-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW2-090519**

Client Sample ID: **RS-MW2-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252002
Lab Project ID: 1195252

Collection Date: 09/05/19 17:12
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 4.98 | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 18:31 |
| Ethylbenzene | 4.90 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:31 |
| o-Xylene | 7.67 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:31 |
| P & M -Xylene | 11.4 | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 18:31 |
| Toluene | 0.340 | J | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:31 |
| Xylenes (total) | 19.1 | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 18:31 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 101 | | 81-118 | | % | 1 | | 09/15/19 18:31 |
| 4-Bromofluorobenzene (surr) | 101 | | 85-114 | | % | 1 | | 09/15/19 18:31 |
| Toluene-d8 (surr) | 97.5 | | 89-112 | | % | 1 | | 09/15/19 18:31 |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 18:31
Container ID: 1195252002-F

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW4-090519**

Client Sample ID: **RS-MW4-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252003
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Polynuclear Aromatics GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| 2-Methylnaphthalene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Acenaphthene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Acenaphthylene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Anthracene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Benzo(a)Anthracene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Benzo[a]pyrene | 0.00980 | U | 0.0196 | 0.00608 | ug/L | 1 | | 09/17/19 12:46 |
| Benzo[b]Fluoranthene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Benzo[g,h,i]perylene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Benzo[k]fluoranthene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Chrysene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Dibenzo[a,h]anthracene | 0.00980 | U | 0.0196 | 0.00608 | ug/L | 1 | | 09/17/19 12:46 |
| Fluoranthene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Fluorene | 0.248 | | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Indeno[1,2,3-c,d] pyrene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Naphthalene | 0.0490 | U | 0.0980 | 0.0304 | ug/L | 1 | | 09/17/19 12:46 |
| Phenanthrene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| Pyrene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 12:46 |
| **Surrogates** | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 70.2 | | 47-106 | | % | 1 | | 09/17/19 12:46 |
| Fluoranthene-d10 (surr) | 76.1 | | 24-116 | | % | 1 | | 09/17/19 12:46 |

## Batch Information

Analytical Batch: XMS11715
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 12:46
Container ID: 1195252003-C

Prep Batch: XXX42222
Prep Method: SW3520C
Prep Date/Time: 09/10/19 08:17
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

## Results of **RS-MW4-090519**

Client Sample ID: **RS-MW4-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252003
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 2.21 | | 0.605 | 0.181 | mg/L | 1 | | 09/30/19 18:25 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 82.8 | | 50-150 | | % | 1 | | 09/30/19 18:25 |

### Batch Information

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 18:25
Container ID: 1195252003-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.724 | | 0.504 | 0.151 | mg/L | 1 | | 09/30/19 18:25 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 99.4 | | 50-150 | | % | 1 | | 09/30/19 18:25 |

### Batch Information

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 18:25
Container ID: 1195252003-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW4-090519**

Client Sample ID: **RS-MW4-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252003
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 09/17/19 23:53 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 93.8 | | 50-150 | | % | 1 | | 09/17/19 23:53 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/17/19 23:53
Container ID: 1195252003-E

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW4-090519**

Client Sample ID: **RS-MW4-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252003
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 09/16/19 23:18 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2-Dibromoethane | 0.0375 | U | 0.0750 | 0.0180 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:18 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:18 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:18 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 09/16/19 23:18 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 09/16/19 23:18 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:18 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |

Results of **RS-MW4-090519**

Client Sample ID: **RS-MW4-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252003
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| cis-1,2-Dichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:18 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:18 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 09/16/19 23:18 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:18 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 09/16/19 23:18 |
| sec-Butylbenzene | 1.15 | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Tetrachloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| trans-1,2-Dichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Trichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:18 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:18 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 09/16/19 23:18 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 09/16/19 23:18 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 109 | | 81-118 | | % | 1 | | 09/16/19 23:18 |
| 4-Bromofluorobenzene (surr) | 98.3 | | 85-114 | | % | 1 | | 09/16/19 23:18 |
| Toluene-d8 (surr) | 97.8 | | 89-112 | | % | 1 | | 09/16/19 23:18 |

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **RS-MW4-090519**

Client Sample ID: **RS-MW4-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252003
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS19452
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/16/19 23:18
Container ID: 1195252003-H

Prep Batch: VXX34896
Prep Method: SW5030B
Prep Date/Time: 09/16/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW19-090519**

Client Sample ID: **RS-MW19-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252004
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Polynuclear Aromatics GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| 2-Methylnaphthalene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Acenaphthene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Acenaphthylene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Anthracene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Benzo(a)Anthracene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Benzo[a]pyrene | 0.0100 | U | 0.0200 | 0.00620 | ug/L | 1 | | 09/17/19 13:07 |
| Benzo[b]Fluoranthene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Benzo[g,h,i]perylene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Benzo[k]fluoranthene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Chrysene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Dibenzo[a,h]anthracene | 0.0100 | U | 0.0200 | 0.00620 | ug/L | 1 | | 09/17/19 13:07 |
| Fluoranthene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Fluorene | 0.216 | | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Indeno[1,2,3-c,d] pyrene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Naphthalene | 0.0500 | U | 0.100 | 0.0310 | ug/L | 1 | | 09/17/19 13:07 |
| Phenanthrene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| Pyrene | 0.0250 | U | 0.0500 | 0.0150 | ug/L | 1 | | 09/17/19 13:07 |
| **Surrogates** | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 65.5 | | 47-106 | | % | 1 | | 09/17/19 13:07 |
| Fluoranthene-d10 (surr) | 75.5 | | 24-116 | | % | 1 | | 09/17/19 13:07 |

## Batch Information

Analytical Batch: XMS11715
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 13:07
Container ID: 1195252004-C

Prep Batch: XXX42222
Prep Method: SW3520C
Prep Date/Time: 09/10/19 08:17
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **RS-MW19-090519**

Client Sample ID: **RS-MW19-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252004
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 2.32 | | 0.588 | 0.176 | mg/L | 1 | | 09/30/19 18:34 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 84.2 | | 50-150 | | % | 1 | | 09/30/19 18:34 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 18:34
Container ID: 1195252004-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.746 | | 0.490 | 0.147 | mg/L | 1 | | 09/30/19 18:34 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 102 | | 50-150 | | % | 1 | | 09/30/19 18:34 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 18:34
Container ID: 1195252004-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **RS-MW19-090519**

Client Sample ID: **RS-MW19-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252004
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 00:11 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 91.4 | | 50-150 | | % | 1 | | 09/18/19 00:11 |

**Batch Information**

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 00:11
Container ID: 1195252004-E

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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

Results of **RS-MW19-090519**

Client Sample ID: **RS-MW19-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252004
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 09/16/19 23:33 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2-Dibromoethane | 0.0375 | U | 0.0750 | 0.0180 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:33 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:33 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:33 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 09/16/19 23:33 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 09/16/19 23:33 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:33 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **RS-MW19-090519**

Client Sample ID: **RS-MW19-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252004
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/16/19 23:33 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:33 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 09/16/19 23:33 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:33 |
| Naphthalene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 09/16/19 23:33 |
| sec-Butylbenzene | 1.16 | | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Trichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/16/19 23:33 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/16/19 23:33 |
| Vinyl chloride | 0.0750 | U | 0.150 | 0.0500 | ug/L | 1 | | 09/16/19 23:33 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 09/16/19 23:33 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 108 | | 81-118 | | % | 1 | | 09/16/19 23:33 |
| 4-Bromofluorobenzene (surr) | 98 | | 85-114 | | % | 1 | | 09/16/19 23:33 |
| Toluene-d8 (surr) | 99.5 | | 89-112 | | % | 1 | | 09/16/19 23:33 |

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **RS-MW19-090519**

Client Sample ID: **RS-MW19-090519**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252004
Lab Project ID: 1195252

Collection Date: 09/05/19 18:42
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS19452
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/16/19 23:33
Container ID: 1195252004-H

Prep Batch: VXX34896
Prep Method: SW5030B
Prep Date/Time: 09/16/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW1-090619**

Client Sample ID: **RS-MW1-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252005
Lab Project ID: 1195252

Collection Date: 09/06/19 09:25
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 14.1 | | 0.588 | 0.176 | mg/L | 1 | | 09/30/19 18:44 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 88.9 | | 50-150 | | % | 1 | | 09/30/19 18:44 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 18:44
Container ID: 1195252005-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 1.76 | | 0.490 | 0.147 | mg/L | 1 | | 09/30/19 18:44 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 105 | | 50-150 | | % | 1 | | 09/30/19 18:44 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 18:44
Container ID: 1195252005-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW1-090619**

Client Sample ID: **RS-MW1-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252005
Lab Project ID: 1195252

Collection Date: 09/06/19 09:25
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.222 | | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 00:28 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 107 | | 50-150 | | % | 1 | | 09/18/19 00:28 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 00:28
Container ID: 1195252005-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW1-090619**

Client Sample ID: **RS-MW1-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252005
Lab Project ID: 1195252

Collection Date: 09/06/19 09:25
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 5.08 | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 18:46 |
| Ethylbenzene | 5.33 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:46 |
| o-Xylene | 7.81 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:46 |
| P & M -Xylene | 11.3 | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 18:46 |
| Toluene | 0.440 | J | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 18:46 |
| Xylenes (total) | 19.1 | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 18:46 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 99.6 | | 81-118 | | % | 1 | | 09/15/19 18:46 |
| 4-Bromofluorobenzene (surr) | 101 | | 85-114 | | % | 1 | | 09/15/19 18:46 |
| Toluene-d8 (surr) | 98.4 | | 89-112 | | % | 1 | | 09/15/19 18:46 |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 18:46
Container ID: 1195252005-F

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW7-090619**

Client Sample ID: **RS-MW7-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252006
Lab Project ID: 1195252

Collection Date: 09/06/19 12:28
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.608 | J | 0.610 | 0.183 | mg/L | 1 | | 09/30/19 18:54 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 72.1 | | 50-150 | | % | 1 | | 09/30/19 18:54 |

### Batch Information

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 18:54
Container ID: 1195252006-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.543 | | 0.508 | 0.152 | mg/L | 1 | | 09/30/19 18:54 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 89.7 | | 50-150 | | % | 1 | | 09/30/19 18:54 |

### Batch Information

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 18:54
Container ID: 1195252006-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW7-090619**

Client Sample ID: **RS-MW7-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252006
Lab Project ID: 1195252

Collection Date: 09/06/19 12:28
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 01:21 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 91.5 | | 50-150 | | % | 1 | | 09/18/19 01:21 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 01:21
Container ID: 1195252006-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW7-090619**

Client Sample ID: **RS-MW7-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252006
Lab Project ID: 1195252

Collection Date: 09/06/19 12:28
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 10.1 | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 19:01 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:01 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:01 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 19:01 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:01 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 19:01 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 101 | | 81-118 | | % | 1 | | 09/15/19 19:01 |
| 4-Bromofluorobenzene (surr) | 98.8 | | 85-114 | | % | 1 | | 09/15/19 19:01 |
| Toluene-d8 (surr) | 99.3 | | 89-112 | | % | 1 | | 09/15/19 19:01 |

**Batch Information**

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 19:01
Container ID: 1195252006-F

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW8-090619**

Client Sample ID: **RS-MW8-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252007
Lab Project ID: 1195252

Collection Date: 09/06/19 14:45
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 3.64 | | 0.682 | 0.205 | mg/L | 1 | | 09/30/19 19:04 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 87.1 | | 50-150 | | % | 1 | | 09/30/19 19:04 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 19:04
Container ID: 1195252007-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 1.08 | | 0.568 | 0.170 | mg/L | 1 | | 09/30/19 19:04 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 107 | | 50-150 | | % | 1 | | 09/30/19 19:04 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 19:04
Container ID: 1195252007-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW8-090619**

Client Sample ID: **RS-MW8-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252007
Lab Project ID: 1195252

Collection Date: 09/06/19 14:45
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.120 | | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 01:39 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 109 | | 50-150 | | % | 1 | | 09/18/19 01:39 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 01:39
Container ID: 1195252007-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

## Results of **RS-MW8-090619**

Client Sample ID: **RS-MW8-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252007
Lab Project ID: 1195252

Collection Date: 09/06/19 14:45
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 0.200 U | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 19:30 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:30 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:30 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 19:30 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:30 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 19:30 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 99.9 | | 81-118 | | % | 1 | | 09/15/19 19:30 |
| 4-Bromofluorobenzene (surr) | 99.4 | | 85-114 | | % | 1 | | 09/15/19 19:30 |
| Toluene-d8 (surr) | 98.1 | | 89-112 | | % | 1 | | 09/15/19 19:30 |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 19:30
Container ID: 1195252007-F

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **RS-MW10-090619**

Client Sample ID: **RS-MW10-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252008
Lab Project ID: 1195252

Collection Date: 09/06/19 17:30
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.184 | J | 0.588 | 0.176 | mg/L | 1 | | 09/30/19 19:34 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 85.5 | | 50-150 | | % | 1 | | 09/30/19 19:34 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 19:34
Container ID: 1195252008-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.276 | J | 0.490 | 0.147 | mg/L | 1 | | 09/30/19 19:34 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 107 | | 50-150 | | % | 1 | | 09/30/19 19:34 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 19:34
Container ID: 1195252008-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW10-090619**

Client Sample ID: **RS-MW10-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252008
Lab Project ID: 1195252

