2022 Groundwater Monitoring Report

Hank Nikkels Plant 1,
821 East 1st Avenue, Anchorage, Alaska

Final

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Prepared for:

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

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ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
bgs	below ground surface
COC	chain of custody
Chugach	Chugach Electric Association Inc.
DRO	diesel range organics
IDW	investigative derived waste
LOD	limit of detection
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ML&P	Anchorage Municipal Light and Power
NTU	Nephelometric Turbidity Units
PCBs	polychlorinated biphenyls
QA	quality assurance
QAPP	quality assurance project plan
QAR	Quality Assurance Review
RBDP	Risk-Based Disposal Plan
RPD	relative percent difference
SGS	SGS North America, Inc.
SLR	SLR International Corporation
µg/L	micrograms per liter
USEPA	U.S. Environmental Protection Agency

1 INTRODUCTION

This report documents the methods and results of groundwater monitoring conducted in July 2022 in the vicinity of the Chugach Electric Association Inc. (Chugach) Hank Nikkels Plant 1 (Plant 1), located at 821 East 1st Ave., Anchorage, Alaska (Figure 1). Plant 1 was operated by Anchorage Municipal Light and Power (ML&P) until being acquired by Chugach on November 1, 2020. The monitoring was conducted in accordance with the Groundwater Monitoring Plan for polychlorinated biphenyls (PCBs) at Plant 1 (Monitoring Plan), (SLR 2021a). The groundwater monitoring is in support of the Risk-Based Disposal Plan (RBDP) for PCB Contaminated Soil at the facility (Site) (Hoefler Consulting Group [HCG], 2008b). Long term ground monitoring for PCBs was initiated in 2021 per the request of the United States Environmental Protection Agency (USEPA) as a condition of transferring the RBDP from ML&P to Chugach. When the transfer was approved in April 2022, the USEPA also made it a condition that both pre- and post-filtered and filtered water samples were analyzed for PCBs (USEPA 2022). The filtering was initiated for the 2022 sample event using a 0.45-micron (µm) filter. For the purposes of the RBDP, the Monitoring Plan, and this report, the fence encompassing the power plant is considered the Site boundary. A Site Map with relevant features is provided in Figure 2.

In addition to the PCB monitoring, at the request of the Alaska Department of Environmental Conservation (ADEC), diesel range organics (DRO) were sampled at one well (B-3) where free product has been detected in the past. The free product was attributed to a fuel oil release during a 1964 earthquake. The DRO sampling was conducted 2021 and slightly exceeded the groundwater cleanup level of 1.5 milligrams per kilogram (mg/kg) listed 18 Alaska Administrative Code (AAC) 75. 341, Table C. As a result, the ADEC requested that MW B-3 is sampled for DRO at least two more times to verify the presence or absence of DRO above the ADEC groundwater cleanup levels. The specific requirements of this additional monitoring is documented in a groundwater monitoring plan addendum (SLR 2022) approved by ADEC (ADEC 2022b)

1.1 PURPOSE

The primary purposes of the groundwater monitoring are to verify the current site conditions with respect to the presence or absence of PCBs in the groundwater at the facility, and to confirm there is no offsite migration of PCBs by groundwater transport (SLR 2021). The potential migration of PCBs in the groundwater from the Site (source area) towards Ship Creek is of particular concern. At its closest point, Ship Creek is approximately 100 feet to the northeast of the facility boundary (fence) (Figure 2). In the direction of estimated groundwater flow to the northwest, the closest distance between the facility fence and Ship Creek is approximately 510 feet. The monitoring for PCBs will be conducted as long as the Site's RBDP remains in place, or when it is deemed no longer necessary based on the cumulative results and/or cleanup at the Site (SLR 2021a).

The monitoring for DRO at B-3 is being performed to determine if the DRO is above the groundwater cleanup level of 1.5 mg/kg in three consecutive yearly monitoring events and whether additional monitoring or other actions at the Site are needed (SLR 2022).

1.2 SCOPE OF WORK

The scope of work consisted of the following activities:

- Sampling a groundwater monitoring well network, consisting of six existing groundwater monitoring wells (B-3, MW-12S, MW-12D, MW-13S, MW-13D, and MW-14D) for PCBs (Figure 2). Samples were analyzed pre- and post-filtration. Monitoring well B-3 was sampled for DRO as well.

- Conducting water level gauging in each of the wells sampled and MW-28 to help confirm the groundwater flow direction is generally towards the northwest, consistent with area wide investigations.

- Performing inspection of monitoring wells to determine if maintenance is needed.

- Documenting the activities and findings in this groundwater monitoring report following the sampling event.

2 SITE BACKGROUND

PCB impacted soils are located in multiple locations within the facility. There are no documented PCB spills or disposal activities at the Site. The PCB impacted soil is presumed to have originated prior to May 4, 1978 (HCG 2008b). The extent of PCB contamination within the facility is not completely characterized, but the most heavily impacted soil in terms of extent and concentration appears to be present in the eastern two-thirds of the facility based on sampling to date (SLR 2017b, Appendix F).

Aroclor-1260 is the only PCB Aroclor that has been detected in the soil at the Site (HCG 2008b, HCG 2010a, 2010b and 2010c, SLR 2012, SLR 2017a and 2017b). Aroclor-1260 is considered the primary constituent of interest.

PCB contaminated soil above 1 mg/kg is present above and below the water table. However, based on currently available soil sampling data, most contaminated soil in contact with groundwater has a PCB concentration less than 10 mg/kg. There is only one area where PCBs above 50 mg/kg has been detected below the water table and remain in place, the southeast corner of the facility in the vicinity of MW-14D (Figure 2), (HCG 2010c). The water table is approximately 4.5 to 7 feet below ground surface (bgs) within the facility, with the shallowest groundwater tending to be present in the southeast portion of the facility.

During the 1964 earthquake, an aboveground fuel tank southwest and upgradient of Plant 1 ruptured and released between 235,000 and 400,000 gallons of fuel oil (No. 2 oil which is nearly equivalent to diesel fuel) (Stone and Webster 1992, META 1994). Investigations have identified petroleum hydrocarbons in the soil and groundwater at the site. Chlorinated solvents tetrachloroethylene (PCE) and related degradation products have also been identified in the groundwater near Plant 1 from offsite upgradient sources (RETEC 2005, CH2MHILL 2008, Ahtna 2015) .

2.1.1 GEOLOGY

The Site and surrounding vicinity are underlain by Quaternary-age unconsolidated glacial, glacial marine (glacioestuarine), and glaciofluvial (alluvial) sedimentary deposits (Ulery 1983, Hunter 2000, RETEC 2008). The lithology typically consists of well-graded sand and gravel interbedded with clay and silt. Within the Plant 1 facility, reworked or imported gravel and sandy fill associated with construction is present near the ground surface. Underlying the fill is approximately 15 feet of alluvial material (gravel, sand, and silts) deposited by Ship Creek (META 1994). Underlying the alluvial material is the Bootlegger Cove Formation, made up of predominately silty clays and clayey silts. This formation is approximately 100 to 160 feet 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).

Beneath the Site there is shallow, unconfined aquifer and a deep confined aquifer, separated by the fine-grained Bootlegger Cove Formation which acts as an aquitard, or confining unit. The shallow aquifer is recharged primarily by precipitation and groundwater flow from areas up

gradient from the site (RETEC 2005). Groundwater in this shallow aquifer discharges to Ship Creek and to seeps, and also discharges by evapotranspiration.

2.1.2 GROUNDWATER FLOW DIRECTION

Groundwater flow direction in the surface aquifer is northwest with a hydraulic gradient of 0.007 feet per foot based on area wide water level monitoring events encompassing the Site (RETEC 2005, CH2MHILL 2008, Ahtna 2015) and site-specific groundwater investigations at Plant 1 (META 1994, HCG 2007 and 2010a, SLR 2011). A nine-month water level monitoring program (July-April) found the flow direction had little variation (310 degrees on average, ranging from approximately 290 to 317 degrees) (Ahtna 2015). While water levels varied on the order of 1 foot over the course of the year, the general gradient remained the same. Based on hydrologic testing groundwater flow velocity in the shallow, surface aquifer at the Plant 1 Site is estimated to be 2.63 feet per day (META 1994).

2.2 HISTORICAL GROUNDWATER MONITORING DATA

Petroleum hydrocarbons have been monitored in the groundwater at Plant 1 since the early 1990s. However, PCBs were not investigated in the groundwater at the Site until 2006. Previous groundwater monitoring events at the Site for PCBs occurred in 2006, 2010, 2011, and 2021. The results are summarized on Table 2.

In June 2006, groundwater sampling was conducted as part of the Turbine #3 replacement project (ENSR 2007). PCBs were detected in a groundwater sample at a concentration of 6.19 micrograms per liter (µg/L) in well B-3. However, it was likely the sample contained a mixture of groundwater and light non-aqueous phase liquid. The sample was collected with a bailer. The concentration of DRO was 113 milligrams per liter (mg/L) which was a couple of orders of magnitude higher than prior results. A well downgradient of B-3, MW-13S, was also sampled for PCBs in June 2006. PCBs were not detected in the downgradient sample.

The product (weathered diesel fuel) in monitoring well B-3 was first identified in 1994 with a thickness of 0.15 feet (META 1994). The source of the product was attributed to a release of diesel fuel from the 235,000-gallon above ground storage tank southwest of Plant 1 that ruptured during the 1964 magnitude 9.2 earthquake (META 1994). Product recovery efforts were attempted from 1994 to 2004 in well B-3, and the adjacent recovery well, with little success due to minimal thickness of the product and its sporadic appearance. Based on the attempts at product recovery and associated groundwater sampling results, it was concluded that product in the vicinity of well B-3 is limited in extent, and the apparent thickness in the well was an exaggeration of the formation thickness (Shannon and Wilson 2004).

In the fall of 2006 (October 31 and November 1), groundwater from seven monitoring wells (B-3, B-4, MW-9, MW-12S, MW-12D, MW-13S, and MW-13D) was sampled for PCBs (HCG 2007). PCBs were not detected in any of these groundwater samples. The maximum PCB detection limit was 0.108 µg/L, which is below the current ADEC groundwater cleanup level of 0.44 µg/L listed in Title 18 of the Alaska Administrative Code (AAC) Chapter 75.345 (18 AAC 75) Table C, Oil and Hazardous Substance Pollution Control, revised as of June 24, 2021. The groundwater sample collected from well B-3 was collected approximately 6 feet below the water level because product

was present on top of the water table. The DRO concentration of the sample was 0.820 mg/L, considerably less than the June concentration (113 mg/L).

The product was 0.12 feet thick in well B-3 in the fall of 2006. It appeared to be highly weathered and emulsified. A sample of the product was collected and submitted for laboratory analysis of PCBs and diesel range organics and residual range organics. The chromatogram of the product sample had a pattern consistent with a weathered middle distillate. The DRO and residual range organics concentrations were 981,000 mg/L and 66,700 mg/L, respectively. PCBs (Arclor-1260) was detected at a concentration of 67.2 mg/L. Based on the results, it was concluded that PCBs are confined to the soil and the free product and are not present as dissolved phase in the groundwater (HCG 2007). Well B-3 was the only monitoring well where product has been observed within the facility. As a result, the potential for offsite migration of PCBs in a liquid phase (product or groundwater) is considered to be very low.

Starting in February 2007, monthly measurements of product thickness and groundwater elevations were taken at monitoring well B-3 as part of a renewed product recovery effort (HCG 2008a). To recover product, a disposable sock containing Rubberizer® (a hydrophobic absorbent) was placed in well B-3 at the product interface whenever product was detected. The absorbent sock was replaced as needed based on the degree of saturation. Product was only detected twice in 2007. The measured thickness was 0.04 and < 0.01 feet. Due to the infrequent and minimal detection of product, the monitoring of well B-3 was reduced to quarterly in February 2008 and discontinued in June 2010.

In preparation for construction activities at the Site, the groundwater at the Site was sampled in January 2010 (HCG 2010a). Groundwater samples were collected from four monitoring wells (B-4, B-7, MW-13D, and MW-14D) and analyzed for PCBs. PCBs were not detected in any of these groundwater samples. The highest detection limit was 0.000348 mg/L.

In the spring of 2011 (between April 25 and May 17), six monitoring wells (B-3, B-7, MW-9, MW-12S, MW-13S, MW-28) were sampled for PCBs. PCBs were detected in only one of the wells, B-7, at an estimated concentration of 0.0796 µg/L, below the limit of quantitation and well below the current ADEC groundwater cleanup level of 0.44 µg/L. The sampling report indicated that a higher than optimal turbidity was present in this sample, indicating that PCB contaminated soil particles were potentially present in the sample. The measured turbidity in B-7 was 17.8 nephelometric turbidity units (NTU), above the 2006 project goal of 10 NTU. Aroclor-1260 was the only PCB Aroclor that was detected (SLR 2011). The highest detection limit for the non-detectable results was 0.0325 µg/L. Well B-7 was decommissioned in May 2011 because it was located where the emergency diesel generator (Black Start) system was constructed in 2011 (SLR 2012).

