2021 Groundwater Monitoring Report

Operations and Dispatch Center,
1201 East 1st Avenue, Anchorage, Alaska

December 2021

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Prepared for:

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

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ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
bgs	below ground surface
COC	chain of custody
Chugach	Chugach Electric Association Inc.
DL	detection limit
DRO	diesel range organics
ft	feet or foot
IDW	investigative derived waste
LOD	limit of detection
LOQ	limit of quantitation
µg/L	micrograms per liter
mg/L	milligrams per liter
ML&P	Anchorage Municipal Light and Power
ODC	Operations and Dispatch Center
PCBs	polychlorinated biphenyls
QA	quality assurance
QAR	quality assurance review
QAPP	quality assurance project plan
QC	quality control
RBDP	Risk-Based Disposal Plan
RPD	relative percent difference
RRO	residual range organics
SGS	SGS North America, Inc.
SLR	SLR International Corporation
USEPA	United States Environmental Protection Agency
UST	underground storage tank

1 INTRODUCTION

This report documents the methods and results of groundwater monitoring conducted in July 2021 in the vicinity of the Chugach Electric Association Inc (Chugach) Operations and Dispatch Center (ODC), located at 1201 E 1st Ave., Anchorage, Alaska (Figure 1). The ODC was operated by Anchorage Municipal Light and Power (ML&P) until being acquired by Chugach on November 1, 2020. The groundwater monitoring was performed as part of the long-term monitoring of groundwater near the ODC for polychlorinated biphenyls (PCBs). The monitoring was conducted in accordance with the Groundwater Monitoring Plan for PCBs (Monitoring Plan), which is Appendix C to the Risk-Based Disposal Plan (RBDP) for PCB Contaminated Soil at the Operations and Dispatch Center (SLR International Corporation [SLR], 2021). This was the first sampling event conducted under the Monitoring Plan. A Site plan is provided in Figure 2.

In addition, at the request of the Alaska Department of Environmental Conservation (ADEC), samples were collected for diesel range organics (DRO) and residual range organics (RRO) to characterize the site conditions. The monitoring wells have not previously been sampled for these constituents. This was a one-time sampling event for DRO and RRO, provided concentrations are below the applicable groundwater cleanup levels (18 Alaska Administrative Code [AAC] 75.345, Table C).

1.1 PURPOSE

The primary objectives of the groundwater monitoring are to verify the current site conditions with respect to the presence or absence of PCBs in the groundwater, and to confirm there is no migration of PCBs in the groundwater from the Site (source area) towards Ship Creek. At its closest point, Ship Creek is approximately 350 feet (ft) to the north/northwest of the Site (Figure 2). The monitoring will be conducted so long as the Site's RBDP remains in place or is amended to eliminate the long-term groundwater monitoring requirement.

1.2 SCOPE OF WORK

The scope of work consisted of the following activities:

- Sampling a groundwater monitoring network of three existing groundwater monitoring wells (C-1, C-2, C-3) for PCBs, DRO, and RRO.
- Gauging water levels in the six wells (C-1, C-2, C-3, 2A1, B-1, and B-2) during each sampling event, to confirm the groundwater flow direction.
- Performing inspections and maintenance of monitoring wells, as needed.
- Documenting the activities and findings in this groundwater monitoring report following the sampling event.

The sampling and analysis of PCBs will be performed on a biannual basis (once every two years) at the same approximate time period (July) to the extent practical. The sampling network will be

expanded to three additional wells (2A1, B-1, and B-2) if PCBs are detected in the three primary wells (C-1, C-2, C-3). The primary wells are closest to the potential source area (area of PCB impacted soil, Figure 2).

2 SITE BACKGROUND

A concrete pad believed to have been the base of an electrical transformer is located on the northwest side of the ODC Building. The original dates of service for the transformer are not known. However, there are maintenance records indicating that a transformer was replaced at this location in 1974 (Matthews 2009). The transformer installed in 1974 did not contain oil with PCBs and was removed in the mid-1980s. During a 2009 construction project involving excavation of a trench to install a water line for a fire suppression system on the western side of the ODC Building, a leaking underground storage tank (UST) and evidence of a PCB release were identified (HCG 2009a). Subsequently, the leaking UST and contents (diesel fuel or similar product) were removed, and a series of investigations to assess soil and groundwater impacts were conducted as documented in the Site's Monitoring Plan (SLR 2021). These investigations confirmed PCBs were present in the soil above 50 milligrams per kilogram above and below the water table and delineated their extent (Figure 2). Removal of the impacted soil is not currently practical due to the presence of the building which abuts the contamination and the presence of numerous underground utilities in the area.

2.1 GEOLOGY

The area around the Site is underlain by Quaternary-age unconsolidated glacial, glacial marine (glacioestuarine) and glaciofluvial (alluvial) sedimentary deposits (Ulery 1983, Hunter et al. 2000 and RETEC 2008). The lithology typically consists of well-graded sand and gravel interbedded with clay, silt, and peat. Near the ground surface, reworked or imported gravel and sandy fill associated with construction is present. The fill material is similar to the underlying alluvium and not easily distinguished. Based on regional studies, there is approximately 15 ft of fill and alluvial material in the area. Beneath alluvium material lays the Bootlegger Cove Formation, consisting of silty clays and clayey silts. This formation is approximately 100 to 160 ft thick and serves as a confining layer in the regional groundwater flow system because of its low hydraulic conductivity (Freethey 1976 and Hunter et al. 2000).

During the 2009 excavation of UST next to the ODC Building, the soils down to 7 ft were observed to be relatively uniform, consisting of poorly-graded gravels and sand mixtures with little fines (HCG 2009a). Occasional silt lenses were present. Semi-rounded coarse gravel and small cobbles were common, with a diameter up to 4 inches. Investigative boreholes drilled on and adjacent to the site encountered a similar lithology in all locations. Soil types encountered at all locations consisted of poorly sorted gravel with sand in the upper 12 ft (HCG 2010 and SLR 2016). There was a slight tendency of increased sand or silt at depth but observable silt or sand lenses (> 1 inch in thickness) were not present. The deep boreholes encountered cohesive blue gray clay, with a very abrupt contact with the overlying gravels at about 12.5 ft. The clay had little silt and was presumed to be the upper boundary of the Bootleggers Cove formation based on the regional geology (Freethey 1976, Hunter et al. 2000, and Ulery et al. 1983). Water saturated soils were present at about 3.5 to 4.5 ft which was consistent with the water level measurements.

2.2 GROUNDWATER FLOW DIRECTION

Groundwater in the vicinity of the Site consists of a shallow water table aquifer and a deep confined aquifer. The aquifers are separated by the fine-grained Bootlegger Cove Formation which has a low permeability and acts as an aquitard or confining unit (Freethey 1976). The shallow unconfined aquifer underlies the entire Site, at a depth of approximately 3 to 6 ft below ground surface (bgs). The shallow aquifer is recharged primarily by precipitation and groundwater flow from areas upgradient from the site. Groundwater in this shallow aquifer discharges to Ship Creek and seeps, and also discharges by evapotranspiration. The general groundwater flow direction is west toward Cook Inlet (RETEC 2008 and CH2MHill 2008).

Groundwater measurements from monitoring wells C-1, C-2 and C-3, the three monitoring wells closest to the contaminated area, on April 8, 2016 found the depth to groundwater ranged from 4.30 to 5.17 ft bgs (SLR 2017). The groundwater elevation data from this monitoring event and others indicated the groundwater flow direction was to the west, parallel to Ship Creek (RETEC 2008). The hydraulic conductivity was estimated to be $3.29x10^{-4}$ to $3.29x10^{-2}$ ft/second, within the normal range for coarse sand and gravel (Freeze and Cherry 1979). However, the numerous utilities and structures installed in the subsurface at the facility and the associated fill may have local effects on both groundwater flow direction and velocity.

2.3 RELEVANT HISTORICAL GROUNDWATER MONITORING DATA

In October 2009, groundwater samples were collected from monitoring wells B-1, B-2, and 2A1 for PCBs, DRO, and RRO. DRO and PCBs were not detected in any of the samples. RRO was detected in all three samples, at low concentrations below the applicable ADEC cleanup level. The RRO detections were determined to be caused by residual contamination from nearby sites.

In October 2015, monitoring wells C-1, C-2, and C-3 were installed. These three wells, along with B-1, B-2, and 2A1, were sampled for PCBs. PCBs were not detected in any of the groundwater samples, with detection limits (DLs) < 0.344 micrograms per liter (µg/L) (SLR 2016).

In April 2016, all six monitoring wells were sampled for PCBs. PCBs were not detected in any of the groundwater samples. DLs were < 0.344 µg/L. The non-detectable PCB concentrations in the groundwater samples supported the conclusion that PCBs are not migrating in the groundwater from the presumed source area. Although PCBs are present in the soil below the water table, the groundwater data indicated that they are immobile with respect to groundwater transport (SLR 2017).

3 REGULATORY CRITERIA

Information regarding the regulatory criteria for this Site is included in the sections below.

3.1 GROUNDWATER CRITERIA

The current ADEC groundwater cleanup levels applicable to the Site are contained in 18 AAC 75 Table C (ADEC 2021). Under 18 AAC 75, the current groundwater cleanup level for PCBs is 0.44 µg/L. This criterion is less than the United States Environmental Protection Agency (USEPA) enforceable maximum contaminant level for PCBs in a public drinking water system, which is 0.5 µg/L. The ADEC groundwater cleanup level is for total PCBs. There are no cleanup levels for individual Aroclors comprising the total PCBs. The ADEC DRO cleanup level is 1.5 milligrams per liter (mg/L) and RRO cleanup level is 1.1 mg/L (ADEC 2021).

3.2 PRIMARY CONSTITUENT OF INTEREST

Seven PCB Aroclors were analyzed, Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260. Aroclor-1260 is the only PCB Aroclor that has been detected at the Site in either soil or groundwater (SLR 2020). Aroclor-1260 is considered the primary constituent of interest.

4 FIELD ACTIVITIES AND METHODS

Field activities for groundwater monitoring included groundwater level gauging, groundwater sampling, and monitoring well maintenance. The approach and are described in this section. A photograph log depicting the field activities is contained in Appendix A. Completed field notes and field forms are contained in Appendices B and C, respectively. There we no deviations from the planned field activities or method as described in the Monitoring Plan (SLR 2021).

All sampling activities and documentation were completed by ADEC-Qualified Environmental Professionals (per 18 AAC 75.333 criteria), consisting of SLR employees Nicholas Wells, acting as the Field Team Lead, and Kate O'Malley, supporting Project Scientist. Field activities completed were consistent with the ADEC Field Sampling Guidance (ADEC 2019b) and USEPA low-stress (low-flow) groundwater sampling guidance (USEPA 2017).

4.1 WELL INSPECTIONS AND MAINTENANCE

Prior to the sampling event, the monitoring wells were inspected to ensure they were in suitable condition for sampling and met the data quality objectives. The monitoring well inspection took place on July 2, 2021. Each of the monitoring wells (except for well 2A1) were inspected. Well 2A1 is located in a concrete manhole and is not readily accessible. Well 2A1 was inspected on July 14, 2021 when it was gauged. The results of the visual inspections of the well monuments, protective caps, and casings are included with the field forms in Appendix C.

Maintenance was performed on the wells, as needed, on July 2 and July 7, 2021. Maintenance completed on each well is documented on the field forms in Appendix C and described in the table below. Notes were also made on the field forms for recommended improvements, such as well surface completion upgrades and protective cover replacements. Plans to address these improvements are under consideration by Chugach for implementation in 2022. All maintenance activities will be documented for future reference.

Well	Date	Maintenance Performed
C-1	7/2/2021	Removed excess bentonite from around the well casing.
C-1	7/7/2021	Pumped water out of the monument, cut down the casing by 2 inches, removed excess bentonite from around the well casing, installed new well cap.
C-2	7/2/2021	Removed excess bentonite and soil from around the well casing.
C-2	7/7/2021	Cut down the casing by 2 inches, removed excess bentonite from around the well casing.
C-3	7/7/2021	Pumped water out of the monument, removed excess bentonite from around the well casing.
B-2	7/7/2021	Removed bentonite plug in the well above the water table.

4.2 GROUNDWATER LEVEL GAUGING

Groundwater level gauging was performed multiple times in five of the six designated monitoring wells (2A1 was only gauged once on July 14, 2021). On August 13, 2021, the monitoring wells were surveyed by a Chugach survey crew, under the supervision of Owen Dicks, Licensed Surveyor in Training, to provide accurate elevations for the wells (vertical accuracy of 0.01 foot or less). A level loop survey was conducted to calculate the well elevations. The surveying was completed on the recommendation of SLR to verify existing records because the wells had not been surveyed in over 10 years.

Groundwater gauging was performed in accordance with procedures described in Section 3.1 of the Monitoring Plan (SLR 2021). Measurements were taken from the established measuring point at the top of the well casing. If no measuring point was visible, one was established. Gauging of depth to groundwater in wells was conducted prior to collection of groundwater samples, and before any purging. Care was taken to minimize water column or sediment disturbance when conducting gauging and sampling. The total depth of each well was measured after the groundwater sample was collected to avoid disturbance of sediments at the bottom of a well. All measurements were made to the nearest 0.01 feet. As a precaution, water level measurements were taken with an oil-water (product) interface probe. No product was detected by the probe in any of the wells. The oil-water interface probe was decontaminated between wells.