Collection Date: 09/06/19 17:30
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0342 | J | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 01:57 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 89.9 | | 50-150 | | % | 1 | | 09/18/19 01:57 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 01:57
Container ID: 1195252008-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW10-090619**

Client Sample ID: **RS-MW10-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252008
Lab Project ID: 1195252

Collection Date: 09/06/19 17:30
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 3.63 | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 19:45 |
| Ethylbenzene | 3.61 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:45 |
| o-Xylene | 12.2 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:45 |
| P & M -Xylene | 20.1 | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 19:45 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 19:45 |
| Xylenes (total) | 32.3 | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 19:45 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 99 | | 81-118 | | % | 1 | | 09/15/19 19:45 |
| 4-Bromofluorobenzene (surr) | 101 | | 85-114 | | % | 1 | | 09/15/19 19:45 |
| Toluene-d8 (surr) | 99.5 | | 89-112 | | % | 1 | | 09/15/19 19:45 |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 19:45
Container ID: 1195252008-F

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW3-090619**

Client Sample ID: **RS-MW3-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252009
Lab Project ID: 1195252

Collection Date: 09/06/19 18:53
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 1.58 | | 0.664 | 0.199 | mg/L | 1 | | 09/30/19 19:44 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 81.1 | | 50-150 | | % | 1 | | 09/30/19 19:44 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 19:44
Container ID: 1195252009-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 226 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.884 | | 0.553 | 0.166 | mg/L | 1 | | 09/30/19 19:44 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 101 | | 50-150 | | % | 1 | | 09/30/19 19:44 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 19:44
Container ID: 1195252009-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 226 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW3-090619**

Client Sample ID: **RS-MW3-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252009
Lab Project ID: 1195252

Collection Date: 09/06/19 18:53
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0400 | J | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 02:15 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 95.9 | | 50-150 | | % | 1 | | 09/18/19 02:15 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 02:15
Container ID: 1195252009-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-MW3-090619**

Client Sample ID: **RS-MW3-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252009
Lab Project ID: 1195252

Collection Date: 09/06/19 18:53
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 1.27 | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 20:00 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:00 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:00 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 20:00 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:00 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 20:00 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 99.6 | | 81-118 | | % | 1 | | 09/15/19 20:00 |
| 4-Bromofluorobenzene (surr) | 97.7 | | 85-114 | | % | 1 | | 09/15/19 20:00 |
| Toluene-d8 (surr) | 98.8 | | 89-112 | | % | 1 | | 09/15/19 20:00 |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 20:00
Container ID: 1195252009-F

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-SW1-090619**

Client Sample ID: **RS-SW1-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252010
Lab Project ID: 1195252

Collection Date: 09/06/19 20:50
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Polynuclear Aromatics GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 10.4 | | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| 2-Methylnaphthalene | 3.80 | | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Acenaphthene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Acenaphthylene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Anthracene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Benzo(a)Anthracene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Benzo[a]pyrene | 0.00980 | U | 0.0196 | 0.00608 | ug/L | 1 | | 09/17/19 13:27 |
| Benzo[b]Fluoranthene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Benzo[g,h,i]perylene | 0.0812 | | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Benzo[k]fluoranthene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Chrysene | 0.300 | | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Dibenzo[a,h]anthracene | 0.00980 | U | 0.0196 | 0.00608 | ug/L | 1 | | 09/17/19 13:27 |
| Fluoranthene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Fluorene | 2.03 | | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Indeno[1,2,3-c,d] pyrene | 0.0245 | U | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Naphthalene | 4.50 | | 0.0980 | 0.0304 | ug/L | 1 | | 09/17/19 13:27 |
| Phenanthrene | 4.06 | | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| Pyrene | 0.648 | | 0.0490 | 0.0147 | ug/L | 1 | | 09/17/19 13:27 |
| **Surrogates** | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 62.7 | | 47-106 | | % | 1 | | 09/17/19 13:27 |
| Fluoranthene-d10 (surr) | 51.7 | | 24-116 | | % | 1 | | 09/17/19 13:27 |

## Batch Information

Analytical Batch: XMS11715
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 13:27
Container ID: 1195252010-C

Prep Batch: XXX42222
Prep Method: SW3520C
Prep Date/Time: 09/10/19 08:17
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **RS-SW1-090619**

Client Sample ID: **RS-SW1-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252010
Lab Project ID: 1195252

Collection Date: 09/06/19 20:50
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 6.16 | | 0.588 | 0.176 | mg/L | 1 | | 09/30/19 19:54 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 84.1 | | 50-150 | | % | 1 | | 09/30/19 19:54 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 19:54
Container ID: 1195252010-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 4.42 | | 0.490 | 0.147 | mg/L | 1 | | 09/30/19 19:54 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 99 | | 50-150 | | % | 1 | | 09/30/19 19:54 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 19:54
Container ID: 1195252010-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

## Results of **RS-SW1-090619**

Client Sample ID: **RS-SW1-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252010
Lab Project ID: 1195252

Collection Date: 09/06/19 20:50
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.158 | | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 02:32 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 122 | | 50-150 | | % | 1 | | 09/18/19 02:32 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 02:32
Container ID: 1195252010-E

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Results of **RS-SW1-090619**

Client Sample ID: **RS-SW1-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252010
Lab Project ID: 1195252

Collection Date: 09/06/19 20:50
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 1.24 | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 20:14 |
| Ethylbenzene | 8.57 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:14 |
| o-Xylene | 27.1 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:14 |
| P & M -Xylene | 26.9 | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 20:14 |
| Toluene | 1.10 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:14 |
| Xylenes (total) | 54.0 | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 20:14 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 101 | | 81-118 | | % | 1 | | 09/15/19 20:14 |
| 4-Bromofluorobenzene (surr) | 101 | | 85-114 | | % | 1 | | 09/15/19 20:14 |
| Toluene-d8 (surr) | 96.8 | | 89-112 | | % | 1 | | 09/15/19 20:14 |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 20:14
Container ID: 1195252010-H

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **RS-SW9-090619**

Client Sample ID: **RS-SW9-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252011
Lab Project ID: 1195252

Collection Date: 09/06/19 20:50
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Polynuclear Aromatics GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 7.48 | | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| 2-Methylnaphthalene | 2.47 | | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Acenaphthene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Acenaphthylene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Anthracene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Benzo(a)Anthracene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Benzo[a]pyrene | 0.0101 | U | 0.0203 | 0.00630 | ug/L | 1 | | 09/17/19 13:48 |
| Benzo[b]Fluoranthene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Benzo[g,h,i]perylene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Benzo[k]fluoranthene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Chrysene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Dibenzo[a,h]anthracene | 0.0101 | U | 0.0203 | 0.00630 | ug/L | 1 | | 09/17/19 13:48 |
| Fluoranthene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Fluorene | 1.49 | | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Indeno[1,2,3-c,d] pyrene | 0.0254 | U | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Naphthalene | 2.28 | | 0.102 | 0.0315 | ug/L | 1 | | 09/17/19 13:48 |
| Phenanthrene | 2.80 | | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| Pyrene | 0.491 | | 0.0508 | 0.0152 | ug/L | 1 | | 09/17/19 13:48 |
| **Surrogates** | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 57.8 | | 47-106 | | % | 1 | | 09/17/19 13:48 |
| Fluoranthene-d10 (surr) | 47.8 | | 24-116 | | % | 1 | | 09/17/19 13:48 |

## Batch Information

Analytical Batch: XMS11715
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 13:48
Container ID: 1195252011-C

Prep Batch: XXX42222
Prep Method: SW3520C
Prep Date/Time: 09/10/19 08:17
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **RS-SW9-090619**

Client Sample ID: **RS-SW9-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252011
Lab Project ID: 1195252

Collection Date: 09/06/19 20:50
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 5.82 | | 0.610 | 0.183 | mg/L | 1 | | 09/30/19 20:03 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 87.3 | | 50-150 | | % | 1 | | 09/30/19 20:03 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 20:03
Container ID: 1195252011-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 3.55 | | 0.508 | 0.152 | mg/L | 1 | | 09/30/19 20:03 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 104 | | 50-150 | | % | 1 | | 09/30/19 20:03 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 20:03
Container ID: 1195252011-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

## Results of **RS-SW9-090619**

Client Sample ID: **RS-SW9-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252011
Lab Project ID: 1195252

Collection Date: 09/06/19 20:50
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.151 | | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 02:50 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 121 | | 50-150 | | % | 1 | | 09/18/19 02:50 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 02:50
Container ID: 1195252011-E

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Results of **RS-SW9-090619**

Client Sample ID: **RS-SW9-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252011
Lab Project ID: 1195252

Collection Date: 09/06/19 20:50
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 4.98 | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 20:29 |
| Ethylbenzene | 1.60 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:29 |
| o-Xylene | 1.98 | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:29 |
| P & M -Xylene | 4.06 | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 20:29 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:29 |
| Xylenes (total) | 6.04 | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 20:29 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 104 | | 81-118 | | % | 1 | | 09/15/19 20:29 |
| 4-Bromofluorobenzene (surr) | 100 | | 85-114 | | % | 1 | | 09/15/19 20:29 |
| Toluene-d8 (surr) | 97.3 | | 89-112 | | % | 1 | | 09/15/19 20:29 |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 20:29
Container ID: 1195252011-H

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **RS-SW2-090619**

Client Sample ID: **RS-SW2-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252012
Lab Project ID: 1195252

Collection Date: 09/06/19 20:55
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 0.875 | | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| 2-Methylnaphthalene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Acenaphthene | 0.287 | | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Acenaphthylene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Anthracene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Benzo(a)Anthracene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Benzo[a]pyrene | 0.0102 | U | 0.0204 | 0.00633 | ug/L | 1 | | 09/17/19 14:08 |
| Benzo[b]Fluoranthene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Benzo[g,h,i]perylene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Benzo[k]fluoranthene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Chrysene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Dibenzo[a,h]anthracene | 0.0102 | U | 0.0204 | 0.00633 | ug/L | 1 | | 09/17/19 14:08 |
| Fluoranthene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Fluorene | 1.66 | | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Indeno[1,2,3-c,d] pyrene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Naphthalene | 0.0510 | U | 0.102 | 0.0316 | ug/L | 1 | | 09/17/19 14:08 |
| Phenanthrene | 0.104 | | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| Pyrene | 0.0255 | U | 0.0510 | 0.0153 | ug/L | 1 | | 09/17/19 14:08 |
| **Surrogates** | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | 70.2 | | 47-106 | | % | 1 | | 09/17/19 14:08 |
| Fluoranthene-d10 (surr) | 74.8 | | 24-116 | | % | 1 | | 09/17/19 14:08 |

**Batch Information**

Analytical Batch: XMS11715
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 14:08
Container ID: 1195252012-C

Prep Batch: XXX42222
Prep Method: SW3520C
Prep Date/Time: 09/10/19 08:17
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2019 8:44:38AM

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Results of **RS-SW2-090619**

Client Sample ID: **RS-SW2-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252012
Lab Project ID: 1195252

Collection Date: 09/06/19 20:55
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 1.78 | | 0.615 | 0.184 | mg/L | 1 | | 09/30/19 20:13 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 82.3 | | 50-150 | | % | 1 | | 09/30/19 20:13 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 20:13
Container ID: 1195252012-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 2.45 | | 0.512 | 0.154 | mg/L | 1 | | 09/30/19 20:13 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 97.4 | | 50-150 | | % | 1 | | 09/30/19 20:13 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 20:13
Container ID: 1195252012-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

## Results of **RS-SW2-090619**

Client Sample ID: **RS-SW2-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252012
Lab Project ID: 1195252

Collection Date: 09/06/19 20:55
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0337 | J | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 03:08 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 93.8 | | 50-150 | | % | 1 | | 09/18/19 03:08 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 03:08
Container ID: 1195252012-E

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-SW2-090619**

Client Sample ID: **RS-SW2-090619**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252012
Lab Project ID: 1195252

Collection Date: 09/06/19 20:55
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 0.200 U | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 20:44 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:44 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:44 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 20:44 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 20:44 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 20:44 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 99.2 | | 81-118 | | % | 1 | | 09/15/19 20:44 |
| 4-Bromofluorobenzene (surr) | 99 | | 85-114 | | % | 1 | | 09/15/19 20:44 |
| Toluene-d8 (surr) | 98.7 | | 89-112 | | % | 1 | | 09/15/19 20:44 |

**Batch Information**

Analytical Batch: VMS19451
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 20:44
Container ID: 1195252012-H

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW9-090719**

Client Sample ID: **RS-MW9-090719**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252013
Lab Project ID: 1195252

Collection Date: 09/07/19 08:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 0.544 | J | 0.600 | 0.180 | mg/L | 1 | | 09/30/19 20:23 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 84 | | 50-150 | | % | 1 | | 09/30/19 20:23 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 20:23
Container ID: 1195252013-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.517 | | 0.500 | 0.150 | mg/L | 1 | | 09/30/19 20:23 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 103 | | 50-150 | | % | 1 | | 09/30/19 20:23 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 20:23
Container ID: 1195252013-A

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 09/16/19 09:49
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW9-090719**

Client Sample ID: **RS-MW9-090719**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252013
Lab Project ID: 1195252

Collection Date: 09/07/19 08:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 03:26 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 94.7 | | 50-150 | | % | 1 | | 09/18/19 03:26 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 03:26
Container ID: 1195252013-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Results of **RS-MW9-090719**