In April 2015, monitoring well B-3 was sampled for volatile organic compounds. Only two volatile organic compounds were detected, 1,2,4-Trimethylbenzene and naphthalene. The detections were an order of magnitude below the ADEC groundwater cleanup levels (0.062 versus 1.8 mg/L and 0.047 versus 7.3 mg/L, respectively). No chlorinated compounds or benzene, toluene, ethylbenzene and xylene were detected (Athna 2015).

In the summer of 2021, six monitoring wells (B-3, MW-12S, MW-12D, MW-13S, MW-13D, and MW-14D) were sampled for PCBs following the approved Monitoring Plan (SLR 2021a). Monitoring well B-3 was also sampled for DROs. PCBs were not detected in five of the six

monitoring wells, B-3, MW-12S, MW-12D, MW-13S, and MW-13D. In monitoring well MW-14D, PCBs, specifically Aroclor-1260, were detected at an estimated concentration of 0.0968 µg/L. This concentration was well below the groundwater cleanup level of 0.44 µg/L. The sample from MW-B3 and had a detected DRO concentration of 1.8 mg/L in the primary sample and 1.76 mg/L in the duplicate sample. Both reported concentrations were slightly above the ADEC groundwater cleanup level of 1.5 mg/L The results for these samples were B-flagged because a detectable concentration (0.374 J mg/L) of DRO was identified in the associated method blank, indicating a potential high bias in the sample concentration(SLR, 2021b).

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 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 mg/L (ADEC 2021).

3.2 PRIMARY CONSITUENT 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. Aroclor-1260 is considered the primary constituent of interest. The weight of evidence indicates it is the only Aroclor present at the Site given there have been over 350 soil and over 25 groundwater samples analyzed for PCBs since the late 1980s without any other Aroclor being detected (HCG 2008b, HCG 2010a, 2010b and 2010c, SLR 2012, SLR 2017a and 2017b, 2021b).

4 FIELD ACTIVITIES AND METHODS

Field activities for groundwater monitoring included groundwater level gauging, groundwater sampling, and monitoring well maintenance. The approach and methods are described in this section. Changes or deviations from planned activities or methods are documented in the field notes, forms, and in this report.

All sampling activities and documentation were completed by ADEC-Qualified Environmental Professionals (per 18 AAC 75.333 criteria), consisting of SLR employees Kate OMalley, acting as the Field Team Lead, and Evan Tyler, supporting Project Engineer. Field activities completed were consistent with the ADEC Field Sampling Guidance (ADEC 2022a) and USEPA low-stress (low-flow) groundwater sampling guidance (USEPA 2017).

4.1 WELL INSPECTIONS AND MAINTENANCE

No maintenance was performed on the wells prior to the sampling event, as they were suitable for sampling. However, an inspection took place the day of the sampling event. Notes were made 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 2023. All maintenance activities will be documented for future reference.

4.2 GROUNDWATER LEVEL GAUGING

Groundwater level gauging was performed once on July 27, 2022 in each of the seven designated monitoring wells.

Groundwater gauging was performed in accordance with procedures described in Section 3.1 of the Monitoring Plan. Measurements were taken from the established measuring point at the top of the well casing. If no measuring point was visible, one was established. In locations where there is both a shallow and a deep screened well in the same location, both were measured but only the shallow well water elevation was used for estimating the groundwater flow direction.

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 with Liquinox® and rinsed with deionized water 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

Monitoring well sampling was conducted in accordance with procedures described in Section 3.2 of the Monitoring Plan, unless note otherwise in this report. The only deviation was the collection of unfiltered and filtered groundwater samples for PCB analysis. Groundwater sampling for PCBs was conducted at the six monitoring wells within the Site boundary: B-3, MW-12S, MW-12D, MW-13S, MW-13D, and MW-14D (Figure 3). Two primary samples were taken for PCB analysis from each well, one unfiltered and one filtered through a 0.45-µm inline filter (Voss SingleSample). Monitoring well B-3 was also sampled for DRO (unfiltered only).

In hydrogeochemical studies, samples are filtered to limit the fraction of analyte that is adsorbed or structurally bound to suspended particles, ensuring that primarily the dissolved fraction is analyzed. This is commonly done for metals using a standard filter size of 0.45 µm but can be done for other analytes such as PCBs. Regulatory criteria for groundwater samples are typically only for the unfiltered results, but the filtered result provides useful information regarding the characteristics of the detected analytes.

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 sample from monitoring well B-3 was also analyzed for DRO by the Alaska Method (AK) 102.

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.

Field duplicate samples were collected at the frequency listed in the QAPP, described in Section 4 of the Monitoring Plan. To ensure complete laboratory blindness, the duplicates were given false sample names on the labels and COC. MW-B93-22T was collected as the duplicate of parent

sample MW-B3-22T and MW-B93-22F was a duplicate of MW-B3-22F.The duplicate sample identifications were 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 Groundwater Monitoring Plan (SLR 2021a), ADEC Technical Memorandum *Guidelines for Data Reporting* (ADEC 2022c), National Functional Guidelines (NFG, 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. This data were considered of good quality and are acceptable for use with the noted qualifications. The most notable items are discussed below (see Appendix D for further details):

- For DRO by Method AK102, one CCV recovered at 126%, slightly above the upper control limit (UCL) of 125%. Only sample MW-B93-22T was chronologically or batch associated with this CCV, thus was affected. The DRO result for sample MW-B93-22T was qualified “Q+.” Since the recovery only slightly exceeded the UCL and the associated LCS/LCSD

recoveries were within acceptable limits, data was considered minimally impacted and was usable as qualified.

4.5 WASTE MANAGEMENT

All investigative derived waste (IDW), including waste generated by decontamination, was containerized and disposed of offsite based on generator knowledge and the applicable analytical results. Prior to mobilizing to the Site for groundwater sampling, SLR contacted the appropriate Chugach representatives to coordinate the sampling event, including waste management. These representatives included the environmental and waste manager, or their designee.

Water generated by well 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, as necessary. The characterization of each bucket was based on the highest analytical result of the respective wells represented in that bucket.

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. Water meeting the discharge criteria was disposed of 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 and paper towels, was disposed of as non-PCB contaminated, non-hazardous solid waste immediately after the well inspection and sampling events and prior to the receipt of water sample results.

5 GROUNDWATER MONITORING RESULTS

This section describes the results of the field activities completed in July 2022.

5.1 WELL GAUGING

All seven monitoring wells at Plant 1 were gauged on July 27, 2022. Water levels were within historical ranges for the wells. All well gauging measurements are shown on Table 1. The measured water table within the facility ranged from approximately 4.25 feet bgs to 9 feet bgs, with the shallower water table present in the southeast portion of the facility (i.e., MW14D area).

5.1.1 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 27 are included on Figure 3 as well. Based on the groundwater elevations, the groundwater flow direction was determined to be to the northwest (Figure 3). The difference in the water table elevation from the furthest upgradient well (MW-14D) to the furthest downgradient well (MW-12S) was 3.40 feet on July 27, 2022. The distance between these two wells is 3.40 ft corresponding to a hydraulic gradient of 0.005.

A northwest groundwater flow direction is consistent with prior determinations for the Site (META 1994, HCG 2007 and 2010a, SLR 2011) and as established by previous area-wide investigations (RETEC 2005, CH2MHILL 2008, Ahtna 2015).

5.2 GROUNDWATER ANALYTICAL RESULTS

Groundwater sample results are discussed below. A full list of groundwater analytical results is presented in Table 2. Data from the 2022 sampling event is included in the Cumulative Results Table presented as Table 3. A summary of laboratory results is also shown on Figure 3.

5.2.1 PCBS

Groundwater samples from monitoring wells B-3, MW-12S, MW-12D, MW-13S, MW-13D, and MW-14D were analyzed for PCBs (filtered and unfiltered). PCB Aroclors were not detected above their LODs, except for the unfiltered sample MW-14D. In MW-14D, Aroclor-1260 was detected at concentration of 0.182 µg/L. All other Aroclors were non-detect. The detected concentration was well below the ADEC groundwater cleanup level of 0.44 µg/L. The filtered groundwater sample from MW-14D was non detectable at a LOD of 0.0545 µg/L.

This is the second PCB detection in the groundwater in MW-14D, and the higher than the 2021 result of 0.0968 µg/L (J-flagged). Comparison of the pre- and post-filtration sample results indicate that the detected PCBs are bound to suspended particulates in the groundwater and not present in a dissolved state. The final turbidity reading prior to sample collection at MW-14D was 5.81 NTU (slightly greater than the project goal of 5 NTU), but was not the highest value measured in

the wells samples. The sample collected from MW-12S had a final turbidity reading prior to sample collection of 15.9 NTU, and did not show elevated PCB concentrations.

The only previous groundwater samples analyzed for PCBs from this well were collected in January 2010 and July 2021. All PCB Aroclors were non-detect in the 2010 sample (HCG 2010b), but were present in the 2021 sample at a value of 0.0968 µg/L (SLR, 2021b). When MW-14D was installed in 2010, PCBs were detected in the soil at 112 mg/kg in the 2-4 feet sample interval, the maximum concentration found in this boring. The soil samples collected at a depth corresponding to the screened zone of MW-14D (10.5 to 12.5 feet bgs) detected PCBs up to 11.1 mg/kg. A boring (TH2) located about 15 feet to the southeast detected PCBs at 131 mg/kg at a sample depth interval of 10 to 12 feet bgs (HCG 2010a).

Nearby monitoring well MW-7 (B-7), shown on Figure 3, was decommissioned in May 2011. The most recent PCB groundwater sample from this well was collected in April 2011, it contained an estimated PCB concentration of 0.0796 µg/L. MW-7 was screened from 0.5-17.5 feet bgs, so the depth interval of the groundwater with detected PCBs in the two wells are not directly comparable. However, low level detectable concentrations of PCBs (Aroclor-1260 specifically) appear to be present in the groundwater in this area based on the detections in these two wells.

MW-14D is located in the southeast corner of the Site and was the most upgradient well sampled. There were five wells downgradient of MW-14D sampled, including two deep wells (screened in the lower portion of the surface aquifer above the Bootlegger Cove Formation, a clay layer serving as an aquitard). The downgradient wells did not have any detectable PCBs. Therefore, the monitoring results indicate that the detectable PCBs (Aroclor-1260) in the MW-14D area are localized and are not migrating in the groundwater.

5.2.2 DRO

The groundwater sample from monitoring well B-3 was also analyzed for DRO. The detected concentration of DRO was 1.72 mg/L in the primary sample and 1.86 mg/L in the duplicate sample. Both reported concentrations are slightly above the ADEC groundwater cleanup level of 1.5 mg/L. The duplicate sample was Q-flagged as having a potentially high bias due to a laboratory control verification issue. The data from the duplicate was considered minimally impacted and usable as qualified (see Appendix D for details). The detected concentration in 2022 were similar to the detected concentration in 2021 (1.8 and 1.76 mg/L, Table 3).

The groundwater collected from monitoring well B-3 had a slight petroleum hydrocarbon-like smell. The well was purged for 28 minutes. However, unlike in 2021, there was no visible sheen.

Historically, DRO has been detected as high as 113 mg/L in monitoring well B-3 (Table 3). This sample, collected in 2006, was mostly product. The 2022 DRO concentration of 1.72 mg/L is the second cleanup level exceedance since the 2006 sample, and the second year in a row an exceedance was detected. Between these sample events, two other samples were analyzed for DRO with detected concentrations of 0.82 mg/L in late 2006 and 0.824 mg/L in April 2011.

Other historical cleanup level exceedances of DRO at the Site have been detected in MW-12S and MW-28. DRO was detected in MW-12S at a concentration of 2.29 mg/L in October 2004.

DRO was detected at a maximum concentration of 1.63 mg/L in July 1999 and 1.55 mg/L in November 1999. All subsequent DRO samples from these wells, and all other samples from the other monitoring wells, have been below the ADEC DRO groundwater cleanup level of 1.5 mg/L (Table 3).

6 SUMMARY AND CONCLUSIONS

Monitoring well inspections, gauging, and surveying were completed to confirm the groundwater flow direction in the Plant 1 area. Based on these results, the groundwater flow direction was confirmed to be northwest.