Based on the survey data, the water level measurements were used to calculate groundwater elevations, which were then used to infer groundwater flow direction. The results of the gauging are discussed in Section 5.1.

4.3 GROUNDWATER SAMPLING

Groundwater sampling for PCBs, DRO, and RRO was conducted at the three designated monitoring wells: C-1, C-2, and C-3. Monitoring well sampling was conducted in accordance with procedures described in Section 3.2 of the Monitoring Plan (SLR 2021).

4.3.1 ANALYTICAL SAMPLING PROGRAM

All samples were submitted for analysis to SGS North America, Inc. (SGS) in Anchorage, Alaska, an ADEC-approved laboratory. Samples were transported and stored under proper chain of custody (COC) procedures. Each of the groundwater samples were analyzed for PCBs by SW8082A. The groundwater samples were also analyzed for DRO and RRO by the Alaska Method (AK) 102 and 103.

4.4 QUALITY ASSURANCE AND QUALITY CONTROL

A quality assurance (QA) program was followed for this project that addressed project administration, sampling, quality control (QC), and data review. The analytical laboratory (SGS, Anchorage) also maintains an internal quality assurance program and standard operating procedures.

All field activities were documented in a bound project field logbook and on field logs (forms). The field scientists printed their full names in the field logbook and on all field sampling forms used during site work. Each sample was documented on a COC form and submitted to SGS. The field-team leader reviewed the data measured in the field for completeness and compliance with the plan at the end of the sampling day. As part of this review, data was compared with previous records. When field work was ongoing, the field-team leader was responsible for ordering appropriate corrective actions when deemed necessary. Corrective action was not necessary. Further information regarding QA procedures is included in the Quality Assurance Project Plan (QAPP), included as Section 4 of the Monitoring Plan (SLR 2021).

Field duplicate samples were collected at the frequency listed in the QAPP, described in Section 4 of the Monitoring Plan (SLR 2021). To ensure complete laboratory blindness, the duplicate was given a false sample name on the label and COC. MW-99 was collected as the duplicate of parent sample B-3. The duplicate sample identification was documented in the field logbook and on project-specific field forms, in connection with the primary sample identification.

Following receipt of sample results, the data was reviewed to ensure that the dataset met project data quality objectives and was usable for purposes of the project. The analytical data was reviewed for consistency with any project-specific requirements in the Monitoring Plan (SLR 2021), ADEC Technical Memorandum Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data (ADEC 2019a), National Functional Guidelines (USEPA 2020), analytical method criteria, and laboratory criteria. The review was documented in a Quality Assurance Review (QAR), presented in Appendix D. In addition to the QAR, Appendix D presents the ADEC Laboratory Data Review Checklist for the work order, and analytical laboratory data packages.

The QAR includes a QA summary for the data set. The following data quality indicators were included in the review to evaluate the data against precision, accuracy, representativeness, completeness, and sensitivity requirements established for the project:

- chain-of-custody paperwork and custody seals;
- preservation (thermal 4 ± 2 °C and chemical);
- analytical method hold times;
- blanks (method blanks);
- continuous calibration verifications;
- internal standards;
- surrogate recoveries;
- laboratory control sample and laboratory control sample duplicate recoveries as percent recovery and precision as relative percent difference (RPD);
- field duplicates as RPD; and

• laboratory detection and reporting limits.

The project data review indicated that the reported laboratory data met the data quality objectives. No data were rejected, and thus the overall project completeness goal of 85% was met. This data were considered of good quality and are acceptable for use with the noted qualifications and limitations. The most notable items are discussed below (see Appendix D for further details):

- **COC:** COC was not signed by SLR personnel when it was dropped off at the laboratory. However, the samples were under SLR custody from the time of collection until they were dropped off by hand at the laboratory.

- **DRO Method Blank:** For DRO by Method AK102, the method blank in batch had a detection of 0.374 J mg/L, between the limit of detection (LOD) and limit of quantitation (LOQ). Sample detections within five times that of the associated blank were considered affected and were appropriately qualified. Data already "J" flagged as estimated due to the low level of detection were not additionally qualified, as further qualification of already estimated values was considered unnecessary. Only sample C-9 had a detected value above the LOQ, thus was affected and qualified. Sample C-9 DRO result of 0.633 mg/L was flagged B, to indicate a potential high bias. Since a high bias was indicated and the affected result was below the applicable cleanup level of 1.5 mg/L, data usability was not impacted. Data was usable as qualified.

- **Aroclor LODs:** For non-detectable results, the LODs were compared to the applicable regulatory screening criteria established in the Monitoring Plan (SLR 2021), the ADEC groundwater cleanup levels (18 AAC 75.345 Table C). The ADEC groundwater cleanup level for PCBs is listed at 0.44 µg/L. There are no specific cleanup levels listed for individual Aroclors. All Aroclor results of non-detect had LODs at or below the PCB cleanup level of 0.44 µg/L with one exception, Aroclor-1221.

    - As discussed in the project's Monitoring Plan (SLR 2021), the current LOD for Aroclor-1221 set by the project laboratory (SGS, Anchorage) is at 0.5 µg/L for Method SW8082A, slightly above the groundwater cleanup level of 0.44 µg/L and equal to the maximum contaminant level for PCBs in a public drinking water system. The SGS LODs for the six other Aroclors analyzed are set at 0.05 µg/L, approximately one order of magnitude below 0.44 µg/L. This includes Aroclor-1260, the constituent of interest.

    - The LODs for Aroclor-1221 ranged from 0.545 µg/L to 0.57 µg/L, which did not meet the ADEC total PCB cleanup level of 0.44 µg/L. Aroclor-1260 is the only Aroclor that has been detected at this site. While it is not possible to state with certainty the absence of Aroclor-1221 below the laboratory LOD, but above the ADEC cleanup level in the 2021 groundwater samples, the data quality objectives and project goals were considered met because the LOD for the Aroclor of interest (Aroclor-1260, as discussed in Section 3.2) was below the cleanup level of 0.44 µg/L.

4.5 WASTE MANAGEMENT

All investigative derived waste (IDW), including waste generated by decontamination, was containerized and disposed offsite based on generator knowledge and any applicable analytical results. Prior to mobilizing to the Site for groundwater sampling, SLR contacted the appropriate Chugach representative(s) to coordinate the sampling event, including waste management.

Water generated by well development and purging was containerized in 5-gallon buckets with lids and characterized based on the analytical results of the water sample from each well. The water from multiple wells was combined into a single container, and the characterization is based on the highest analytical result of the respective wells.

Buckets holding IDW water were clearly marked with the origin of the water, date generated, and name and contact information of the SLR field team lead. The IDW water was provided to the designated Chugach representative for secure storage until the analytical results were available. The Chugach representative responsible for waste management was notified by SLR of the analytical results corresponding to each container of IDW. Chugach was responsible for disposal of the IDW. The water met the discharge criteria to be disposed in the Anchorage Waste Water Utility sanitary sewer system. Under 40 CFR 761.79 (b) (ii) for water discharged to a treatment works the concentration of PCBs must be less than 3 µg/L.

Non-liquid waste generated during the groundwater monitoring, such as used sample gloves or paper towels, was disposed as non-PCB contaminated, non-hazardous solid waste immediately after the well inspection, maintenance, and sampling events, based on generator knowledge.

5 GROUNDWATER MONITORING RESULTS

This section describes the results of the field activities completed in July and August 2021.

5.1 WELL GAUGING

All six monitoring wells at the ODC were gauged on July 14, 2021. Prior to sampling, three wells were gauged on July 2, 2021 (B-1, C-1, and C-2), and three on July 7, 2021 (B-2, C-1, and C-3). Well 2A1 is located beneath a manhole cover that can only be opened by Chugach personnel who were not available to open it on the first two site visits.

The depth to water measurement for monitoring well C-2 recorded on July 14, 2021 was 5.42 ft bgs, over one foot more than the water level measurement on July 2, 2021 of 4.33 ft bgs. The 5.42 ft bgs water level was recorded in error and did not represent the water level in that well at that time. This erroneous measurement was not detected until the field activities were completed. Due to the erroneous measurement, it was rejected and not used to estimate groundwater flow direction. All other water levels, including the C-2 measurement on July 2, were consistent with historical ranges for the wells. The measured water table at the ODC ranged from approximately 2.5 ft bgs to 4.5 ft bgs. All well gauging measurements are shown on Table 1, including the groundwater depths from July 14.

5.2 DIRECTION OF GROUNDWATER FLOW

Using the surveyed elevations of the wells, and the measured depths to water in each of the wells, the groundwater elevation of each well at the time of sampling was determined and is presented on Table 1. The groundwater elevations from July 14 are included on Figure 3 (except for C-2). Based on the groundwater elevations of all wells except for C-2 on July 7, the groundwater flow direction was determined to be to the west (Figure 3). The difference in the water table elevation from the furthest upgradient well (C-3) to the furthest downgradient well (2A1) was 1.62 ft on July 14, 2021.

A western groundwater flow direction is consistent with prior determinations for the Site (SLR 2017) and as established by previous area-wide investigations (RETEC 2008, CH2MHILL 2008).

5.3 GROUNDWATER ANALYTICAL RESULTS

Groundwater sample results are discussed below. A full list of groundwater analytical results is presented in Table 2. A summary of laboratory results is also shown on Figure 3. The cumulative groundwater sample results for PCBs at the Site since 2009 are listed on Table 3.

5.3.1 PCBS

Groundwater samples from monitoring wells C-1, C-2, and C-3 were analyzed for PCBs. No PCB Aroclors were detected above their LODs in any sample.

5.3.2 DRO/RRO

The groundwater samples were also analyzed for DRO and RRO. DRO was detected in either low level or estimated (J-flagged) concentrations at all wells. All detected concentrations are well below the ADEC cleanup level of 1.5 mg/L. RRO was detected in estimated (J-flagged) concentrations in all wells. All RRO concentrations are well below the ADEC cleanup level of 1.1 mg/L.

6 SUMMARY AND CONCLUSIONS

Monitoring well inspections, gauging, and surveying were completed to confirm the groundwater flow direction in the ODC area. Based on these results, the groundwater flow direction was confirmed to be to the west.

Groundwater samples were collected from three monitoring wells at the ODC on July 14, 2021. These wells are all screened in the unconfined surface aquifer above the Bootlegger Cove Formation which serves as an aquitard. Data collected was considered of good quality, and the project objectives have been met.

PCBs were not detected in any of three monitoring wells sampled. This was consistent with previous sampling of these wells in 2015 and 2016, and provides further evidence that PCBs are not migrating in the groundwater. DRO and RRO were detected at low level, estimated concentrations in all three wells but at concentrations well below the applicable ADEC cleanup levels.

Due to the non-detectable concentrations of PCBs during this sampling event, groundwater monitoring will continue on a biannual basis, limited to the three primary wells closest to the presumed source areas (C-1, C-2, and C-3), per the Monitoring Plan (SLR 2021). Since all DRO and RRO concentrations were well below the applicable groundwater cleanup levels, DRO and RRO sampling and analysis will be discontinued.