Client Sample ID: **RS-MW9-090719**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252013
Lab Project ID: 1195252

Collection Date: 09/07/19 08:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 0.200 U | | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 22:08 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 22:08 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 22:08 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 22:08 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 22:08 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 22:08 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 105 | | 81-118 | | % | 1 | | 09/15/19 22:08 |
| 4-Bromofluorobenzene (surr) | 97.2 | | 85-114 | | % | 1 | | 09/15/19 22:08 |
| Toluene-d8 (surr) | 98.9 | | 89-112 | | % | 1 | | 09/15/19 22:08 |

## Batch Information

Analytical Batch: VMS19441
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 22:08
Container ID: 1195252013-F

Prep Batch: VXX34879
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **RS-MW5R-090719**

Client Sample ID: **RS-MW5R-090719**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252014
Lab Project ID: 1195252

Collection Date: 09/07/19 09:08
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 1.59 | | 0.600 | 0.180 | mg/L | 1 | | 09/30/19 17:35 |
| **Surrogates** | | | | | | | | |
| 5a Androstane (surr) | 87 | | 50-150 | | % | 1 | | 09/30/19 17:35 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/30/19 17:35
Container ID: 1195252014-A

Prep Batch: XXX42280
Prep Method: SW3520C
Prep Date/Time: 09/17/19 08:38
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Residual Range Organics | 0.937 | | 0.500 | 0.150 | mg/L | 1 | | 09/30/19 17:35 |
| **Surrogates** | | | | | | | | |
| n-Triacontane-d62 (surr) | 103 | | 50-150 | | % | 1 | | 09/30/19 17:35 |

**Batch Information**

Analytical Batch: XFC15355
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/30/19 17:35
Container ID: 1195252014-A

Prep Batch: XXX42280
Prep Method: SW3520C
Prep Date/Time: 09/17/19 08:38
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

## Results of **RS-MW5R-090719**

Client Sample ID: **RS-MW5R-090719**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252014
Lab Project ID: 1195252

Collection Date: 09/07/19 09:08
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 09/18/19 03:43 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 93.4 | | 50-150 | | % | 1 | | 09/18/19 03:43 |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/18/19 03:43
Container ID: 1195252014-C

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Results of **RS-MW5R-090719**

Client Sample ID: **RS-MW5R-090719**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252014
Lab Project ID: 1195252

Collection Date: 09/07/19 09:08
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Benzene | 0.200 | J | 0.400 | 0.120 | ug/L | 1 | | 09/15/19 22:24 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 22:24 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 22:24 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 09/15/19 22:24 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/15/19 22:24 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 09/15/19 22:24 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 105 | | 81-118 | | % | 1 | | 09/15/19 22:24 |
| 4-Bromofluorobenzene (surr) | 98.6 | | 85-114 | | % | 1 | | 09/15/19 22:24 |
| Toluene-d8 (surr) | 98.6 | | 89-112 | | % | 1 | | 09/15/19 22:24 |

## Batch Information

Analytical Batch: VMS19441
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/15/19 22:24
Container ID: 1195252014-F

Prep Batch: VXX34879
Prep Method: SW5030B
Prep Date/Time: 09/15/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Results of **Trip Blank 1**

Client Sample ID: **Trip Blank 1**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252015
Lab Project ID: 1195252

Collection Date: 09/05/19 15:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

## Results by **Volatile Fuels**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics | 0.0500 | U | 0.100 | 0.0310 | mg/L | 1 | | 09/17/19 21:31 |
| **Surrogates** | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 90.3 | | 50-150 | | % | 1 | | 09/17/19 21:31 |

## **Batch Information**

Analytical Batch: VFC14942
Analytical Method: AK101
Analyst: NRB
Analytical Date/Time: 09/17/19 21:31
Container ID: 1195252015-A

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 09/17/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank 1**

Client Sample ID: **Trip Blank 1**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252015
Lab Project ID: 1195252

Collection Date: 09/05/19 15:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 09/11/19 12:01 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2-Dibromoethane | 0.0375 | U | 0.0750 | 0.0180 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/11/19 12:01 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/11/19 12:01 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/11/19 12:01 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 09/11/19 12:01 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 09/11/19 12:01 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/11/19 12:01 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **Trip Blank 1**

Client Sample ID: **Trip Blank 1**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252015
Lab Project ID: 1195252

Collection Date: 09/05/19 15:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| cis-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 09/11/19 12:01 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/11/19 12:01 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 09/11/19 12:01 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/11/19 12:01 |
| Naphthalene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 09/11/19 12:01 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Tetrachloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Trichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 09/11/19 12:01 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 09/11/19 12:01 |
| Vinyl chloride | 0.0750 | U | 0.150 | 0.0500 | ug/L | 1 | | 09/11/19 12:01 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 09/11/19 12:01 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 110 | | 81-118 | | % | 1 | | 09/11/19 12:01 |
| 4-Bromofluorobenzene (surr) | 97.7 | | 85-114 | | % | 1 | | 09/11/19 12:01 |
| Toluene-d8 (surr) | 99.1 | | 89-112 | | % | 1 | | 09/11/19 12:01 |

Print Date: 10/02/2019 8:44:38AM

J flagging is activated

Results of **Trip Blank 1**

Client Sample ID: **Trip Blank 1**
Client Project ID: **105.00151.19001 Red Salmon GW**
Lab Sample ID: 1195252015
Lab Project ID: 1195252

Collection Date: 09/05/19 15:10
Received Date: 09/09/19 09:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS19426
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/11/19 12:01
Container ID: 1195252015-D

Prep Batch: VXX34849
Prep Method: SW5030B
Prep Date/Time: 09/11/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

## Method Blank

Blank ID: MB for HBN 1799288 [VXX/34849]
Blank Lab ID: 1531267

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252015

Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,1-Trichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1,2,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,2-Trichloroethane | 0.200U | 0.400 | 0.120 | ug/L |
| 1,1-Dichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dibromo-3-chloropropane | 5.00U | 10.0 | 3.10 | ug/L |
| 1,2-Dibromoethane | 0.0375U | 0.0750 | 0.0180 | ug/L |
| 1,2-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dichloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3,5-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichloropropane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,4-Dichlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| 2,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Butanone (MEK) | 5.00U | 10.0 | 3.10 | ug/L |
| 2-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Hexanone | 5.00U | 10.0 | 3.10 | ug/L |
| 4-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Isopropyltoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Methyl-2-pentanone (MIBK) | 5.00U | 10.0 | 3.10 | ug/L |
| Benzene | 0.200U | 0.400 | 0.120 | ug/L |
| Bromobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Bromochloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Bromodichloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Bromoform | 0.500U | 1.00 | 0.310 | ug/L |
| Bromomethane | 2.50U | 5.00 | 1.50 | ug/L |
| Carbon disulfide | 5.00U | 10.0 | 3.10 | ug/L |
| Carbon tetrachloride | 0.500U | 1.00 | 0.310 | ug/L |
| Chlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| Chloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| Chloroform | 0.500U | 1.00 | 0.310 | ug/L |

## Method Blank

Blank ID: MB for HBN 1799288 [VXX/34849]
Blank Lab ID: 1531267

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252015

Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Chloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,3-Dichloropropene | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromochloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromomethane | 0.500U | 1.00 | 0.310 | ug/L |
| Dichlorodifluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Ethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Freon-113 | 5.00U | 10.0 | 3.10 | ug/L |
| Hexachlorobutadiene | 0.500U | 1.00 | 0.310 | ug/L |
| Isopropylbenzene (Cumene) | 0.500U | 1.00 | 0.310 | ug/L |
| Methylene chloride | 2.50U | 5.00 | 1.00 | ug/L |
| Methyl-t-butyl ether | 5.00U | 10.0 | 3.10 | ug/L |
| Naphthalene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Propylbenzene | 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 |
| sec-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Styrene | 0.500U | 1.00 | 0.310 | ug/L |
| tert-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Tetrachloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Toluene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,3-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichlorofluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Vinyl acetate | 5.00U | 10.0 | 3.10 | ug/L |
| Vinyl chloride | 0.0750U | 0.150 | 0.0500 | ug/L |
| Xylenes (total) | 1.50U | 3.00 | 1.00 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 109 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 97.5 | 85-114 | | % |
| Toluene-d8 (surr) | 98.9 | 89-112 | | % |

## Method Blank

Blank ID: MB for HBN 1799288 [VXX/34849]
Blank Lab ID: 1531267

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252015

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|

### Batch Information

Analytical Batch: VMS19426
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: CMC
Analytical Date/Time: 9/11/2019 10:00:00AM

Prep Batch: VXX34849
Prep Method: SW5030B
Prep Date/Time: 9/11/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34849]
Blank Spike Lab ID: 1531268
Date Analyzed: 09/11/2019 10:16

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34849]
Spike Duplicate Lab ID: 1531269
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252015

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,1,1,2-Tetrachloroethane | 30 | 31.4 | 105 | 30 | 30.9 | 103 | ( 78-124 ) | 1.60 | (< 20 ) |
| 1,1,1-Trichloroethane | 30 | 32.5 | 108 | 30 | 31.8 | 106 | ( 74-131 ) | 2.20 | (< 20 ) |
| 1,1,2,2-Tetrachloroethane | 30 | 29.6 | 99 | 30 | 29.4 | 98 | ( 71-121 ) | 0.75 | (< 20 ) |
| 1,1,2-Trichloroethane | 30 | 30.2 | 101 | 30 | 29.8 | 99 | ( 80-119 ) | 1.40 | (< 20 ) |
| 1,1-Dichloroethane | 30 | 30.0 | 100 | 30 | 29.6 | 99 | ( 77-125 ) | 1.50 | (< 20 ) |
| 1,1-Dichloroethene | 30 | 28.8 | 96 | 30 | 28.4 | 95 | ( 71-131 ) | 1.30 | (< 20 ) |
| 1,1-Dichloropropene | 30 | 31.3 | 104 | 30 | 31.0 | 103 | ( 79-125 ) | 1.10 | (< 20 ) |
| 1,2,3-Trichlorobenzene | 30 | 30.5 | 102 | 30 | 31.9 | 106 | ( 69-129 ) | 4.60 | (< 20 ) |
| 1,2,3-Trichloropropane | 30 | 30.5 | 102 | 30 | 30.2 | 101 | ( 73-122 ) | 1.10 | (< 20 ) |
| 1,2,4-Trichlorobenzene | 30 | 31.0 | 103 | 30 | 31.1 | 104 | ( 69-130 ) | 0.10 | (< 20 ) |
| 1,2,4-Trimethylbenzene | 30 | 30.6 | 102 | 30 | 30.0 | 100 | ( 79-124 ) | 1.90 | (< 20 ) |
| 1,2-Dibromo-3-chloropropane | 30 | 30.3 | 101 | 30 | 30.5 | 102 | ( 62-128 ) | 0.46 | (< 20 ) |
| 1,2-Dibromoethane | 30 | 30.3 | 101 | 30 | 30.7 | 102 | ( 77-121 ) | 1.20 | (< 20 ) |
| 1,2-Dichlorobenzene | 30 | 30.1 | 100 | 30 | 29.7 | 99 | ( 80-119 ) | 1.30 | (< 20 ) |
| 1,2-Dichloroethane | 30 | 32.5 | 108 | 30 | 32.0 | 107 | ( 73-128 ) | 1.50 | (< 20 ) |
| 1,2-Dichloropropane | 30 | 30.6 | 102 | 30 | 30.5 | 102 | ( 78-122 ) | 0.13 | (< 20 ) |
| 1,3,5-Trimethylbenzene | 30 | 31.4 | 105 | 30 | 30.8 | 103 | ( 75-124 ) | 1.80 | (< 20 ) |
| 1,3-Dichlorobenzene | 30 | 30.6 | 102 | 30 | 30.0 | 100 | ( 80-119 ) | 2.10 | (< 20 ) |
| 1,3-Dichloropropane | 30 | 30.7 | 102 | 30 | 30.1 | 100 | ( 80-119 ) | 1.90 | (< 20 ) |
| 1,4-Dichlorobenzene | 30 | 30.2 | 101 | 30 | 29.7 | 99 | ( 79-118 ) | 1.60 | (< 20 ) |
| 2,2-Dichloropropane | 30 | 32.6 | 109 | 30 | 32.2 | 107 | ( 60-139 ) | 1.40 | (< 20 ) |
| 2-Butanone (MEK) | 90 | 89.5 | 99 | 90 | 89.7 | 100 | ( 56-143 ) | 0.25 | (< 20 ) |
| 2-Chlorotoluene | 30 | 30.5 | 102 | 30 | 30.1 | 100 | ( 79-122 ) | 1.50 | (< 20 ) |
| 2-Hexanone | 90 | 91.4 | 102 | 90 | 91.0 | 101 | ( 57-139 ) | 0.42 | (< 20 ) |
| 4-Chlorotoluene | 30 | 30.4 | 101 | 30 | 30.0 | 100 | ( 78-122 ) | 1.40 | (< 20 ) |
| 4-Isopropyltoluene | 30 | 31.3 | 104 | 30 | 30.1 | 100 | ( 77-127 ) | 4.10 | (< 20 ) |
| 4-Methyl-2-pentanone (MIBK) | 90 | 96.0 | 107 | 90 | 96.8 | 108 | ( 67-130 ) | 0.88 | (< 20 ) |
| Benzene | 30 | 30.4 | 101 | 30 | 29.4 | 98 | ( 79-120 ) | 3.40 | (< 20 ) |
| Bromobenzene | 30 | 30.7 | 102 | 30 | 29.9 | 100 | ( 80-120 ) | 2.50 | (< 20 ) |
| Bromochloromethane | 30 | 30.4 | 101 | 30 | 30.3 | 101 | ( 78-123 ) | 0.36 | (< 20 ) |
| Bromodichloromethane | 30 | 31.8 | 106 | 30 | 31.9 | 106 | ( 79-125 ) | 0.19 | (< 20 ) |
| Bromoform | 30 | 31.9 | 106 | 30 | 31.5 | 105 | ( 66-130 ) | 1.40 | (< 20 ) |
| Bromomethane | 30 | 25.2 | 84 | 30 | 27.1 | 90 | ( 53-141 ) | 7.20 | (< 20 ) |
| Carbon disulfide | 45 | 44.9 | 100 | 45 | 44.0 | 98 | ( 64-133 ) | 2.00 | (< 20 ) |