Groundwater samples were collected from six monitoring wells at Plant 1 on July 27, 2022. Two samples were taken from each well, one filtered and one unfiltered. These wells are all screened in the unconfined surface aquifer of the Bootlegger Cove Formation which serves as an aquitard. Data collected was considered of good quality, and the project objectives have been met. The collection and analysis of filtered in addition to unfiltered samples was the single deviation from the Monitoring Plan (SLR 2021). This additional analysis was requested by the USEPA (USEPA 2002) and is planned for subsequent monitoring events.

PCBs were not detected in five of the six monitoring wells, B-3, MW-12S, MW-12D, MW-13S, and MW-13D. In monitoring well MW-14D, PCBs, specifically Aroclor-1260, were detected at a concentration of 0.182 µg/L in the unfiltered sample. This concentration is well below the groundwater cleanup level of 0.44 µg/L. The filtered groundwater sample from MW-14D was non detectable at a LOD of 0.0545 µg/L. These results indicate the detected PCBs are bound to suspended particles in the groundwater and not present in a dissolved state.

Aroclor 1260 is the only Aroclor that has been detected in the soil or groundwater at the Site. It is the primary Aroclor of interest among seven Aroclors analyzed by method SW8082a.

MW-14D is a comparatively “deep” well screened in the lower portion of the surface aquifer. The well is located near the southeast corner of the Site and is the most upgradient well sampled. All five downgradient shallow and deep screened wells were non-detect for PCBs in both filtered and unfiltered samples, with the LOD for Aroclor-1260 approximately one order of magnitude below the groundwater cleanup level of 0.44 µg/L. Therefore, the monitoring results indicate that the detected PCBs (Aroclor-1260) in the MW-14D area is localized. Furthermore, the results indicate no offsite migration of PCBs by groundwater is occurring, and the potential for PCBs to reach Ship Creek by such a pathway is considered very low based on the current site conditions.

DRO was sampled from monitoring well B-3 only. DRO was detected at concentrations of 1.72 mg/L and 1.86 mg/L in the primary and duplicate samples, respectively. These values are slightly above the ADEC groundwater cleanup level of 1.5 mg/L. The duplicate result was flagged as biased high due to a laboratory control verification issue, but is considered usable. The DRO was detected in well B-3 at a similar concentration in 2021.

Due to the PCB detection in MW-14D, groundwater monitoring for PCBs will continue to be conducted annually, as outlined in the Monitoring Plan (SLR 2021a). The next annual monitoring event is scheduled for July 2023. Sampling and analysis of DRO at well B-3 will also be conducted during the 2023 monitoring event.

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FIGURES

Legend

Site Location

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

N

1,000 500 0 1,000 Feet

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

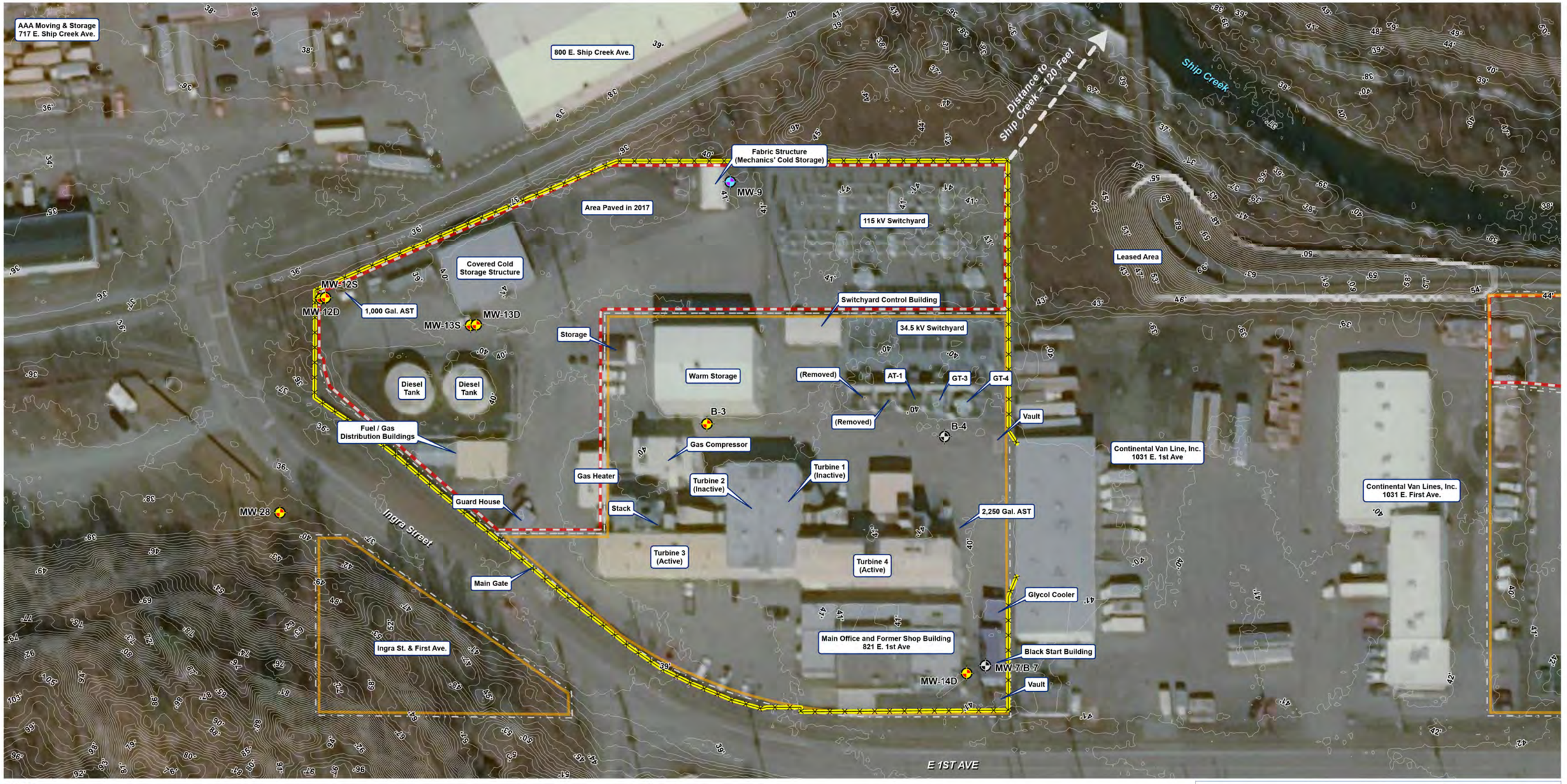
SLR CHUGACH

CHUGACH ELECTRIC ASSOCIATION, INC.

Report: 2022 GROUNDWATER MONITORING REPORT
HANK NIKKELS PLANT 1
821 EAST 1ST AVENUE,
ANCHORAGE, ALASKA

Drawing: PROJECT LOCATION MAP

Date: October 2022	Scale: 1" = 800 Feet	Fig. No. 1
File Name: F1-3 CEA_P1_GW_RPT_22_v1.aprx	Project No. 105.00015.22005	



Legend

- Monitoring Well
- Decommissioned Monitoring Well
- Paved Over or Destroyed Monitoring Well. Not Located Since 2018.
- Elevation Contour (1 ft Interval) (Feet NAVD 88)
- Fence (Facility Boundary)
- Chugach Electric Association Management Area
- Property Boundaries per Municipality of Anchorage GIS
- Leased Property from Alaska Railroad Corporation

Source Notes

Base Aerial: Maxar, Microsoft, 5/6/2020
Elevation Data: Merrick, Light Detection and Ranging (LiDAR) data collected on behalf of the Municipality of Anchorage (MOA) in Spring 2015.

N

80 40 0 80 Feet

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

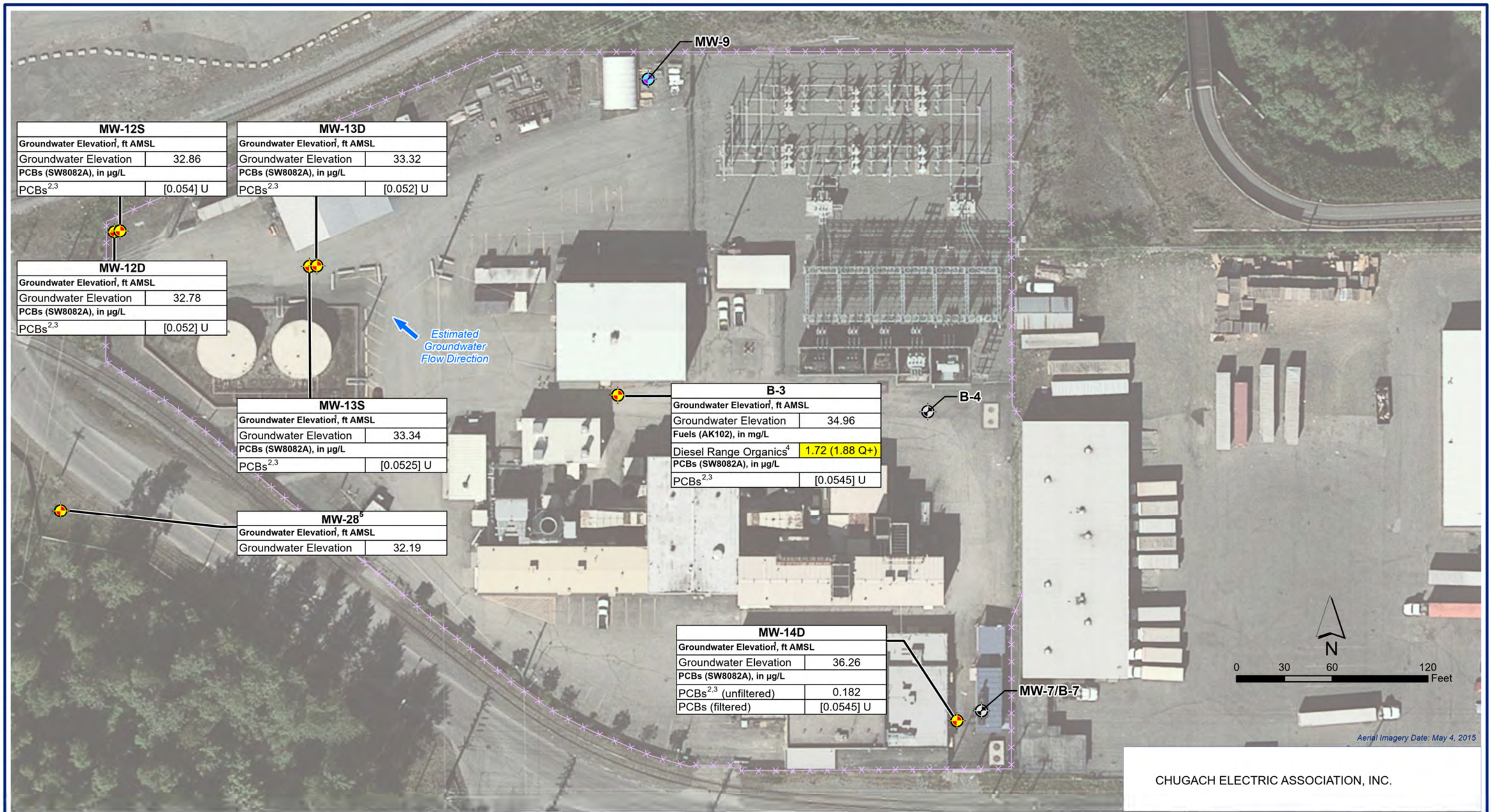
SLR CHUGACH

CHUGACH ELECTRIC ASSOCIATION, INC.

Report: 2022 GROUNDWATER MONITORING REPORT
HANK NIKKELS PLANT 1
821 EAST 1ST AVENUE,
ANCHORAGE, ALASKA

Drawing: SITE MAP

Date: October 2022	Scale: 1" = 80 Feet	Fig. No. 2
File Name: F1-3 CEA_F1_GW_RPT_22_v1.aprx	Project No. 105.00015.22005	



CHUGACH ELECTRIC ASSOCIATION, INC.

Legend

- Monitoring Well
- Decommissioned Monitoring Well
- Paved Over or Destroyed Monitoring Well. Not Located Since 2018.
- Fence (Facility Boundary)

Notes:

Sample results highlighted in yellow exceed the ADEC cleanup levels [6]

1. Depth to water measurements and sampling conducted on July 27, 2022.
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. Unfiltered and filtered groundwater samples were analyzed. The result listed is for unfiltered PCBs, unless there was a detection, in which case both results are listed. 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. If duplicate samples were analyzed, the suplicate results id listed in parentheses after the primary result.
4. DRO was only sampled at B-3
5. Only water measurements are taken at MW-28, it is not part of the analytical monitoring program.
6. The cleanup levels correspond to those listed in 18 AAC 75.345, Method Two, Table C, Groundwater Cleanup Levels (ADEC, November 18, 2021). The DRO cleanup level is 1.5 mg/L. The PCB cleanup level is 0.44 µg/L.