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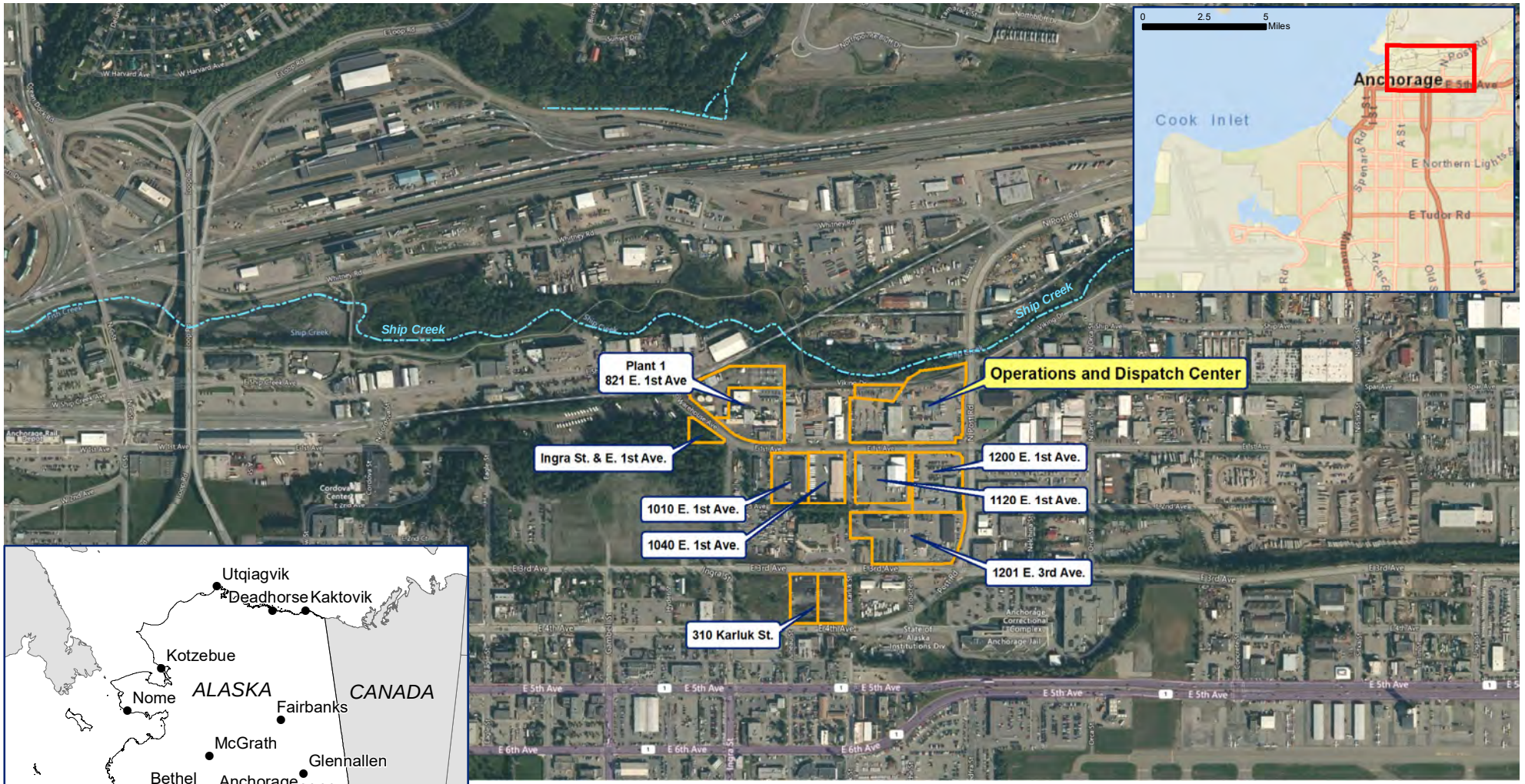
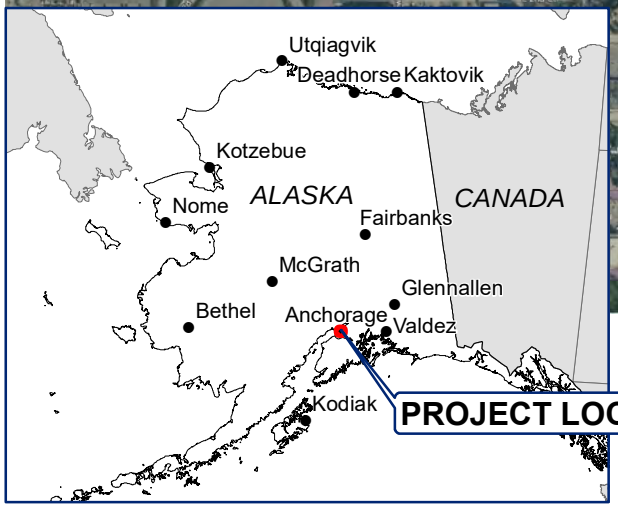
FIGURES





Chugach Electric Association, Inc. (Chugach) Owned and/or Managed Properties

N

0 275 550 1,100 1,650 2,200 Feet

WHEN PLOTTED AT 8.5 x 11 PAGE SIZE

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

SLR CHUGACH

Site Owner & Operator

CHUGACH ELECTRIC ASSOCIATION, INC.

Plan

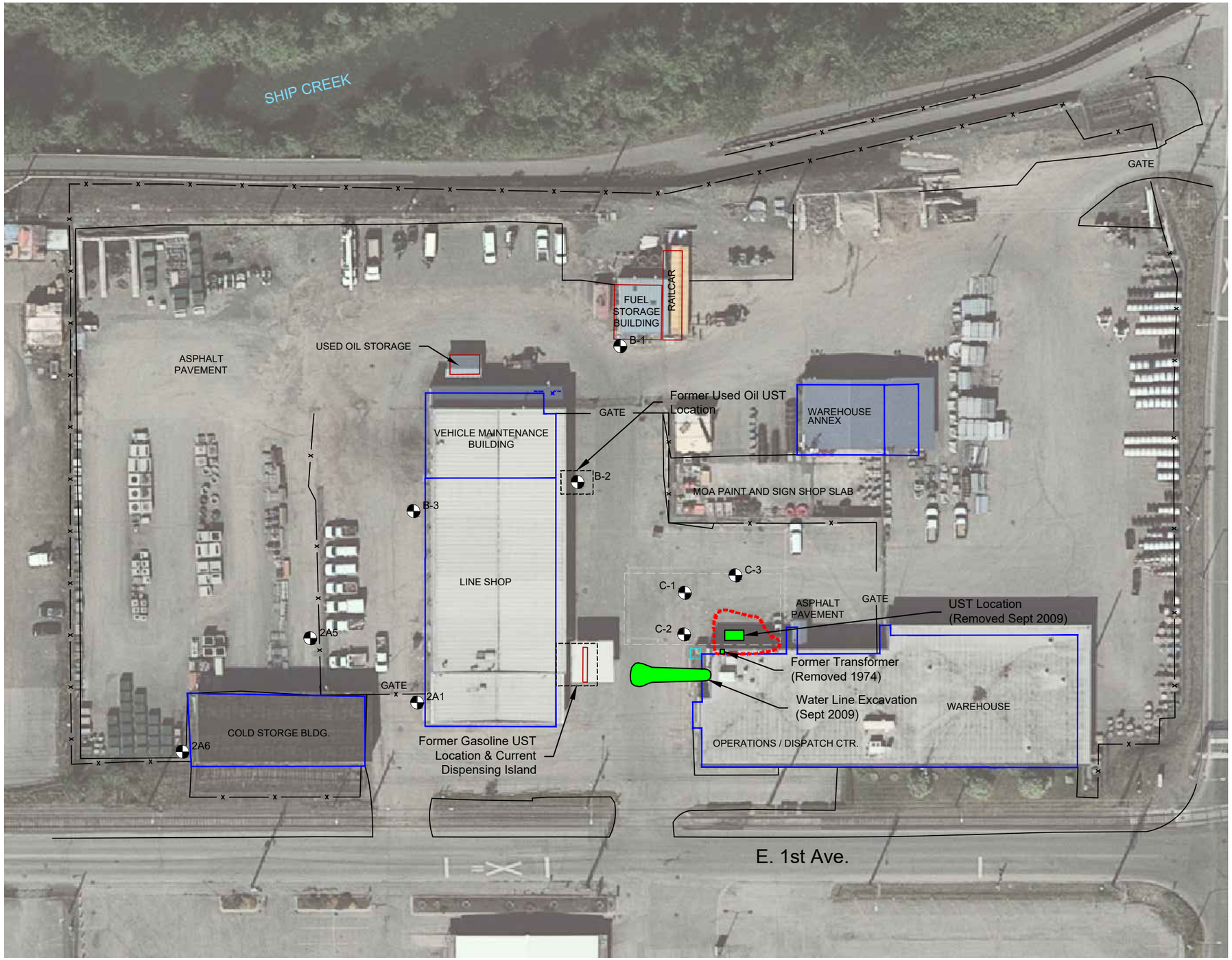
2021 GROUNDWATER MONITORING REPORT
OPERATIONS AND DISPATCH CENTER
1201 EAST 1ST AVENUE,
ANCHORAGE, ALASKA

Drawing

SITE VICINITY MAP

Date	December 2021	Scale	1 in = 880 feet
File Name	F1 Ops_Center_RPT_21v1.mxd	Project No.	105.00015.21004

Fig. No. 1



LEGEND

- B-1 — GROUNDWATER MONITORING WELL
- FENCE
- EDGE OF ASPHALT PAVEMENT (APPROXIMATE)
- AREA OF INTEREST
- ESTIMATED AREA OF PCBs IN SOIL > 50 mg/Kg (SLR 2016)

SLR CHUGACH

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

SCALE: 1" = 60'
WHEN PLOTTED AT 11 x 17 PAGE SIZE
0 60' 120' 180'

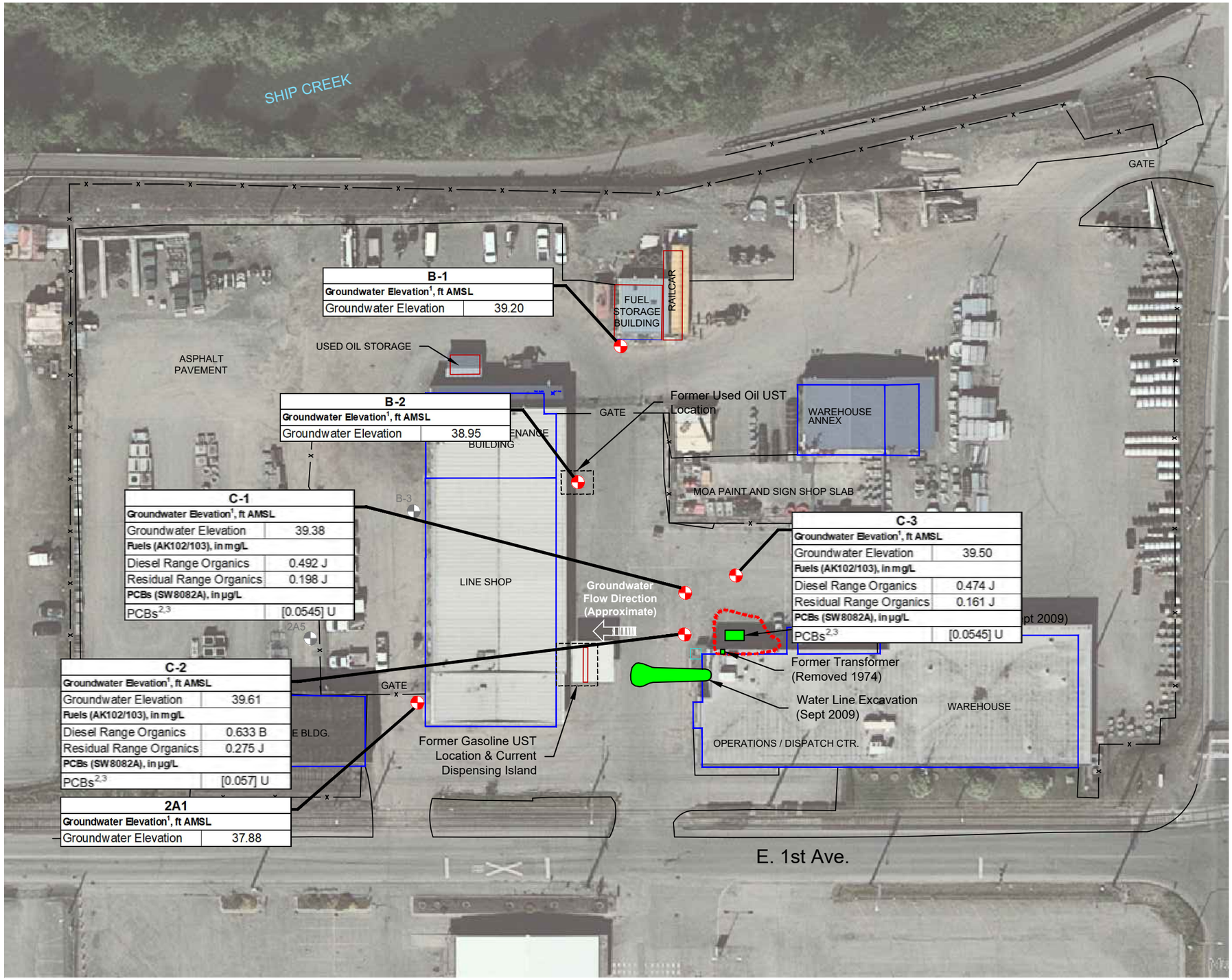
N

Site Owner and Operator
CHUGACH ELECTRIC ASSOCIATION, INC.

Plan
2021 GROUNDWATER MONITORING REPORT
OPERATIONS AND DISPATCH CENTER
1201 EAST 1ST AVE,
ANCHORAGE, ALASKA

Drawing
SITE PLAN

Date December 2021	Scale 1" = 60 Feet	Fig. No. 2
File Name F2-3 GW Ops Bldg_21v1	Project No. 105.00015.21004	



LEGEND

- GROUNDWATER MONITORING WELL SAMPLED
- GROUNDWATER MONITORING WELL (NOT SAMPLED)
- FENCE
- EDGE OF ASPHALT PAVEMENT (APPROXIMATE)
- AREA OF INTEREST
- ESTIMATED AREA OF PCBs IN SOIL > 50 mg/Kg (SLR 2016)

SAMPLING RESULTS GUIDELINES

- J Estimated concentration between the LOQ and DL.
- U Nondetect, LOD is shown in brackets.
- B The analyte was positively identified in an associated blank. The data is potentially biased high.