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34849]
Blank Spike Lab ID: 1531268
Date Analyzed: 09/11/2019 10:16

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34849]
Spike Duplicate Lab ID: 1531269
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252015

Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Carbon tetrachloride | 30 | 32.7 | 109 | 30 | 32.3 | 108 | ( 72-136 ) | 1.20 | (< 20 ) |
| Chlorobenzene | 30 | 28.8 | 96 | 30 | 28.5 | 95 | ( 82-118 ) | 0.98 | (< 20 ) |
| Chloroethane | 30 | 32.1 | 107 | 30 | 30.1 | 100 | ( 60-138 ) | 6.40 | (< 20 ) |
| Chloroform | 30 | 30.8 | 103 | 30 | 30.5 | 102 | ( 79-124 ) | 0.85 | (< 20 ) |
| Chloromethane | 30 | 28.3 | 94 | 30 | 27.9 | 93 | ( 50-139 ) | 1.50 | (< 20 ) |
| cis-1,2-Dichloroethene | 30 | 29.7 | 99 | 30 | 29.3 | 98 | ( 78-123 ) | 1.50 | (< 20 ) |
| cis-1,3-Dichloropropene | 30 | 31.4 | 105 | 30 | 31.2 | 104 | ( 75-124 ) | 0.38 | (< 20 ) |
| Dibromochloromethane | 30 | 31.8 | 106 | 30 | 31.3 | 104 | ( 74-126 ) | 1.60 | (< 20 ) |
| Dibromomethane | 30 | 30.8 | 103 | 30 | 31.0 | 103 | ( 79-123 ) | 0.49 | (< 20 ) |
| Dichlorodifluoromethane | 30 | 28.8 | 96 | 30 | 28.1 | 94 | ( 32-152 ) | 2.50 | (< 20 ) |
| Ethylbenzene | 30 | 30.5 | 102 | 30 | 30.1 | 100 | ( 79-121 ) | 1.50 | (< 20 ) |
| Freon-113 | 45 | 44.0 | 98 | 45 | 43.4 | 96 | ( 70-136 ) | 1.40 | (< 20 ) |
| Hexachlorobutadiene | 30 | 31.5 | 105 | 30 | 31.3 | 104 | ( 66-134 ) | 0.64 | (< 20 ) |
| Isopropylbenzene (Cumene) | 30 | 31.6 | 105 | 30 | 30.2 | 101 | ( 72-131 ) | 4.40 | (< 20 ) |
| Methylene chloride | 30 | 30.5 | 102 | 30 | 30.4 | 101 | ( 74-124 ) | 0.53 | (< 20 ) |
| Methyl-t-butyl ether | 45 | 46.4 | 103 | 45 | 46.7 | 104 | ( 71-124 ) | 0.71 | (< 20 ) |
| Naphthalene | 30 | 30.4 | 101 | 30 | 31.1 | 104 | ( 61-128 ) | 2.10 | (< 20 ) |
| n-Butylbenzene | 30 | 31.0 | 103 | 30 | 30.0 | 100 | ( 75-128 ) | 3.20 | (< 20 ) |
| n-Propylbenzene | 30 | 30.8 | 103 | 30 | 30.0 | 100 | ( 76-126 ) | 2.60 | (< 20 ) |
| o-Xylene | 30 | 30.0 | 100 | 30 | 29.5 | 98 | ( 78-122 ) | 1.70 | (< 20 ) |
| P & M -Xylene | 60 | 60.4 | 101 | 60 | 59.4 | 99 | ( 80-121 ) | 1.70 | (< 20 ) |
| sec-Butylbenzene | 30 | 31.4 | 105 | 30 | 30.6 | 102 | ( 77-126 ) | 2.60 | (< 20 ) |
| Styrene | 30 | 31.0 | 103 | 30 | 30.2 | 101 | ( 78-123 ) | 2.70 | (< 20 ) |
| tert-Butylbenzene | 30 | 31.0 | 103 | 30 | 30.3 | 101 | ( 78-124 ) | 2.30 | (< 20 ) |
| Tetrachloroethene | 30 | 31.2 | 104 | 30 | 30.1 | 100 | ( 74-129 ) | 3.40 | (< 20 ) |
| Toluene | 30 | 29.1 | 97 | 30 | 28.3 | 94 | ( 80-121 ) | 2.90 | (< 20 ) |
| trans-1,2-Dichloroethene | 30 | 30.3 | 101 | 30 | 29.9 | 100 | ( 75-124 ) | 1.20 | (< 20 ) |
| trans-1,3-Dichloropropene | 30 | 30.8 | 103 | 30 | 30.5 | 102 | ( 73-127 ) | 0.98 | (< 20 ) |
| Trichloroethene | 30 | 31.3 | 104 | 30 | 30.9 | 103 | ( 79-123 ) | 1.20 | (< 20 ) |
| Trichlorofluoromethane | 30 | 31.5 | 105 | 30 | 30.4 | 101 | ( 65-141 ) | 3.60 | (< 20 ) |
| Vinyl acetate | 30 | 30.6 | 102 | 30 | 31.1 | 104 | ( 54-146 ) | 1.60 | (< 20 ) |
| Vinyl chloride | 30 | 30.5 | 102 | 30 | 29.7 | 99 | ( 58-137 ) | 2.50 | (< 20 ) |
| Xylenes (total) | 90 | 90.4 | 100 | 90 | 88.9 | 99 | ( 79-121 ) | 1.70 | (< 20 ) |

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34849]
Blank Spike Lab ID: 1531268
Date Analyzed: 09/11/2019 10:16

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34849]
Spike Duplicate Lab ID: 1531269
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252015

## Results by **SW8260C**

| | Blank Spike (%) | | | Spike Duplicate (%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 104 | 104 | 30 | 103 | 103 | ( 81-118 ) | 0.65 | |
| 4-Bromofluorobenzene (surr) | 30 | 101 | 101 | 30 | 97.3 | 97 | ( 85-114 ) | 3.30 | |
| Toluene-d8 (surr) | 30 | 99.3 | 99 | 30 | 97.2 | 97 | ( 89-112 ) | 2.10 | |

## Batch Information

Analytical Batch: **VMS19426**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **CMC**

Prep Batch: **VXX34849**
Prep Method: **SW5030B**
Prep Date/Time: **09/11/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1799471 [VXX/34879]
Blank Lab ID: 1532017

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252013, 1195252014

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Benzene | 0.120J | 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 |
| Xylenes (total) | 1.50U | 3.00 | 1.00 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 102 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 99.6 | 85-114 | | % |
| Toluene-d8 (surr) | 99.1 | 89-112 | | % |

## Batch Information

Analytical Batch: VMS19441
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: CMC
Analytical Date/Time: 9/15/2019 1:16:00PM

Prep Batch: VXX34879
Prep Method: SW5030B
Prep Date/Time: 9/15/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34879]
Blank Spike Lab ID: 1532018
Date Analyzed: 09/15/2019 13:31

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34879]
Spike Duplicate Lab ID: 1532019
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252013, 1195252014

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Benzene | 30 | 31.6 | 105 | 30 | 29.8 | 99 | ( 79-120 ) | 5.80 | (< 20 ) |
| Ethylbenzene | 30 | 32.8 | 109 | 30 | 31.5 | 105 | ( 79-121 ) | 4.00 | (< 20 ) |
| o-Xylene | 30 | 32.2 | 107 | 30 | 31.3 | 104 | ( 78-122 ) | 2.80 | (< 20 ) |
| P & M -Xylene | 60 | 67.9 | 113 | 60 | 66.0 | 110 | ( 80-121 ) | 2.80 | (< 20 ) |
| Toluene | 30 | 30.2 | 101 | 30 | 29.0 | 97 | ( 80-121 ) | 4.30 | (< 20 ) |
| Xylenes (total) | 90 | 100 | 111 | 90 | 97.4 | 108 | ( 79-121 ) | 2.80 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 97.8 | 98 | 30 | 97.4 | 97 | ( 81-118 ) | 0.48 | |
| 4-Bromofluorobenzene (surr) | 30 | 99.8 | 100 | 30 | 101 | 101 | ( 85-114 ) | 1.60 | |
| Toluene-d8 (surr) | 30 | 99.1 | 99 | 30 | 98.4 | 98 | ( 89-112 ) | 0.71 | |

## Batch Information

Analytical Batch: **VMS19441**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **CMC**

Prep Batch: **VXX34879**
Prep Method: **SW5030B**
Prep Date/Time: **09/15/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1799514 [VXX/34892]
Blank Lab ID: 1532178

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252001, 1195252002, 1195252005, 1195252006, 1195252007, 1195252008, 1195252009, 1195252010, 1195252011, 1195252012

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Benzene | 0.200U | 0.400 | 0.120 | ug/L |
| Ethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| o-Xylene | 0.500U | 1.00 | 0.310 | ug/L |
| P & M -Xylene | 1.00U | 2.00 | 0.620 | ug/L |
| Toluene | 0.500U | 1.00 | 0.310 | ug/L |
| Xylenes (total) | 1.50U | 3.00 | 1.00 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 100 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 100 | 85-114 | | % |
| Toluene-d8 (surr) | 99.6 | 89-112 | | % |

## Batch Information

Analytical Batch: VMS19451
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 9/15/2019 11:13:00AM

Prep Batch: VXX34892
Prep Method: SW5030B
Prep Date/Time: 9/15/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34892]
Blank Spike Lab ID: 1532179
Date Analyzed: 09/15/2019 11:27

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34892]
Spike Duplicate Lab ID: 1532180
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252001, 1195252002, 1195252005, 1195252006, 1195252007, 1195252008, 1195252009, 1195252010, 1195252011, 1195252012

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Benzene | 30 | 30.3 | 101 | 30 | 30.2 | 101 | ( 79-120 ) | 0.23 | (< 20 ) |
| Ethylbenzene | 30 | 30.6 | 102 | 30 | 30.9 | 103 | ( 79-121 ) | 0.75 | (< 20 ) |
| o-Xylene | 30 | 30.4 | 101 | 30 | 30.4 | 101 | ( 78-122 ) | 0.16 | (< 20 ) |
| P & M -Xylene | 60 | 60.4 | 101 | 60 | 60.1 | 100 | ( 80-121 ) | 0.37 | (< 20 ) |
| Toluene | 30 | 28.6 | 95 | 30 | 29.0 | 97 | ( 80-121 ) | 1.50 | (< 20 ) |
| Xylenes (total) | 90 | 90.8 | 101 | 90 | 90.5 | 101 | ( 79-121 ) | 0.30 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 97.6 | 98 | 30 | 96.4 | 96 | ( 81-118 ) | 1.20 | |
| 4-Bromofluorobenzene (surr) | 30 | 99.4 | 99 | 30 | 100 | 100 | ( 85-114 ) | 0.63 | |
| Toluene-d8 (surr) | 30 | 99.4 | 99 | 30 | 99.4 | 99 | ( 89-112 ) | 0.03 | |

## Batch Information

Analytical Batch: **VMS19451**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX34892**
Prep Method: **SW5030B**
Prep Date/Time: **09/15/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1799541 [VXX/34896]
Blank Lab ID: 1532271

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252003, 1195252004

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,1-Trichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1,2,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,2-Trichloroethane | 0.200U | 0.400 | 0.120 | ug/L |
| 1,1-Dichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dibromo-3-chloropropane | 5.00U | 10.0 | 3.10 | ug/L |
| 1,2-Dibromoethane | 0.0375U | 0.0750 | 0.0180 | ug/L |
| 1,2-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dichloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3,5-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichloropropane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,4-Dichlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| 2,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Butanone (MEK) | 5.00U | 10.0 | 3.10 | ug/L |
| 2-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Hexanone | 5.00U | 10.0 | 3.10 | ug/L |
| 4-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Isopropyltoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Methyl-2-pentanone (MIBK) | 5.00U | 10.0 | 3.10 | ug/L |
| Benzene | 0.200U | 0.400 | 0.120 | ug/L |
| Bromobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Bromochloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Bromodichloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Bromoform | 0.500U | 1.00 | 0.310 | ug/L |
| Bromomethane | 2.50U | 5.00 | 1.50 | ug/L |
| Carbon disulfide | 5.00U | 10.0 | 3.10 | ug/L |
| Carbon tetrachloride | 0.500U | 1.00 | 0.310 | ug/L |
| Chlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| Chloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| Chloroform | 0.500U | 1.00 | 0.310 | ug/L |