Data Flags:

J	Estimated concentration between the LOQ and DL.
Q	The result is estimated, due to a laboratory quality control failure or a matrix effect. Where applicable, a "+" or "-" indicates a high or low bias.
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
AMSL	above mean sea level
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Cor
AK	Alaska
DL	detection limit
ft	feet
LOD	limit of detection
LOQ	limit of quantitation
mg/L	milligrams per liter
PCB	polychlorinated biphenyl
µg/L	micrograms per liter

Report
2022 GROUNDWATER MONITORING REPORT
HANK NIKKELS PLANT 1
821 EAST 1ST AVENUE,
ANCHORAGE, ALASKA

Drawing
2022 GROUNDWATER MONITORING RESULTS

Date	October 2022	Scale	1" = 60 Feet
File Name	F1-3 CEA_P1_GW_RPT_22_v1.aprx	Project No.	105.00015.22005
		Fig. No.	3

D:\Active Projects\Chugach Electric\2022\Plant 1 GW Monit RPT\aprx\F1-3 CEA_P1_GW_RPT_22_v1.aprx

TABLES

Table 1: 2022 Plant 1 Groundwater Field Parameters

Monitoring Well	Screened Interval ft bgs (as-built)	Stick-Up Height ft[1]	TOC Elevation ft AMSL[2]	Measurement Date	Total Depth ft BTOC	Depth to Water ft BTOC	Groundwater Elevation ft AMSL	Difference in Water Table Depth (ft)[3]	Temperature[4] (°C)	Specific Conductance[4] (µS/cm)	Dissolved Oxygen[4] (mg/L)	Oxidation-Reduction Potential[4] (mV)	pH[4]	Turbidity[4] (NTU)	Observed Sheen[5]	Notes and Comments
B-3	2.75-18.0	N/A; Flush Mount Well	40.07					-34.96	--	--	--	--	--	--	--	
				7/27/2022	17.91	5.11	34.96		11.1	586.5	0.33	30.3	6.71	2.3	No	Faint diesel odor
MW-12S	4.0-9.0	N/A; Flush Mount Well	38.56					-32.86	--	--	--	--	--	--	--	
				7/27/2022	9.26	5.7	32.86		11.2	382.2	1.35	192.8	6.35	15.9	No	
MW-12D	16.0-18.0	0.25	38.84					-32.78	--	--	--	--	--	--	--	
				7/27/2022	17.30	6.06	32.78		9.0	461.5	0.23	58.2	6.68	2.52	No	
MW-13S	4.0-9.0	N/A; Flush Mount Well	39.89					-33.34	--	--	--	--	--	--	--	
				7/27/2022	9.22	6.55	33.34		13.2	378.3	0.31	58.7	6.54	0.63	No	
MW-13D	12.5-14.75	N/A; Flush Mount Well	40.07					-33.32	--	--	--	--	--	--	--	
				7/27/2022	14.76	6.75	33.32		11.5	374.0	0.35	64.4	6.68	1.91		
MW-14D	10.5-12.5	N/A; Flush Mount Well	40.52					-36.26	--	--	--	--	--	--	--	
				7/27/2022	11.93	4.26	36.26		11.1	326.3	0.45	104	6.61	5.81	No	
MW-28	4.0-9.0	2.95	40.96					-32.19	--	--	--	--	--	--	--	
				7/27/2022	12.16	8.77	32.19		--	--	--	--	--	--	--	Water level measurements only, per the Monitoring Plan.

Abbreviations:

--	Not measured	mg/L	milligrams per liter
AMSL	Above mean sea level	µS/cm	microsiemens per centimeter
bgs	Below ground surface	mV	millivolts
BTOC	Below top of well casing	N/A	Not applicable
°C	degrees Celsius	NTU	Nephelometric turbidity units
ft	Feet	WL	Water level

Notes

1 Top of casing height for flush mount wells is generally a couple inches below ground surface.
2 Elevations caculated based on laser level loop survey conducted by Chugach Electric Association, Inc licensed surveyors on August 13, 2021.
3 Solinst IF Product interface probe used on 7/27/2022.
4 Field parameters are final parameters after purging and prior to sampling.
5 Product interface probe did not detect product in any wells.

Calculated Hydraulic Gradient is 0.005

Table 2: 2022 Plant 1 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]	Primary: MW-B3-22T 27-Jul-22 1224361011	Duplicate: MW-B93-22T 27-Jul-22 1224361013	Primary: MW-B3-22F 27-Jul-22 1224361012	Duplicate: MW-B93-22F 27-Jul-22 1224361014	MW-12D-22T 27-Jul-22 1224361003	MW-12D-22F 27-Jul-22 1224361004	MW-12S-22T 27-Jul-22 1224361001	MW-12S-22F 27-Jul-22 1224361002	MW-13D-22T 27-Jul-22 1224361007	MW-13D-22F 27-Jul-22 1224361008	MW-13S-22T 27-Jul-22 1224361005	MW-13S-22F 27-Jul-22 1224361006	MW-14D-22T 27-Jul-22 1224361009	MW-14D-22F 27-Jul-22 1224361010
		Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]
Fuels (AK102), in mg/L															
Diesel Range Organics	1.5	1.72	1.86 Q+	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (SW8082A), in µg/L															
Aroclor-1016	--	[0.0525] U	[0.053] U	[0.054] U	[0.053] U	[0.052] U	[0.051] U	[0.054] U	[0.053] U	[0.052] U	[0.052] U	[0.0525] U	[0.051] U	[0.054] U	[0.0545] U
Aroclor-1221	--	[0.525] U	[0.53] U	[0.54] U	[0.53] U	[0.52] U	[0.51] U	[0.54] U	[0.53] U	[0.52] U	[0.52] U	[0.525] U	[0.51] U	[0.54] U	[0.545] U
Aroclor-1232	--	[0.0525] U	[0.053] U	[0.054] U	[0.053] U	[0.052] U	[0.051] U	[0.054] U	[0.053] U	[0.052] U	[0.052] U	[0.0525] U	[0.051] U	[0.054] U	[0.0545] U
Aroclor-1242	--	[0.0525] U	[0.053] U	[0.054] U	[0.053] U	[0.052] U	[0.051] U	[0.054] U	[0.053] U	[0.052] U	[0.052] U	[0.0525] U	[0.051] U	[0.054] U	[0.0545] U
Aroclor-1248	--	[0.0525] U	[0.053] U	[0.054] U	[0.053] U	[0.052] U	[0.051] U	[0.054] U	[0.053] U	[0.052] U	[0.052] U	[0.0525] U	[0.051] U	[0.054] U	[0.0545] U
Aroclor-1254	--	[0.0525] U	[0.053] U	[0.054] U	[0.053] U	[0.052] U	[0.051] U	[0.054] U	[0.053] U	[0.052] U	[0.052] U	[0.0525] U	[0.051] U	[0.054] U	[0.0545] U
Aroclor-1260	--	[0.0525] U	[0.053] U	[0.054] U	[0.053] U	[0.052] U	[0.051] U	[0.054] U	[0.053] U	[0.052] U	[0.052] U	[0.0525] U	[0.051] U	0.182	[0.0545] U
Total PCBs (Aroclors), unfiltered[5,6]	0.44	[0.0525] U	[0.053] U	--	--	[0.052] U	--	[0.054] U	--	[0.052] U	--	[0.0525] U	--	0.182	--
Total PCBs (Aroclors), filtered[5,6]	0.44	--	--	[0.054] U	[0.053] U	--	[0.051] U	--	[0.053] U	--	[0.052] U	--	[0.051] U	--	[0.0545] U

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, November 18, 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 - Per ADEC Guidelines for Data Reporting, total values were the summation of detected compounds only. If compounds were not detected, then the highest relevant LOD was listed (for total PCBs, the LOD Aroclor-1260 is listed), (see footnote 3 and 5).

6. PCB groundwater samples were analyzed pre- and post filtration. The filtered samples were passed through an 0.45-µm in-line filter prior to analysis.

Data Flags:

J	Estimated concentration between the LOQ and DL.
U	Nondetect, LOD is shown in brackets.
Q	Estimated quantity due to a laboratory quality control criteria failure. A "+" or "-" indicates a potential high or low bias.

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: 2022 Plant 1 Cumulative Results

		Monitoring/Sampling Event Date(s)		July 1999[A]	August 1999[A]	November 1999[A]	October 2004[A]	June 2006[A]	October 31, November 1, 2006[A]	January 22, 25, 2010[B]	April 25, 26, May 17, 2011[C]	April 21, 22, 2015[D]	7/13/2021[F]	July 27, 2022
Monitoring Well	Date Installed	Date Decomissioned	Cleanup Level[1, 2] PCBs (µg/L)	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
			DRO (mg/L)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
B-3	9/26/1991	N/A	Depth to Water (ft)	--	--	--	--	--	5.88	--	5.92	5.91	5.44	5.11
			PCBs (µg/L), Unfiltered[3]	--	--	--	--	6.19[4]	ND [0.0325]	--	ND [0.0323]	--	ND [0.0545]/ ND [0.0545]	ND[0.0525]
			PCBs (µg/L), filtered	--	--	--	--	--	--	--	--	--	--	ND [0.054]
			DRO (mg/L)	--	--	--	1.24/4.18	113	0.82	--	0.824	--	1.8 B[6]/1.76 B[6]	1.72/1.86Q+[7]
B-4	9/26/1991	May 2010	Depth to Water (ft)	--	--	--	--	--	4.27	4.81	--	--	--	--
			PCBs (µg/L)	--	--	--	--	--	ND [0.0325]/ ND [0.0326]	ND [0.0348]	--	--	--	--
			DRO (mg/L)	ND [0.330]/ ND [0.323]	ND [0.326]	ND [0.330]	ND [0.330]	--	0.100 J/0.0821 J	--	--	--	--	--
MW-7 (B-7)	9/30/1991	May 2011	Depth to Water (ft)	--	--	--	--	--	--	4.57	4.39	--	--	--
			PCBs (µg/L)	--	--	--	--	--	--	ND [0.0337]	0.0796 F	--	--	--
			DRO (mg/L)	ND [0.316]	--	--	ND [0.323]	--	--	--	ND [0.305]	--	--	--
MW-9	9/25/1991	N/A[5]	Depth to Water (ft)	--	--	--	--	--	5.88	--	6.25	--	--	--
			PCBs (µg/L)	--	--	--	--	--	ND [0.0326]	--	ND [0.0333]	--	--	--
			DRO (mg/L)	--	--	--	--	--	0.151 J	--	ND [0.284]	--	--	--
MW-12S	9/26/1994	N/A	Depth to Water (ft)	--	--	--	--	--	6.41	--	6.92	--	6.08	5.70
			PCBs (µg/L)	--	--	--	--	--	ND [0.0344]	--	ND [0.0326]	--	ND [0.0545]	ND[0.054]
			DRO (mg/L)	1.22	0.741	0.968	2.29	0.752	0.813	--	0.772 F	--	--	--
MW-12D	9/26/1994	N/A	Depth to Water (ft)	--	--	--	--	--	6.56	--	--	--	6.42	6.06
			PCBs (µg/L)	--	--	--	--	--	ND [0.108]	--	--	--	ND [0.0555]	ND[0.052]
			DRO (mg/L)	0.516	ND [0.337]	0.501	0.663	--	0.586	--	--	--	--	--
MW-13S	9/26/1994	N/A	Depth to Water (ft)	--	--	--	--	--	7.19	--	7.57	--	6.90	6.55
			PCBs (µg/L)	--	--	--	--	ND [0.121]	ND [0.0310]	--	ND [0.033], M-	--	ND [0.0545]	ND[0.0525]
			DRO (mg/L)	0.794	--	--	--	0.594/0.527	0.591	--	0.45 F	--	--	--
MW-13D	9/26/1994	N/A	Depth to Water (ft)	--	--	--	--	--	7.34	7.28	--	--	7.08	6.75
			PCBs (µg/L)	--	--	--	--	--	ND [0.0332]	ND [0.0344]/ ND [0.0333]	--	--	ND [0.054]	ND[0.052]
			DRO (mg/L)	0.478	--	--	ND [0.319]	--	0.336	--	--	--	--	--
MW-14D	1/20/2010	N/A	Depth to Water (ft)	--	--	--	--	--	--	4.81	--	--	4.52	4.26
			PCBs (µg/L), Unfiltered[3]	--	--	--	--	--	--	ND [0.0326]	--	--	0.0968 J	1.82
			PCBs (µg/L)-Filtered[3]											ND [0.0545]
			DRO (mg/L)	--	--	--	--	--	--	--	--	--	--	--
MW-28	6/5/1996	N/A	Depth to Water (ft)	--	--	--	--	--	--	--	9.4	9.59	8.77	8.4
			PCBs (µg/L)	--	--	--	--	--	--	--	ND [0.0333]/ ND[0.0323]	--	--	--
			DRO (mg/L)	1.63/0.735	0.85	1.55	0.349	--	--	--	0.581 F/0.818 F	0.83	--	--

Samples with exceedances of current groundwater cleanup level are highlighted in yellow.