NOTES

Sample results highlighted in yellow exceed the ADEC cleanup levels.[5]

1. Depth to water measurements were made on July 2 and 14, 2021 with the calculated groundwater elevation shown based on the July 14 measurements except for well C-2. For well C-2 the groundwater elevation shown is based on the July 2 measurement (due to erroneous July 14 measurement).
2. The result listed is for Aroclor-1260. Aroclor-1260 is the only PCB Aroclor that has been detected in the soil this Site (SLR 2021). Aroclor-1260 is considered the primary constituent of interest. The full list of PCB Aroclor results can be found on Table 2.
3. For detected results, the sample result is shown. For nondetectable results, the Limit of Detection (LOD) is listed in brackets. Associated flag(s) are shown to the right.
4. Monitoring Wells C-1, C-2, and C-3 were sampled for DRO/RRO and PCBs on July 14, 2021. Monitoring Wells 2A1, B-1, and B-2 were not sampled per the Monitoring Plan (SLR 2021).
5. The cleanup levels correspond to those listed in 18 AAC 75.345, Method Two, Table C, Groundwater Cleanup Levels (ADEC, June 24, 2021). The DRO cleanup level is 1.5 mg/L. The RRO Cleanup Level is 1.1 mg/L. The PCB cleanup level is 0.44 µg/L.

ABBREVIATIONS

--	Not applicable or screening criteria does not exist for this compound	LOQ	limit of quantitation
AMSL	above mean sea level	mg/L	milligrams per liter
ft	feet	AK	Alaska
AAC	Alaska Administrative Code	µg/L	micrograms per liter
LOD	limit of detection	DL	detection limit
ADEC	Alaska Department of Environmental Conservation	RRO	residual range organics
		DRO	diesel range organics
		PCB	polychlorinated biphenyl

Site Owner and Operator

CHUGACH ELECTRIC ASSOCIATION, INC.

Plan

2021 GROUNDWATER MONITORING REPORT
OPERATIONS AND DISPATCH CENTER
1201 EAST 1ST AVE,
ANCHORAGE, ALASKA

Drawing

2021 GROUNDWATER MONITORING ANALYTICAL RESULTS

Date	December 2021	Scale	1" = 60 Feet
File Name	F2-3 GW Ops Bldg_21v1	Project No.	105.00015.21004
		Fig. No.	3

SLR CHUGACH

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

SCALE: 1" = 60'
WHEN PLOTTED AT 11 x 17 PAGE SIZE
0 60' 120' 180'

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TABLES

Table 1: Operations and Dispatch Center
Groundwater Field Parameters

Monitoring Well	Screened Interval ft bgs (as-built)	Stick up Height (ft)[1]	TOC Elevation (ft AMSL)[2, 3]	Measurement Date	Total Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft AMSL)	Difference in Water Table Depth (ft)[4]	Temperature[5] (°C)	Specific Conductance[5](mS/cm)	Dissolved Oxygen[5] (mg/L)	Oxidation-Reduction Potential[5] (mV)	pH[5]	Turbidity[5] (NTU)	Observed Sheen
2A1	2.0 - 12.0	N/A ; Sub-Surface Well	40.41	7/2/2021	--	--	--	--	--	--	--	--	--	--	--
				7/14/2021	8.52	2.53	37.88		--	--	--	--	--	--	--
B-1	2.0 - 9.5	0.25	42.88	7/2/2021	4.9	3.51	39.37	-0.17	--	--	--	--	--	--	--
				7/14/2021	4.97	3.68	39.20		--	--	--	--	--	--	--
B-2	3.0 - 8.0	N/A ; Flush Mount Well	42.87	7/7/2021	8.15	3.70	39.17	-0.22	--	--	--	--	--	--	--
				7/14/2021	8.44	3.92	38.95		--	--	--	--	--	--	--
C-1	2.0 - 11.91	N/A ; Flush Mount Well	43.43	7/2/2021	11.91	3.92	39.51	-0.13	--	--	--	--	--		--
			43.26	7/14/2021	11.29	3.88	39.38		13.9	1.787	0.21	244.7	6.30	1.73	No
C-2	2.5 - 12.7	N/A ; Flush Mount Well	43.94	7/2/2021	12.56	4.33	39.61	-1.26	--	--	--	--	--	--	--
			43.77	7/14/2021	12.41	5.42[6]	38.34		12.5	2.234	0.16	216.4	6.21	0.92	No
C-3	2.0 - 12.14	N/A ; Flush Mount Well	43.13	7/7/2021	12.61	3.46	39.67	-0.17	--	--	--	--	--	--	--
				7/14/2021	11.74	3.63	39.50		12.9	1.649	0.3	1.649	6.28	0.74	No

Rejected[6]

Abbreviations:

--	not measured	mg/L	milligrams per liter
AMSL	above mean sea level	mS/cm	millisiemens per centimeter
BGS	below ground surface	mV	millivolts
BTOC	below top of well casing	NA	not applicable
°C	degrees Celsius	NTU	Nephelometric turbidity units
ft	feet		

Notes

1 Top of casing height for flush mount wells is generally a couple inches below ground surface. Well 2A1 is located within a concrete manhole, and its top of casing is 2.93 ft below ground surface.
2 Elevations calculated based on laser level loop survey conducted by Chugach Electric Association, Inc. surveyors on August 13, 2021.
3 Monitoring wells C-1 and C-2 were cut down by 2 inches on 7/7/2021.
4 Solinst 102 water level meter used on 7/2/2021 and 7/7/2021. Solinst IF #1 product interface probe used on 7/14/2021.
5 Field parameters are final parameters after purging and prior to sampling.
6 The water level measurement taken from monitoring well C-2 on July 14, 2021 was erroneous based on comparison to previous measurements and measurements in adjacent wells. The depth to water in well C-2 was 3.78 ft BTOC on October 14, 2015 and 4.72 ft BTOC on April 8, 2016. The July 2, 2021 measurement was within the range of historical depth to water measurements. The July 14, 2021 measurement was rejected for the purposes of calculating groundwater flow direction.

Table 2: 2021 Operations and Dispatch Center
Groundwater Monitoring Analytical Results

Compound in milligrams per liter (mg/L) for Fuels and micrograms per liter (µg/L) for PCBs	Screening Criteria	Sample Location[2]			
	18 AAC 75, Table C, Groundwater Cleanup Levels[1]	C-1 14-Jul-21 1214238003	Primary: C-2 14-Jul-21 1214238001	Duplicate: C-9 14-Jul-21 1214238002	C-3 14-Jul-21 1214238004
		Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]
Fuels (AK102 and 103), in mg/L					
Diesel Range Organics	1.5	0.492 J	0.593 J	0.633 B	0.474 J
Residual Range Organics	1.1	0.198 J	0.183 J	0.275 J	0.161 J
PCBs (SW8082A), in µg/L					
Aroclor-1016	--	[0.0545] U	[0.056] U	[0.057] U	[0.0545] U
Aroclor-1221[4]	--	[0.545] U	[0.56] U	[0.57] U	[0.545] U
Aroclor-1232	--	[0.0545] U	[0.056] U	[0.057] U	[0.0545] U
Aroclor-1242	--	[0.0545] U	[0.056] U	[0.057] U	[0.0545] U
Aroclor-1248	--	[0.0545] U	[0.056] U	[0.057] U	[0.0545] U
Aroclor-1254	--	[0.0545] U	[0.056] U	[0.057] U	[0.0545] U
Aroclor-1260	--	[0.0545] U	[0.056] U	[0.057] U	[0.0545] U
Total Aroclors[5]	0.44	[0.0545] U	[0.056] U	[0.057] U	[0.0545] U

Yellow Shading — Sample result exceeds the ADEC cleanup levels.

Notes:

1 - The cleanup levels correspond to those listed in 18 AAC 75.345, Method Two, Table C, Groundwater Cleanup Levels (ADEC, June 24, 2021). Table C lists the cleanup level of 0.44 µg/L for PCBs, with no specific criteria for individual Aroclors and no defined list of contributing Aroclors. Aroclor-1260 is the only PCB Aroclor that has been detected in the soil or groundwater at this Site and is the primary constituent of interest (SLR 2021).

2 - The sample type, 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 nondetectable results, the Limit of Detection (LOD) is listed in brackets in this column. Associated flag(s) are shown to the right.

4 - The LOD of Aroclor-1221 was above the ADEC 18 AAC 75 groundwater cleanup level for total PCBs (0.44 µg/L). However, the LOD for Aroclor- 1221 was less than the USEPA enforceable maximum contaminant level for PCBs in a public drinking water system, which is 0.5 µg/L. Aroclor-1221 has not been detected at this Site in the soil or groundwater and is not considered a constituent of interest per the Monitoring Plan (SLR 2021). The LODs for the constituent of interest, Aroclor 1260, and all other Aroclors was approximately an order magnitude less than the ADEC cleanup level for total PCBs (0.44 ug/L).

5 - Total values were the summation of detected compounds only. If compounds were not detected, then the highest LOD was listed (for total PCBs, the LOD Aroclor-1260 is listed), (see footnotes 1 and 4).

Data Flags:

J	Estimated concentration between the LOQ and DL.
U	Nondetect, LOD is shown in brackets.
B	The analyte was positively identified in an associated blank. The data is potentially biased high.

Abbreviations:

--	Not applicable or screening criteria does not exist for this compound	LOD	limit of detection
AAC	Alaska Administrative Code	LOQ	limit of quantitation
ADEC	Alaska Department of Environmental Conservation	mg/L	milligrams per liter
AK	Alaska	PCB	polychlorinated biphenyl
DL	detection limit	µg/L	micrograms per liter

Table 3: Operations and Dispatch Center
Cumulative Groundwater Sample Results for PCBs

		Monitoring/Sampling Event Date(s)		October 8, 2009[A]	October 14, 2015[3,B]	April 8, 2016[C]	July 14, 2021
Monitoring Well	Date Installed	Cleanup Level[1, 2]	PCBs (µg/L)	0.44	0.44	0.44	0.44
2A1	4/19/1989	Depth to Water (ft BTOC)		2.51	1.96	2.81	2.53
		PCBs (µg/L)		ND [0.033]	ND [0.0555]	ND [0.0505]	--
B-1	7/16/1993	Depth to Water (ft BTOC)		5.28[4]	2.38	3.40	3.68
		PCBs (µg/L)		ND [0.032]	ND [0.0555]	ND [0.051]	--
B-2	7/16/1993	Depth to Water (ft BTOC)		4.01	3.48	4.29	3.70
		PCBs (µg/L)		ND [0.0354] / ND [0.0339]	ND [0.055]	ND [0.051]	--
C-1	10/12/2015	Depth to Water (ft BTOC)		--	3.34	4.29	3.88
		PCBs (µg/L)		--	ND [0.054]	ND [0.051]	ND [0.0545]
C-2	10/12/2015	Depth to Water (ft BTOC)		--	3.78	4.72	--[5]
		PCBs (µg/L)		--	ND [0.054]	ND [0.0515]	ND [0.056] / ND [0.057]
C-3	10/12/2015	Depth to Water (ft BTOC)		--	3.04	3.99	3.63
		PCBs (µg/L)		--	ND [0.052] / ND [0.052]	ND [0.051] / ND [0.0515]	ND [0.0545]

Samples with exceedances of the current groundwater cleanup level are highlighted in yellow. None apply.
For samples with duplicates, the parent sample is listed first, with the duplicate result listed after the /.

Data Flags:

ND Non-detect result; the LOD is listed in [ ] for relevant constituents. In this case, Arolcor-1260 (see footnote 2).

Notes:

1. Current (2021) cleanup level as referenced in *Oil and Other Hazardous Substances Pollution Control* , 18 AAC 75, Table C, as amended through June 24, 2021. Table C lists the cleanup level of 0.44 µg/L for PCBs, with no specific criteria for individual Aroclors and no defined list of contributing Aroclors.

2. Aroclor-1260 is the only PCB Aroclor that has been detected in the soil or groundwater at this Site (SLR 2021).

3. Depth to water measurements were collected on October 13, 2015.

4. A stickup of 2.13 ft was noted for well B-1 for this measurement.

5. The depth to water measurement for C-2 was recorded erroneously. The depth to water on July 2, 2021 was 4.33 ft, similar to previous depth to water measurements.

Abbreviations:

--	not requested, measured, or analyzed	LOD	laboratory limit of detection
AAC	Alaska Administrative Code	µg/L	micrograms per liter
BTOC	below top of casing	N/A	not applicable, the well is still usable
DL	detection limit	PCBs	polychlorinated biphenyls (total)
ft	feet		

References:

A. Hoefler Consulting Group (HCG), 2009. *October 2009 Groundwater Sampling at the Operations and Dispatch Center, 1201 E. 1st Ave. Anchorage, Alaska.* Letter Report. Prepared for ML&P. December 16, 2009..

B. SLR International Corporation (SLR), 2016. *2015 Site Assessment and Groundwater Monitoring Report. ML&P Operations and Dispatch Center.* February 8.