## Method Blank

Blank ID: MB for HBN 1799541 [VXX/34896]
Blank Lab ID: 1532271

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252003, 1195252004

Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Chloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,3-Dichloropropene | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromochloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromomethane | 0.500U | 1.00 | 0.310 | ug/L |
| Dichlorodifluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Ethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Freon-113 | 5.00U | 10.0 | 3.10 | ug/L |
| Hexachlorobutadiene | 0.500U | 1.00 | 0.310 | ug/L |
| Isopropylbenzene (Cumene) | 0.500U | 1.00 | 0.310 | ug/L |
| Methylene chloride | 2.50U | 5.00 | 1.00 | ug/L |
| Methyl-t-butyl ether | 5.00U | 10.0 | 3.10 | ug/L |
| Naphthalene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Propylbenzene | 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 |
| sec-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Styrene | 0.500U | 1.00 | 0.310 | ug/L |
| tert-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Tetrachloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Toluene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,3-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichlorofluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Vinyl acetate | 5.00U | 10.0 | 3.10 | ug/L |
| Vinyl chloride | 0.0750U | 0.150 | 0.0500 | ug/L |
| Xylenes (total) | 1.50U | 3.00 | 1.00 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 105 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 100 | 85-114 | | % |
| Toluene-d8 (surr) | 98.2 | 89-112 | | % |

## Method Blank

Blank ID: MB for HBN 1799541 [VXX/34896]
Blank Lab ID: 1532271

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252003, 1195252004

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|

### Batch Information

Analytical Batch: VMS19452
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: CMC
Analytical Date/Time: 9/16/2019 5:42:00PM

Prep Batch: VXX34896
Prep Method: SW5030B
Prep Date/Time: 9/16/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34896]
Blank Spike Lab ID: 1532272
Date Analyzed: 09/16/2019 17:57

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34896]
Spike Duplicate Lab ID: 1532273
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252003, 1195252004

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,1,1,2-Tetrachloroethane | 30 | 31.5 | 105 | 30 | 30.9 | 103 | ( 78-124 ) | 2.00 | (< 20 ) |
| 1,1,1-Trichloroethane | 30 | 33.0 | 110 | 30 | 32.4 | 108 | ( 74-131 ) | 1.60 | (< 20 ) |
| 1,1,2,2-Tetrachloroethane | 30 | 30.3 | 101 | 30 | 30.7 | 102 | ( 71-121 ) | 1.50 | (< 20 ) |
| 1,1,2-Trichloroethane | 30 | 30.9 | 103 | 30 | 30.8 | 103 | ( 80-119 ) | 0.45 | (< 20 ) |
| 1,1-Dichloroethane | 30 | 31.1 | 104 | 30 | 30.3 | 101 | ( 77-125 ) | 2.70 | (< 20 ) |
| 1,1-Dichloroethene | 30 | 35.9 | 120 | 30 | 39.5 | 132 | * ( 71-131 ) | 9.40 | (< 20 ) |
| 1,1-Dichloropropene | 30 | 32.7 | 109 | 30 | 31.7 | 106 | ( 79-125 ) | 3.10 | (< 20 ) |
| 1,2,3-Trichlorobenzene | 30 | 36.4 | 121 | 30 | 38.3 | 128 | ( 69-129 ) | 5.20 | (< 20 ) |
| 1,2,3-Trichloropropane | 30 | 31.2 | 104 | 30 | 31.9 | 106 | ( 73-122 ) | 2.30 | (< 20 ) |
| 1,2,4-Trichlorobenzene | 30 | 34.7 | 116 | 30 | 35.4 | 118 | ( 69-130 ) | 2.00 | (< 20 ) |
| 1,2,4-Trimethylbenzene | 30 | 31.9 | 106 | 30 | 31.6 | 105 | ( 79-124 ) | 0.85 | (< 20 ) |
| 1,2-Dibromo-3-chloropropane | 30 | 32.9 | 110 | 30 | 33.8 | 113 | ( 62-128 ) | 2.90 | (< 20 ) |
| 1,2-Dibromoethane | 30 | 29.4 | 98 | 30 | 29.9 | 100 | ( 77-121 ) | 1.40 | (< 20 ) |
| 1,2-Dichlorobenzene | 30 | 30.7 | 102 | 30 | 30.7 | 102 | ( 80-119 ) | 0.00 | (< 20 ) |
| 1,2-Dichloroethane | 30 | 31.0 | 103 | 30 | 30.5 | 102 | ( 73-128 ) | 1.60 | (< 20 ) |
| 1,2-Dichloropropane | 30 | 32.1 | 107 | 30 | 31.0 | 103 | ( 78-122 ) | 3.60 | (< 20 ) |
| 1,3,5-Trimethylbenzene | 30 | 32.1 | 107 | 30 | 31.7 | 106 | ( 75-124 ) | 1.50 | (< 20 ) |
| 1,3-Dichlorobenzene | 30 | 31.0 | 103 | 30 | 30.7 | 102 | ( 80-119 ) | 1.10 | (< 20 ) |
| 1,3-Dichloropropane | 30 | 30.7 | 102 | 30 | 31.0 | 103 | ( 80-119 ) | 1.00 | (< 20 ) |
| 1,4-Dichlorobenzene | 30 | 30.8 | 103 | 30 | 30.4 | 101 | ( 79-118 ) | 1.40 | (< 20 ) |
| 2,2-Dichloropropane | 30 | 33.1 | 110 | 30 | 32.3 | 108 | ( 60-139 ) | 2.60 | (< 20 ) |
| 2-Butanone (MEK) | 90 | 97.5 | 108 | 90 | 98.4 | 109 | ( 56-143 ) | 0.96 | (< 20 ) |
| 2-Chlorotoluene | 30 | 31.1 | 104 | 30 | 31.1 | 104 | ( 79-122 ) | 0.19 | (< 20 ) |
| 2-Hexanone | 90 | 92.1 | 102 | 90 | 94.1 | 105 | ( 57-139 ) | 2.20 | (< 20 ) |
| 4-Chlorotoluene | 30 | 31.7 | 106 | 30 | 30.9 | 103 | ( 78-122 ) | 2.60 | (< 20 ) |
| 4-Isopropyltoluene | 30 | 32.1 | 107 | 30 | 31.8 | 106 | ( 77-127 ) | 1.00 | (< 20 ) |
| 4-Methyl-2-pentanone (MIBK) | 90 | 101 | 112 | 90 | 103 | 114 | ( 67-130 ) | 2.00 | (< 20 ) |
| Benzene | 30 | 30.9 | 103 | 30 | 30.4 | 101 | ( 79-120 ) | 1.50 | (< 20 ) |
| Bromobenzene | 30 | 31.4 | 105 | 30 | 31.0 | 103 | ( 80-120 ) | 1.30 | (< 20 ) |
| Bromochloromethane | 30 | 30.9 | 103 | 30 | 30.1 | 100 | ( 78-123 ) | 2.70 | (< 20 ) |
| Bromodichloromethane | 30 | 32.7 | 109 | 30 | 32.1 | 107 | ( 79-125 ) | 2.00 | (< 20 ) |
| Bromoform | 30 | 31.7 | 106 | 30 | 31.8 | 106 | ( 66-130 ) | 0.38 | (< 20 ) |
| Bromomethane | 30 | 35.8 | 119 | 30 | 37.8 | 126 | ( 53-141 ) | 5.40 | (< 20 ) |
| Carbon disulfide | 45 | 54.6 | 121 | 45 | 61.7 | 137 | * ( 64-133 ) | 12.30 | (< 20 ) |

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34896]
Blank Spike Lab ID: 1532272
Date Analyzed: 09/16/2019 17:57

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34896]
Spike Duplicate Lab ID: 1532273
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252003, 1195252004

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Carbon tetrachloride | 30 | 32.8 | 109 | 30 | 32.3 | 108 | ( 72-136 ) | 1.50 | (< 20 ) |
| Chlorobenzene | 30 | 29.6 | 99 | 30 | 29.2 | 97 | ( 82-118 ) | 1.10 | (< 20 ) |
| Chloroethane | 30 | 39.2 | 131 | 30 | 36.6 | 122 | ( 60-138 ) | 6.80 | (< 20 ) |
| Chloroform | 30 | 31.6 | 105 | 30 | 30.8 | 103 | ( 79-124 ) | 2.50 | (< 20 ) |
| Chloromethane | 30 | 29.8 | 99 | 30 | 28.8 | 96 | ( 50-139 ) | 3.30 | (< 20 ) |
| cis-1,2-Dichloroethene | 30 | 31.3 | 104 | 30 | 30.4 | 101 | ( 78-123 ) | 2.80 | (< 20 ) |
| cis-1,3-Dichloropropene | 30 | 30.5 | 102 | 30 | 29.8 | 100 | ( 75-124 ) | 2.30 | (< 20 ) |
| Dibromochloromethane | 30 | 31.2 | 104 | 30 | 30.9 | 103 | ( 74-126 ) | 0.68 | (< 20 ) |
| Dibromomethane | 30 | 31.3 | 104 | 30 | 31.2 | 104 | ( 79-123 ) | 0.42 | (< 20 ) |
| Dichlorodifluoromethane | 30 | 35.8 | 119 | 30 | 34.5 | 115 | ( 32-152 ) | 3.60 | (< 20 ) |
| Ethylbenzene | 30 | 31.2 | 104 | 30 | 30.9 | 103 | ( 79-121 ) | 1.10 | (< 20 ) |
| Freon-113 | 45 | 56.8 | 126 | 45 | 62.8 | 140 | * ( 70-136 ) | 10.10 | (< 20 ) |
| Hexachlorobutadiene | 30 | 34.8 | 116 | 30 | 34.6 | 115 | ( 66-134 ) | 0.72 | (< 20 ) |
| Isopropylbenzene (Cumene) | 30 | 31.9 | 106 | 30 | 31.7 | 106 | ( 72-131 ) | 0.69 | (< 20 ) |
| Methylene chloride | 30 | 30.0 | 100 | 30 | 29.0 | 97 | ( 74-124 ) | 3.40 | (< 20 ) |
| Methyl-t-butyl ether | 45 | 49.0 | 109 | 45 | 48.5 | 108 | ( 71-124 ) | 0.94 | (< 20 ) |
| Naphthalene | 30 | 35.4 | 118 | 30 | 37.9 | 126 | ( 61-128 ) | 6.70 | (< 20 ) |
| n-Butylbenzene | 30 | 29.4 | 98 | 30 | 29.1 | 97 | ( 75-128 ) | 1.20 | (< 20 ) |
| n-Propylbenzene | 30 | 32.2 | 107 | 30 | 30.9 | 103 | ( 76-126 ) | 3.90 | (< 20 ) |
| o-Xylene | 30 | 30.8 | 103 | 30 | 29.9 | 100 | ( 78-122 ) | 3.00 | (< 20 ) |
| P & M -Xylene | 60 | 62.7 | 104 | 60 | 60.8 | 101 | ( 80-121 ) | 3.10 | (< 20 ) |
| sec-Butylbenzene | 30 | 32.0 | 107 | 30 | 30.9 | 103 | ( 77-126 ) | 3.50 | (< 20 ) |
| Styrene | 30 | 31.6 | 105 | 30 | 30.8 | 103 | ( 78-123 ) | 2.50 | (< 20 ) |
| tert-Butylbenzene | 30 | 31.8 | 106 | 30 | 31.5 | 105 | ( 78-124 ) | 1.20 | (< 20 ) |
| Tetrachloroethene | 30 | 31.9 | 106 | 30 | 31.5 | 105 | ( 74-129 ) | 1.30 | (< 20 ) |
| Toluene | 30 | 29.7 | 99 | 30 | 29.4 | 98 | ( 80-121 ) | 0.95 | (< 20 ) |
| trans-1,2-Dichloroethene | 30 | 31.2 | 104 | 30 | 30.2 | 101 | ( 75-124 ) | 3.30 | (< 20 ) |
| trans-1,3-Dichloropropene | 30 | 29.8 | 99 | 30 | 29.7 | 99 | ( 73-127 ) | 0.20 | (< 20 ) |
| Trichloroethene | 30 | 31.6 | 105 | 30 | 30.9 | 103 | ( 79-123 ) | 2.50 | (< 20 ) |
| Trichlorofluoromethane | 30 | 38.0 | 127 | 30 | 36.7 | 122 | ( 65-141 ) | 3.50 | (< 20 ) |
| Vinyl acetate | 30 | 30.7 | 102 | 30 | 30.7 | 102 | ( 54-146 ) | 0.07 | (< 20 ) |
| Vinyl chloride | 30 | 30.1 | 100 | 30 | 29.2 | 97 | ( 58-137 ) | 2.90 | (< 20 ) |
| Xylenes (total) | 90 | 93.5 | 104 | 90 | 90.6 | 101 | ( 79-121 ) | 3.10 | (< 20 ) |



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34896]
Blank Spike Lab ID: 1532272
Date Analyzed: 09/16/2019 17:57

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34896]
Spike Duplicate Lab ID: 1532273
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252003, 1195252004