For samples with duplicates, the parent sample is listed first, with the duplicate result listed after the /.

Data Flags:

J The quantitation is an estimate.

B The analyte was positively identified in an associated blank. The data is potentially biased high.

F Compound was positively identified. Concentration is above the DL but below the limit of quantitation (LOQ).

M The quantitation is an estimate. A matrix spike or matrix spike duplicate recovered outside acceptance criteria. A "+" or "-" was used to indicate potential positive or negative bias, if applicable.

ND Non-detect result; the LOD is listed in [ ] for relevant constituents. In the case of PCBs, Arolcor-1260 (see footnote 5).

Notes:

1. Current cleanup level as referenced in *Oil and Other Hazardous Substances Pollution Control* , 18 AAC 75, Table C, as amended through November 18, 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. Starting in 2022, water samples were analyzed for PCBs pre- and post-filtation (using a 0.45-micron inline filter). The PCB result listed is for unfiltered PCB concentration. If there was PCB detection in the unfiltered sample, a second result is listed on the next row with the filtered PCB concentration.

4. This sample likely contained a mixture of groundwater and LNAPL. The sample was collected with a bailer. The concentration of DRO was a couple of orders of magnitude higher than prior results. PCBs were not detected in a downgradient sample (MW-13S) collected during this event.

5. MW-9 (flush mounted well) has not been located during multiple attempts since 2018. This well is assumed to have been inadvertently damaged (filled in or destroyed) and paved over during a construction project(s).

6. The DRO results were biased high because there was DRO detected in the associated blank at concentration of 0.374 J mg/L. It is possible the blank contamination resulted in primary and duplicate results exceeding the 1.5 mg/L cleanup level. However, it is technically considered an exceedance.

7. For DRO by Method AK102, one CCV recovered at 126%, slightly above the upper control limit (UCL) of 125%. Only sample MW-B93-22T was chronologically or batch associated with this CCV, thus was affected. The DRO result for sample MW-B93-22T was qualified "Q+", data was considered minimally impacted and was usable as qualified.

Abbreviations:

-- not requested, measured, or analyzed
AAC Alaska Administrative Code
DL detection limit
DRO diesel range organics
ft feet
LNAPL light non-aqueous phase liquid
LOD laboratory limit of detection
µg/L micrograms per liter
mg/L milligrams per liter
N/A not applicable, the well is still usable
PCBs polychlorinated biphenyls

References:

A. Hoefler Consulting Group (HCG), 2007. *Sampling Report for November 2006 Groundwater Sampling at ML&P, Hank Nikkels Plant No. 1, 821 East First Avenue, Anchorage, Alaska* . January 30.

B. HCG, 2010a. *January 2010 Soil Sampling and Groundwater Monitoring at ML&P, Plant 1, 821 E. 1st Avenue, Anchorage, Alaska* . February 11.

C. SLR International Corporation (SLR), 2011. *Spring 2011 Plant No. 1 Groundwater Monitoring* . August 2.

D. Ahtna Engineering Services, LLC (Ahtna). 2015. *Focused Groundwater Characterization, Alaska Real Estate Parking Lot, Anchorage, Alaska* . Memorandum prepared for the ADEC. June 23.

E. SLR, 2021. *Groundwater Monitoring Plan for PCBs, Hank Nikkels Plant 1, 821 East 1st Avenue, Anchorage, Alaska* . Prepared for Chugach Electric Association, Inc. May.

F. SLR, 2021. *2021 Groundwater Monitoring Plan Report.* October

APPENDIX A

Photograph Log

Photo 1: Collecting filtered sample from MW-12D. (7/27/2022)

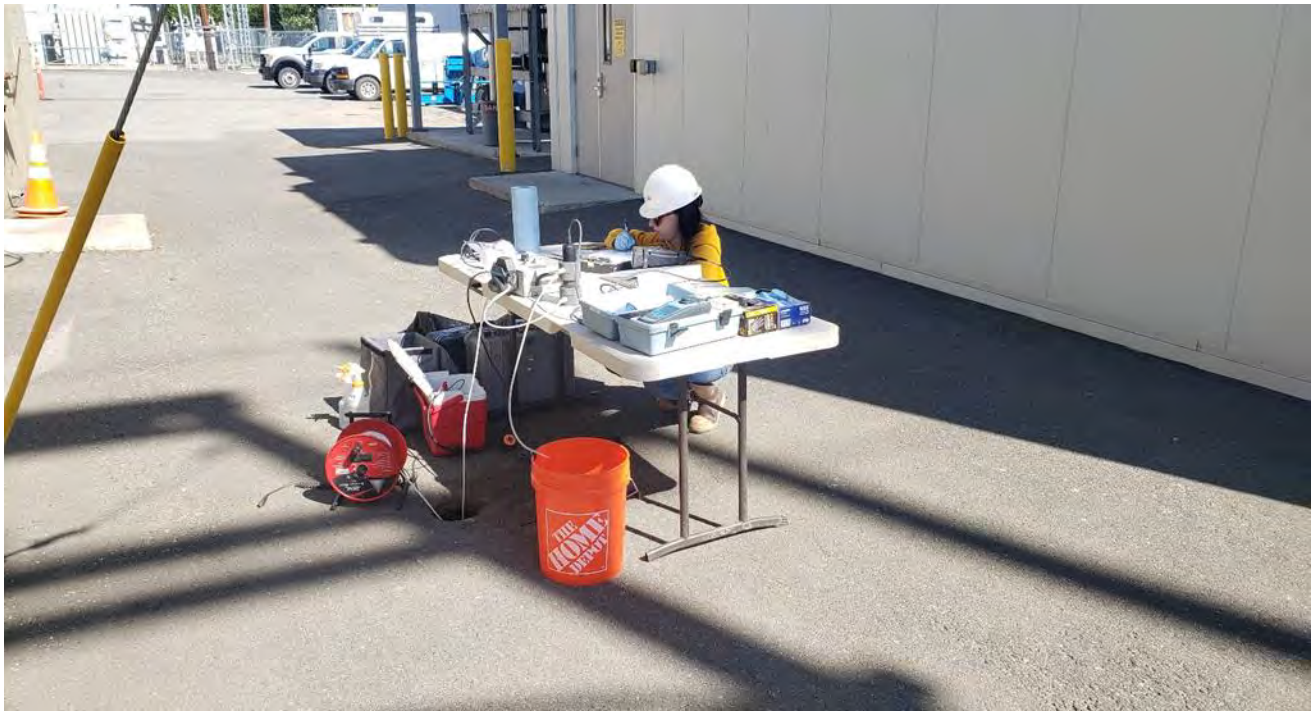


Photo 2: Purging MW-14D. (7/27/2022)

Photo 3: Location of well B3 (right) and the 4-inch product recovery well (left). (7/27/2022)

Photo 4: Purge water was containerized and dropped off at the Transformer Shop after project completion. (7/28/2022)

SLR	2022 Plant 1 Groundwater Sampling Chugach Electric Association Anchorage, Alaska
SITE PHOTOGRAPHS July 27, 2022	Job No: 105.00015.22009

APPENDIX B

Field Notes

7/27/22 K. Omalley, E. Tyler

0800 Arrive CEA Plant 1. check in with operator

0815 Set up on MW 12 S & D
DTW 12S: 5.70
Calibrate YSI

~~DTW 12D:~~ KO

846 start purge on 12-S

918 collect MW12S sample

931 Set up on 12 D

938 start purge on 12-D

1010 Collect sample 12-D

1043 Set up on 13S

1051 start purge on MW 13S

1120 collect samples from MW 13S

1139 start purge on MW-13D

1205 collect samples at MW-13D

1245 Set up on MW-14D

1259 start purge MW-14D

1330 collect samples for MW-14D

1400 Set up on MW-B3

1409 start purge on MW-B3

1438 collect samples for MW-B3

1526 get depth from MW-28
DTW: 8.40 from TOC
Stick up height: 3' 2 7/16"
Stick up to casing: 2 7/16"

TOC height: 2' 11 9/16"

1559 Arrive office

Scale: 1 square = _____

APPENDIX C

Field Forms

Groundwater Sampling Form

Site/Client Name: ML&P	**Well ID:** 12S
Project # : 105.00015.22008	Sample ID: MW12S-22T, MW12S-22F
Sampled By: E. Tyler, K. OMalley	Sample Time: 0918 Sample Date: 7/27/22
Weather Conditions: Sunny, clear	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: _____ ft BGS to _____ 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): 5.70	Tubing/Pump Depth (ft. BTOC): ~8'
Total Depth (ft BTOC): 9.26	Purge Start Time (24-hr) 0844
Depth to Product (ft. BTOC) —	Purge End Time (24-hr) 0918
Product Thickness (ft) —	Total Purge Time (min) 32

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/cm²) (± 3%)	DO (mg/L) (± 10%)	pH (± 0.1)	ORP (mV) (± 10mV)	Turbidity (NTU) (± 10%, or <5 NTU)	DTW (ft BTOC)	Drawdown (ft) (Max____ft)
851	200	↓	11.2	383	3.16	6.03	208.4	OVR	5.77	0.07
854	↓		11.2	374.4	2.75	6.09	207.8	OVR	5.77	↓
907			11.2	376.9	2.19	6.19	208.5	OVR	5.77	↓
904			11.1	377.9	1.78	6.27	201.4	~~OVR~~ 51.7	5.76	0.06
~~907~~910			11.1	379.7	1.54	6.30	197.5	13.6	5.77	0.07
0913		↓	11.1	381.2	1.43	6.30	195.0	8.23	5.77	↓
0916	↓	3 gal	11.2	382.2	1.35	6.35	192.8	15.9	5.77	↓
Parameter Stable (Check applicable)			✓	✓		✓	✓			

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

Analytical Sampling

Analyses	Check Applicable	Comments
PCB (total)	✓	MW12S-22T
PCB (Dissolved)	✓	MW12S-22F

Notes: OVR = overrange for turb. meter
one eye missing on monument cover

Equipment:

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

Pump/Bailer Peri pump Multi-Parameter Meter make/SN#) YSI Pro Plus 09G100476

W.L. Indicator Solinst dual IR tape/Turbidity Meter (Make/SN#) HACH 2100Q Filtered ☒ Yes ☐ No Lot # A2285

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: MLRP	**Well ID:** 12-D
Project #: 105.000 IS. 22008	Sample ID: MW-12D-22T/F
Sampled By: E. Tyler, K. OMalley	Sample Time: 1010 Sample Date: 7/27/22
Weather Conditions: sunny, clear	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: _____ ft BGS to _____ 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): 06.06	Tubing/Pump Depth (ft. BTOC): ~~~~ ET ~14'
Total Depth (ft BTOC): 17.3'	Purge Start Time (24-hr) 0938
Depth to Product (ft. BTOC) —	Purge End Time (24-hr) 1006
Product Thickness (ft) —	Total Purge Time (min) 28

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)
0941	400	|	8.8	443.3	0.39	6.49	127.6	3.63	6.06	0
0946	150	|	9.2	454.0	0.36	6.51	93.7	7.85	6.07	0.01
0951	150	|	9.1	457.1	0.30	6.57	78.6	3.67	6.07	0.01
0956	150	|	9.1	459.9	0.26	6.59	68.6	2.47	6.07	0.01
0959	150	|	9.0	460.2	0.25	6.65	64.5	2.44	6.06	0.0
1002	150	↓	9.0	460.4	0.24	6.69	61.0	3.37	6.07	0.01
1005	150	2 gal	9.0	461.5	0.23	6.68	58.2	2.52	6.07	0.01
Parameter Stable (Check applicable)			✓	✓	✓	✓	✓	✓		

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

Analytical Sampling

Analyses	Check Applicable	Comments
PCB (Total)	✓	~~MW-12DT~~ MW-12D-22T
PCB (Dissolved)	✓	MW-12D-22F

Notes: Casing is exposed, no monument

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 09G100470

W.L. Indicator Solinst Pilot Turbidity Meter (Make/SN#) HACH 2100Q Filtered ☒ Yes ☐ No Lot # E2287