C. SLR, 2017. *ML&P Operations and Dispatch Center, 2016 Groundwater Monitoring Report.* January.

APPENDIX A

Photograph Log

Ops and Dispatch Center GW Monitoring
July 2021

Photo 1: Well 2A1 underneath a manhole cover on the west side of the line shop. (7/14/2021)

Photo 2: Well C-2 on July 2, 2021 prior to maintenance and groundwater monitoring. On July 7, 2021 the well was cut down by 2 inches and the excess bentonite was removed. (7/2/2021)

Operations and Dispatch Center GW Monitoring
July 2021

Photo 3: Sampling well C-2. (7/14/2021)

Photo 4: Well C-1 prior to maintenance and the groundwater monitoring event. The monument was purged of water and the excess bentonite was removed on July 7, 2021. Well C-3 required the same maintenance. (7/2/2021)

Operations and Dispatch Center GW Monitoring
July 2021

Photo 5: Purging well C-1. (7/14/21)

Photo 6: Operations and Dispatch Center from the west. Approximate well locations are shown. The trucks are parked over the approximate source area (PCB impacted soils below asphalt pavement, see Figure 2). (10/16/20)

APPENDIX B

Field Notes

7/14/21 ODC GW Monitoring

Nick Wells
Kate O'Malley

0700-Meet at SLR. Grab paperwork.
0710-Depart for SLR Warehouse
0720-Calibrate instruments.
0730-Conduct safety Meeting.
0745-Load ice in coolers and gear into van.
0800-Depart SLR Warehouse for Chugach Electric. Pick up purge water buckets from Steve Stangle.
0810-Arrive at Operations and Dispatch center.
0820-Measure Water & Well Depth at 2A1
DTW=5.46 ft below manhole cover
TD=11.45 ft below manhole cover
TOC from manhole cover=2.93 ft.
2A1 is a 4" well with no plastic cap. No maintenance needed.
0830-Set up at C-2.
0845-Start purging C-2.
0907-End purge at C-2.
0915-Collect sample C-2 and duplicate C-9.
0935-Set up at C-1
0943-Start purging C-1.
1005-End purge C-1.
1010-Collect sample C-1.
1020-Set up at C-3.

Scale: 1 square =_____

7/14/21 Cont.

Nick Wells
Kate O'Malley

1032-~~Set up~~ Start purging C-3.
1054-End purge at C-3.
1100-Collect sample C-3.
1110-Clean up sampling equipment.
1117-B-1: DTW=3.68 ft BTOC.
TD=4.97 ft BTOC, Stickup=0.9 ft
1121-B-2: DTW=3.92 ft BTOC.
TD=8.44 ft BTOC
1130-Drop off purge water buckets at the Transformer Shop.
1142-Arrive at SLR Warehouse. Unload gear from van.
1200-Arrive back at SLR. End of project.

Scale: 1 square =_____

Rite in the Rain

APPENDIX C

Field Forms

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Well Assessment Form

Site/Client Name: Chugach Electric / Ops & Dispatch Center		Well ID: C-1	
Project # : 105.00015.21004		Evaluated by: Nicholas Wells	
Date: 7/2/21		Time: 12:20	
Well Information			
Well Type: (Permanent) Temporary	Well Diameter: 2	Screen Interval: 2 ft BTOC to 11.91 ft BTOC	
Casting material: PVC		Frost heaving? (Yes) No	Photos taken? (Yes) No
Stickup Yes (No) If yes, _____ft above ground		Well cap intact? Yes (No)	Missing bolt or lock? Yes (No)
Well monument cover intact? (Yes) No		Material used for surface seal:	
Surface seal and well monument intact? Yes (No) if no describe: Well monument loose and needs to be reinstalled			
Maintenance done? (Yes) No, If yes, describe: Removed bentonite from around casing			
Maintenance need? (Yes) No, If yes, describe: Cut down, new well cap & well monument.			
Depth to Water (ft BTOC): 3.92		Tubing present in well? Yes (No)	
Total Depth (ft BTOC): 11.91			
Notes: Dirt/bentonite, other material in well. Blockages at 1.60 & 3.14 ft btoc Unsure if tubing will go down well.			

Site/Client Name: Chugach Electric / Ops & Dispatch Center		Well ID: C-2	
Project # : 105.00015.21004		Evaluated by: Nicholas Wells	
Date: 7/2/21		Time: 12:35	
Well Information			
Well Type: (Permanent) Temporary	Well Diameter: 2	Screen Interval: 2.5 ft BTOC to 12.7 ft BTOC	
Casting material: PVC		Frost heaving? Yes (No)	Photos taken? (Yes) No
Stickup Yes (No) If yes, _____ft above ground		Well cap intact? (Yes) No	Missing bolt or lock? Yes (No)
Well monument cover intact? (Yes) No		Material used for surface seal:	
Surface seal and well monument intact? (Yes) No, if no describe			
Maintenance done? (Yes) No, If yes, describe: Removed bentonite/soil from around well casing			
Maintenance need? (Yes) No, If yes, describe: More bentonite needs to be removed, could be cut down more too			
Depth to Water (ft BTOC): 4.33		Tubing present in well? (Yes) No	
Total Depth (ft BTOC): 12.56			
Notes:			

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Well Assessment Form

Site/Client Name: Chugach Electric / Ops & Dispatch Center		Well ID: C-3	
Project # : 105.00015.21004		Evaluated by: Nicholas Wells	
Date: 7/2/21		Time: 13:05	
Well Information			
Well Type: (Permanent) Temporary	Well Diameter: 2	Screen Interval: 2 ft BTOC to 12.14 ft BTOC	
Casting material: PVC		Frost heaving? Yes (No)	Photos taken? (Yes) No
Stickup Yes (No) If yes, _____ ft above ground		Well cap intact? (Yes) No	Missing bolt or lock? Yes (No)
Well monument cover intact? (Yes) No		Material used for surface seal:	
Surface seal and well monument intact? Yes No, if no describe Unknown Water in monument			
Maintenance done? Yes (No) If yes, describe			
Maintenance need? (Yes) No, If yes, describe Drain water and remove soil from around casing.			
Depth to Water (ft BTOC): N/A		Tubing present in well? Yes No N/A	
Total Depth (ft BTOC): N/A			
Notes: Did not open up well due to water in monument over TOC. light sheen on water. unknown origin.			

Site/Client Name: Chugach Electric / Ops & Dispatch Center		Well ID: B-2	
Project # : 105.00015.21004		Evaluated by: Nicholas Wells	
Date: 7/2/21		Time: 13:15	
Well Information			
Well Type: (Permanent) Temporary	Well Diameter: 2	Screen Interval: 3 ft BTOC to 8 ft BTOC	
Casting material: PVC		Frost heaving? Yes (No)	Photos taken? (Yes) No
Stickup Yes (No) If yes, _____ ft above ground		Well cap intact? (Yes) No	Missing bolt or lock? Yes (No)
Well monument cover intact? (Yes) No		Material used for surface seal:	
Surface seal and well monument intact? (Yes) No, if no describe			
Maintenance done? Yes (No), If yes, describe			
Maintenance need? (Yes) No, If yes, describe Both screws loose-need new ones.			
Depth to Water (ft BTOC): Unreadable due to bentonite in well		Tubing present in well? (Yes) No	
Total Depth (ft BTOC): 8.65			
Notes: Bentonite blockage at 1.5 ft btoc. May be sampleable if water under bentonite.			

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Well Assessment Form

Site/Client Name: Chugach Electric / Ops & Dispatch Center		Well ID: B-1	
Project # : 105.00015.21004		Evaluated by: Nicholas Wells	
Date: 7/2/21		Time: 13:30	
Well Information			
Well Type: (Permanent) Temporary	Well Diameter: 2	Screen Interval: 2 ft ~~BTOC~~ bgs to 9.5 ft ~~BTOC~~ bgs	
Casting material: PVC		Frost heaving? Yes (No)	Photos taken? (Yes) No
Stickup (Yes) No, If yes, 0.25 ft above ground		Well cap intact? (Yes) No	Missing bolt or lock? Yes (No)
Well monument cover intact? (Yes) No		Material used for surface seal: None	
Surface seal and well monument intact? Yes (No) If no describe: Monument needs to be cemented in			
Maintenance done? Yes (No) If yes, describe			
Maintenance need? (Yes) No, If yes, describe: Cement in monument, cut down casing.			
Depth to Water (ft BTOC): 3.51		Tubing present in well? (Yes) No	
Total Depth (ft BTOC): 4.90			
Notes:			

Site/Client Name: Chugach Electric / Ops & Dispatch Center		Well ID: 2A1	
Project # : 105.00015.21004		Evaluated by: Nicholas Wells	
Date: 7/2/21		Time: 13:40	
Well Information			
Well Type: Permanent Temporary	Well Diameter:	Screen Interval: _____ ft BTOC to _____ ft BTOC	
Casting material:		Frost heaving? Yes No	Photos taken? Yes No
Stickup Yes No, If yes, _____ ft above ground		Well cap intact? Yes No	Missing bolt or lock? Yes No
Well monument cover intact? Yes No		Material used for surface seal:	
Surface seal and well monument intact? Yes No, if no describe			
Maintenance done? Yes No, If yes, describe			
Maintenance need? Yes No, If yes, describe			
Depth to Water (ft BTOC):		Tubing present in well? Yes No	
Total Depth (ft BTOC):			
Notes: In manhole. Not opened due to time.			

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Well Assessment Form

Site/Client Name: Chugach Electric / Ops & Dispatch Center	Well ID: C-3	
Project # : 105.00015.21004	Evaluated by: Nicholas Wells, Kate O'Malley	
Date: 7/7/21	Time: 13:40	
Well Information		
Well Type: (Permanent) Temporary / Well Diameter: 2	Screen Interval: 2 ft BTOC to 12.14 ft BTOC	
Casting material: PVC	Frost heaving? Yes (No)	Photos taken? (Yes) No
Stickup Yes (No) If yes, _____ft above ground	Well cap intact? (Yes) No	Missing bolt or lock? (Yes) No | stripped
Well monument cover intact? (Yes) No	Material used for surface seal:	
Surface seal and well monument intact? (Yes) No, if no describe		
Maintenance done? (Yes) No, If yes, describe Pumped out water. Scooped out excess bentonite & dirt.		
Maintenance need? Yes (No) If yes, describe		
Depth to Water (ft BTOC): 3.43	Tubing present in well? (Yes) No	
Total Depth (ft BTOC): 12.61		
Notes:		

Site/Client Name: Chugach Electric / Ops & Dispatch Center	Well ID: C-1	
Project # : 105.00015.21004	Evaluated by: Nicholas Wells, Kate O'Malley	
Date: 7/7/21	Time: 14:00	
Well Information		
Well Type: (Permanent) Temporary / Well Diameter: 2	Screen Interval: 2 ft BTOC to 11.91 ft BTOC	
Casting material: PVC	Frost heaving? (Yes) No	Photos taken? (Yes) No
Stickup Yes (No) If yes, _____ft above ground	Well cap intact? Yes (No)	Missing bolt or lock? Yes (No)
Well monument cover intact? (Yes) No	Material used for surface seal:	
Surface seal and well monument intact? Yes (No) if no describe		
Maintenance done? (Yes) No, If yes, describe Pumped out water in monument, scooped out excess bentonite/mud. Took off 2" of casing		
Maintenance need? (Yes) No, If yes, describe Meets new surface monument		
Depth to Water (ft BTOC): 3.70	Tubing present in well? Yes (No)	
Total Depth (ft BTOC):		
Notes: Maintenance: Removed old tubing from down in well, installed new well cap.		