## Results by **SW8260C**

| | Blank Spike (%) | | | Spike Duplicate (%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 100 | 100 | 30 | 99.9 | 100 | ( 81-118 ) | 0.03 | |
| 4-Bromofluorobenzene (surr) | 30 | 101 | 101 | 30 | 99.6 | 100 | ( 85-114 ) | 1.10 | |
| Toluene-d8 (surr) | 30 | 97.6 | 98 | 30 | 99 | 99 | ( 89-112 ) | 1.40 | |

## Batch Information

Analytical Batch: **VMS19452**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **CMC**

Prep Batch: **VXX34896**
Prep Method: **SW5030B**
Prep Date/Time: **09/16/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1799614 [VXX/34908]
Blank Lab ID: 1532659

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252001, 1195252002, 1195252003, 1195252004, 1195252005, 1195252006, 1195252007, 1195252008, 1195252009, 1195252010, 1195252011, 1195252012, 1195252013, 1195252014, 1195252015

## Results by **AK101**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Gasoline Range Organics | 0.0500U | 0.100 | 0.0310 | mg/L |
| **Surrogates** | | | | |
| 4-Bromofluorobenzene (surr) | 92.8 | 50-150 | | % |

## Batch Information

Analytical Batch: VFC14942
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: NRB
Analytical Date/Time: 9/17/2019 7:09:00PM

Prep Batch: VXX34908
Prep Method: SW5030B
Prep Date/Time: 9/17/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [VXX34908]
Blank Spike Lab ID: 1532662
Date Analyzed: 09/17/2019 18:51

Spike Duplicate ID: LCSD for HBN 1195252 [VXX34908]
Spike Duplicate Lab ID: 1532663
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252001, 1195252002, 1195252003, 1195252004, 1195252005, 1195252006, 1195252007, 1195252008, 1195252009, 1195252010, 1195252011, 1195252012, 1195252013, 1195252014, 1195252015

## Results by **AK101**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Gasoline Range Organics | 1.00 | 1.10 | 110 | 1.00 | 1.14 | 114 | ( 60-120 ) | 2.80 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 4-Bromofluorobenzene (surr) | 0.0500 | 97.7 | 98 | 0.0500 | 102 | 102 | ( 50-150 ) | 3.90 | |

## Batch Information

Analytical Batch: **VFC14942**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **NRB**

Prep Batch: **VXX34908**
Prep Method: **SW5030B**
Prep Date/Time: **09/17/2019 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1799173 [XXX/42222]
Blank Lab ID: 1530723

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252003, 1195252004, 1195252010, 1195252011, 1195252012

## Results by **8270D SIM LV (PAH)**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 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 | 0.0100U | 0.0200 | 0.00620 | 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 | 0.0100U | 0.0200 | 0.00620 | 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-Methylnaphthalene-d10 (surr) | 59 | 47-106 | | % |
| Fluoranthene-d10 (surr) | 75.1 | 24-116 | | % |

## Batch Information

Analytical Batch: XMS11715
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 9/17/2019 10:43:00AM

Prep Batch: XXX42222
Prep Method: SW3520C
Prep Date/Time: 9/10/2019 8:17:13AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [XXX42222]
Blank Spike Lab ID: 1530724
Date Analyzed: 09/17/2019 11:03

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252003, 1195252004, 1195252010, 1195252011, 1195252012

## Results by **8270D SIM LV (PAH)**

Blank Spike (ug/L)

| Parameter | Spike | Result | Rec (%) | CL |
|---|---|---|---|---|
| 1-Methylnaphthalene | 2 | 1.54 | 77 | ( 41-115 ) |
| 2-Methylnaphthalene | 2 | 1.50 | 75 | ( 39-114 ) |
| Acenaphthene | 2 | 1.59 | 79 | ( 48-114 ) |
| Acenaphthylene | 2 | 1.74 | 87 | ( 35-121 ) |
| Anthracene | 2 | 1.82 | 91 | ( 53-119 ) |
| Benzo(a)Anthracene | 2 | 1.80 | 90 | ( 59-120 ) |
| Benzo[a]pyrene | 2 | 1.65 | 82 | ( 53-120 ) |
| Benzo[b]Fluoranthene | 2 | 1.71 | 85 | ( 53-126 ) |
| Benzo[g,h,i]perylene | 2 | 1.31 | 66 | ( 44-128 ) |
| Benzo[k]fluoranthene | 2 | 1.68 | 84 | ( 54-125 ) |
| Chrysene | 2 | 1.83 | 92 | ( 57-120 ) |
| Dibenzo[a,h]anthracene | 2 | 1.20 | 60 | ( 44-131 ) |
| Fluoranthene | 2 | 1.98 | 99 | ( 58-120 ) |
| Fluorene | 2 | 1.74 | 87 | ( 50-118 ) |
| Indeno[1,2,3-c,d] pyrene | 2 | 1.54 | 77 | ( 48-130 ) |
| Naphthalene | 2 | 1.48 | 74 | ( 43-114 ) |
| Phenanthrene | 2 | 1.75 | 87 | ( 53-115 ) |
| Pyrene | 2 | 2.07 | 104 | ( 53-121 ) |
| **Surrogates** | | | | |
| 2-Methylnaphthalene-d10 (surr) | 2 | 68.7 | 69 | ( 47-106 ) |
| Fluoranthene-d10 (surr) | 2 | 84.1 | 84 | ( 24-116 ) |

## Batch Information

Analytical Batch: **XMS11715**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **DSD**

Prep Batch: **XXX42222**
Prep Method: **SW3520C**
Prep Date/Time: **09/10/2019 08:17**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:



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## Matrix Spike Summary

Original Sample ID: 1195262001
MS Sample ID: 1530725 MS
MSD Sample ID: 1530726 MSD

Analysis Date: 09/17/2019 11:44
Analysis Date: 09/17/2019 12:05
Analysis Date: 09/17/2019 12:26
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252003, 1195252004, 1195252010, 1195252011, 1195252012

## Results by **8270D SIM LV (PAH)**

| | | Matrix Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Sample | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Acenaphthene | 0.0517U | 2.23 | 1.88 | 84 | 2.10 | 1.75 | 83 | 48-114 | 6.90 | (< 20 ) |
| Acenaphthylene | 0.0517U | 2.23 | 1.97 | 88 | 2.10 | 1.85 | 88 | 35-121 | 6.30 | (< 20 ) |
| Anthracene | 0.0517U | 2.23 | 1.94 | 87 | 2.10 | 1.84 | 88 | 53-119 | 5.60 | (< 20 ) |
| Benzo(a)Anthracene | 0.0517U | 2.23 | 1.75 | 79 | 2.10 | 1.65 | 78 | 59-120 | 6.20 | (< 20 ) |
| Benzo[a]pyrene | 0.0207U | 2.23 | 1.33 | 60 | 2.10 | 1.28 | 61 | 53-120 | 4.20 | (< 20 ) |
| Benzo[b]Fluoranthene | 0.0517U | 2.23 | 1.48 | 67 | 2.10 | 1.40 | 67 | 53-126 | 5.80 | (< 20 ) |
| Benzo[g,h,i]perylene | 0.0517U | 2.23 | 1.19 | 53 | 2.10 | 1.11 | 53 | 44-128 | 7.20 | (< 20 ) |
| Benzo[k]fluoranthene | 0.0517U | 2.23 | 1.44 | 65 | 2.10 | 1.36 | 65 | 54-125 | 6.10 | (< 20 ) |
| Chrysene | 0.0517U | 2.23 | 1.8 | 81 | 2.10 | 1.68 | 80 | 57-120 | 6.70 | (< 20 ) |
| Dibenzo[a,h]anthracene | 0.0207U | 2.23 | 1.15 | 52 | 2.10 | 1.07 | 51 | 44-131 | 7.50 | (< 20 ) |
| Fluoranthene | 0.0517U | 2.23 | 2.13 | 96 | 2.10 | 2.00 | 95 | 58-120 | 6.60 | (< 20 ) |
| Fluorene | 0.0517U | 2.23 | 2.06 | 92 | 2.10 | 1.92 | 92 | 50-118 | 6.90 | (< 20 ) |
| Indeno[1,2,3-c,d] pyrene | 0.0517U | 2.23 | 1.26 | 57 | 2.10 | 1.17 | 56 | 48-130 | 7.60 | (< 20 ) |
| Naphthalene | 0.103U | 2.23 | 1.85 | 83 | 2.10 | 1.74 | 83 | 43-114 | 6.70 | (< 20 ) |
| Phenanthrene | 0.0517U | 2.23 | 2.02 | 91 | 2.10 | 1.87 | 89 | 53-115 | 7.90 | (< 20 ) |
| Pyrene | 0.0517U | 2.23 | 2.26 | 101 | 2.10 | 2.11 | 100 | 53-121 | 7.30 | (< 20 ) |
| **Surrogates** | | | | | | | | | | |
| 2-Methylnaphthalene-d10 (surr) | | 2.23 | 1.68 | 75 | 2.10 | 1.57 | 75 | 47-106 | 6.70 | |
| Fluoranthene-d10 (surr) | | 2.23 | 1.88 | 84 | 2.10 | 1.73 | 83 | 24-116 | 8.30 | |

## Batch Information

Analytical Batch: XMS11715
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 9/17/2019 12:05:00PM

Prep Batch: XXX42222
Prep Method: 3520 Liq/Liq Ext for 8270 PAH SIM LV
Prep Date/Time: 9/10/2019 8:17:13AM
Prep Initial Wt./Vol.: 224.00mL
Prep Extract Vol: 1.00mL

Print Date: 10/02/2019 8:45:00AM

## Method Blank

Blank ID: MB for HBN 1799449 [XXX/42272]
Blank Lab ID: 1531909

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252001, 1195252002, 1195252003, 1195252004, 1195252005, 1195252006, 1195252007, 1195252008, 1195252009, 1195252010, 1195252011, 1195252012, 1195252013

## Results by **AK102**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Diesel Range Organics | 0.300U | 0.600 | 0.180 | mg/L |
| **Surrogates** | | | | |
| 5a Androstane (surr) | 76.9 | 60-120 | | % |

## Batch Information

Analytical Batch: XFC15355
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: CMS
Analytical Date/Time: 9/30/2019 10:58:00AM

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 9/16/2019 9:49:46AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [XXX42272]
Blank Spike Lab ID: 1531910
Date Analyzed: 09/30/2019 11:47

Spike Duplicate ID: LCSD for HBN 1195252 [XXX42272]
Spike Duplicate Lab ID: 1531911
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252001, 1195252002, 1195252003, 1195252004, 1195252005, 1195252006, 1195252007, 1195252008, 1195252009, 1195252010, 1195252011, 1195252012, 1195252013

## Results by **AK102**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Diesel Range Organics | 20 | 19.9 | 100 | 20 | 19.1 | 95 | ( 75-125 ) | 4.50 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 5a Androstane (surr) | 0.4 | 98 | 98 | 0.4 | 95.7 | 96 | ( 60-120 ) | 2.40 | |

## Batch Information

Analytical Batch: **XFC15355**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **CMS**

Prep Batch: **XXX42272**
Prep Method: **SW3520C**
Prep Date/Time: **09/16/2019 09:49**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL



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## Method Blank

Blank ID: MB for HBN 1799449 [XXX/42272]
Blank Lab ID: 1531909

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252001, 1195252002, 1195252003, 1195252004, 1195252005, 1195252006, 1195252007, 1195252008, 1195252009, 1195252010, 1195252011, 1195252012, 1195252013

## Results by **AK103**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Residual Range Organics | 0.250U | 0.500 | 0.150 | mg/L |
| **Surrogates** | | | | |
| n-Triacontane-d62 (surr) | 93.8 | 60-120 | | % |

## Batch Information

Analytical Batch: XFC15355
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: CMS
Analytical Date/Time: 9/30/2019 10:58:00AM

Prep Batch: XXX42272
Prep Method: SW3520C
Prep Date/Time: 9/16/2019 9:49:46AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [XXX42272]
Blank Spike Lab ID: 1531910
Date Analyzed: 09/30/2019 11:47

Spike Duplicate ID: LCSD for HBN 1195252 [XXX42272]
Spike Duplicate Lab ID: 1531911
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252001, 1195252002, 1195252003, 1195252004, 1195252005, 1195252006, 1195252007, 1195252008, 1195252009, 1195252010, 1195252011, 1195252012, 1195252013

## Results by **AK103**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Residual Range Organics | 20 | 21.7 | 108 | 20 | 20.5 | 102 | ( 60-120 ) | 5.60 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| n-Triacontane-d62 (surr) | 0.4 | 106 | 106 | 0.4 | 104 | 104 | ( 60-120 ) | 2.00 | |

## Batch Information

Analytical Batch: **XFC15355**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **CMS**

Prep Batch: **XXX42272**
Prep Method: **SW3520C**
Prep Date/Time: **09/16/2019 09:49**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL



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## Method Blank

Blank ID: MB for HBN 1799524 [XXX/42280]
Blank Lab ID: 1532207

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252014

## Results by **AK102**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Diesel Range Organics | 0.300U | 0.600 | 0.180 | mg/L |
| **Surrogates** | | | | |
| 5a Androstane (surr) | 103 | 60-120 | | % |

## Batch Information

Analytical Batch: XFC15355
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: CMS
Analytical Date/Time: 9/30/2019 10:48:00AM

Prep Batch: XXX42280
Prep Method: SW3520C
Prep Date/Time: 9/17/2019 8:38:46AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [XXX42280]
Blank Spike Lab ID: 1532208
Date Analyzed: 09/30/2019 11:28