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

SLR

Groundwater Sampling Form

Site/Client Name: MLRP	**Well ID:** MW-135
Project # : 105.00015.22008	Sample ID: MW-135-22T, MW-135, 22F
Sampled By: E. Tyler, K DiMuzio	Sample Time: 1120 Sample Date: 7/27/22
Weather Conditions: Sunny, Clear	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: ____ ft BGS to ____ 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): 6.55	Tubing/Pump Depth (ft. BTOC): ~8
Total Depth (ft BTOC): 9.22	Purge Start Time (24-hr) 1051
Depth to Product (ft. BTOC) —	Purge End Time (24-hr) 1116
Product Thickness (ft) —	Total Purge Time (min) 25

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)
1056	250	1	13.6	381.1	1.91	6.55	110.8	1.51	6.57	.02
1101	↓		13.4	380.9	0.72	6.49	90.7	0.97	6.56	.01
1106			13.3	379.6	0.49	6.51	77.7	0.90	6.56	.01
1110			13.2	378.9	0.39	6.49	68.1	0.84	6.56	.01
1113		↓	13.2	378.4	0.35	6.53	63.2	0.84	6.56	.01
1116	↓	2.5 gal	13.2	378.3	0.31	6.54	58.7	0.63	6.56	.01
Parameter Stable (Check applicable)			✓	✓		✓	✓	✓		

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

Analytical Sampling

Analyses	Check Applicable	Comments
PCB total	✓	MW-135-22T
PCB dissolved	✓	MW-135-22F

Notes:

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 09G100470

W.L. Indicator Solinst Turbidity Meter (Make/SN#) Hach 2100Q Filtered ☑ Yes ☐ No Lot # E2287

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

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

REV. 9/2020

SLR

Groundwater Sampling Form

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Site/Client Name: ML & P	**Well ID:** MW 13-D
Project # : 105.00015.22 008	Sample ID: MW-13D-22T, MW-13D-22F
Sampled By: E Tyler, K OMalley	Sample Time: 1205 Sample Date: 7/27/22
Weather Conditions: sunny, clear	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.
Well Condition: ☑ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes)	Screen Interval: _____ ft BGS to _____ ft BGS
	Stickup ☐ Yes ☑ No; If yes, _____ ft above ground

Gauging/Purging Information

Depth to Water (ft BTOC): 6.75	Tubing/Pump Depth (ft. BTOC): ~13.5'
Total Depth (ft BTOC): 14.76	Purge Start Time (24-hr) 1139
Depth to Product (ft. BTOC) —	Purge End Time (24-hr) 1205
Product Thickness (ft) —	Total Purge Time (min) 26

LOW FLOW: **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ X 0.25 = _____(ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft. **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)
1144	220		12.0	374.0	0.42	6.45	110.4	6.67	6.75	0
1149	↓		11.6	372.9	0.29	6.63	90.5	4.42	6.75	0
1154			11.4	373.8	0.28	6.62	80.2	3.93	6.75	0
1157			11.5	373.8	0.32	6.68	73.2	3.02	6.75	0
1200		↓	11.5	374.0	0.38	6.67	69.8	2.24	6.76	.01
1203	↓	3 gal	11.5	374.0	0.35	6.68	64.4	1.91	6.76	.01
			✓	✓						
Parameter Stable (Check applicable)			✓	✓		✓	✓	✓		

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

Analytical Sampling

Analyses	Check Applicable	Comments
PCB Total	✓	MW-13D-22T
PCB Dissolved	✓	MW-13D-22F

Notes:

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#) HACH 2100Q

W.L. Indicator Solinst Turbidity Meter (Make/SN#) YSI 09G100470 Filtered ☑ Yes ☐ No Lot # E2287

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

SLR

Groundwater Sampling Form

Site/Client Name: MLRP	**Well ID:** MW-14D
Project #: 105.00015.2200	Sample ID: MW-14D-22T, MW-14D-22F
Sampled By: E. Tyler, K. OMalley	Sample Time: 1330 Sample Date: 7/27/22
Weather Conditions: Sunny, clear	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: ____ ft BGS to ____ 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): 4.26	Tubing/Pump Depth (ft. BTOC): ~10.5'
Total Depth (ft BTOC): 11.93	Purge Start Time (24-hr) 1259
Depth to Product (ft. BTOC) ----	Purge End Time (24-hr) 1327
Product Thickness (ft) ----	Total Purge Time (min) 28

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)
1304	275	1	11.2	330.5	0.54	6.65	146.4	OVR	4.28	.02
1309	↓	↓	11.2	327.6	0.30	6.61	132.0	28.7	4.27	.01
1314			11.3	326.0	0.23	6.64	121.6	15.5	4.28	.02
1319			11.3	326.2	0.24	6.65	114.6	14.6	4.28	.02
1321			11.2	326.2	0.30	6.63	109.6	12.6	4.28	.02
1324		↓	11.2	326.1	0.40	6.65	107.2	8.14	4.28	.02
1327	↓	2.5 gal	11.1	326.3	0.45	6.61	104.0	5.81	4.28	.02
Parameter Stable (Check applicable)			✓	✓		✓	✓			

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

Analytical Sampling

Analyses	Check Applicable	Comments
PCB Total	✓	MW-14D-22T
PCB Dissolved	✓	MW-14D-22F

Notes:
OVR = over range for turbidimeter
Broken eye on monument cover

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#) Hach 2100Q

W.L. Indicator Solinst Turbidity Meter (Make/SN#) 451 09B100470 Filtered ☑ Yes ☐ No Lot #E2287

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

SLR

Groundwater Sampling Form

Site/Client Name: MLA P	**Well ID:** MW B3 MWB3,
Project # : 105.00015.22008	Sample ID: MW-B3-22T MW-B3-22F
Sampled By: ETyler, K OMalley	Sample Time: 1438 Sample Date: 7/27/22
Weather Conditions: Sunny, clear	Duplicate ID: MW B93, MW B93-22T MW B93-22F 1000
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: _____ ft BGS to _____ 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): 5.11	Tubing/Pump Depth (ft. BTOC): ~14
Total Depth (ft BTOC): 17.91	Purge Start Time (24-hr) 1409
Depth to Product (ft. BTOC)	Purge End Time (24-hr) 1437
Product Thickness (ft) —	Total Purge Time (min) 28

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)
1411	250	1	11.6	705	0.24	6.55	75.6	5.61	5.15	.04
1416	↓	↓	11.4	658	0.20	6.66	60.9	3.16	5.15	.04
1421			11.2	636	0.23	6.67	52.3	1.44	5.15	.04
1426			11.2	611	0.39	6.69	43.3	1.62	5.15	.04
1431			11.1	604	0.37	6.63	37.7	1.82	5.15	.04
1434			11.1	600.1	0.35	6.70	33.7	1.79	5.15	.04
1437	V	2.5gal	11.1	586.5	0.33	6.71	30.3	2.30	5.15	.04
Parameter Stable (Check applicable)			✓	✓		✓	✓	✓		

Sample Color: None **Sample Odor:** ~~None~~ Petrol **Sheen:** None

Analytical Sampling

Analyses	Check Applicable	Comments
PCB total	✓	MW-B3-22T, MW B93-22T
PCB dissolved	✓	MW-B3-22F, MW-B93-22F
DRO	✓	MW B3

Notes: monument destroyed. PVC casing above grade

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 09610047O

W.L. Indicator Solinst Turbidity Meter (Make/SN#) Hach 2100Q Filtered ☑ Yes ☐ No Lot # E2287

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

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

APPENDIX D

Quality Assurance Review and Laboratory Data

LABORATORY DATA
QUALITY ASSURANCE REVIEW
CHUGACH ELECTRIC ASSOCIATION

2022 GROUNDWATER MONITORING
AT THE CHUGACH ELECTRIC ASSOCIATION
HANK NIKKELS PLANT 1
(821 EAST 1ST AVE., ANCHORAGE, AK)

October 2022

Prepared by: Jennifer McLean

SLR Project Number: 105.00015.22009
ADEC Number: 210.38.326
ADEC Hazard ID: 1477

SLR International Corporation
2700 Gambell Street, Suite 200
Anchorage, AK 99503

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
LCL	lower control limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
LV	low volume
µg/L	micrograms per liter
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
NFG	National Functional Guidelines
PCBs	polychlorinated biphenyls
QA	quality assurance
QAR	quality assurance review
QC	quality control
RPD	relative percent difference
SDG	sample delivery group
SLR	SLR International Corporation
SGS	SGS North America, Inc.
UCL	upper control limit
USEPA	United States Environmental Protection Agency

This report summarizes a review of analytical data for samples collected on July 27, 2022, in support of Chugach Electric Plant 1 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
1224361	7/27/2022	7/28/2022	3.1°C 4.9°C 1.5°C	GW	AK102 LV SW8082A	DRO PCBs

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

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 Appendix E.

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 *Groundwater Monitoring Plan for PCBs* (SLR 2021), Groundwater Monitoring Plan Addendum for DRO, Hank Nikkels Plant 1 (SLR, 2022), ADEC Technical Memorandum *Guidelines for Data Reporting* (ADEC, 2022), National Functional Guidelines for Organic Methods Superfund Methods Data Review (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 Appendix D. A review for any anomalies to the project requirements for precision, bias, comparability, sensitivity representativeness, and completeness 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 and LCS and LCSDs; 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 LOQ. The greater of the sample detection or LOQ 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 and a 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. The only issue with regards to the data package is noted below.

- The case narrative noted an RRO detection in the method blank. RRO was not a target analyte; therefore, data was not impacted.

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

- The COC requested total and dissolved PCBs, however, the PCBs noted as dissolved had already been field filtered by SLR personnel. This was clarified via email and all samples were correctly analyzed. Each sample location had two PCB results reported, one for total PCBs and one for dissolved PCBs, with the filtering completed in the field. Data was not impacted.

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

Laboratory Method Blanks
Laboratory method blanks were analyzed at the appropriate frequencies. Analytes were not detected at or above the LOD or DL in any method blanks.

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 screening criteria.

The LODs of 0.51 micrograms per liter (µg/L) through 0.545 µg/L for Aroclor-1221 by Method SW8082A for all samples did not meet the ADEC cleanup level of 0. 44 µg/L for PCBs. 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 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, except as noted below.

- For DRO by Method AK102, one CCV recovered at 126%, slightly above the upper control limit (UCL) of 125%. Only sample MW-B93-22T was chronologically or batch associated with this CCV, thus was affected. The DRO result for sample MW-B93-22T was qualified "Q+." Since the recovery only slightly exceeded the UCL and the associated LCS/LCSD recoveries were within acceptable limits, data was considered minimally impacted and was usable as qualified.

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. Except as noted below, all surrogate recoveries were within analytical method and SGS percent recovery acceptance limits.

- For DRO by Method AK102, 5a Androstane surrogate recovered at 55%, below the acceptable lower control limit (LCL) of 60% in one method blank. Since surrogate recoveries were within acceptable limits in all other QC samples and in the associated project sample, data was considered not impacted. All data was usable without qualification.

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
1	1	AK102 LV	DRO
12	2	SW8082A	PCBs

Table 4 Parent Samples and Field Duplicates

Matrix	Parent Sample	Field Duplicate	Method	Analytes
Groundwater	MW-B3-22T	MW-B93-22T	AK102 SW8082A	DRO LV PCBs
	MW-B3-22F	MW-B93-22F	SW8082A	PCBs

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

Overall Assessment

This data was considered of good quality acceptable for use with the noted qualifications and the one noted limitation.

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

- Precision: Precision goals were met.
- Accuracy/Bias: Accuracy goals were met, except as noted in the CCV and Surrogate Recovery sections.
- Comparability: Comparability goals were met. The same laboratory and methods were used.
- Sensitivity: Sensitivity goals were met, except as noted in the Reporting Limits section.
- Representativeness: Representativeness goals were met. The samples were collected from usual locations.
- Completeness: The data were 100% usable with respect to analysis. No data were rejected.

References

ADEC. 2022. ADEC Technical Memorandum *Guidelines for Data Reporting.* August 15.

--------. 2021. 18 AAC 75, *Oil and Other Hazardous Substances Pollution Control.* November 18.

SLR International Corporation (SLR). 2022. Groundwater Monitoring Plan Addendum for DRO, Hank Nikkels Plant 1. July 13, 2022.

--------. 2021. *Groundwater Monitoring Plan for PCBs* at the Hank Nikkels Plant 1. March.

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

Laboratory Report of Analysis

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

Report Number: **1224361**

Client Project: **ML&P Plant 1**

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 Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,
SGS North America Inc.

_____

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

Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1224361**
Project Name/Site: **ML&P Plant 1**
Project Contact: **Bret Berglund**

Refer to sample receipt form for information on sample condition.