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Well Assessment Form

Site/Client Name: Chugach Electric / Ops & Dispatch Center		**Well ID:** C2	
Project # : 105.00015.21004		Evaluated by: Nicholas Wells	
Date: 7/7/2021		Time: 1430	
Well Information			
Well Type: (Permanent) Temporary	Well Diameter: 2	Screen Interval: 2.5 ft BTOC to 12.7 ft BTOC	
Casting material: PVC		Frost heaving? Yes (No)	Photos taken? (Yes) No
Stickup Yes (No) If yes, _____ft above ground		Well cap intact? (Yes) No	Missing bolt or lock? Yes (No)
Well monument cover intact? (Yes) No		Material used for surface seal:	
Surface seal and well monument intact? (Yes) No, if no describe			
Maintenance done? (Yes) No, If yes, describe Removed bentonite, cut down 1"			
Maintenance need? Yes No, If yes, describe			
Depth to Water (ft BTOC):		Tubing present in well? Yes (No) (removed)	
Total Depth (ft BTOC):			
Notes:			

Site/Client Name: Chugach Electric / Ops & Dispatch Center		**Well ID:** B2	
Project # : 105.00015.21004		Evaluated by: Nicholas Wells	
Date: 7/7/2021		Time: 1452	
Well Information			
Well Type: (Permanent) Temporary	Well Diameter: 2	Screen Interval: 3 ft BTOC to 8 ft BTOC	
Casting material: PVC		Frost heaving? Yes (No)	Photos taken? Yes (No)
Stickup Yes (No) If yes, _____ft above ground		Well cap intact? (Yes) No	Missing bolt or lock? Yes (No)
Well monument cover intact? (Yes) No		Material used for surface seal:	
Surface seal and well monument intact? Yes (No) if no describe screws dont screw in			
Maintenance done? (Yes) No, If yes, describe Removed bentonite in well			
Maintenance need? (Yes) No, If yes, describe New monument lid			
Depth to Water (ft BTOC): 3.70		Tubing present in well? Yes (No) (removed)	
Total Depth (ft BTOC): 8.15			
Notes:			

Water Parameter Meter Calibration Log

SLR

Date: 7/13/21 Time: 0730 Calibration By: Kate OMalley

Meter Manufacturer and Identification #: YSI 09A130779

Parameter	Standard	True Value	Lot #	Date Opened	Expiration Date	PreCalibration Reading	Reading After Calibration	Calibration Acceptance Criteria
pH	7.00	7.02	CC6K2397	5/25/21	7/26/22	7.08	7.02	± 0.10
	4.00	4.00	CC718405	7/7/21	3/27/23	4.14	4.00	± 0.10
	10.00	10.06	CC688004	6/30/21	8/31/22	9.95	10.06	± 0.10
Sp Cond (mS/cm)	1.413	1.413	CC20722	5/25/21	1/21/22	1.48	1.41	± 10%
ORP (mV)	240	240	5706	7/13/21	10/2025	247.8	240.0	---
DO*			761.6 mm Hg			137.5	100.2	± 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: 7/14/21 Time: 7:19 Calibration By: Kate OMalley

Meter Manufacturer and Identification #: YSI 09A130779

Parameter	Standard	True Value	Lot #	Date Opened	Expiration Date	PreCalibration Reading	Reading After Calibration	Calibration Acceptance Criteria
pH	7.00	7.02	CC6K2397	5/25/21	7/26/22	6.90	7.02	± 0.10
	4.00	4.00	CC718405	7/7/21	3/27/23	4.22	4.06	± 0.10
	10.00	10.07	CC688604	6/30/21	8/31/22	9.88	10.07	± 0.10
Sp Cond (mS/cm)	1.413	1.413	CC20990	6/30/21	3/16/22	1.39	1.41	± 10%
ORP (mV)	240	240	5704	7/13/21	10/25	239.2	240.0	---
DO*			761.9 mm Hg			103.7	100.3	± 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	1.413						± 10%
ORP (mV)	240	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

SLR

Turbidimeter Calibration Log

Calibration Date 7/13/21	Calibration Time 07:30	Calibration By Nick Wells		
Instrument Make/Model Hach 2100Q	Serial # 10030C001472	Cal Fluid #1	Cal Fluid #2	Within Acceptable Range?
		20 NTU	100 NTU	
Bump Check ☐ or Calibration ☒ Notes:		Bump check result or post-calibration reading: 19.9	Bump check result or post-calibration reading: 97.7	(yes) no

Calibration Date 7/14/21	Calibration Time 07:20	Calibration By Nick Wells		
Instrument Make/Model Hach 2100Q	Serial # 10030C001472	Cal Fluid #1	Cal Fluid #2	Within Acceptable Range?
		20 NTU	100 NTU	
Bump Check ☐ or Calibration ☒ Notes:		Bump check result or post-calibration reading: 19.9	Bump check result or post-calibration reading: 99.8	(yes) no

Calibration Date	Calibration Time	Calibration By		
Instrument Make/Model	Serial #	Cal Fluid #1	Cal Fluid #2	Within Acceptable Range?
		____ NTU	____ NTU	
Bump Check ☐ or Calibration ☐ Notes:		Bump check result or post-calibration reading:	Bump check result or post-calibration reading:	yes no

Calibration Date	Calibration Time	Calibration By		
Instrument Make/Model	Serial #	Cal Fluid #1	Cal Fluid #2	Within Acceptable Range?
		____ NTU	____ NTU	
Bump Check ☐ or Calibration ☐ Notes:		Bump check result or post-calibration reading:	Bump check result or post-calibration reading:	yes no

Calibration Date	Calibration Time	Calibration By		
Instrument Make/Model	Serial #	Cal Fluid #1	Cal Fluid #2	Within Acceptable Range?
		____ NTU	____ NTU	
Bump Check ☐ or Calibration ☐ Notes:		Bump check result or post-calibration reading:	Bump check result or post-calibration reading:	yes no

Calibration Date	Calibration Time	Calibration By		
Instrument Make/Model	Serial #	Cal Fluid #1	Cal Fluid #2	Within Acceptable Range?
		____ NTU	____ NTU	
Bump Check ☐ or Calibration ☐ Notes:		Bump check result or post-calibration reading:	Bump check result or post-calibration reading:	yes no

Note: A bump check can verify the instrument is in proper calibration if the instrument reads an accurate value for a calibration solution (without performing a full calibration). In the event a bump check does not indicate the instrument is properly calibrated, a calibration will be performed, per manufacturer instructions.

Groundwater Sampling Form

Site/Client Name: Chugach Electric / Ops & Dispatch Center	**Well ID:** C-2
Project #: 105.00015.21004	Sample ID: C-2
Sampled By: Nick Wells, Kate O'Malley	Sample Time: 09:15 Sample Date: 7/14/21
Weather Conditions: Mostly Sunny, 55°F, Breeze	Duplicate ID: C-9
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: 2.5 ft BGS to 12.7 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): 5.42	Tubing/Pump Depth (ft. BTOC): ~7 ft btoc
Total Depth (ft BTOC): 12.41	Purge Start Time (24-hr) 08:45
Depth to Product (ft. BTOC) —	Purge End Time (24-hr) 09:07
Product Thickness (ft) —	Total Purge Time (min) 22

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. **1 gal = 3.785L, 1L = 0.264 gal**

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)
08:50	300	0	12.8	2206	0.23	6.15	205.8	1.05	5.42	0
08:55	300	1	12.6	2239	0.15	6.16	209.1	0.97	5.42	0
09:00	300	1	12.6	2235	0.12	6.20	212.0	0.69	5.42	0
09:03	300	1	12.5	2237	0.14	6.21	214.3	0.74	5.42	0
09:06	300	1.5	12.5	2234	0.16	6.21	216.4	0.92	5.42	0
Parameter Stable (Check applicable)			✓	✓		✓	✓	✓		

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

Analytical Sampling

Analyses	Check Applicable	Comments
PCBs SW8082A	✓	
DRO/RRO AK102/103	✓	

Notes:

Equipment:

Tubing: ☐ Polyethylene ☒ PFTE-Lined ☐ Other _____ O.D. ☒ 1/4" ☐ 3/8" ☐ 1/2" Left in well ☒ Yes ☐ No

Pump/Bailer Peristaltic Multi-Parameter Meter make/SN#) YSI Pro Plus

W.L. Indicator Solinst IF #1 Turbidity Meter (Make/SN#) Hach 2100Q Filtered ☐ Yes ☒ No Lot #_____

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

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

Groundwater Sampling Form

Site/Client Name: Chugach Electric UPS & Dispatch	**Well ID:** C-1
Project #: 105.6001S.21004	Sample ID: C-1
Sampled By: Kate O'Malley, Nick Wells	Sample Time: 10:10 Sample Date: 7/14/21
Weather Conditions: cloudy, breezy, 55°F	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: 2 ft BGS to 11.91 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): 3.88	Tubing/Pump Depth (ft. BTOC): ~7 ft
Total Depth (ft BTOC): 11.29	Purge Start Time (24-hr) 0943
Depth to Product (ft. BTOC) —	Purge End Time (24-hr) 1005
Product Thickness (ft) —	Total Purge Time (min) 22

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. **1 gal = 3.785L, 1L = 0.264 gal**

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)
0948	350	0	13.8	1777	0.33	6.35	220.4	4.46	3.91	.03
0953	↓	↓	13.9	1794	0.24	6.31	231.8	2.38	3.91	.03
0958			13.9	1781	0.23	6.33	239.3	2.65	3.91	.03
1001		↓	13.9	1788	0.21	6.33	242.8	1.70	3.90	.02
1004	↓	3	13.9	1787	0.21	6.30	244.7	1.73	3.90	.02
Parameter Stable (Check applicable)			✓	✓	✓	✓	✓	✓		

Sample Color:	**Sample Odor:**	**Sheen:**

Analytical Sampling

Analyses	Check Applicable	Comments
PCBs SW8082A	✓	
DRO/RRO AK102/103	✓	

Notes: pumped water out of monument prior to sampling

Equipment:

Tubing: ☐ Polyethylene ☑ PFTE-Lined ☐ Other _____ O.D. ☑ 1/4" ☐ 3/8" ☐ 1/2" Left in well ☐ Yes ☐ No

Pump/Bailer peri Multi-Parameter Meter make/SN#) YSI Pro plus

W.L. Indicator Solinst IF H1 Turbidity Meter (Make/SN#) Hach 2100Q Filtered ☐ Yes ☒ No Lot #_____

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

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

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Groundwater Sampling Form

Site/Client Name: Chugach Electric OP. Disposal	**Well ID:** C-3
Project #: 105.0001S.21604	**Sample ID:** C-3
Sampled By: Kate OMulley, Nick Wells	**Sample Time:** 1100 **Sample Date:** 7/14/21
Weather Conditions: 55° F, cloudy, breezy	**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:** 2 ft BGS to 12.14 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): 3.63	**Tubing/Pump Depth (ft. BTOC):** ~ 11 ft
Total Depth (ft BTOC): 11.74	**Purge Start Time (24-hr)** 1032
Depth to Product (ft. BTOC) —	**Purge End Time (24-hr)** 1054
Product Thickness (ft) —	**Total Purge Time (min)** 22

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. **1 gal = 3.785L, 1L = 0.264 gal**

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)
1037	250	0	13.0	1646	0.76	6.36	231.6	1.42	3.63	0
1042	↓	1	13.0	1645	0.56	6.31	235.3	1.39	3.63	0
1047			12.9	1647	0.42	6.31	238.2	1.46	3.63	0
1050	↓	↓	13.0	1649	0.40	6.32	239.7	1.15	3.63	0
1053		1	12.9	1649	0.30	6.28	241.0	0.74	3.63	0
Parameter Stable (Check applicable)			✓	✓		✓	✓	✓		

Sample Color: Clear **Sample Odor:** none **Sheen:** none

Analytical Sampling

Analyses	Check Applicable	Comments
PCBs SW8082A	✓	
DRO/RRO AK 102/103	✓	

Notes: Pumped water out of Monument prior to sampling

Equipment:

Tubing: ☐ Polyethylene ☑ PFTE-Lined ☐ Other _____ O.D. ☒ 1/4" ☐ 3/8" ☐ 1/2" Left in well ☒ Yes ☐ No

Pump/Bailer Peristaltic Multi-Parameter Meter make/SN#) YSI ProPlus

W.L. Indicator Solinst IFM1 Turbidity Meter (Make/SN#) Hach 2100Q Filtered ☐ Yes ☒ No Lot #_____

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

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

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APPENDIX D

Quality Assurance Review and Laboratory Data

LABORATORY DATA
QUALITY ASSURANCE REVIEW
CHUGACH ELECTRIC ASSOCIATION

2021 GROUNDWATER MONITORING
AT THE CHUGACH ELECTRIC ASSOCIATION
OPERATIONS AND DISPATCH CENTER
(1201 E 1ST AVE., ANCHORAGE, AK)

December 2021

Prepared by: Jennifer McLean

SLR Project Number: 105.00015.21004
ADEC Number: 2100.38.085
ADEC Hazard ID: 2744

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
AK	Alaska
ADEC	Alaska Department of Environmental Conservation
°C	degrees Celsius
CCV	continuing calibration verification
COC	chain of custody
DL	detection limit
DRO	diesel range organics
EDD	electronic data deliverable
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
LV	low volume
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
NFG	National Functional Guidelines
PARCS	precision, accuracy, representativeness, comparability, and sensitivity
PCBs	polychlorinated biphenyls
QA	quality assurance
QAR	quality assurance review
QC	quality control
RPD	relative percent difference
RRO	residual range organics
SDG	sample delivery group
SLR	SLR International Corporation
SGS	SGS North America, Inc.
USEPA	United States Environmental Protection Agency

This report summarizes a review of analytical data for samples collected on July 14, 2021, in support of the Chugach Electric Association Operations and Dispatch Center area groundwater monitoring activities. 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
1214238	7/14/2021	7/14/2021	5.0°C 1.4°C	GW	AK102 LV AK103 LV SW8082A	DRO RRO PCBs

Acronyms:

AK – Alaska
DRO – diesel range organics
LV – low volume
RRO – residual range organics
°C – degrees Celsius
GW – groundwater
PCBs – polychlorinated biphenyls
SDG – sample delivery group

The laboratory final report was presented as a Level II deliverable and included documentation of the delivery group chain-of-custody (COC) and sample receipt condition. A Microsoft Access compatible electronic data deliverable (EDD) was also provided. The PDF laboratory report is 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 ADEC Technical Memorandum *Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data* (ADEC, 2019), National Functional Guidelines (NFG, United States Environmental Protection Agency [USEPA] 2020), analytical method criteria, and laboratory criteria. An ADEC Laboratory Data Review Checklist was completed for the SDG and is included as Attachment 1. A review for any anomalies to the project requirements for precision, accuracy, representativeness, comparability, and sensitivity (PARCS) 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 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) and Laboratory Control Sample Duplicates (LCSD), were within recovery acceptance limits;
- Evaluating the result relative percent difference (RPD) between primary and duplicate field samples, LCS/LCSD, and laboratory duplicates; 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 limit of detection (LOD). 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 Detection Limit (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. 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). Where applicable, "U" was appended prior to the "B" to indicate the blank detection was greater than the sample detection and the result is likely a false positive or both the blank detection and sample detection were below the LOD. The greater of the sample detection or LOD was reported 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 PARCS goals and summary of any anomalies or failures requiring data qualifiers follows.