Spike Duplicate ID: LCSD for HBN 1195252 [XXX42280]
Spike Duplicate Lab ID: 1532209
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252014

## Results by **AK102**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Diesel Range Organics | 20 | 18.6 | 93 | 20 | 18.5 | 93 | ( 75-125 ) | 0.33 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 5a Androstane (surr) | 0.4 | 97.9 | 98 | 0.4 | 100 | 100 | ( 60-120 ) | 2.50 | |

## Batch Information

Analytical Batch: **XFC15355**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **CMS**

Prep Batch: **XXX42280**
Prep Method: **SW3520C**
Prep Date/Time: **09/17/2019 08:38**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL



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## Method Blank

Blank ID: MB for HBN 1799524 [XXX/42280]
Blank Lab ID: 1532207

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195252014

## Results by **AK103**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Residual Range Organics | 0.250U | 0.500 | 0.150 | mg/L |
| **Surrogates** | | | | |
| n-Triacontane-d62 (surr) | 126* | 60-120 | | % |

## Batch Information

Analytical Batch: XFC15355
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: CMS
Analytical Date/Time: 9/30/2019 10:48:00AM

Prep Batch: XXX42280
Prep Method: SW3520C
Prep Date/Time: 9/17/2019 8:38:46AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1195252 [XXX42280]
Blank Spike Lab ID: 1532208
Date Analyzed: 09/30/2019 11:28

Spike Duplicate ID: LCSD for HBN 1195252 [XXX42280]
Spike Duplicate Lab ID: 1532209
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195252014

## Results by **AK103**

| | Blank Spike (mg/L) | | | Spike Duplicate (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Residual Range Organics | 20 | 20.0 | 100 | 20 | 19.8 | 99 | ( 60-120 ) | 0.70 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| n-Triacontane-d62 (surr) | 0.4 | 109 | 109 | 0.4 | 114 | 114 | ( 60-120 ) | 4.30 | |

## Batch Information

Analytical Batch: **XFC15355**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **CMS**

Prep Batch: **XXX42280**
Prep Method: **SW3520C**
Prep Date/Time: **09/17/2019 08:38**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL



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SGS **1195252**

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**CHAIN OF CUSTODY RECORD**

Profile 364448 NSW 9/9/19

**Locations Nationwide**

| | |
|---|---|
| Alaska | Maryland |
| New Jersey | New York |
| North Carolina | Indiana |
| West Virgina | Kentucky |

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

Page 1 of 2

**Section 1**

CLIENT: SLR Alaska

CONTACT: Ben Siwiec — PHONE #: (907)264-6953

PROJECT NAME: Red Salmon GW — Project/ PWSID/ PERMIT#: 105.00151.19001

REPORTS TO: Ben Siwiec — E-MAIL: bsiwiec@slrconsulting.com

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

**Section 2**

| RESERVED for lab use | SAMPLE IDENTIFICATION | DATE mm/dd/yy | TIME HH:MM | MATRIX/ MATRIX CODE | # CONTAINERS | Pres: Type: Comp Grab MI (Multi-incremental) | DRO/RRO AK102/103 (HCl) | GRO AK101 (HCl) | BTEX 8260 (HCl) | PAHs 8270 (none) | VOCs Full List 8260 (HCl) | | | | | | REMARKS/ LOC ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1AH | RS-MW6-090519 | 9/5/19 | 1510 | W | 8 | G | ✓ | ✓ | ✓ | | | | | | | | |
| 2AH | RS-MW2-090519 | 9/5/19 | 1712 | W | 8 | G | ✓ | ✓ | ✓ | | | | | | | | |
| 3AJ | RS-MW4-090519 | 9/5/19 | 1842 | W | 10 | G | ✓ | ✓ | | ✓ | ✓ | | | | | | |
| 4AJ | RS-MW19-090519 | 9/5/19 | 1842 | W | 10 | G | ✓ | ✓ | | ✓ | ✓ | | | | | | |
| 5AH | RS-MW1-090619 | 9/6/19 | 0925 | W | 8 | G | ✓ | ✓ | ✓ | | | | | | | | |
| 6AH | RS-MW7-090619 | 9/6/19 | 1228 | W | 8 | G | ✓ | ✓ | ✓ | | | | | | | | |
| 7AH | RS-MW8-090619 | 9/6/19 | 1445 | W | 8 | G | ✓ | ✓ | ✓ | | | | | | | | |
| 8AH | RS-MW10-090619 | 9/6/19 | 1730 | W | 8 | G | ✓ | ✓ | ✓ | | | | | | | | |
| 9AH | RS-MW3-090619 | 9/6/19 | 1853 | W | 8 | G | ✓ | ✓ | ✓ | | | | | | | | |
| 10AJ | RS-SW1-090619 | 9/6/19 | 2050 | W | 10 | G | ✓ | ✓ | ✓ | ✓ | ✓ | BS 9/7/19 | | | | | |

**Section 5**

| | Date | Time | |
|---|---|---|---|
| Relinquished By: (1) BTS | 9/9/19 | 0911 | Received By: |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date 9/9/19 | Time 09:10 | Received For Laboratory By: MM |

**Section 4**

DOD Project? Yes No

Cooler ID:

Data Deliverable Requirements: LVL2-ADEC, standard TAT

Requested Turnaround Time and/or Special Instructions:

1) Temp Blank °C: 1.7 D25 Da
2) 2.0 D25 or Ambient [ ] MM
3) 0.8 D30 B 9.9.19
(See attached Sample Receipt Form)

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

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

SGS **1195252**

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**CHAIN OF CUSTODY RECORD**

**Locations Nationwide**

| | |
|---|---|
| Alaska | Maryland |
| New Jersey | New York |
| North Carolina | Indiana |
| West Virgina | Kentucky |

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**Section 1**

CLIENT: SLR Alaska

CONTACT: Ben Siwiec — PHONE #: (907)264-6953

PROJECT NAME: Red Salmon GW — Project/ PWSID/ PERMIT#: 105.00151.19001

REPORTS TO: Ben Siwiec — E-MAIL: bsiwiec@slrconsulting.com

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

**Section 2**

| RESERVED for lab use | SAMPLE IDENTIFICATION | DATE mm/dd/yy | TIME HH:MM | MATRIX/ MATRIX CODE | # CONTAINERS | Pres: Type: Comp Grab MI (Multi-incremental) | DRO/RRO AK102/103 (HCl) | GRO AK101 (HCl) | BTEX 8260 (HCl) | PAHs 8270 (none) | VOCs Full List 8260 (HCl) | REMARKS/ LOC ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11AJ | RS-SW9-090619 | 9/6/19 | 2050 | W | 10 | G | ✓ | ✓ | ✓ | ✓ | | |
| 12AJ | RS-SW2-090619 | 9/6/19 | 2055 | W | 10 | G | ✓ | ✓ | ✓ | ✓ | | |
| 13AH | RS-MW9-090719 | 9/7/19 | 0810 | W | 8 | G | ✓ | ✓ | ✓ | | | |
| 14AH | RS-MW5R-090719 | 9/7/19 | 0908 | W | 8 | G | ✓ | ✓ | ✓ | | | |
| 15AF | Trip Blank 1 | 9/5/19 | 1510 | W | 6 | - | | ✓ | | | ✓ | |

**Section 5**

| | Date | Time | |
|---|---|---|---|
| Relinquished By: (1) BTS | 9/9/19 | 0910 | Received By: |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date 9/9/19 | Time 09:10 | Received For Laboratory By: |

**Section 4**

DOD Project? Yes No

Cooler ID:

Data Deliverable Requirements: LVL2-ADEC, standard TAT

Requested Turnaround Time and/or Special Instructions:

1) Temp Blank °C: 1.7 D45
2) 2.0 D21
3) 0.8 D30
or Ambient [ ]
(See attached Sample Receipt Form)

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

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

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

SGS

# Multi-Cooler Temperature Report

Documented by: Michelle Albarran SGS WO#: 1195252

| Cooler ID/Temp/Thermometer ID | Samples Included: | Analyses Included: | *Note which Containers had Ice, if any. |
|---|---|---|---|
| 1/1.7/D45 | RS-MW6-090519 | DRO/RRO AK102/103 | |
| | RS-MW2-090519 | | |
| | RS-MW4-090519 | | |
| | RS-MW19-090519 | | |
| | RS-MW1-090619 | | |
| | RS-MW7-090619 | | |
| | RS-MW8-090619 | | |
| | RS-MW10-090619 | | |
| | RS-MW3-090619 | | |
| | RS-SW1-090619 | | |
| | RS-SW9-090619 | | |
| | RS-SW2-090619 | | |
| | RS-MW9-090719 | | |
| | ~~RS-MW5R~~ MW 9.9.19 | | |
| | RS-MW5R-090719 | | |
| 2/2.0/D21 | RS-MW5R-090719 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | RS-MW9-090719 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | RS-SW2-090619 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | ~~Trip Blank~~ 1 | VOC Full List 8260 | |
| | " " | GRO AK101/BTEX 8260 | |
| | RS-SW9-090619 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | RS-SW1-090619 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | RS-MW3-090619 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | RS-MW10-090619 | GRO AK101 | |
| | RS-MW10-090619 | BTEX 8260 | |
| | RS-MW8-090619 | GRO AK101 | |
| | " " | BTEX 8260 | |

Note:

SGS

# Multi-Cooler Temperature Report

Documented by: Michelle Albarran SGS WO#: 1195252

| Cooler ID/Temp/Thermometer ID | Samples Included: | Analyses Included: | *Note which Containers had Ice, if any. |
|---|---|---|---|
| 2 \| 2.0 \| D21 | RS-MW7-090619 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | RS-MW1-090619 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | RS-MW19-090519 | GRO AK101 | |
| | " " | VOC Full List 8260 | |
| | RS-MW4-090519 | GRO AK101 | |
| | " " | VOC Full List 8260 | |
| | RS-MW2-090519 | GRO AK101 | |
| | " " | BTEX 8260 | |
| | RS-MW6-090519 | GRO AK101 | |
| | " " | BTEX 8260 | |
| 3 \| 0.8 \| ~~D30~~ MA 9.9.19 D30 | RS-MW4-090519 | PAHs 8270 | |
| | RS-MW19-090619 | ↓ | |
| | RS-SW1-090619 | | |
| | RS-SW9-090619 | | |
| | RS-SW2-090619 | | |
| | | | |

Note:

e-Sample Receipt Form

**SGS Workorder #:** **1195252**

1 1 9 5 2 5 2

| Review Criteria | Condition (Yes, No, N/A) | Exceptions Noted below |
|---|---|---|
| **Chain of Custody / Temperature Requirements** | Yes | Exemption permitted if sampler hand carries/delivers. |
| Were Custody Seals intact? Note # & location | N/A | |
| COC accompanied samples? | Yes | |
| DOD: Were samples received in COC corresponding coolers? | N/A | |
| N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required | | |
| Temperature blank compliant* (i.e., 0-6 °C after CF)? | Yes | Cooler ID: 1 @ 1.7 °C Therm. ID: D45 |
| | Yes | Cooler ID: 2 @ 2.0 °C Therm. ID: D21 |
| If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available. | Yes | Cooler ID: 3 @ 0.8 °C Therm. ID: D30 |
| | | Cooler ID: @ °C Therm. ID: |
| | | Cooler ID: @ °C Therm. ID: |
| *If >6°C, were samples collected <8 hours ago? | N/A | |
| If <0°C, were sample containers ice free? | N/A | |
| Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed. | | |
| **Holding Time / Documentation / Sample Condition Requirements** | | Note: Refer to form F-083 "Sample Guide" for specific holding times. |
| Were samples received within holding time? | Yes | |
| Do samples **match COC**** (i.e.,sample IDs,dates/times collected)? | Yes | |
| **Note: If times differ <1hr, record details & login per COC. | | |
| ***Note: If sample information on containers differs from COC, SGS will default to COC information | | |
| Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals) | Yes | |
| | N/A | ***Exemption permitted for metals (e.g,200.8/6020A). |
| Were proper containers (type/mass/volume/preservative***)used? | Yes | |
| **Volatile / LL-Hg Requirements** | | |
| Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? | Yes | **Samples 10l and 14G have headspace bigger than 6mm.** |
| Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)? | No | |
| Were all soil VOAs field extracted with MeOH+BFB? | N/A | |
| **Note to Client:** Any "No", answer above indicates non-compliance with standard procedures and may impact data quality. | | |
| Additional notes (if applicable): | | |