MB for HBN 1840755 [XXX/46737] (1677294) MB

AK102/103 -RRO is detect in the MB greater than one-half the LOQ, but less than the LOQ.
AK102 - Surrogate recovery in the MB for 5a-androstane does not meet QC criteria.

*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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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
MW-12S-22T	1224361001	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-12S-22F	1224361002	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-12D-22T	1224361003	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-12D-22F	1224361004	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-13S-22T	1224361005	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-13S-22F	1224361006	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-13D-22T	1224361007	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-13D-22F	1224361008	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-14D-22T	1224361009	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-14D-22F	1224361010	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-B3-22T	1224361011	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-B3-22F	1224361012	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-B93-22T	1224361013	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)
MW-B93-22F	1224361014	07/27/2022	07/28/2022	Water (Surface, Eff., Ground)

Method	Method Description
AK102	DRO Low Volume (W)
SW8082A	SW8082 PCB's

SGS North America Inc.
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Detectable Results Summary

Client Sample ID: **MW-14D-22T**
Lab Sample ID: 1224361009

Polychlorinated Biphenyls

Parameter	Result	Units
Aroclor-1260	0.182	ug/L

Client Sample ID: **MW-B3-22T**
Lab Sample ID: 1224361011

Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1.72	mg/L

Client Sample ID: **MW-B93-22T**
Lab Sample ID: 1224361013

Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	1.86	mg/L

SGS North America Inc.
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Results of **MW-12S-22T**

Client Sample ID: **MW-12S-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361001
Lab Project ID: 1224361

Collection Date: 07/27/22 09:18
Received Date: 07/28/22 15:01
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	0.0540	U	0.108	0.0333	ug/L	1		08/16/22 23:19
Aroclor-1221	0.540	U	1.08	0.333	ug/L	1		08/16/22 23:19
Aroclor-1232	0.0540	U	0.108	0.0333	ug/L	1		08/16/22 23:19
Aroclor-1242	0.0540	U	0.108	0.0333	ug/L	1		08/16/22 23:19
Aroclor-1248	0.0540	U	0.108	0.0333	ug/L	1		08/16/22 23:19
Aroclor-1254	0.0540	U	0.108	0.0333	ug/L	1		08/16/22 23:19
Aroclor-1260	0.0540	U	0.108	0.0333	ug/L	1		08/16/22 23:19
Surrogates								
Decachlorobiphenyl (surr)	82.5		40-135		%	1		08/16/22 23:19

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/16/22 23:19
Container ID: 1224361001-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 930 mL
Prep Extract Vol: 1 mL

Results of **MW-12S-22F**

Client Sample ID: **MW-12S-22F**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361002
Lab Project ID: 1224361

Collection Date: 07/27/22 09:18
Received Date: 07/28/22 15:01
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	0.0530	U	0.106	0.0330	ug/L	1		08/16/22 23:31
Aroclor-1221	0.530	U	1.06	0.330	ug/L	1		08/16/22 23:31
Aroclor-1232	0.0530	U	0.106	0.0330	ug/L	1		08/16/22 23:31
Aroclor-1242	0.0530	U	0.106	0.0330	ug/L	1		08/16/22 23:31
Aroclor-1248	0.0530	U	0.106	0.0330	ug/L	1		08/16/22 23:31
Aroclor-1254	0.0530	U	0.106	0.0330	ug/L	1		08/16/22 23:31
Aroclor-1260	0.0530	U	0.106	0.0330	ug/L	1		08/16/22 23:31
Surrogates								
Decachlorobiphenyl (surr)	87.5		40-135		%	1		08/16/22 23:31

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/16/22 23:31
Container ID: 1224361002-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 940 mL
Prep Extract Vol: 1 mL

Results of **MW-12D-22T**

Client Sample ID: **MW-12D-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361003
Lab Project ID: 1224361

Collection Date: 07/27/22 10:10
Received Date: 07/28/22 15:01
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	0.0520	U	0.104	0.0323	ug/L	1		08/16/22 23:44
Aroclor-1221	0.520	U	1.04	0.323	ug/L	1		08/16/22 23:44
Aroclor-1232	0.0520	U	0.104	0.0323	ug/L	1		08/16/22 23:44
Aroclor-1242	0.0520	U	0.104	0.0323	ug/L	1		08/16/22 23:44
Aroclor-1248	0.0520	U	0.104	0.0323	ug/L	1		08/16/22 23:44
Aroclor-1254	0.0520	U	0.104	0.0323	ug/L	1		08/16/22 23:44
Aroclor-1260	0.0520	U	0.104	0.0323	ug/L	1		08/16/22 23:44
Surrogates								
Decachlorobiphenyl (surr)	95		40-135		%	1		08/16/22 23:44

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/16/22 23:44
Container ID: 1224361003-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Results of **MW-12D-22F**

Client Sample ID: **MW-12D-22F**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361004
Lab Project ID: 1224361

Collection Date: 07/27/22 10:10
Received Date: 07/28/22 15:01
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	0.0510	U	0.102	0.0316	ug/L	1		08/16/22 23:56
Aroclor-1221	0.510	U	1.02	0.316	ug/L	1		08/16/22 23:56
Aroclor-1232	0.0510	U	0.102	0.0316	ug/L	1		08/16/22 23:56
Aroclor-1242	0.0510	U	0.102	0.0316	ug/L	1		08/16/22 23:56
Aroclor-1248	0.0510	U	0.102	0.0316	ug/L	1		08/16/22 23:56
Aroclor-1254	0.0510	U	0.102	0.0316	ug/L	1		08/16/22 23:56
Aroclor-1260	0.0510	U	0.102	0.0316	ug/L	1		08/16/22 23:56
Surrogates								
Decachlorobiphenyl (surr)	90		40-135		%	1		08/16/22 23:56

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/16/22 23:56
Container ID: 1224361004-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 980 mL
Prep Extract Vol: 1 mL

Results of **MW-13S-22T**

Client Sample ID: **MW-13S-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361005
Lab Project ID: 1224361

Collection Date: 07/27/22 11:20
Received Date: 07/28/22 15:01
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	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 00:08
Aroclor-1221	0.525	U	1.05	0.326	ug/L	1		08/17/22 00:08
Aroclor-1232	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 00:08
Aroclor-1242	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 00:08
Aroclor-1248	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 00:08
Aroclor-1254	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 00:08
Aroclor-1260	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 00:08
Surrogates								
Decachlorobiphenyl (surr)	87.5		40-135		%	1		08/17/22 00:08

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 00:08
Container ID: 1224361005-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 950 mL
Prep Extract Vol: 1 mL

Print Date: 08/18/2022 9:13:22AM

J flagging is activated

Results of **MW-13S-22F**

Client Sample ID: **MW-13S-22F**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361006
Lab Project ID: 1224361

Collection Date: 07/27/22 11:20
Received Date: 07/28/22 15:01
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	0.0510	U	0.102	0.0316	ug/L	1		08/17/22 00:20
Aroclor-1221	0.510	U	1.02	0.316	ug/L	1		08/17/22 00:20
Aroclor-1232	0.0510	U	0.102	0.0316	ug/L	1		08/17/22 00:20
Aroclor-1242	0.0510	U	0.102	0.0316	ug/L	1		08/17/22 00:20
Aroclor-1248	0.0510	U	0.102	0.0316	ug/L	1		08/17/22 00:20
Aroclor-1254	0.0510	U	0.102	0.0316	ug/L	1		08/17/22 00:20
Aroclor-1260	0.0510	U	0.102	0.0316	ug/L	1		08/17/22 00:20
Surrogates								
Decachlorobiphenyl (surr)	90		40-135		%	1		08/17/22 00:20

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 00:20
Container ID: 1224361006-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 980 mL
Prep Extract Vol: 1 mL

Results of **MW-13D-22T**

Client Sample ID: **MW-13D-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361007
Lab Project ID: 1224361

Collection Date: 07/27/22 12:05
Received Date: 07/28/22 15:01
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	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:32
Aroclor-1221	0.520	U	1.04	0.323	ug/L	1		08/17/22 00:32
Aroclor-1232	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:32
Aroclor-1242	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:32
Aroclor-1248	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:32
Aroclor-1254	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:32
Aroclor-1260	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:32
Surrogates								
Decachlorobiphenyl (surr)	87.5		40-135		%	1		08/17/22 00:32

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 00:32
Container ID: 1224361007-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Results of **MW-13D-22F**

Client Sample ID: **MW-13D-22F**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361008
Lab Project ID: 1224361

Collection Date: 07/27/22 12:05
Received Date: 07/28/22 15:01
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	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:56
Aroclor-1221	0.520	U	1.04	0.323	ug/L	1		08/17/22 00:56
Aroclor-1232	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:56
Aroclor-1242	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:56
Aroclor-1248	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:56
Aroclor-1254	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:56
Aroclor-1260	0.0520	U	0.104	0.0323	ug/L	1		08/17/22 00:56
Surrogates								
Decachlorobiphenyl (surr)	92.5		40-135		%	1		08/17/22 00:56

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 00:56
Container ID: 1224361008-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Results of **MW-14D-22T**

Client Sample ID: **MW-14D-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361009
Lab Project ID: 1224361

Collection Date: 07/27/22 13:30
Received Date: 07/28/22 15:01
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	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:08
Aroclor-1221	0.540	U	1.08	0.333	ug/L	1		08/17/22 01:08
Aroclor-1232	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:08
Aroclor-1242	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:08
Aroclor-1248	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:08
Aroclor-1254	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:08
Aroclor-1260	0.182		0.108	0.0333	ug/L	1		08/17/22 01:08
Surrogates								
Decachlorobiphenyl (surr)	90		40-135		%	1		08/17/22 01:08

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 01:08
Container ID: 1224361009-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 930 mL
Prep Extract Vol: 1 mL

Results of **MW-14D-22F**

Client Sample ID: **MW-14D-22F**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361010
Lab Project ID: 1224361

Collection Date: 07/27/22 13:30
Received Date: 07/28/22 15:01
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		08/17/22 01:20
Aroclor-1221	0.545	U	1.09	0.337	ug/L	1		08/17/22 01:20
Aroclor-1232	0.0545	U	0.109	0.0337	ug/L	1		08/17/22 01:20
Aroclor-1242	0.0545	U	0.109	0.0337	ug/L	1		08/17/22 01:20
Aroclor-1248	0.0545	U	0.109	0.0337	ug/L	1		08/17/22 01:20
Aroclor-1254	0.0545	U	0.109	0.0337	ug/L	1		08/17/22 01:20
Aroclor-1260	0.0545	U	0.109	0.0337	ug/L	1		08/17/22 01:20
Surrogates								
Decachlorobiphenyl (surr)	92.5		40-135		%	1		08/17/22 01:20

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 01:20
Container ID: 1224361010-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 920 mL
Prep Extract Vol: 1 mL

Results of **MW-B3-22T**

Client Sample ID: **MW-B3-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361011
Lab Project ID: 1224361

Collection Date: 07/27/22 14:38
Received Date: 07/28/22 15:01
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	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 01:32
Aroclor-1221	0.525	U	1.05	0.326	ug/L	1		08/17/22 01:32
Aroclor-1232	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 01:32
Aroclor-1242	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 01:32
Aroclor-1248	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 01:32
Aroclor-1254	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 01:32
Aroclor-1260	0.0525	U	0.105	0.0326	ug/L	1		08/17/22 01:32
Surrogates								
Decachlorobiphenyl (surr)	90		40-135		%	1		08/17/22 01:32

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 01:32
Container ID: 1224361011-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 950 mL
Prep Extract Vol: 1 mL

Results of **MW-B3-22T**

Client Sample ID: **MW-B3-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361011
Lab Project ID: 1224361

Collection Date: 07/27/22 14:38
Received Date: 07/28/22 15:01
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.72		0.600	0.200	mg/L	1		08/12/22 03:49
Surrogates								
5a Androstane (surr)	69.3		50-150		%	1		08/12/22 03:49

Batch Information

Analytical Batch: XFC16313
Analytical Method: AK102
Analyst: MAP
Analytical Date/Time: 08/12/22 03:49
Container ID: 1224361011-C

Prep Batch: XXX46737
Prep Method: SW3520C
Prep Date/Time: 08/03/22 16:21
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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

Results of **MW-B3-22F**

Client Sample ID: **MW-B3-22F**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361012
Lab Project ID: 1224361

Collection Date: 07/27/22 14:38
Received Date: 07/28/22 15:01
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	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:44
Aroclor-1221	0.540	U	1.08	0.333	ug/L	1		08/17/22 01:44
Aroclor-1232	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:44
Aroclor-1242	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:44
Aroclor-1248	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:44
Aroclor-1254	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:44
Aroclor-1260	0.0540	U	0.108	0.0333	ug/L	1		08/17/22 01:44
Surrogates								
Decachlorobiphenyl (surr)	95		40-135		%	1		08/17/22 01:44