Data Validation

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

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.

- The COC was not signed as, “Relinquished by” SLR personnel. Samples were in the custody of SLR from the time of collection until the sampler delivered all samples to the laboratory. As such, data integrity was not compromised. All data was usable without qualification.

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 DRO by Method AK102, the method blank in batch had a detection of 0.374 J milligrams per liter (mg/L), between the LOD and LOQ. Sample detections within five times that of the associated blank were considered affected and were appropriately qualified. Data already “J” flagged as estimated due to the low level of detection were not additionally qualified, as further qualification of already estimated values was considered unnecessary. Only sample C-9 had a detected value above the LOQ, thus was affected and qualified. Sample C-9 DRO result of 0.633 mg/L was flagged B, to indicate a potential high bias. Since a high bias was indicated and the affected result was below the applicable cleanup level of 1.5 mg/L, data usability was not impacted. Data was usable as qualified.

Trip Blanks
Trip blanks were not required for the methods analyzed.

Reporting Limits
For non-detectable results, LODs were compared to applicable regulatory criteria for the site. LODs were compared to 18 Alaska Administrative Code (AAC) 75.345 Table C, *Groundwater Cleanup Levels* (ADEC, 2021). Except as noted below, all analytes with results of non-detect had LODs at or below applicable regulatory criteria.

The LODs ranging from 0.545 µg/L to 0.57 µg/L for Aroclor-1221 by Method SW8082A for all samples did not meet the ADEC groundwater cleanup level of 0.44 µg/L. The elevated reporting limit for Aroclor-1221 is typical due to methodology limitations. Aroclor-1260 is the only aroclor that has been detected at this site. While it is not possible to state with certainty the absence of Aroclor-1221 below the laboratory LOD, but above the ADEC cleanup level, the project goals were considered met because Aroclor-1221 is not a primary constituent of interest. All data were usable without qualification and data usability was not impacted.

Calibration Verifications
CCVs were analyzed at the appropriate frequencies. CCV data was included only in the EDD, not in the case narrative. All CCV recoveries were within acceptable limits as reviewed in the EDD.

Internal Standards
No internal standards were noted in the case narrative as being outside of acceptance limits. Internal standard performance was not otherwise presented in the report or in the electronic data deliverable. Internal standards criteria were considered met.

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

Laboratory Control Samples and Laboratory Control Duplicate Samples done
LCS and LCSDs were analyzed at the appropriate frequencies. All LCS and LCSD recoveries and RPDs were within acceptable limits.

Matrix Spike and Matrix Spike Duplicate Samples
No MS/MSDs were analyzed. Accuracy and precision were established by the LCS/LCSD.

Field Duplicates
The field duplicate sample frequency is presented in Table 3. Parent sample and field duplicates are presented in Table 4. 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.

All parent sample/field duplicate RPDs were within the ADEC required 30% for waters. Parent sample/field duplicate pairs with both results below the LOQ were considered acceptable without qualification.

Table 3 Field Duplicate Count

Number of Primary Samples	Number of Field Duplicates	Method	Analytes
3	1	AK102 LV	DRO
3	1	AK103 LV	RRO
3	1	SW8082A	PCBs

Table 4 Parent Samples and Field Duplicates

Matrix	Parent Sample	Field Duplicate	Method	Analytes
Groundwater	B-3	MW-99	AK102 LV AK103 LV SW8082A	DRO RRO PCBs

Laboratory Duplicate Samples
No laboratory duplicates were analyzed in association with these samples.

Overall Assessment

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

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

- Precision: Precision goals were met.
- Accuracy: Accuracy goals were met.
- Representativeness: Representativeness goals were met. The samples were collected from usual locations.
- Comparability: Comparability goals were met. The same laboratory and methods were used.
- Sensitivity: Sensitivity goals were met, except as noted in the Method Blanks and Reporting Limits sections.

References

ADEC. 2019. ADEC Technical Memorandum *Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data.* October.

ADEC. 2021. 18 AAC 75, *Oil and Other Hazardous Substances Pollution Control.* June 24.

U.S. Environmental Protection Agency (USEPA). 2020. *National Functional Guidelines for Superfund Organic Methods Data Review.* November.

Attachment 1

ADEC Laboratory Data Review Checklist

Laboratory Data Review Checklist

Completed By:

Jennifer McLean

Title:

Associate Scientist

Date:

September 14, 2021

Consultant Firm:

SLR International Corporation

Laboratory Name:

SGS North America, Inc., Anchorage, Alaska

Laboratory Report Number:

1214238

Laboratory Report Date:

August 13, 2021

CS Site Name:

Chugach Electric Association Operations and Dispatch Center
(1201 East 1st Ave., Anchorage, AK)

ADEC File Number:

2100.38.085

Hazard Identification Number:

2744

1214238

Laboratory Report Date:

August 13, 2021

CS Site Name:

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(1201 East 1st Ave., Anchorage, AK)

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   SGS North America, Inc (SGS) in Anchorage, Alaska provided analytical support to the project. SGS maintains a current ADEC CS 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☐ N/A☒ Comments:

   All analysis were conducted at SGS Laboratory in Anchorage, Alaska.

2. Chain of Custody (CoC)

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

   Yes☐ No☒ N/A☐ Comments:

   The COC was not signed as, "Relinquished by" SLR personnel. Samples were in the custody of SLR from the time of collection until the sampler delivered all samples to the laboratory. As such, data integrity was not compromised. All data was usable without qualification.

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ 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☐ N/A☒ Comments:

No discrepancies were noted.

e. Data quality or usability affected?

Comments:

No impact.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

One method blank detection was noted.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

None were necessary.

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

Comments:

Refer to 6a.

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CS Site Name:

Chugach Electric Association Operations and Dispatch Center
(1201 East 1st Ave., Anchorage, AK)

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Only water samples were analyzed.

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

Yes☐ No☒ N/A☐ Comments:

Except as noted below, yes.
The LODs ranging from 0.000545 mg/L to 0.00057 mg/L for Aroclor-1221 by Method SW8082A for all samples did not meet the ADEC cleanup level of 0.00044 mg/L. The elevated reporting limit for Aroclor-1221 is typical due to methodology limitations.

e. Data quality or usability affected?

While it is not possible to state with certainty the absence of Aroclor-1221 below the laboratory LOD, but above the ADEC cleanup level, the project goals were considered met because Aroclor-1221 is not a primary constituent of interest. All data were usable without qualification and data usability was not impacted.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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CS Site Name:

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ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

DRO was detected in the method blank between the LOD and LOQ.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Only sample C-9 had a detected value within five times that of the blank and above the LOQ. Data already "J" flagged as estimated due to the low level of detection was not additionally qualified, as further qualification of already estimated values was considered unnecessary.

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

Yes☒ No☐ N/A☐ Comments:

Sample C-9 DRO result of 0.633 mg/L was flagged B, to indicate a potential high bias.

v. Data quality or usability affected?

Comments:

Since a high bias was indicated and the affected result was below the applicable cleanup level of 1.5 mg/L, data usability was not impacted.

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☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No inorganics were analyzed.

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

All recoveries and RPDs were acceptable.

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

Yes☐ No☐ N/A☒ Comments:

All recoveries and RPDs were acceptable.

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

Comments:

No impact.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

No MS/MSDs were analyzed. Precision and accuracy were established by an LCS/LCSD pair for all methods.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

No inorganics were analyzed.

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iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

NA

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

NA

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

Comments:

NA

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

Yes☐ No☐ N/A☒ Comments:

NA

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

Comments:

No impact.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

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

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

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CS Site Name:

Chugach Electric Association Operations and Dispatch Center
(1201 East 1st Ave., Anchorage, AK)

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

Yes☐ No☐ N/A☒ Comments:

All surrogate recoveries were within acceptable limits.

iv. Data quality or usability affected?

Comments:

No impact.

e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

Trip blanks were not required for the methods analyzed.

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☐ N/A☒ Comments:

Trip blanks were not required.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

Trip blanks were not required nor analyzed.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

NA

v. Data quality or usability affected?

Comments:

No impact

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Chugach Electric Association Operations and Dispatch Center
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f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

C-9 was a duplicate of C-2.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (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☐ N/A☐ Comments:

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

No impact.

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

Yes☐ No☐ N/A☒ Comments:

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

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

NA

1214238

Laboratory Report Date:

August 13, 2021

CS Site Name:

Chugach Electric Association Operations and Dispatch Center
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ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

NA

iii. Data quality or usability affected?

Comments:

No impact.

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

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

Attachment 2

Laboratory Deliverables

(Data package)

Laboratory Report of Analysis

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

Report Number: **1214238**

Client Project: **Operations & Dispatch Center**

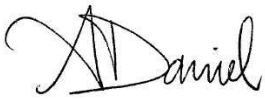
Dear Bret Berglund,

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 Alexandra 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.



Alexandra Daniel
2021.08.13 16:02:48 -08'00'

Alexandra Daniel Date
Project Manager
Alexandra.Daniel@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: **1214238**
Project Name/Site: **Operations & Dispatch Center**
Project Contact: **Bret Berglund**

Refer to sample receipt form for information on sample condition.

MB for HBN 1822896 [XXX/45222] (1625318) MB

AK102 - DRO is detect in the MB greater than one-half the LOQ, but less than the LOQ.

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

SGS North America Inc.
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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. 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, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) 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
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

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

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
C-2	1214238001	07/14/2021	07/14/2021	Water (Surface, Eff., Ground)
C-9	1214238002	07/14/2021	07/14/2021	Water (Surface, Eff., Ground)
C-1	1214238003	07/14/2021	07/14/2021	Water (Surface, Eff., Ground)
C-3	1214238004	07/14/2021	07/14/2021	Water (Surface, Eff., Ground)

Method	Method Description
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
SW8082A	SW8082 PCB's

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Detectable Results Summary

Client Sample ID: **C-2**
Lab Sample ID: 1214238001
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.593J	mg/L
Residual Range Organics	0.183J	mg/L

Client Sample ID: **C-9**
Lab Sample ID: 1214238002
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.633	mg/L
Residual Range Organics	0.275J	mg/L

Client Sample ID: **C-1**
Lab Sample ID: 1214238003
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.492J	mg/L
Residual Range Organics	0.198J	mg/L

Client Sample ID: **C-3**
Lab Sample ID: 1214238004
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.474J	mg/L
Residual Range Organics	0.161J	mg/L

SGS North America Inc.
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Results of **C-2**

Client Sample ID: **C-2**
Client Project ID: **Operations & Dispatch Center**
Lab Sample ID: 1214238001
Lab Project ID: 1214238

Collection Date: 07/14/21 09:15
Received Date: 07/14/21 14:12
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	0.0560	U	0.112	0.0346	ug/L	1		07/27/21 21:22
Aroclor-1221	0.560	U	1.12	0.346	ug/L	1		07/27/21 21:22
Aroclor-1232	0.0560	U	0.112	0.0346	ug/L	1		07/27/21 21:22
Aroclor-1242	0.0560	U	0.112	0.0346	ug/L	1		07/27/21 21:22
Aroclor-1248	0.0560	U	0.112	0.0346	ug/L	1		07/27/21 21:22
Aroclor-1254	0.0560	U	0.112	0.0346	ug/L	1		07/27/21 21:22
Aroclor-1260	0.0560	U	0.112	0.0346	ug/L	1		07/27/21 21:22
Surrogates								
Decachlorobiphenyl (surr)	95		40-135		%	1		07/27/21 21:22

Batch Information

Analytical Batch: XGC10946
Analytical Method: SW8082A
Analyst: CDM
Analytical Date/Time: 07/27/21 21:22
Container ID: 1214238001-A

Prep Batch: XXX45246
Prep Method: SW3520C
Prep Date/Time: 07/27/21 10:30
Prep Initial Wt./Vol.: 895 mL
Prep Extract Vol: 1 mL

Print Date: 08/13/2021 2:26:34PM

J flagging is activated

Results of **C-2**

Client Sample ID: **C-2**
Client Project ID: **Operations & Dispatch Center**
Lab Sample ID: 1214238001
Lab Project ID: 1214238

Collection Date: 07/14/21 09:15
Received Date: 07/14/21 14:12
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	0.593	J	0.638	0.191	mg/L	1		07/26/21 17:55
Surrogates								
5a Androstane (surr)	92.4		50-150		%	1		07/26/21 17:55

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/26/21 17:55
Container ID: 1214238001-C

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 07/23/21 16:40
Prep Initial Wt./Vol.: 235 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.183	J	0.532	0.160	mg/L	1		07/26/21 17:55
Surrogates								
n-Triacontane-d62 (surr)	99.7		50-150		%	1		07/26/21 17:55

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/26/21 17:55
Container ID: 1214238001-C