## Sample Containers and Preservatives

| Container Id | Preservative | Container Condition | Container Id | Preservative | Container Condition |
|---|---|---|---|---|---|
| 1195252001-A | HCL to pH < 2 | OK | 1195252006-G | HCL to pH < 2 | OK |
| 1195252001-B | HCL to pH < 2 | OK | 1195252006-H | HCL to pH < 2 | OK |
| 1195252001-C | HCL to pH < 2 | OK | 1195252007-A | HCL to pH < 2 | OK |
| 1195252001-D | HCL to pH < 2 | OK | 1195252007-B | HCL to pH < 2 | OK |
| 1195252001-E | HCL to pH < 2 | OK | 1195252007-C | HCL to pH < 2 | OK |
| 1195252001-F | HCL to pH < 2 | OK | 1195252007-D | HCL to pH < 2 | OK |
| 1195252001-G | HCL to pH < 2 | OK | 1195252007-E | HCL to pH < 2 | OK |
| 1195252001-H | HCL to pH < 2 | OK | 1195252007-F | HCL to pH < 2 | OK |
| 1195252002-A | HCL to pH < 2 | OK | 1195252007-G | HCL to pH < 2 | OK |
| 1195252002-B | HCL to pH < 2 | OK | 1195252007-H | HCL to pH < 2 | OK |
| 1195252002-C | HCL to pH < 2 | OK | 1195252008-A | HCL to pH < 2 | OK |
| 1195252002-D | HCL to pH < 2 | OK | 1195252008-B | HCL to pH < 2 | OK |
| 1195252002-E | HCL to pH < 2 | OK | 1195252008-C | HCL to pH < 2 | OK |
| 1195252002-F | HCL to pH < 2 | OK | 1195252008-D | HCL to pH < 2 | OK |
| 1195252002-G | HCL to pH < 2 | OK | 1195252008-E | HCL to pH < 2 | OK |
| 1195252002-H | HCL to pH < 2 | OK | 1195252008-F | HCL to pH < 2 | OK |
| 1195252003-A | HCL to pH < 2 | OK | 1195252008-G | HCL to pH < 2 | OK |
| 1195252003-B | HCL to pH < 2 | OK | 1195252008-H | HCL to pH < 2 | OK |
| 1195252003-C | No Preservative Required | OK | 1195252009-A | HCL to pH < 2 | OK |
| 1195252003-D | No Preservative Required | OK | 1195252009-B | HCL to pH < 2 | OK |
| 1195252003-E | HCL to pH < 2 | OK | 1195252009-C | HCL to pH < 2 | OK |
| 1195252003-F | HCL to pH < 2 | OK | 1195252009-D | HCL to pH < 2 | OK |
| 1195252003-G | HCL to pH < 2 | OK | 1195252009-E | HCL to pH < 2 | OK |
| 1195252003-H | HCL to pH < 2 | OK | 1195252009-F | HCL to pH < 2 | OK |
| 1195252003-I | HCL to pH < 2 | OK | 1195252009-G | HCL to pH < 2 | OK |
| 1195252003-J | HCL to pH < 2 | OK | 1195252009-H | HCL to pH < 2 | OK |
| 1195252004-A | HCL to pH < 2 | OK | 1195252010-A | HCL to pH < 2 | OK |
| 1195252004-B | HCL to pH < 2 | OK | 1195252010-B | HCL to pH < 2 | OK |
| 1195252004-C | No Preservative Required | OK | 1195252010-C | No Preservative Required | OK |
| 1195252004-D | No Preservative Required | OK | 1195252010-D | No Preservative Required | OK |
| 1195252004-E | HCL to pH < 2 | OK | 1195252010-E | HCL to pH < 2 | OK |
| 1195252004-F | HCL to pH < 2 | OK | 1195252010-F | HCL to pH < 2 | OK |
| 1195252004-G | HCL to pH < 2 | OK | 1195252010-G | HCL to pH < 2 | OK |
| 1195252004-H | HCL to pH < 2 | OK | 1195252010-H | HCL to pH < 2 | OK |
| 1195252004-I | HCL to pH < 2 | OK | 1195252010-I | HCL to pH < 2 | BU |
| 1195252004-J | HCL to pH < 2 | OK | 1195252010-J | HCL to pH < 2 | OK |
| 1195252005-A | HCL to pH < 2 | OK | 1195252011-A | HCL to pH < 2 | OK |
| 1195252005-B | HCL to pH < 2 | OK | 1195252011-B | HCL to pH < 2 | OK |
| 1195252005-C | HCL to pH < 2 | OK | 1195252011-C | No Preservative Required | OK |
| 1195252005-D | HCL to pH < 2 | OK | 1195252011-D | No Preservative Required | OK |
| 1195252005-E | HCL to pH < 2 | OK | 1195252011-E | HCL to pH < 2 | OK |
| 1195252005-F | HCL to pH < 2 | OK | 1195252011-F | HCL to pH < 2 | OK |
| 1195252005-G | HCL to pH < 2 | OK | 1195252011-G | HCL to pH < 2 | OK |
| 1195252005-H | HCL to pH < 2 | OK | 1195252011-H | HCL to pH < 2 | OK |
| 1195252006-A | HCL to pH < 2 | OK | 1195252011-I | HCL to pH < 2 | OK |
| 1195252006-B | HCL to pH < 2 | OK | 1195252011-J | HCL to pH < 2 | OK |
| 1195252006-C | HCL to pH < 2 | OK | 1195252012-A | HCL to pH < 2 | OK |
| 1195252006-D | HCL to pH < 2 | OK | 1195252012-B | HCL to pH < 2 | OK |
| 1195252006-E | HCL to pH < 2 | OK | 1195252012-C | No Preservative Required | OK |
| 1195252006-F | HCL to pH < 2 | OK | 1195252012-D | No Preservative Required | OK |

| Container Id | Preservative | Container Condition | Container Id | Preservative | Container Condition |
|---|---|---|---|---|---|
| 1195252012-E | HCL to pH < 2 | OK | | | |
| 1195252012-F | HCL to pH < 2 | OK | | | |
| 1195252012-G | HCL to pH < 2 | OK | | | |
| 1195252012-H | HCL to pH < 2 | OK | | | |
| 1195252012-I | HCL to pH < 2 | OK | | | |
| 1195252012-J | HCL to pH < 2 | OK | | | |
| 1195252013-A | HCL to pH < 2 | OK | | | |
| 1195252013-B | HCL to pH < 2 | OK | | | |
| 1195252013-C | HCL to pH < 2 | OK | | | |
| 1195252013-D | HCL to pH < 2 | OK | | | |
| 1195252013-E | HCL to pH < 2 | OK | | | |
| 1195252013-F | HCL to pH < 2 | OK | | | |
| 1195252013-G | HCL to pH < 2 | OK | | | |
| 1195252013-H | HCL to pH < 2 | OK | | | |
| 1195252014-A | HCL to pH < 2 | OK | | | |
| 1195252014-B | HCL to pH < 2 | OK | | | |
| 1195252014-C | HCL to pH < 2 | OK | | | |
| 1195252014-D | HCL to pH < 2 | OK | | | |
| 1195252014-E | HCL to pH < 2 | OK | | | |
| 1195252014-F | HCL to pH < 2 | OK | | | |
| 1195252014-G | HCL to pH < 2 | BU | | | |
| 1195252014-H | HCL to pH < 2 | OK | | | |
| 1195252015-A | HCL to pH < 2 | OK | | | |
| 1195252015-B | HCL to pH < 2 | OK | | | |
| 1195252015-C | HCL to pH < 2 | OK | | | |
| 1195252015-D | HCL to pH < 2 | OK | | | |
| 1195252015-E | HCL to pH < 2 | OK | | | |
| 1195252015-F | HCL to pH < 2 | OK | | | |

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

# APPENDIX D
# CONCEPTUAL SITE MODEL

## 2019 Groundwater Monitoring Report
## Red Salmon Facility
## Naknek, Alaska

October 2019

Print Form

# Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

**Site Name:** North Pacific Seafood, Red Salmon Facility, Naknek, Alaska

**File Number:** ADEC File No. 2616.38.005

**Completed by:** Brett Woelber, SLR

**Introduction**

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

***General Instructions: Follow the italicized instructions in each section below.***

## 1. General Information:

**Sources** *(check potential sources at the site)*

- ☐ USTs
- ☒ ASTs
- ☒ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☐ Other:

**Release Mechanisms** *(check potential release mechanisms at the site)*

- ☒ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

**Impacted Media** *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☐ Air
- ☐ Sediment
- ☒ Groundwater
- ☒ Surface water
- ☐ Biota
- ☐ Other:

**Receptors** *(check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☒ Commercial or industrial worker
- ☒ Construction worker
- ☐ Subsistence harvester (i.e. gathers wild foods)
- ☐ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☒ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

## 2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

*If the box is checked, label this pathway complete:* Complete

Comments:

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☐

*If both boxes are checked, label this pathway complete:* Incomplete

Comments:

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the ground-water is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

*If both boxes are checked, label this pathway complete:* Complete

Comments:

It is unlikely that groundwater would ever be used due to insufficient volume. However, no ADEC determination under 18 AAC 75.350 has been issued.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☒

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☒

*If both boxes are checked, label this pathway complete:* Complete

Comments:

Contaminants have only been detected in a small surface water seep. The water volume in this seep is insufficient to accommodate any use. The surface water ingestion pathway is deemed to be insignificant due to no current use and no anticipated future use as a drinking water source.

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☐

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

*If all of the boxes are checked, label this pathway complete:* Incomplete

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

*If both boxes are checked, label this pathway complete:* Complete

Comments:

BTEX constituents were detected in soil in 2018.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

*If both boxes are checked, label this pathway complete:* Complete

Comments:

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

**Dermal Exposure to Contaminants in Groundwater and Surface Water**

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

*Check the box if further evaluation of this pathway is needed:* ☒

Comments:

Exposure to groundwater during construction activities applies. Dermal absorption of contaminants in surface water is considered to be insignificant because no surface water is currently used for any purpose, including in or near construction operations.

**Inhalation of Volatile Compounds in Tap Water**

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

*Check the box if further evaluation of this pathway is needed*: ☐

Comments:

Site groundwater is not used for any purpose.

**Inhalation of Fugitive Dust**

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - $PM_{10}$). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

*Check the box if further evaluation of this pathway is needed:* ☐

Comments:

**Direct Contact with Sediment**

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

*Check the box if further evaluation of this pathway is needed:* ☐

Comments:

**4. Other Comments** *(Provide other comments as necessary to support the information provided in this form.)*

Print Form

# HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

*Site:* North Pacific Seafood Inc., Red Salmon Facility, Naknek, Alaska

*Completed By:* Brett Woelber

*Date Completed:* 10/25/2018

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

**(1)**

*Check the media that could be directly affected by the release.*

**(2)**

*For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

**(3)**

*Check all exposure media identified in (2).*

**(4)**

*Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

**(5)**

*Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

**Current & Future Receptors**

| Media | Transport Mechanisms | Exposure Media | Exposure Pathway/Route | Residents (adults or children) | Commercial or industrial workers | Site visitors, trespassers, or recreational users | Construction workers | Farmers or subsistence harvesters | Subsistence consumers | Other |
|---|---|---|---|---|---|---|---|---|---|---|
| ☑ Surface Soil (0-2 ft bgs) | ☑ Direct release to surface soil — check soil | ☑ soil | ☑ Incidental Soil Ingestion | | C/F | C/F | C/F | | | |
| | ☑ Migration to subsurface — check soil | | ☐ Dermal Absorption of Contaminants from Soil | | | | | | | |
| | ☑ Migration to groundwater — check groundwater | | ☐ Inhalation of Fugitive Dust | | | | | | | |
| | ☑ Volatilization — check air | | | | | | | | | |
| | ☐ Runoff or erosion — check surface water | | | | | | | | | |
| | ☐ Uptake by plants or animals — check biota | | | | | | | | | |
| | ☐ Other (list): | | | | | | | | | |
| ☑ Subsurface Soil (2-15 ft bgs) | ☑ Direct release to subsurface soil — check soil | ☑ groundwater | ☑ Ingestion of Groundwater | | C/F | C/F | C/F | | | |
| | ☑ Migration to groundwater — check groundwater | | ☑ Dermal Absorption of Contaminants in Groundwater | | C/F | C/F | C/F | | | |
| | ☑ Volatilization — check air | | ☐ Inhalation of Volatile Compounds in Tap Water | | | | | | | |
| | ☐ Uptake by plants or animals — check biota | | | | | | | | | |
| | ☐ Other (list): | | | | | | | | | |
| ☑ Ground-water | ☑ Direct release to groundwater — check groundwater | ☑ air | ☑ Inhalation of Outdoor Air | | C/F | C/F | C/F | | | |
| | ☑ Volatilization — check air | | ☑ Inhalation of Indoor Air | | C/F | C/F | C/F | | | |
| | ☑ Flow to surface water body — check surface water | | ☐ Inhalation of Fugitive Dust | | | | | | | |
| | ☐ Flow to sediment — check sediment | | | | | | | | | |
| | ☐ Uptake by plants or animals — check biota | | | | | | | | | |
| | ☐ Other (list): | | | | | | | | | |
| ☑ Surface Water | ☑ Direct release to surface water — check surface water | ☑ surface water | ☑ Ingestion of Surface Water | | I | I | I | | | |
| | ☑ Volatilization — check air | | ☑ Dermal Absorption of Contaminants in Surface Water | | I | I | I | | | |
| | ☐ Sedimentation — check sediment | | ☐ Inhalation of Volatile Compounds in Tap Water | | | | | | | |
| | ☐ Uptake by plants or animals — check biota | | | | | | | | | |
| | ☐ Other (list): | | | | | | | | | |
| ☐ Sediment | ☐ Direct release to sediment — check sediment | ☐ sediment | ☐ Direct Contact with Sediment | | | | | | | |
| | ☐ Resuspension, runoff, or erosion — check surface water | | | | | | | | | |
| | ☐ Uptake by plants or animals — check biota | ☐ biota | ☐ Ingestion of Wild or Farmed Foods | | | | | | | |
| | ☐ Other (list): | | | | | | | | | |

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