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 01:44
Container ID: 1224361012-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 930 mL
Prep Extract Vol: 1 mL

Results of **MW-B93-22T**

Client Sample ID: **MW-B93-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361013
Lab Project ID: 1224361

Collection Date: 07/27/22 10:00
Received Date: 07/28/22 15:01
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	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 01:56
Aroclor-1221	0.530	U	1.06	0.330	ug/L	1		08/17/22 01:56
Aroclor-1232	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 01:56
Aroclor-1242	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 01:56
Aroclor-1248	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 01:56
Aroclor-1254	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 01:56
Aroclor-1260	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 01:56
Surrogates								
Decachlorobiphenyl (surr)	95		40-135		%	1		08/17/22 01:56

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 01:56
Container ID: 1224361013-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 940 mL
Prep Extract Vol: 1 mL

Print Date: 08/18/2022 9:13:22AM

J flagging is activated

Results of **MW-B93-22T**

Client Sample ID: **MW-B93-22T**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361013
Lab Project ID: 1224361

Collection Date: 07/27/22 10:00
Received Date: 07/28/22 15:01
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.86		0.600	0.200	mg/L	1		08/05/22 21:53
Surrogates								
5a Androstane (surr)	73.4		50-150		%	1		08/05/22 21:53

Batch Information

Analytical Batch: XFC16309
Analytical Method: AK102
Analyst: MAP
Analytical Date/Time: 08/05/22 21:53
Container ID: 1224361013-C

Prep Batch: XXX46745
Prep Method: SW3520C
Prep Date/Time: 08/04/22 14:58
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Results of **MW-B93-22F**

Client Sample ID: **MW-B93-22F**
Client Project ID: **ML&P Plant 1**
Lab Sample ID: 1224361014
Lab Project ID: 1224361

Collection Date: 07/27/22 10:00
Received Date: 07/28/22 15:01
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	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 02:09
Aroclor-1221	0.530	U	1.06	0.330	ug/L	1		08/17/22 02:09
Aroclor-1232	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 02:09
Aroclor-1242	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 02:09
Aroclor-1248	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 02:09
Aroclor-1254	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 02:09
Aroclor-1260	0.0530	U	0.106	0.0330	ug/L	1		08/17/22 02:09
Surrogates								
Decachlorobiphenyl (surr)	90		40-135		%	1		08/17/22 02:09

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Analyst: CRF
Analytical Date/Time: 08/17/22 02:09
Container ID: 1224361014-B

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 08/12/22 10:20
Prep Initial Wt./Vol.: 940 mL
Prep Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1840755 [XXX/46737]
Blank Lab ID: 1677294

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1224361011

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.200	mg/L
Surrogates				
5a Androstane (surr)	55.1*	60-120		%

Batch Information

Analytical Batch: XFC16313
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: HMW
Analytical Date/Time: 8/12/2022 2:49:00AM

Prep Batch: XXX46737
Prep Method: SW3520C
Prep Date/Time: 8/3/2022 4:21:54PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1224361 [XXX46737]
Blank Spike Lab ID: 1677295
Date Analyzed: 08/12/2022 02:59

Spike Duplicate ID: LCSD for HBN 1224361 [XXX46737]
Spike Duplicate Lab ID: 1677296
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1224361011

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	15.3	77	20	15.0	75	(75-125)	2.00	(< 20)
Surrogates									
5a Androstane (surr)	0.4		78	0.4		78	(60-120)	0.39	

Batch Information

Analytical Batch: **XFC16313**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **MAP**

Prep Batch: **XXX46737**
Prep Method: **SW3520C**
Prep Date/Time: **08/03/2022 16:21**
Spike Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1840799 [XXX/46745]
Blank Lab ID: 1677445

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1224361013

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.200	mg/L
Surrogates				
5a Androstane (surr)	62.8	60-120		%

Batch Information

Analytical Batch: XFC16309
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: MAP
Analytical Date/Time: 8/5/2022 6:05:00PM

Prep Batch: XXX46745
Prep Method: SW3520C
Prep Date/Time: 8/4/2022 2:58:53PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1224361 [XXX46745]
Blank Spike Lab ID: 1677446
Date Analyzed: 08/09/2022 17:22

Spike Duplicate ID: LCSD for HBN 1224361 [XXX46745]
Spike Duplicate Lab ID: 1677447
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1224361013

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	15.4	77	20	16.0	80	(75-125)	3.80	(< 20)
Surrogates									
5a Androstane (surr)	0.4		77	0.4		82	(60-120)	6.90	

Batch Information

Analytical Batch: **XFC16311**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **HMW**

Prep Batch: **XXX46745**
Prep Method: **SW3520C**
Prep Date/Time: **08/04/2022 14:58**
Spike Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1841313 [XXX/46794]
Blank Lab ID: 1678911

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1224361001, 1224361002, 1224361003, 1224361004, 1224361005, 1224361006, 1224361007, 1224361008, 1224361009, 1224361010, 1224361011, 1224361012, 1224361013, 1224361014

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)	80	40-135		%

Batch Information

Analytical Batch: XGC11178
Analytical Method: SW8082A
Instrument: Agilent 7890B/G3440B ECD Rear
Analyst: CRF
Analytical Date/Time: 8/16/2022 10:43:00PM

Prep Batch: XXX46794
Prep Method: SW3520C
Prep Date/Time: 8/12/2022 10:20:25AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1224361 [XXX46794]
Blank Spike Lab ID: 1678912
Date Analyzed: 08/16/2022 22:55

Spike Duplicate ID: LCSD for HBN 1224361 [XXX46794]
Spike Duplicate Lab ID: 1678913
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1224361001, 1224361002, 1224361003, 1224361004, 1224361005, 1224361006, 1224361007, 1224361008, 1224361009, 1224361010, 1224361011, 1224361012, 1224361013, 1224361014

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	0.840	84	1	0.860	86	(46-129)	2.35	(< 30)
Aroclor-1260	1	0.970	97	1	0.980	98	(45-134)	1.03	(< 30)
Surrogates									
Decachlorobiphenyl (surr)	0.400		85	0.400		83	(40-135)	2.99	

Batch Information

Analytical Batch: **XGC11178**
Analytical Method: **SW8082A**
Instrument: **Agilent 7890B/G3440B ECD Rear**
Analyst: **CRF**

Prep Batch: **XXX46794**
Prep Method: **SW3520C**
Prep Date/Time: **08/12/2022 10:20**
Spike Init Wt./Vol.: 1 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 1 ug/L Extract Vol: 1 mL

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Nelson, Justin (Anchorage)

1224361

From: Nelson, Justin (Anchorage)
Sent: Thursday, July 28, 2022 3:38 PM
To: Nelson, Justin (Anchorage)
Subject: SLR ML&P Plant 1

Run Total PCBs on all, The client has already filtered the samples and will compare between the filtered and non-filtered samples.

Justin A. Nelson
Industries & Environment
Client Service Manager, Alaska
SGS North America Inc.
200 West Potter Drive
99518 – Anchorage
Mobile : +01 907 206 1339
E-mail: Justin.Nelson@sgs.com

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1224361

PH#358C16CPM

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

Section 1

CLIENT: SCR

CONTACT: Bret Berglund

PHONE #: 907 222 1112

PROJECT NAME: MLLP Plant 1

PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Bret Berglund

E-MAIL:

Profile #:

INVOICE TO: SCR

QUOTE #:

P.O. #:

Section 3 — Preservative: 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)	Analysis*: PCB Total	PCB Dissolved	DRO 102	REMARKS/LOC ID
1 AB	MW-12S-22T	7/27/22	0918	W	2	G	X			
2 AB	MW-12S-22F		0918					X		
3 AB	MW-12D-22T		1010				X			
4 AB	MW-12D-22F		1010					X		
5 AB	MW-13S-22T		1120				X			
6 AB	MW-13S-22F		1120					X		
7 AB	MW-13D-22T		1205				X			
8 AB	MW-13D-22F		1205					X		
9 AB	MW-14D-22T		1330				X			
10 AB	MW-14D-22F		1330					X		

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

Section 5

	Date	Time	
Relinquished By: (1)	7/28/22	1507	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	7/28/22	15:01	Received For Laboratory By:

Section 4 — DOD Project? Yes / No

Data Deliverable Requirements: Level 2

Cooler ID:

Requested Turnaround Time and/or Special Instructions: Std Tat

Temp Blank °C: 3.1, 4.9, 1.5 (corrected) or Ambient [ ] DS4, DS8, DG2

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

Delivery Method: Hand Delivery [ ] Commerical Delivery [ ]

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1224361

W

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

Section 1

CLIENT: SLR

CONTACT: Bret Berglund — PHONE #:

PROJECT NAME: MLP Plant 1 — PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Bret Berglund — E-MAIL: — Profile #:

INVOICE TO: SLR — QUOTE #: — P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Comp / Grab / MI (Multi-incremental)	Analysis*: PCB Total	PCB Dissolved	DRO 102	Preservative: HCl	REMARKS/LOC ID
~~12~~ (11) AC	MW-B3-22T	7/27/22	1438	W	2	G	X		X		
(12) AB	MW-B3-22F		1438					X			
(13) AC	MW-B93-22T		1000				X		X		
(14) AB	MW-B93-22F		1000					X			

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

Section 5

Relinquished By:	Date	Time	Received By:
(1)	7/28/22	1507	
(2)			
(3)			
(4)	7/28/22	1301	Received For Laboratory By:

Section 4

DOD Project? Yes No

Data Deliverable Requirements: Level 2

Cooler ID:

Requested Turnaround Time and/or Special Instructions: Std Tat

Temp Blank °C: 3.1, 4.9, 1.5 (Recorded) or Ambient [ ] USG, DSG, DGC

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Delivery Method: Hand Delivery[ ] Commerical Delivery [ ]

e-Sample Receipt Form

SGS Workorder #:	1224361	1224361

Review Criteria	Condition (Yes, No, N/A	Exceptions Noted below
Chain of Custody / Temperature Requirements	*Note:* Temperature and COC seal information is found on the chain of custody form	
DOD only: Did all sample coolers have a corresponding COC?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note containers received with ice:		
Identify any 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 and sample containers.	
Were samples received within analytical holding time?	Yes	
Do sample labels match COC? Record discrepancies.	Yes	
Note: *If information on containers differs from COC, default to COC information for login. If times differ <1hr, record details & login per COC.*		
Were analytical requests clear? *(i.e. method is specified for analyses with multiple option for method (Eg, BTEX 8021 vs 8260, Metals 6020 vs 200.8)*	No	Client requested Dissolved PCB.
Were proper containers (type/mass/volume/preservative)used? Note: Exemption for metals analysis by 200.8/6020 in water.	Yes	
Volatile Analysis Requirements (VOC, GRO, LL-Hg, etc.)		
Were all soil VOAs received with a corresponding % solids container?	N/A	
Were Trip Blanks (e.g., VOAs, LL-Hg) in cooler with samples?	N/A	
Were all water VOA vials free of headspace (e.g., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with Methanol+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
1224361001-A	No Preservative Required	OK			
1224361001-B	No Preservative Required	OK			
1224361002-A	No Preservative Required	OK			
1224361002-B	No Preservative Required	OK			
1224361003-A	No Preservative Required	OK			
1224361003-B	No Preservative Required	OK			
1224361004-A	No Preservative Required	OK			
1224361004-B	No Preservative Required	OK			
1224361005-A	No Preservative Required	OK			
1224361005-B	No Preservative Required	OK			
1224361006-A	No Preservative Required	OK			
1224361006-B	No Preservative Required	OK			
1224361007-A	No Preservative Required	OK			
1224361007-B	No Preservative Required	OK			
1224361008-A	No Preservative Required	OK			
1224361008-B	No Preservative Required	OK			
1224361009-A	No Preservative Required	OK			
1224361009-B	No Preservative Required	OK			
1224361010-A	No Preservative Required	OK			
1224361010-B	No Preservative Required	OK			
1224361011-A	No Preservative Required	OK			
1224361011-B	No Preservative Required	OK			
1224361011-C	HCL to pH < 2	OK			
1224361012-A	No Preservative Required	OK			
1224361012-B	No Preservative Required	OK			
1224361013-A	No Preservative Required	OK			
1224361013-B	No Preservative Required	OK			
1224361013-C	HCL to pH < 2	OK			
1224361014-A	No Preservative Required	OK			
1224361014-B	No Preservative Required	OK			

Container Condition Glossary

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

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