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 07/23/21 16:40
Prep Initial Wt./Vol.: 235 mL
Prep Extract Vol: 1 mL

Results of **C-9**

Client Sample ID: **C-9**
Client Project ID: **Operations & Dispatch Center**
Lab Sample ID: 1214238002
Lab Project ID: 1214238

Collection Date: 07/14/21 09:15
Received Date: 07/14/21 14:12
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	0.0570	U	0.114	0.0354	ug/L	1		07/27/21 21:32
Aroclor-1221	0.570	U	1.14	0.354	ug/L	1		07/27/21 21:32
Aroclor-1232	0.0570	U	0.114	0.0354	ug/L	1		07/27/21 21:32
Aroclor-1242	0.0570	U	0.114	0.0354	ug/L	1		07/27/21 21:32
Aroclor-1248	0.0570	U	0.114	0.0354	ug/L	1		07/27/21 21:32
Aroclor-1254	0.0570	U	0.114	0.0354	ug/L	1		07/27/21 21:32
Aroclor-1260	0.0570	U	0.114	0.0354	ug/L	1		07/27/21 21:32
Surrogates								
Decachlorobiphenyl (surr)	95		40-135		%	1		07/27/21 21:32

Batch Information

Analytical Batch: XGC10946
Analytical Method: SW8082A
Analyst: CDM
Analytical Date/Time: 07/27/21 21:32
Container ID: 1214238002-A

Prep Batch: XXX45246
Prep Method: SW3520C
Prep Date/Time: 07/27/21 10:30
Prep Initial Wt./Vol.: 875 mL
Prep Extract Vol: 1 mL

Print Date: 08/13/2021 2:26:34PM

J flagging is activated

Results of **C-9**

Client Sample ID: **C-9**
Client Project ID: **Operations & Dispatch Center**
Lab Sample ID: 1214238002
Lab Project ID: 1214238

Collection Date: 07/14/21 09:15
Received Date: 07/14/21 14:12
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	0.633		0.625	0.188	mg/L	1		07/26/21 18:05
Surrogates								
5a Androstane (surr)	94.4		50-150		%	1		07/26/21 18:05

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/26/21 18:05
Container ID: 1214238002-C

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 07/23/21 16:40
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.275	J	0.521	0.156	mg/L	1		07/26/21 18:05
Surrogates								
n-Triacontane-d62 (surr)	99.8		50-150		%	1		07/26/21 18:05

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/26/21 18:05
Container ID: 1214238002-C

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 07/23/21 16:40
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

Print Date: 08/13/2021 2:26:34PM

J flagging is activated

Results of **C-1**

Client Sample ID: **C-1**
Client Project ID: **Operations & Dispatch Center**
Lab Sample ID: 1214238003
Lab Project ID: 1214238

Collection Date: 07/14/21 10:10
Received Date: 07/14/21 14:12
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:42
Aroclor-1221	0.545	U	1.09	0.337	ug/L	1		07/27/21 21:42
Aroclor-1232	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:42
Aroclor-1242	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:42
Aroclor-1248	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:42
Aroclor-1254	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:42
Aroclor-1260	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:42
Surrogates								
Decachlorobiphenyl (surr)	92.5		40-135		%	1		07/27/21 21:42

Batch Information

Analytical Batch: XGC10946
Analytical Method: SW8082A
Analyst: CDM
Analytical Date/Time: 07/27/21 21:42
Container ID: 1214238003-A

Prep Batch: XXX45246
Prep Method: SW3520C
Prep Date/Time: 07/27/21 10:30
Prep Initial Wt./Vol.: 920 mL
Prep Extract Vol: 1 mL

Print Date: 08/13/2021 2:26:34PM

J flagging is activated

Results of **C-1**

Client Sample ID: **C-1**
Client Project ID: **Operations & Dispatch Center**
Lab Sample ID: 1214238003
Lab Project ID: 1214238

Collection Date: 07/14/21 10:10
Received Date: 07/14/21 14:12
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	0.492	J	0.588	0.176	mg/L	1		07/26/21 18:35
Surrogates								
5a Androstane (surr)	90.8		50-150		%	1		07/26/21 18:35

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/26/21 18:35
Container ID: 1214238003-C

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 07/23/21 16:40
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	0.198	J	0.490	0.147	mg/L	1		07/26/21 18:35
Surrogates								
n-Triacontane-d62 (surr)	97.8		50-150		%	1		07/26/21 18:35

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/26/21 18:35
Container ID: 1214238003-C

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 07/23/21 16:40
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **C-3**

Client Sample ID: **C-3**
Client Project ID: **Operations & Dispatch Center**
Lab Sample ID: 1214238004
Lab Project ID: 1214238

Collection Date: 07/14/21 11:00
Received Date: 07/14/21 14:12
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:53
Aroclor-1221	0.545	U	1.09	0.337	ug/L	1		07/27/21 21:53
Aroclor-1232	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:53
Aroclor-1242	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:53
Aroclor-1248	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:53
Aroclor-1254	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:53
Aroclor-1260	0.0545	U	0.109	0.0337	ug/L	1		07/27/21 21:53
Surrogates								
Decachlorobiphenyl (surr)	92.5		40-135		%	1		07/27/21 21:53

Batch Information

Analytical Batch: XGC10946
Analytical Method: SW8082A
Analyst: CDM
Analytical Date/Time: 07/27/21 21:53
Container ID: 1214238004-A

Prep Batch: XXX45246
Prep Method: SW3520C
Prep Date/Time: 07/27/21 10:30
Prep Initial Wt./Vol.: 920 mL
Prep Extract Vol: 1 mL

Print Date: 08/13/2021 2:26:34PM

J flagging is activated

Results of **C-3**

Client Sample ID: **C-3**
Client Project ID: **Operations & Dispatch Center**
Lab Sample ID: 1214238004
Lab Project ID: 1214238

Collection Date: 07/14/21 11:00
Received Date: 07/14/21 14:12
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	0.474	J	0.588	0.176	mg/L	1		07/26/21 18:45
Surrogates								
5a Androstane (surr)	93.9		50-150		%	1		07/26/21 18:45

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/26/21 18:45
Container ID: 1214238004-C

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 07/23/21 16:40
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	0.161	J	0.490	0.147	mg/L	1		07/26/21 18:45
Surrogates								
n-Triacontane-d62 (surr)	97.4		50-150		%	1		07/26/21 18:45

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/26/21 18:45
Container ID: 1214238004-C

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 07/23/21 16:40
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1822896 [XXX/45222]
Blank Lab ID: 1625318

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214238001, 1214238002, 1214238003, 1214238004

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.374J	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	92.4	60-120		%

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: A.A
Analytical Date/Time: 7/26/2021 2:56:00PM

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 7/23/2021 4:40:54PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214238 [XXX45222]
Blank Spike Lab ID: 1625319
Date Analyzed: 07/26/2021 15:06

Spike Duplicate ID: LCSD for HBN 1214238 [XXX45222]
Spike Duplicate Lab ID: 1625320
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214238001, 1214238002, 1214238003, 1214238004

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	19.4	97	20	19.1	96	(75-125)	1.60	(< 20)
Surrogates									
5a Androstane (surr)	0.4		106	0.4		102	(60-120)	3.70	

Batch Information

Analytical Batch: **XFC16018**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **A.A**

Prep Batch: **XXX45222**
Prep Method: **SW3520C**
Prep Date/Time: **07/23/2021 16:40**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 08/13/2021 2:26:40PM

Method Blank

Blank ID: MB for HBN 1822896 [XXX/45222]
Blank Lab ID: 1625318

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214238001, 1214238002, 1214238003, 1214238004

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)	97.3	60-120		%

Batch Information

Analytical Batch: XFC16018
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: A.A
Analytical Date/Time: 7/26/2021 2:56:00PM

Prep Batch: XXX45222
Prep Method: SW3520C
Prep Date/Time: 7/23/2021 4:40:54PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214238 [XXX45222]
Blank Spike Lab ID: 1625319
Date Analyzed: 07/26/2021 15:06

Spike Duplicate ID: LCSD for HBN 1214238 [XXX45222]
Spike Duplicate Lab ID: 1625320
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214238001, 1214238002, 1214238003, 1214238004

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	19.9	99	20	19.0	95	(60-120)	4.40	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4		98	0.4		98	(60-120)	0.11	

Batch Information

Analytical Batch: **XFC16018**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **A.A**

Prep Batch: **XXX45222**
Prep Method: **SW3520C**
Prep Date/Time: **07/23/2021 16:40**
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 1823083 [XXX/45246]
Blank Lab ID: 1625998

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214238001, 1214238002, 1214238003, 1214238004

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	0.0500U	0.100	0.0310	ug/L
Aroclor-1221	0.500U	1.00	0.310	ug/L
Aroclor-1232	0.0500U	0.100	0.0310	ug/L
Aroclor-1242	0.0500U	0.100	0.0310	ug/L
Aroclor-1248	0.0500U	0.100	0.0310	ug/L
Aroclor-1254	0.0500U	0.100	0.0310	ug/L
Aroclor-1260	0.0500U	0.100	0.0310	ug/L
Surrogates				
Decachlorobiphenyl (surr)	97.5	40-135		%

Batch Information

Analytical Batch: XGC10946
Analytical Method: SW8082A
Instrument: Agilent 7890B GC ECD SW R
Analyst: CDM
Analytical Date/Time: 7/27/2021 8:51:00PM

Prep Batch: XXX45246
Prep Method: SW3520C
Prep Date/Time: 7/27/2021 10:30:42AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214238 [XXX45246]
Blank Spike Lab ID: 1625999
Date Analyzed: 07/27/2021 21:01

Spike Duplicate ID: LCSD for HBN 1214238 [XXX45246]
Spike Duplicate Lab ID: 1626000
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214238001, 1214238002, 1214238003, 1214238004

Results by **SW8082A**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Aroclor-1016	1	0.660	66	1	0.690	69	(46-129)	4.44	(< 30)
Aroclor-1260	1	0.680	68	1	0.730	73	(45-134)	7.09	(< 30)
Surrogates									
Decachlorobiphenyl (surr)	0.400		78	0.400		98	(40-135)	22.90	

Batch Information

Analytical Batch: **XGC10946**
Analytical Method: **SW8082A**
Instrument: **Agilent 7890B GC ECD SW R**
Analyst: **CDM**

Prep Batch: **XXX45246**
Prep Method: **SW3520C**
Prep Date/Time: **07/27/2021 10:30**
Spike Init Wt./Vol.: 1 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 1 ug/L Extract Vol: 1 mL

Print Date: 08/13/2021 2:26:50PM

SGS

1214238

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#3586165D

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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 International

CONTACT: Bret Berglund | PHONE #: 907-222-1112

PROJECT NAME: Operations & Dispatch Center GW Monitoring | PROJECT/PWSID/PERMIT#: 105.00015.21004

REPORTS TO: Bret Berglund | E-MAIL: bberglund@slrconsulting.com

Profile #:

INVOICE TO: SLR International | QUOTE #:

P.O. #: 105.00015.21004

Section 3 — Preservative: None, HCl

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Comp Grab MI (Multi-incremental)	PCBs (SW8082A)	DRO/RRO (AK102/103)	REMARKS/LOC ID
1A-D	C-2	7/14/21	09:15	Water	4	G	X	X	
2A-D	C-9	7/14/21	09:15	Water	4	G	X	X	
3A-D	C-1	7/14/21	10:10	Water	4	G	X	X	
4A-D	C-3	7/14/21	11:00	Water	4	G	X	X	

Analysis*

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

Section 5

Relinquished By	Date	Time	Received By
Relinquished By: (1)			Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	7/14/21	14:12	Received For Laboratory By: [signature] RJC

Section 4

DOD Project? Yes (No)

Data Deliverable Requirements: Level 2 + DV

Cooler ID:

Requested Turnaround Time and/or Special Instructions: Standard

Temp Blank °C: D50 D58 2) 1.4 D58

or Ambient [ ]

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

Delivery Method: Hand Delivery [X] Commerical Delivery [ ]

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

F083-Blank_COC_20181228

e-Sample Receipt Form

SGS Workorder #: 1214238

1 2 1 4 2 3 8

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	absent
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
Yes **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 @ 5.0 °C Therm. ID: D58
	Yes	Cooler ID: 2 @ 1.4 °C Therm. ID: D58
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?	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,200.8/6020B).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	N/A	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1214238001-A	No Preservative Required	OK			
1214238001-B	No Preservative Required	OK			
1214238001-C	HCL to pH < 2	OK			
1214238001-D	HCL to pH < 2	OK			
1214238002-A	No Preservative Required	OK			
1214238002-B	No Preservative Required	OK			
1214238002-C	HCL to pH < 2	OK			
1214238002-D	HCL to pH < 2	OK			
1214238003-A	No Preservative Required	OK			
1214238003-B	No Preservative Required	OK			
1214238003-C	HCL to pH < 2	OK			
1214238003-D	HCL to pH < 2	OK			
1214238004-A	No Preservative Required	OK			
1214238004-B	No Preservative Required	OK			
1214238004-C	HCL to pH < 2	OK			
1214238004-D	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.